

Countdown

RESPONDING TO A GLOBAL CRISIS



Michael V Thomas

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Michael V Thomas

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Insanity is doing the same things over again and expecting a different result

RITA MAE BROWN

Our lives begin to end the day we become silent about things that matter

MARTIN LUTHER KING, Jr

True hope is clear eyed. It sees all the difficulties and all the potential for failure but through that, carves a realistic path to a better future

JEROME GROOPMAN

For my Wife, Glenys

my daughters, Lynette and Clare
and grandchildren Oliver and Carys

for
Erik Dammann,

the founder of the Future in Our Hands Movement

and generations as yet unborn

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PREFACE

I have a recollection of a television play that created instant panic in many parts of the UK. I had not watched the play myself, but heard the later reports that it had started with a News announcement that Russian tanks were sweeping across Eastern Europe and would take over the continent in a matter of days. Many people who had not waited a sufficient time to realise that this was not a proper News item, must have thought that World War III was imminent.

What I do remember very vividly was the day in 1962 when this was a very real threat. US president, John F. Kennedy, threatened to intercept ships carrying nuclear weapons en-route to Cuba under the direction of the Russian president, Nikita Khrushchev. The world held its breath!

I was standing on the platform of the very dismal Didcot station on my way from Swindon to a college in Oxford, when a train travelling at about 80 mph rushed through. In that instant I imagined the shock waves that would spread out across the country as the first nuclear bombs started to drop, obliterating everything that stood in their path.

In the event, Khrushchev backed down and recalled the ships thus averting the war that would probably have led to the extinction of almost all of humanity. However, this was not the only time that humanity was on the brink of the apocalypse.

In November 1983, NATO and US armed forces representatives were engaged in a paper exercise simulating the run up to a war with the Soviet Union. In the wake of provocative anti-Soviet rhetoric from US president, Ronald Reagan, the Soviet leadership had become convinced that the US was planning a nuclear attack.

The tension and fear had been heightened by Reagan's deployment of nuclear weapons in Europe capable of striking Russian targets within the space of 8 minutes. In response, the Soviet Union secretly mobilised its armed forces across European borders. On the 8th

November, it was only reports from one of its top spies that convinced the leadership that US/NATO forces were not planning an actual attack. When Reagan learnt later just how close to an apocalypse the world had come, he made friendly overtures towards Soviet president, Mikhail Gorbachev, which led to the historic Nuclear Non-proliferation Agreement.

Little did I believe then that anything other than a nuclear war threatened human extinction - that is until I learnt of the threats posed by global warming and the unsustainable exploitation of non-renewable resources in the face of a continued rapid population increase in many parts of the world. Now, as then, the general public across the world goes about its everyday activities as if there were no emerging crisis at all. The difference is that now ignorance cannot be used as an excuse for inaction. The problem is that these very everyday individual activities lie at the heart of the problem and few are prepared to make the changes to their way of life, especially in the affluent world, that the situation demands.

In this book I will make the case that *economics*, the science that determines the manner in which wealth is created and distributed, has been defined and operated in such a way that it will lead humanity on a downward path towards disaster for everyone. In a sense, humanity, dominated by the rich and powerful, has created a monster that is now driving this crisis to the point at which extreme forces of nature will finish the job of human extermination. I will argue that there is an urgent need for a new process of world development guided by a new science that could take humanity on a hopeful path into the future.

FOREWORD

Our politicians seem to have forgotten that the development they lead today decides the chance of survival for our grandchildren tomorrow. If we take a closer look at the consequences of prolonging today's form of economic development until our smallest grandchildren have their own families around year 2040, what might we see?

At this time China and India, then as a block with nearly 3 billion inhabitants, will on average have reached approximately the level of consumption per person that we have today, while we in the OECD countries will have doubled ours. At the same time, the economic level for the world as a whole will have *quadrupled* - and China and India alone will have at least twice the number of cars that exist in the world today.

Any person with a minimum of environmental knowledge will understand that this is an impossible situation no matter how well we develop more environmental technologies. Long before this time our grandchildren will have experienced an environmental breakdown, if the growth goes on.

Why then do we still aim at further growth in our rich countries? Isn't it absurd to say that we, who already have too much, need to acquire even more if those who have too little shall get enough? Why have not our leaders even started to *plan* an alternative to the perilous growth politics in the rich world? They are worried about the environmental consequences of China's growth and yet they don't see that our growth is the model for theirs?

So far no leading politician has even brought this problem out for public discussion. Mike Thomas does. In this book he presents countless examples of why the growth in our affluent societies has to be stopped. He shows that this may give us a better life, and he proves that it will require an alternative to today's neo liberalistic competitive economic order. In a way that really makes us understand, he shows

why the myths of free economic competition as a solution to our problems are false. He has even proposed the fundamental characteristics and a name to a new kind of economy: *Philonomics*, an economy for caring and sharing.

Many books are written about each single problem we are facing today; about the climate threat, about the poverty and the unjust sharing of the worlds resources, about rich nations and the multinationals abuse of power, about conflicts and wars, and about the need for a new economy. The strength of this book is that it shows a comprehensive picture of how all these problems are linked together. He helps us to understand that what we are facing is not a number of isolated problems; but that the fundamental problem is that the *total direction* of our development, and the values on which it based, is wrong.

Mike Thomas shows that he understands the fundamental principles of the ideologies that lead the world today and why they do not work. But more important; he has experienced it personally. He has himself, again and again, lived close to some of the poorest people in the world, not to analyse them, but to help them. He has seen the *reality* behind all the nice words about globalisation and unregulated free trade. And he proves his case by telling stories about how real people experience the consequences of the ideology.

In this book he gives us an impressive amount of information and presents it in a way that makes us understand what has to be changed to make the world a better place for all of us – and also how we can participate to bring this change about. It is my sincere hope that it will reach out to many readers and that it may achieve the impact it deserves.

Oslo, December 2008,

Erik Dammann,

Author and founder of the movement *The Future in Our Hands*

INTRODUCTION

In 1980 I became aware of a movement named *The Future in Our Hands* which started in Norway in 1974. I was attracted to its philosophy which was to encourage a simpler way of life for those living in the *affluent society* and the promotion of values such as cooperation, fellowship, sharing and honesty in the process of human development and wealth creation. This fitted my own perspective on life as I had, since the age of 17, become increasingly concerned about poverty in a world of plenty. I had also come to realise quite late in life that the global system of wealth creation and distribution was not driven by these values, but primarily by the characteristics of greed, competition, corruption and gambling within a global economic system that continuously widened the gap between rich and poor. Not only was it creating extreme inequality, it was also the driving force behind a series of environmental crises that threaten to extinguish humanity over a relatively short time period.

I have just returned from watching a preview of a film *The Age of Stupid* which will soon be on general release. We are projected to the year 2055 and shown clips of complete devastation with no signs of any living creature. The Sydney Opera House is framed by a wall of fire and other iconic buildings such as the Taj Mahal are in ruins, rusting cars litter the streets, factories are in decay - in effect the world has become a wasteland.

However, one building remains (and here you must stretch your imagination somewhat) - a huge archive on top of a tall tower had been constructed, apparently supported by the direct power of the Sun. This housed a complete record of activities that took place around the world in previous years. The actor, Pete Poselthwaite, takes the part of the person who is in charge of the archive. He takes us back through some case history situations to the time when humanity had the chance to avoid the complete catastrophe that had unfolded. The case histories for the year 2008 included:

- a family on a climbing expedition in the Alps whose aged guide is explaining to them the huge extent of the glacier retraction in the past few years
- a man in the UK who has just had his application to build a small wind farm on agricultural land turned down by the local authority because of the objections by local residents
- a young entrepreneur in India who has just established a new airline company, whose idea of relieving poverty is to provide the poor with cheap air travel
- a man from New Orleans in the USA working for an oil company who decided to brave hurricane Katrina and then lost nearly all his possessions when the floods came
- a young lady living in poverty amongst the Nigerian oil operations bringing huge profits to the foreign companies and wealth to the country's rulers.

The film paints a negative picture of denial, obstructions to positive developments based on petty self interest, a poor person's desire for the 'good life' and the reinforcement of *business as usual*.

After the film the audience were each given a book 'Planet Earth we have a problem'¹ There was perhaps a sense of understated tongue-in-cheek irony in the title of a book which provides the technical explanation of the climatic forces threatening human survival and how they are currently being activated by human activities involving the use of fossil fuels and the destruction of natural forests in particular.

What a growing number of people throughout the world are beginning to understand and accept is that the use of fossil fuels and the consequent release of carbon dioxide, methane and other 'greenhouse' gases is warming the planet to an extent that appears set to cause catastrophic sea level rise, increased desertification and an increase in the frequency and intensity of destructive climatic forces. However, what appears to have been lacking in government produced technical reports, such as the *Stern Review* and some reports of the Intergovernmental Panel on Climate Change (IPCC), is a full appreciation of the impact of feedback mechanisms that create a situation in which humans no longer have any control over the increased heating of the planet i.e. heating as a direct result of human

activity (anthropogenic emissions) sets in motion a series of heating processes driven by the natural forces of nature. The point at which this happens is usually referred to as the *tipping point*. This process is explained briefly in Chapter 2.

I would not like to leave the reader with the impression that global warming/climate change is the only crisis that humanity faces, but at the present time this would appear to be the most threatening. The ‘window of opportunity’ to reverse the process may only be a few years and within a short time frame processes may have to be developed to remove much of the carbon dioxide that is already in the atmosphere. Despite the threat, current indicators suggest that greenhouse gas emissions will increase significantly over the next few years as politicians the world over call for increased economic growth.

What I have sought to do in the following chapters is describe some of the economic and environmental processes that have led to the growing inequality and environmental degradation across the world and the recent historical background leading to this situation.

Chapter 1 focuses on poverty and hunger with a brief introduction to climate change which is set to greatly increase the suffering of the poor. This may in fact negate some impressive advances in reducing child mortality and numbers of people dying from infectious diseases. Two case histories are included to illustrate how simple technology and appropriate environmental projects can help to increase the incomes and quality of life of some of the world’s poorest people. **Chapter 2** deals with the ecological crisis in greater depth and how this is related to excessive consumption and unsustainable population increase. This chapter also discusses how depleting resources will compound a global recession that now appears likely as a result of the credit crunch triggered by the sub-prime mortgage crisis in the USA in 2007. **Chapter 3** deals with the historical background to the manner in which large multinational companies and rich countries have used their power and influence to bully poorer nations into accepting agreements which are not in their economic interest and that of the poor. This historical background has formed the basis of the unequal systems of wealth distribution operated through banks, multinational companies and multilateral institutions.

Chapter 4 describes how the spoils of international trade and finance

are shared out around the world. **Chapter 5** describes how that system operates within a process of globalisation . This has expanded international trade and taken many millions of people out of poverty on the one hand, but has not benefited the majority of the world's poor. There is growing evidence that many millions, especially in Africa, have become poorer as a result of the way globalisation operates. **Chapter 6** provides a vital introduction to the arguments I have put forward in Chapter 9 to justify the development of a new science that could provide a framework for a positive path into the future. **Chapter 7** describes an example of a boycott activity based on consumer power that would help the process of sustainable development. **Chapter 8** puts forward some suggestions for an ethical way of life. **In chapter 9** I have described the basis of the new science I am proposing together with some existing models that might be copied in its development. **Chapter 10** takes a look at some positive technological developments that reflect sustainable development. I have also included an analysis of a survey I conducted into the attitudes of young people to the issues covered in this book.

CHAPTER 1

Poverty, Hunger and Climate Change

Poverty and hunger

Grouping together poverty, hunger and climate change into one chapter might seem strange, but if the most dire predictions of many scientists are widely accepted, then the logic of the link becomes obvious.

What is it like to be poor? Some readers may know from first hand experience. What is it like to be hungry? What is it like to starve? Few readers from the West will have experienced either unless maybe they were survivors of German concentration camps or Japanese slave labour in the last world war. The sad reality is that 25,000 people, mainly from Africa, die of starvation every day and more than 800 million are chronically undernourished according to the Food and Agricultural Organisation. On average, every five seconds a child dies from starvation. The 'trickle down' belief, which is an integral philosophy of the economic approach to development, allows little, if anything, to trickle down to them!

I do not know what it is like to be hungry or even poor. I gained no more than just an inkling when I undertook a short fast many years ago. Rather foolishly I made the mistake of going without liquids for two days and was surprised by the discomfort of taking a drink after that period. Being without food for a few days was not a great problem, but it was enough to make me appreciate that a protracted period without it would cause great discomfort and pain.

It is my belief that everyone who has the means to live without poverty and hunger must somehow try to understand the pain of hunger and starvation and do something to bring this blight on

humanity to an end. How can we call ourselves truly human whilst even one person in the world goes hungry? Somehow we have to imagine, for example, that the hungry child is our own child lying at our feet waiting for a response!

Starvation is defined as a severe reduction in vitamins, nutrients and energy intake and the most extreme form of malnutrition. Prolonged starvation (in excess of 1-2 months) causes permanent organ damage and may eventually result in death. There are many diseases associated with vitamin deficiency and these may cause diarrhoea, skin rashes, oedema and heart failure. Individuals are often irritable, fatigued and lethargic. The whole experience is both painful and debilitating. Somehow the images of starvation which explode onto our television screens during periods of extreme famine must remain indelibly etched into our brains and become a continual call to action.

I have seen poverty, but only when I travelled to India and Africa. I could never be a tourist in a poor country because I have always felt that unless my purpose was connected with the relief of poverty, then I had no right to be there. I have gained an understanding that tourism has more negative than positive outcomes for the poor and the natural environment and that even the concept of ‘eco tourism’ is suspect, particularly having regard to the contribution long distance travel is making to global warming. My own travels in connection with development work for a charity I helped to establish in 1995, are a constant worry. For this reason I have been trying to build up a network of contacts from the countries in which the development takes place, who are willing to undertake monitoring roles.

Political responses to poverty and climate change

How are some of our politicians responding to poverty and climate change? In 2006 I attended a talk by Clare Short, the former UK Secretary of State for International Development. Her prognosis of the present global situation echoed many of the statements made in this book and its central theme. “If we want our civilisation to continue we have to make sure that the world is more equitable”. She criticised the present Western model of development and asserted that if China and India continued to follow the same path, this would lead to a global disaster over a very short time period. She thought we had only about 30 years to change direction.

Her talk was essentially apocalyptic and perhaps time constraints did not allow her to offer any solutions to the problems she described so well. These solutions, she thought, would come from civil society which was “way ahead of the politicians”. She said that she could understand why a growing number of people had become disillusioned with politics.

Having studied accounts of the way leaders and other representatives of the major powers, particularly the United States, operate to influence the policies of the World Bank, International Monetary Fund and the World Trade Organisation, I realise that the rich countries have little interest in helping the poor - only how best to exploit them! What is given in aid is taken away many times over through trade and investment dominated by multinational companies and large banks.

I have outlined briefly what it means to be hungry and starving, but what does it mean to be just poor? How is poverty measured? How many poor people are there and where are they? What does poverty mean in practical terms?

Measuring poverty

An often used way of measuring poverty in global terms is to say that a person is extremely poor if their income is less than a dollar a day. Sometimes \$2 is used as the measure. An even more crude way of looking at poverty is to measure the average Gross Domestic Product (GDP) per person in each country of the world. The total GDP of a country is this figure multiplied by the population. There are many absurdities in using GDP as a real measure of wealth (these will be considered later) but at least this approach gives a reasonable picture of the inequalities between people in different parts of the world. Also, it can be generally assumed that a very large percentage of the population will be extremely poor in countries with a low GDP. I have sought to illustrate extreme inequality in chart 1 below.

Using statistics from the World Bank², I have divided the world into 10 income groupings.

Can anyone honestly say that any system that has been operating for several hundred years and leaves 61% of the world's wealth in the hands of just 10% of the global population, has been successful? And what of the 10% who must manage on just less than a half of 1% of

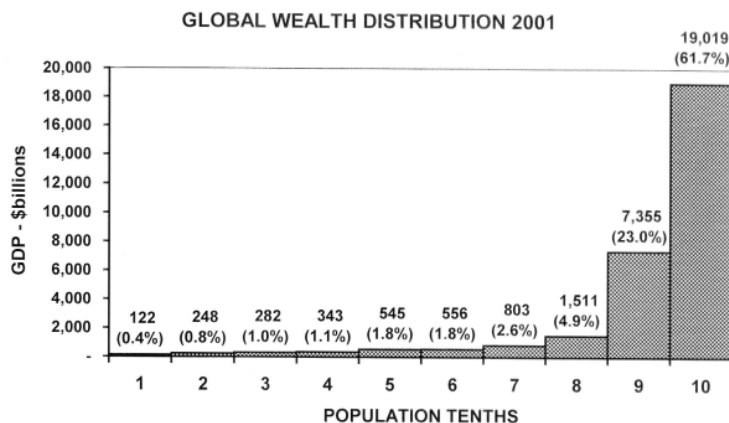


CHART 1

total wealth? Is it that hard to imagine the degree of poverty of these 650 million of our fellow human beings? Is it because they are lazy or their families are too large that they are poor? Or is it because those people live in harsh environments? Hardly! Some of the richest areas of the world are the most populated and areas with harsh environments can be changed (especially if there is oil under them to pay for extensive irrigation and other water supply systems).

If one harsh environment can be changed, then why can't another? The reason is because economic systems determine that the creation of capital and profits take precedence over the basic needs of poor people. Poor people are expendable in a global system that does not value their labour, nor concern itself with their poverty until extreme circumstances prick the consciences of the affluent.

In January 2004, SE Asia experienced one of the most devastating natural disasters in recent years. An earthquake below the Indian Ocean created a tsunami that hit the shores of Indonesia, Thailand, the Maldives, Sri Lanka, South India, Bangladesh and even Somalia, causing the deaths of over 273,000 people. It was economics that determined that an early warning system similar to the one in the Pacific Ocean, could not be established in the Indian Ocean. It was compassion that determined that aid should be rushed from around the world to help the victims, but it was economics that determined that aid was not closer to hand. It was also economics that determined

that the protective mangrove barriers were removed to service the tourist industry and other coastal development in many of the areas affected.

Even the most optimistic and privileged citizens of the affluent world must increasingly wonder why, during a period of unprecedented technological advance, many millions of people live in a state of destitution worse than that of our earliest ancestors. Surely few people believe that such a situation arises only as a result of adverse climatic conditions and wars? At a time when billions of dollars are spent on the US space programme, for example, the majority of humanity is living in poverty. Americans celebrate new pictures of Mars whilst at the same time hearing of more starvation in Somalia and Ethiopia. In the UK, according to OXFAM, the Government is not keeping the promises it made in respect of trade and conflict to help the world's poorest people. Other western countries have similarly reneged on their promises.

Extreme poverty is by no means confined to Africa. Wasteful expenditure within a country having half the world's hungry people is equally grotesque. Anuradha Mittal³ in an *open letter to George Bush* highlights this injustice at the time of George Bush's visit to India in 2006. He points out that in a country where 35% of the population is considered to be food insecure, billions of dollars are being spent on defence. Half the world's poor people live in India, nine out of 10 pregnant women aged between 15 and 49 years suffer from malnutrition and anaemia and more than half of the children under five are moderately or severely malnourished, or suffer from stunting. India's desire for military hardware and software has made it the third-largest spender on defence in the world.

Climate change

Can the poverty situation get any worse and if so, why might this be related to global warming? After all, there are many reasons connected mainly to resource depletion that will almost certainly make the situation worse if current trends continue!

Of course, if the *catastrophe countdown mode* develops then everyone in the world will be affected, but many millions of people living in low lying areas will be forced to migrate long before there is a global crisis. Clare Short raised this issue in her speech and this

reminded me of the talk given by Bernard Davey, a former meteorologist and weather presenter for the BBC, more than 15 years ago when he highlighted the effects of sea level rise on Bangladesh and the social and political impact of millions of people migrating northwards into India. A young friend from north India has told me about Hindu people migrating to Calcutta because of religious persecution in Bangladesh. If this is happening frequently now, how would poor Indians react to poor Bangladeshi's crossing the border in large numbers?

Melting glaciers give an indication that global warming is happening. There may be differences of opinion about the rate of change and how this might be manifested, but some urgent consideration is required of the possible consequences of worst-case scenarios. Such a debate appears to have been avoided to a great extent at the political level. Even if sea levels do not rise to the extent suggested, other predicted climatic changes would have dire consequences for the whole of humanity. Most of these could stem from droughts and slowing of the Atlantic Ocean's thermohaline conveyor. The conveyor could be slowed or stopped by fresh water from melting glaciers in the Arctic. If this happened, it is expected that most of Northern Europe would experience a climate like that of Siberia. How would people in mainland Europe react to people from Norway, Sweden and the UK trying to migrate to warmer regions further south? The additional poverty caused by just these two events are unimaginable, but what of the poverty caused in Africa and Asia where global warming has the effect of increasing periods of drought and expanding deserts? All this will be happening at a time when oil and fish reserves are depleting and tropical forests and topsoil are being destroyed at an unprecedented rate. Will devastating events start to convince more people that the many scientific predictions of the consequences of global warming were not just scare-mongering? Melting ice, receding glaciers – can anyone seriously doubt that global warming is a reality or that rising carbon dioxide emissions are the major cause? Which countries contribute the most? Chart 2 gives an indication. Consider the same income bands as in Chart 1.

In 2001 the United States emitted far more carbon dioxide than any other country, but this is likely to change in the very short term.

Chart 3 shows the amount of carbon dioxide each of the main

GLOBAL CO2 DISTRIBUTION - 2001

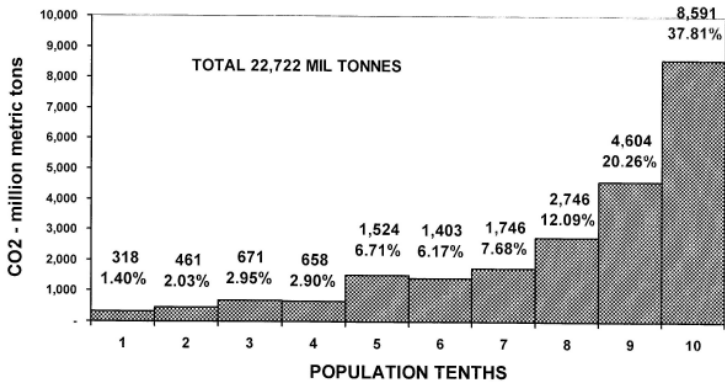


CHART 2

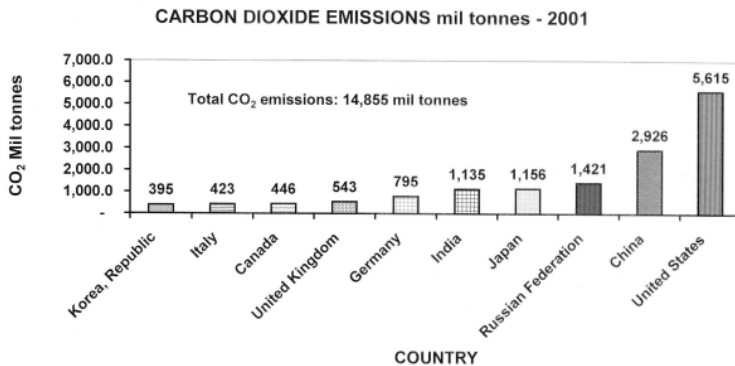


CHART 3

contributor's caused in 2001. These 10 countries are responsible for 65% of carbon dioxide emissions. The major impact from carbon dioxide emissions in the near future will result from China's economic growth and to a lesser extent, that of India and Russia. Charts 4 and 5 provide a picture of what the situation might

The assumption for Chart 4 is that CO₂ per capita is the same as for 2001.
Total global emissions: 16,876 mil tonnes. Increase on 2001: 14%

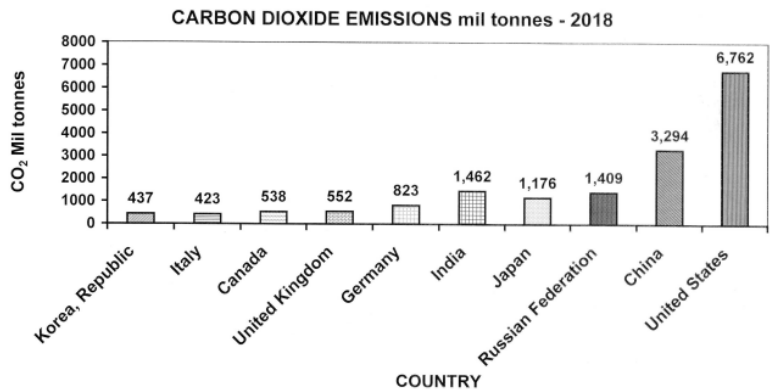


CHART 4

The assumption for Chart 5 is that CO₂/GDP ratio is the same as for 2001.
Total global emissions: 25,032. Increase on 2001: 69%

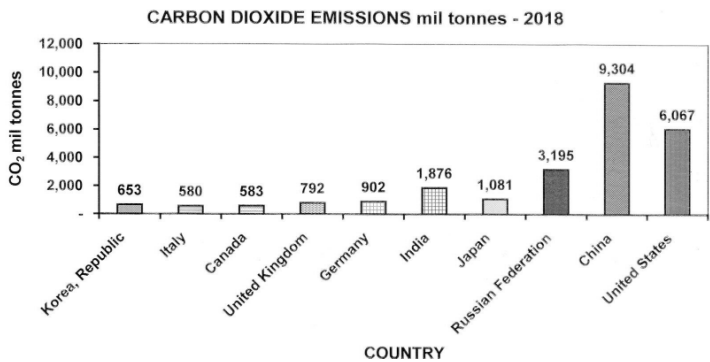


CHART 5

look like in 2018. Chart 4 assumes that the average amount per person will be the same as it was in 2001 (i.e. average living standards don't change much).

Chart 5 assumes that the CO₂/GDP ratio remains the same as it was in 2001 (i.e. CO₂ emissions increase as average living standards increase). The true picture may lie somewhere between the two predictions.

These charts at least give an indication that China's emissions would exceed those of the United States and this happened in 2007⁴. Some mitigation can be expected from the hydro electric power generation in China, but this is likely to be small.

The United States may in fact reduce emissions through the use of ethanol from crops (but not much) and an expansion of wind and solar power, but the extent of the reductions possible is still uncertain. In a world where hunger is increasing, we need to seriously question the morality of growing food to feed cars! During this 17 year period a large increase in greenhouse gas emissions can be expected and will be directly linked to economic growth. How willing are politicians to break this dependence on fossil fuels and do they believe that economic growth can be continued without them?

Chart 6 gives a very clear picture of the impact China's and India's per capita average emissions would have if they were to reach those of Europe and the USA.

Historical emissions give an even clearer indication of the responsibility the rich countries have for the cost involved in developments aimed at reducing future emissions. Chart 7 shows the historical emissions of nine countries

However an even more revealing indication of responsibility is seen from the average per capita historical emissions (1880-2004):

Have I seen any signs of political change in the UK?. I find it interesting that both the Labour Party and the Conservative Party environmental and sustainability bodies in the UK are headed by long time environmental campaigners (Jonathon Porritt, formerly head of Friends of the Earth and Zac Goldsmith editor of *The Ecologist* magazine, whose father used to refer to economics as 'bunk'). Using such people as advisors by politicians would have been unheard of just 10 years ago, but how much influence do they have?

On 8th March 2006 I received an encouraging letter from my local MP saying that he had signed up to the 25/5 challenge to reduce personal carbon emissions by 25% over 5 years. This might be a hopeful

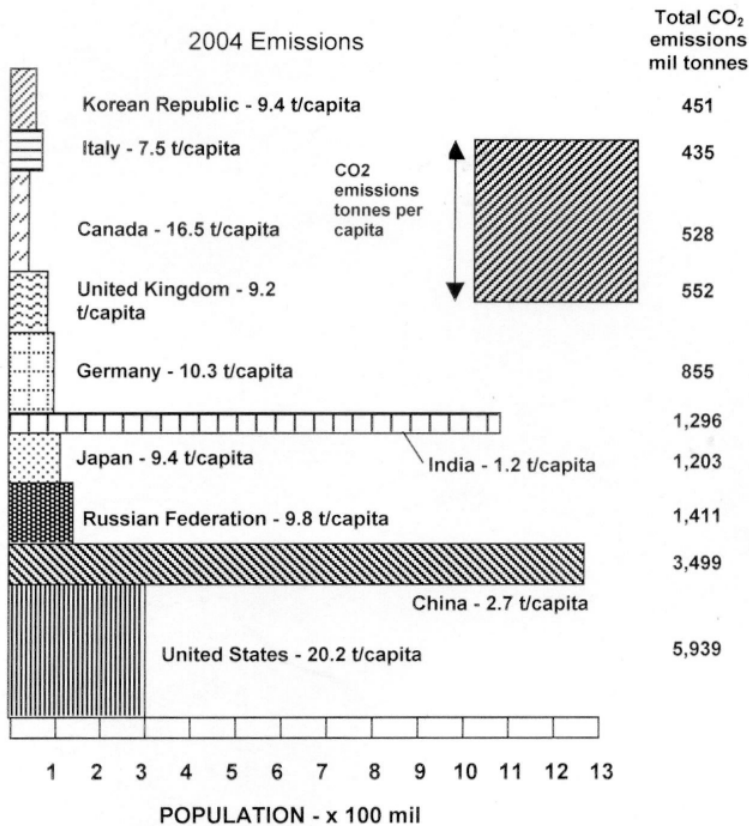


CHART 6

indication that some politicians are starting to lead by example when addressing the climate change crisis.

In August 2005 several developed countries, including the United States, stated a commitment to transfer technology to rapidly industrialising countries, notably China and India, with the specific intention to help these countries reduce their use of fossil fuels. However, both Tony Blair and George Bush contended that reductions in carbon dioxide emissions are possible whilst maintaining

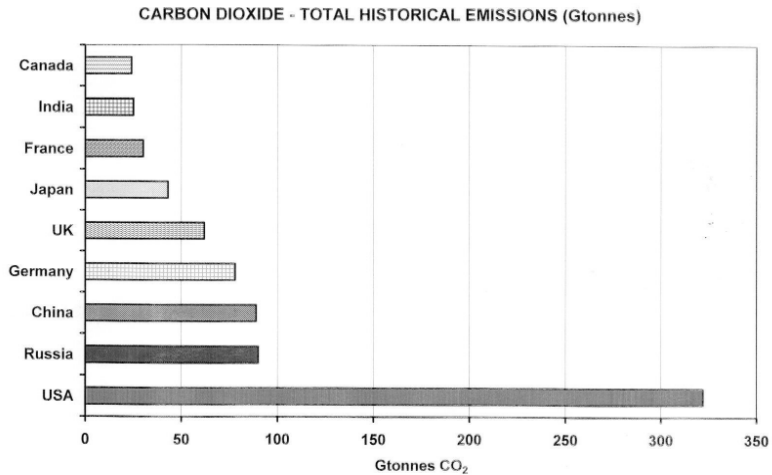


CHART 7

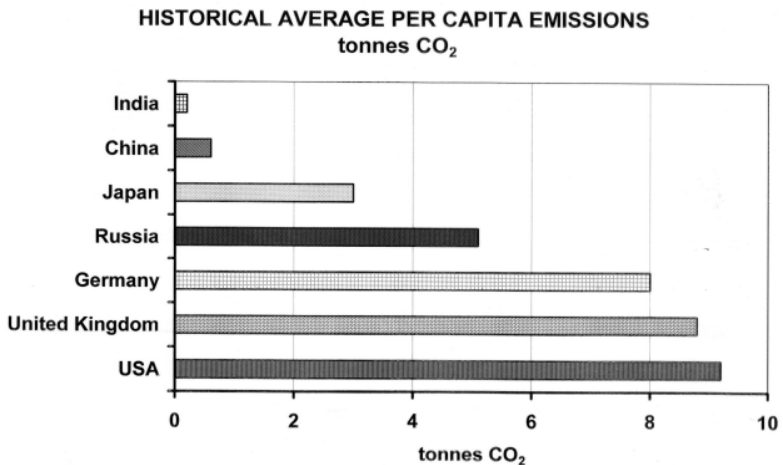


CHART 8

existing rates of economic growth. In fact they went further by stating that to fossil fuels.

The degree of compatibility between economic growth and sustainable development will be considered in the next chapter.

Many important questions arise from the global warming threat. If global warming is treated by Western politicians with the degree of urgency urged by scientists, will these politicians then conclude that only a massive expansion of nuclear energy can provide the solution to the crisis? In January 2008 the British government announced that a huge expansion of nuclear power was planned for the UK. Will the United States, Russia and Europe help China to massively increase its nuclear energy programme? How would such economic assistance to China be viewed by neighbouring countries? The US response to Iran's nuclear programme provides a clue!

Will rising living standards among a growing affluent minority in China lead to calls for its leaders to abandon its present population control programme? If a population explosion occurs in China, where will it look to accommodate these extra people – Russia or African countries perhaps? There are now more Chinese in Tibet than Tibetans. Chinese migrations into Russian territory are already taking place. Will economic growth in China threaten new conflicts with Russia or Taiwan? In the short term at least, agreements that will enable the flow of oil and gas from Russia to China, are likely (Vivoda 2005⁵). This, coupled with a continued dependence on coal, will fuel China's economic growth and its major contribution to global warming and hence to the increasing poverty in many other parts of the world and China itself. Within China the negative aspects of economic growth, especially those associated with environmental destruction and pollution, may even negate the advances made in reducing poverty.

Politicians usually focus on the number of people 'taken out of poverty' to mask the true nature of poverty in the world. While people in China are being taken out of poverty with an unsustainable process of development, poverty in Africa and other parts of the world, is increasing.

Most people in the world come under the category of being poor. The experience of poverty is not the same in different parts of the world, but the two following case studies (the names have been changed) give an indication of the hardship, demoralisation and disempowerment associated with being poor and how simple technology and very small grants can help to considerably ease the burden.

Case Study 1

Estelle lives in one of the world's harshest environments - a desert area on the Pakistan/India border. She is 45 years old and has a husband aged 50 in poor health, 2 sons and 3 daughters. Three of her children go to a carpet home industry (karkhana) to work. She spends most of her day fetching water, cooking, washing and taking care of livestock etc.

She said "I have to walk about 3 kilometers to fetch water for daily use. I wanted to do embroidery work, but due to lack of time I was not able to do that. The other problem was that there was no marketing facility".

The project in Pakistan supported the establishment of a Village Development Organization in her village and selected potential beneficiaries and people who have little source of income, but have become capable of performing the designated tasks of the committee. "I was provided with one water tank, fodder trees and bair trees. Now, I don't have to spend so much time fetching water because I fill the water tank from a well once a week. I also benefited during the recent rainfall (after a protracted period of drought in 2007) because the water tank had been filled sufficiently to meet my family's requirement for six months. I am very thankful for the facility to work at home to produce embroidery work such as shirts, bags, cushions, letter boxes and other things. I know the latest market demand to attract customers. I earn 1,000 rupees per month. My daughters are also being trained by me to make handicraft goods for sale". She also joined the Village Development Organisation committee. The tank (cistern) she referred to is shown in Fig 1. Her experience illustrates how simple technology can transform the lives of poor people. The project provided these tanks for 1,200 families and also fuel efficient stoves, bair (fruit) and fodder trees and embroidery equipment, materials and training. Literacy training was also part of the project as most women in the region are illiterate.

An important element, which was undertaken by a local non-government organisation, the Participatory Village Development Programme (PVDP), was to establish village development organisations in 10 villages and provide training in all aspects of the project, including animal husbandry. Animals form an important part of the livelihoods of people living in desert regions.

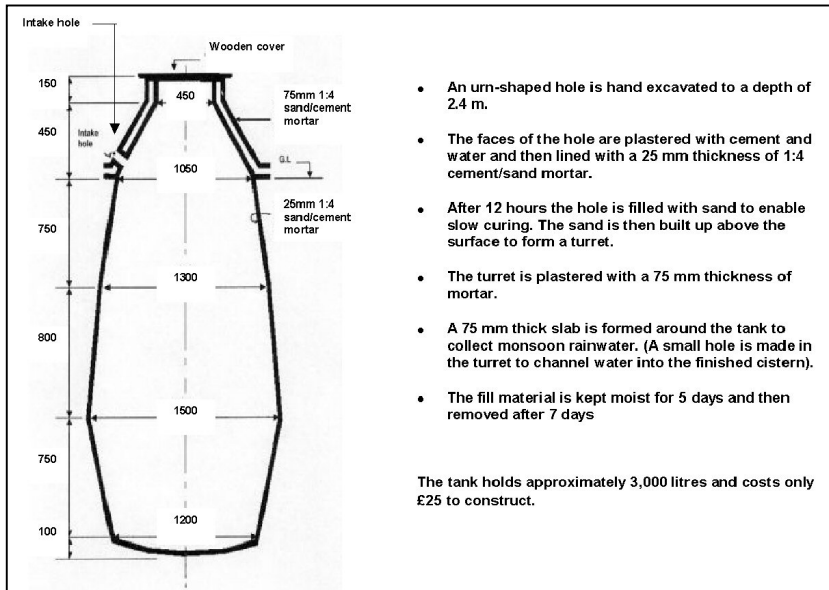


FIG 1

Case Study 2

Carol is about 38 years old and a mother of 6 children. She is the beneficiary of a project that involves cutting down eucalyptus trees in the NW Province of the Cameroon and replacing them with nitrogen fixing trees for agro-forestry. The eucalyptus have reduced water tables and crop yields. This has forced women to walk long distances to fetch water and find new farming areas up to 20 km from their homes.

Her husband has a small but significant eucalyptus plantation around his compound. Carol convinced him to start felling down the plantation in 2004 when she found out that it was not giving the family the money they thought they could have from selling the timber. Where they planted the trees was on an area they had farmed for many years. She said that she used to earn about 100,000frs (£100) each harvest season from sales of crops besides what was consumed at home. She could cultivate Irish potatoes, maize, beans and garden crops twice a year.

However, when this eucalyptus plantation matured, she could not

earn much from it. It took many years of pains-taking labour to care for it to maturity. She said, "The maximum amount of money I got from the sales of wood from this plantation was 15,000 frs a year. This was not regular as compared to what I earned when using the land for farming".

Where she felled in 2004 was used in the cultivation of maize, dwarf beans and Irish potatoes. Some of these crops were sold for 32,000frs while her family ate the rest. "This was a good indicator to show that returns from farming were more than those from eucalyptus planting" she said.

She has also demonstrated how to peel the stumps to many passers-by. Her husband used some of the excess logs and branches to fence his entire farm.

The piece of land on which she farmed 20km away from home was about the same size as that on which eucalyptus were planted near their home. She said "This is tiring to imagine and now that this plantation has been felled, I will not have to trek far again or carry things for long distances". She encouraged her husband to apply for their plantation to be felled immediately after hearing about the project. Their whole plantation was felled and some of the wood was sold and the rest transformed into planks for sale.

These case histories provide but a glimpse of what it means to be poor and it is hard to imagine that their situation, like that of millions of other people around the world, could deteriorate still further as a result of global warming.

Several government and non-government bodies and scientific institutions are making dire predictions.

The Stern Review

The Stern Review⁶ predicts more rain at higher latitudes and less in the dry sub-tropics causing intense storms in some areas and prolonged drought in others. "Millions of people will potentially be at risk of climate driven heat stress, flooding, malnutrition and water related vector borne diseases. For example, dengue transmission in South America may increase by 2 to 5 fold by the 2050s..... There could be up to an additional 145-220 million people living on less than \$2 a day and an additional 165,000 to 250,000 child deaths per year in South Asia and sub-Saharan Africa by 2100 due to income losses alone.... Rising sea levels, advancing desertification and other climate driven changes could

drive millions of people to migrate. More than a fifth of Bangladesh could be under water with a 1m rise in sea levels - a possibility by the end of the century”.

A Christian Aid report in May 2006⁷ considered the implications of climate change, with a special focus on Kenya and Bangladesh and described how poverty, conflict and climate change are linked. Over 90% of natural-disaster-related deaths occur in developing countries. Increased rainfall in hot areas increases dengue fever, cholera, leishmaniasis and diarrhoea. Other diseases of the gut, such as infection, giardia and typhoid are more prevalent in hot, wet conditions. On the other hand, meningitis thrives in hot dusty regions. Taking a worst case scenario of a 6°C rise in temperature [Would the *tipping point* have been passed? - see chapter 2] by the end of the century, Christian Aid estimates that by 2100 there will be an extra 182 million deaths in sub-Saharan Africa from climate change associated diseases. Crop yields are estimated to fall dramatically; maize by 33% in Tanzania; millet by between 20 and 76% and sorghum by between 13 and 82% in Sudan.

Climate change and conflict

International Alert highlights the possible conflicts that could arise as a result of global warming. “Many of the world’s poorest countries and communities face a double-headed problem: that of climate change and violent conflict. There is a real risk that climate change will compound the propensity for violent conflict, which in turn will leave communities poorer, less resilient and less able to cope with the consequences.

There are 46 countries - home to 2.7 billion people - in which the effects of climate change interacting with economic, social and political problems, will create a high risk of violent conflict. There is a second group of 56 countries where the institutions of government will have great difficulty taking the strain of climate change on top of all their other current challenges. In these countries, though the risk of armed conflict may not be so immediate, the interaction of climate change and other factors creates a high risk of political instability, with potential violent conflict a distinct risk in the longer term. These 56 countries are home to 1.2 billion people”⁸.

In many regions of the world, now and in the past, access to water



FIG 2

Map: International Alert

The dark coloured states are at a high risk of armed conflict as a consequence of climate change (The dark Grey states face political instability).

has been a source of conflict. In the Samborwawa district of northern Kenya many people have been murdered for their water, which has become scarce as a result of prolonged droughts. In December 2005, 10,000 herders with 200,000 animals descended on the region, many trekking 400 km from the epicentre of the drought in the east. However, boreholes had started drying up and conflict over access to water was inevitable and fighting led to several deaths.

The link between drought and conflict is widely recognised in Kenya and it is the strongest who survive. In some regions of drought, revenge attacks along ethnic lines have escalated the violence.

Borana and Gabra pastoralists in the Marsabit district have been in bitter conflict over access to water. On 12th July 2005, 56 people, including 22 primary school children, were killed in Turbi village. Another 20 people were killed in revenge attacks as Borana passengers were pulled from buses and murdered. The problem has even begun to cross international borders. In March 2006, Kenyan Pokots raided a Ugandan settlement, killing 16 people. The level of Lake Turkana has dropped by 60 m in 10 years and has started turning saline because Ethiopia has diverted feeder streams for irrigation.

Water shortages and flooding

Climate change is set to impact, not only on rural areas, but on cities which rely on water from glacier melt water. For example, Mombasa depends on water from Mt Kilimanjaro. The rapidity with which glaciers are melting shows that Kenya is getting warmer.

Professor Odada of the International Council for Science foresees a 'doomsday' when there will be mass migrations into Europe by people from Africa in search of food as the impacts of climate change widen.

As global warming intensifies, the people of Bangladesh will be hit from two directions. The glaciers feeding the two major rivers that run through the country are in retreat at the rate of 10 to 15m per year. This, together with rising sea levels, will increase the depth and extent of flooding. However, it should be mentioned that Dr Axel-Morner of Stockholm University, who is measuring sea levels, maintains that there is as yet no evidence that sea levels are rising. What is more evident is that land is disappearing under water as a result of erosion. Again, it is the very poorest people who suffer the most. Some experts predict that there could be 150 million environmental refugees by 2050, including around 15 million from Bangladesh. In addition, the frequency of cyclones and heavy storms is expected to increase. All these factors will increase erosion and force people near the coast to migrate inland. Increased salinity due to encroaching sea water will make land useless for growing crops and pollute borewells. For the people of Bangladesh the future looks increasingly bleak.

Undoubtedly global warming poses the greatest threat to humanity. Chapter 2 deals with this in more detail and also other threats which are in danger of being overlooked because of the current focus on greenhouse gas emissions. Not least of these will be the impact of declining reserves of oil and gas. Concerns about global warming and the consequent need to reduce the use of fossil fuels could be fortuitous as this forces an early response to the situation that will arise after these fuels have peaked and the supplies cannot match the demand. This will increase poverty dramatically throughout the world unless affluent people reduce their consumption and governments in renewable, non-fossil fuel, alternative sources of energy. If measures are taken to reduce the use of fossil fuels to a greater extent than dictated by present market

conditions by tightening the cap on carbon dioxide emissions, this will cause even greater poverty. This can only be avoided if a global scheme is devised to provide the poor with an added income to compensate for dramatic rises in the cost of goods and services. I have described just such a scheme in chapter 9.

CHAPTER 2

The Global Resource and Ecological Crisis

Natural and human created disasters

In March 2000, my wife and I visited Kiada, a village on the coast of Orissa which had, on 27th October 1999, been hit by a 10m high tidal wave generated by a cyclone in the Indian Ocean. Approximately two thirds of the inhabitants and nearly all the animals in the village were killed. After the cyclone, we had raised funds to help the victims through a non-government organisation, New Hope Rural Leprosy Trust, whose staff were facilitating our visit. New Hope had helped with food and temporary shelters and provided tools for people to cope after the disaster. When the staff first encountered the victims they had been without food for nearly a week and many widows were left in total despair. They were desperately in need, not only for material help, but some form of activity that would help them build up some hope for the future.

One very simple way in which this was achieved was by providing the women with seeds to establish their own 'kitchen gardens'. The women were proud to show us the vegetables they had grown. The previous day we asked if there was anything we should take for the children of the village and it was suggested that we provided cricket equipment. I enjoyed playing cricket with the boys on the beach, but could not help thinking about what would happen the next time a tidal wave hit the coast.

Another disaster did of course hit the coast, but this time further south and as a result of an undersea earthquake. A tsunami which first struck Indonesia on 26th Dec 2004, was to claim the lives of about 273,000 people in total along coasts around the Bay of Bengal, the Indian Ocean and the Andaman Sea and extending as far as Africa. We

were again involved in fundraising to help the victims, as were thousands of other people around the world. The following pictures illustrate the aftermath situation far better than words can.



The pictures show damaged fishermen's huts, evacuation, people sleeping on the street, victims of the tsunami and relief work.

HEARTS director, Mohan Rao, is shown on the left helping orphan children.

New Hope were once again involved in helping the victims, especially in Tamil Nadu and Andhra Pradesh. Our help for the victims was routed through an organisation, HEARTS, working mainly with street children in and around Guntur, Andhra Pradesh and led by a young Indian, Mohan Rao Dasari.

This disaster, perhaps because of the large number of tourists killed, had received wide media coverage. Many of the tourists who narrowly escaped the disaster raised large sums to help the victims and an early warning system, similar to the one that already operated in the Pacific region, has now, belatedly, been installed. Ironically, this disaster helped to lay the foundation of an agreement between the Indonesian government and rebels in the Aceh region. However, towards the end of 2007, the large amount of aid which flooded into the region was to create tension between coastal dwellers and poor people inland who had not benefited .

I have shown these pictures and described these natural disaster situations primarily as a reminder of the awesome power of natural forces and human inability to control them. Whether as a result of earthquakes, volcanic eruptions, catastrophic storms, extended periods of drought or very strong wind forces, the physical appearance of the aftermath frequently looks very similar. However, the effect on human beings varies considerably across the world depending on the ability to (i) predict the event (ii) build protective structures (iii) provide medical, food, water, shelter and other help for victims immediately after the event. Political and economic decisions usually dictate how well victims are able to recover from the tragedy in the longer term.

Increasingly people around the world will have to develop an understanding of how apparently ‘natural’ disasters have been unleashed by the activities of human beings.

We are already aware of such activities. For example the huge and unstable coal tip that slipped and engulfed a school in Aberfan in Wales killing 116 children and 28 adults; the mud slides that frequently occur in South America and the Philippines as a result of deforestation. Often people are forced to live in areas that are known to be at risk of such events. Many are knowingly and willingly living in regions at extreme risk of catastrophic volcanic activity. For example, 18 towns within a 7 km radius of Mt Vesuvius (near Naples) in Italy could be affected by an

eruption. Recent studies suggest that 300,000 people would be killed if these towns are not evacuated in time. San Francisco and the surrounding areas are expected to experience a severe earthquake within the next 30 years. The population of this region is expected to reach 8.2 million by 2025 and much of the expansion will take place in areas at greatest risk.

Global threats

But what if we were convinced of a threat to the whole of humanity and there was no place to which we could run because the very systems supporting our lives on Earth were being inexorably eroded? According to a growing number of scientists a 'countdown' to such a situation could arise within the lifetime of many people living today. In other words human activities could create a 'tipping point' beyond which humans are unable to influence the events that would lead to the extinction of the majority of humanity within a relatively short time period. Approximately 70% of all people alive today will still be alive in 2050, by which time many of the predicted crises linked to climate change are expected to be very apparent unless large scale remedial measures are taken soon on a global scale.

In order to fully appreciate the threat, we must first revisit our basic understanding of the fragility of the Earth in the context of the Universe and the components of the Sun, Earth and the atmosphere that enabled humans to evolve and survive. Human beings, because of evolutionary adaptation and their ingenuity and intelligence, have been able to survive in a very wide range of environments, some of which are extremely harsh. However, we all need air to breath and sufficient food, water and shelter to keep us healthy and warm. Also we must remind ourselves that a situation has already existed on Earth that would not have supported human life and that situation will inevitably arise again in the future. Surely it would be an immense insult to our intelligence to say that human beings are intent on bringing about such a situation and without any regard for their children or grandchildren and generations as yet unborn?

The average temperature of the Earth of 14°C over the past 10,000 years has ideally suited the development and sustaining of the human species. Nearly all the air we breath is comprised of 3 gases - nitrogen

78%), oxygen (20.9%) and argon (0.9%) and most of this (80%) is contained in the troposphere, that section of the atmosphere that extends to 12 km above the Earth's surface⁹. The proportion of breathable air extends to a height of 6 km. Carbon dioxide, the gas which has such an impact on the average temperature of the Earth, is only 300 - 400 parts per million of the total.

As old growth forests (including tropical rainforests) reach maturity, their role as carbon sinks diminishes - they are in balance. If they are burnt and cut down and not replaced then their carbon content will be more quickly released into the atmosphere. In fact global warming could turn forests into carbon sources. Unless the warming is gradual enough to avoid widespread mortality of forests, the additional releases of carbon caused by the warming itself - through increased respiration, decay, and fires - may cancel the intended effects of careful forest management. The planting of new forests and agro-forestry could play an important role in carbon sequestration, but unfortunately the current focus is on plantations of trees such as eucalyptus, conifers and palm which are having adverse impacts on poor people and the environment in many parts of the world¹⁰. For example, the use of oil from Indonesian oil palm results in 8-10 times more greenhouse gas emissions than ordinary diesel. This is mainly because tropical forest areas are being felled to make way for palm for oil.

Tropical rainforests play so many vital roles in the health of life on Earth, including humans, that it seems inconceivable that they should be under threat of extinction. They produce 40% of the Earth's oxygen (half of tropical forests are in the Amazon) and contain half the world's plant and animal species. They are a vital source of many medicines. It is estimated that the Amazon alone is vanishing at the rate of 20,000 sq miles per year due to human activities. Another important sink for CO₂ is old growth forests in Siberia which are also unsustainably managed.

Soil

My wife and I collect and compost all the fruit and vegetable waste from our kitchen, which we then apply to our garden soil giving us a small proportion of the organically grown food we consume. Each time I turn the compost I marvel at all the worms that have appeared - as if by magic. But what I can see is only a very tiny proportion of the life that is actually present.

Just a handful of soil is likely to contain over one million bacteria, 100,000 moulds and 50,000 spores. It is this complex amalgam of life that will enable my vegetable seeds to grow. The thin living layer of soil, about an average 300 mm thick, of which my garden is a tiny speck, covers about one tenth of the Earth's exposed land mass. The production of the food we eat must start in this living mould. In regions of the world where the natural processes of nature have been supplanted by the use of chemical fertilizers (requiring large quantities of fossil fuels), rich topsoil has often been turned into a dust to which even more chemicals must be applied year after year in order to maintain crop yields¹¹. In extreme cases in the past, notably in the United States, vast areas of fertile land have been made barren through the application of chemicals on treeless plains of monocrops. This wanton destruction is unforgivable when we realise that it can take 200 - 1000 years to create just one inch of soil.

While the world's population continues to grow, the topsoil needed to sustain it is diminishing through a range of human activities, including mining, deforestation, road and building construction and the application of chemical fertilizers and pesticides. The world's population is expected to reach 9.5 bil by 2050, but the land required to adequately feed everyone is diminishing. China's population is then expected to be 1.5 bil and yet food production appears to have peaked and the country is running out of water. With less land devoted to agriculture, falling water tables and a growing population, China is likely to remain a net food importer¹².

The impact of excessive meat consumption

About 40% of all the grain produced in the world is fed to animals. If it were used to feed humans directly it would be enough for 1 bil people. Most people in the rich countries eat far more meat than is good for their health. Average meat consumption in the USA is 110 kgs per year - 100 times more than the average amount consumed by Indians.

The Worldwatch Institute emphasises the global scale of the problem. Global meat consumption is expected to reach 280 mil tons in 2008 and 465 mil tons by 2050. Livestock is responsible for 18% of greenhouse gas emissions. The 56 bil animals raised worldwide produce 37% of methane emissions and 65% of the nitrous oxide emissions; mainly from manure¹³.

The affluent consume 40% more calories than is required for a healthy lifestyle and the environmental degradation this causes is significant. An acre of cereal produces five times more protein than an acre used for meat production; legumes such as beans, peas and lentils can produce 10 times more protein and in the case of soya, 30 times more.

If people used land to grow crops to feed themselves, rather than feeding crops to animals, then there would be enough to provide everyone with the average of 2,360 Kcal (calories) needed for good health. For every 10 kilograms of soya protein fed to America's cattle, only one kilogram is converted to meat. Almost the entire population of India and China could be fed on the protein consumed by the US' beef herd.

The average per capita consumption of meat in the rich countries of the North is 3 times that of the poor South. Milk consumption per capita is 4 times higher. However, the total increased meat and milk consumption in the South is set to be more than 5 times greater than the increase in the North to 2020¹⁴. The International Food Policy Research Institute predicts that between 1995 and 2020, meat and cereals for livestock feed demand in the developing world, will double. The meat increase will be 177 mil tonnes compared to 32 mil tonnes for the rich countries. However, per capita consumption in 2020 in the North will be 375 Kg compared to 72 Kg in the South. In the United States, farmed animals, mostly cattle, consume almost twice as much grain as is eaten by the entire US population. Approximately 70 per cent of all the wheat, corn and other grain produced goes to feeding animals.

In Brazil, 23 per cent of the cultivated land is currently being used for soya beans, of which nearly half are exported. The EU's dairy and livestock industry has created a huge demand for high protein animal feedstuffs and that demand has in part been met through the expansion of large-scale, mechanised soya production in Brazil. Smallholder producers of beans and staple foods in the southern part of the country have been displaced to make way for giant soya estates. Soya has now become the country's major agricultural export.

When Costa Rica borrowed money from the World Bank, one of the conditions set was that it had to cut down rainforest and clear land for cattle grazing to supply rich countries with cheap beef.

Between 1975 and 1985, large areas of forest were cleared in Thailand to grow tapioca to sell to the EU as feed for pigs and cattle. When the EU built up its 'meat mountains' Europe no longer needed tapioca and stopped buying. This put Thai peasants into huge debt because they had borrowed money to spend on improving their farms to grow enough to meet demand. As a consequence, many people sold their children into child labour and prostitution.

China has seen an enormous rise in pork production over the past decade and hence an enormous increase in its need for animal feed. The country has transformed from being an exporter of 8 million tonnes of grain in 1993 to becoming a net importer of 16 million tonnes by 1995.

In 2020, developing countries are expected to be producing 59% of the world's cereals and 61% of the world's meat and yet this will not be enough to meet demand. Imports in 2020 are expected to be 6.6 million tonnes - eight times higher than in 1995 .

Despite this large increase in calories in developing countries, the world's poorest people will not benefit. The number of malnourished children under 5 is expected to decline by only 15% by 2020. The number of malnourished children in sub Saharan Africa is projected to actually increase by 30% to 40 million.

Water supply and population increase

Water supply is inextricably linked to both food production and population increase. Probably the most significant statistic to draw from Table 1 is that 97.5% of the world's population increase to 2050 will take place in developing countries. With the current focus on climate change, there is a danger that an impending crisis related to severe shortages of water will be overlooked by political leaders. However, climate change is likely to exacerbate the predicted impacts of increased urbanisation, meat consumption and population. Environmental degradation in various forms and policies driven by economic growth, will also have a major impact on water supply and distribution.

Water development underpins food security, people's livelihoods, industrial growth and environmental sustainability. By 2025, non-irrigation water usage will have increased by 61% over 1995 levels and in developing countries livestock water demand is projected to increase by 71%

TABLE 1

Source: United Nations, *World Population Prospects: The 1998 Revision* (New York: UN, 1999).

Region	Population level		Population increase		Share of increase
	1995	2020	1995	2020	
	(millions)		(millions)	(percent)	
Latin America and the Caribbean	480	665	185	38.5	10.1
Africa	697	1,187	490	70.3	26.7
Asia, excluding Japan	3,311	4,421	1,110	33.5	60.5
China	1,221	1,454	233	19.1	12.7
India	934	1,272	338	36.2	18.4
Developed countries	1,172	1,217	45	3.8	2.5
Developing countries	4,495	6,285	1,790	39.8	97.5
World	5,666	7,502	1,836	32.4	100.0

by 71%. With competing demands for water, national governments are likely to reduce investments in crops for rain fed agriculture - rice, wheat, maize, potatoes, cassava, yams and sweet potatoes.

In the search for improved incomes, poor people will turn to slash and burn agriculture, thereby deforesting the upper water sheds of many basins. Erosion and sediment loads in rivers will rise, in turn causing faster sedimentation of reservoir storage. The cost of building new dams will soar. Farmers will extract increasing amounts of groundwater. After 2010, key aquifers in China, North India, West Asia and North Africa will begin to fail. Agricultural water prices are likely to be 3 times higher than in 1995.

Securing access to water could spark conflicts in several regions where rivers supply several countries. The Nile complex flows through several countries of Africa. India's plans to interlink tributaries of the Ganges would threaten water supplies to Bangladesh where the Government maintains that 100 million people would be at risk¹⁵. The threat of conflict is ever present in the Middle East where Israel, Lebanon, Syria and the Palestinians all depend on supplies from the River Jordan.

Many major rivers, including the Amu Dar'ya, Colorado, Ganges, Indus, Rio Grande and Yellow, now run dry for portions of the year. The Yellow River, in most years, runs out before reaching the sea. Some inland lakes and seas, including the Aral Sea and Lake Chad, have shrunk dramatically.

Approximately 1.1 billion people do not have reasonable access to safe drinking water (20 litres per person per day within 1 km of home) and 2.4 bil are without basic sanitation. By 2025 numerous river basins will not be able to supply demand for irrigation. Large quantities of water are linked to meat consumption. Studies have shown that it takes 20 times more water to supply 500 calories from beef than from rice. The average US diet requires 5.4 cu m of water per person per day - twice as much as for a nutritious vegetarian diet.

There is also a link between energy consumption and water use. For example, the average US household, using 10,000 KWh of electricity per year, is indirectly consuming an additional 83 cu m of water - equivalent to 14,000 flushes of an efficient toilet, to service energy demand. The irrigation of lawns and landscapes in the US uses 30 bil litres of water per day. This is about the same as the consumption of 1.7 million Kenyan's in 1 year. In addition, 15 bil litres per day are used on golf courses ¹⁶.

Water shortages and water pollution threaten to become major crises in many parts of the world, but there is a great potential for redressing the problems with sensible policies and individual lifestyle changes.

Oceans and forests and the air we breathe

Although oxygen and air are often spoken of in the same breath, it is nitrogen (78%) that comprises most of the air we breath. Oxygen makes up 20.9% and argon 0.9%. However, it is the remaining 0.2% , including carbon dioxide (CO₂) and ozone, that are vital to life on Earth ¹⁷. Half the world's oxygen is produced in the oceans. The other half is produced on land by trees, shrubs, grasses and other plants. Animal plankton eat the plant plankton which is an important food for small fish which are in turn consumed by large fish, sea birds, seals - and human beings. Were it not for photosynthesis involving plants and ocean phytoplankton, we would soon run out of oxygen and suffocate in CO₂.

The overfeeding of plankton (from nitrogen in fertilizers) or their destruction from a range of chemical pollutants discharged into the oceans and an excess of atmospheric carbon dioxide, causes oxygen in the sea to be reduced and animal life suffocates. Most of the remaining carbon produced has been cemented into sedimentary rocks at the bottom of the oceans. Should humans be able to take all of that fossil carbon and return it to the atmosphere by burning it, we would use up all the oxygen and most of today's life forms would not be able to exist.

Threats to phytoplankton are threats to humanity in terms of basic life support systems and are a vital source of food. These potential threats include ocean acidification caused by carbon dioxide increases and ultra violet radiation caused by stratospheric ozone depletion. Humans have already come close to causing an extinction event. This was through activities that have broken down the protective thin ozone layer that shields us from the Sun's ultra violet rays. Without this protection, ultraviolet radiation would kill us fast by tearing apart our DNA¹⁸. The threat was narrowly averted through the Montreal Protocol, an international agreement which limited the manufacture of items using ozone-depleting chemicals, including chlorofluorocarbons.

Both the UK Royal Society and the American Meteorological Society warn of the dire consequences of increasing acidification of the oceans¹⁹. Some scientists suggest the likelihood of mass extinctions of coral before the end of the century and large scale disruption of the entire marine food chain. Not only will more atmospheric CO₂ increase ocean acidification, but it will reduce the capacity of the oceans to sequester CO₂. Currently about 2 gigatonnes is absorbed by the oceans and 1.5 gigatonnes is absorbed by life on land annually²⁰.

There is potential for hydrogen to be used in the strategy to replace fossil fuels. However, its role in ozone depletion will have to be considered alongside its practical viability for transport. Currently hydrogen production involves the use of fossil fuels.

In trying to dodge the left hook of climate change are we in danger of being caught by the right uppercut of resource depletion - notably oil and gas depletion?

Resource depletion

Chapters 1 and 2 have described the threat posed by global warming which has now become an international concern at the highest political level. However, little concern has yet been expressed about the likelihood that oil production will soon be unable to meet demand. Some experts in the oil industry believe that the peak oil situation has already occurred and that a peak for natural gas will follow shortly after - perhaps as soon as 2010. A global recession is almost certain to follow peak oil and gas with a corresponding temptation by all governments to expand coal production in an effort to maintain economic growth. The consequence of such action will be to greatly increase carbon dioxide emissions. World coal use is estimated to have gone up by 47% in the past 25 years.

Even if carbon capture and storage at power stations proves technically possible on a large scale in the future, consideration has to be given to the energy used in construction and compressing the gas prior to pumping it down an oil well or into the sea. If it is pumped into the sea, will this contribute to ocean acidification?

Energy investment banker, Matthew Simmons, maintains that economic growth in the USA will not be possible after natural gas has

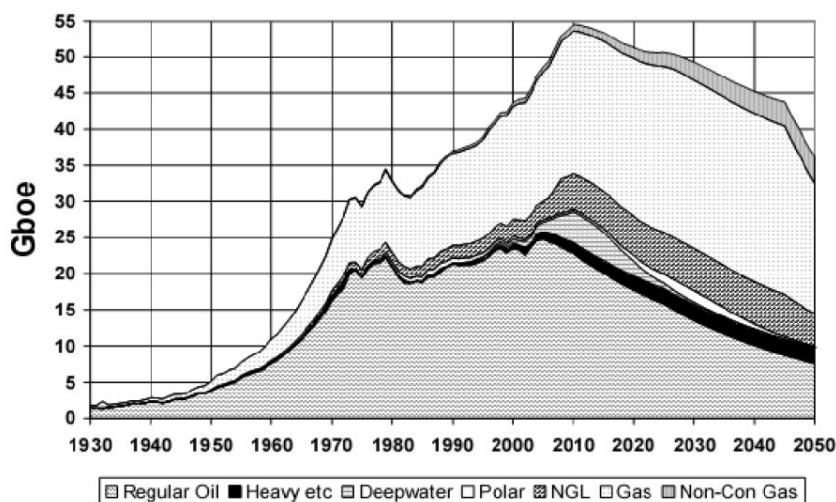


FIG 3

Based on 2006 data from the Association for the Study of Peak Oil

peaked. He also maintains that when the oil has peaked in Saudi Arabia then “the World has peaked”. His comments directly contradict the Stern Review assertion that economic growth will still be possible while the programme to tackle climate change is being put into effect.

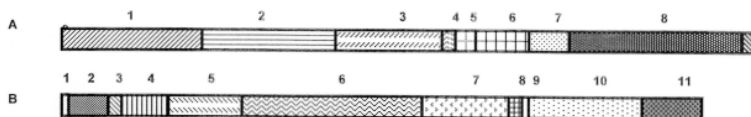
Whatever response is made to this coming crisis will have to be made in the context of realities such as the following:

- A coal fired power station is being built every 10 days in China. China is unlikely to countenance any reduction in its present (2008) economic growth of 10% per annum.
- The numbers of cars in Beijing is increasing at the rate of 1000 per day
- Air flights are estimated to increase at the rate of 7% per year
- Deforestation is increasing in the most effective carbon sequestration forests.

By 2021, it has been estimated that the UK will have to adjust to a fossil fuel supply of just 50% of today's volumes and yet aircraft flights to and from Heathrow Airport are set to increase dramatically over the next 45 years. In January 2008, the government announced plans for a new 2,200 m long runway and terminal that would require the destruction of an entire village. With the expansion, Heathrow would be able to handle around 700,000 flights a year - a 50% increase on current levels. In justification of this proposal Transport Minister, Ruth Kelly, said “Heathrow supports 170,000 jobs, billions of pounds of British exports and is now our main gateway to the global economy.... If nothing changes, Heathrow's status as a world-class airport will be gradually eroded - jobs will be lost and the economy will suffer”.

In his book *Sustainable Energy - without the hot air* ²¹, David MacKay, makes a comparison between current (2008) UK energy consumption and the energy potential from renewables. He also considers the potential for nuclear energy and concentrated solar power. Chart 9 makes a comparison between average UK energy consumption in kilowatt hours per person per day and an optimistic assessment of UK renewables potential.

Consumption figures assume the ‘above-average’, but still fairly typical, person's energy consumption and are based on:



A		
Ave UK energy kWh/person/day		
1	Car	40
2	Heating and cooling	37
3	Jet flights	30
4	Light	4
5	Gadgets	5
6	Food, farming, fertilizer	15
7	Transporting goods	12
8	Commodities	48
9	Defence	4
Total		195

B		
Ave renewables kWh/person/day		
1	Geothermal	1
2	Tide	11
3	Wave	4
4	Solar heating	13
5	Wind	20
6	PV farm (200 m ²)	50
7	Biomass	24
8	PV	5
9	Hydro	1.5
10	Deep offshore wind	32
11	Shallow offshore wind	16
Total		177.5

CHART 9

- driving a car 50 km per day (single occupancy)
- travelling 28,400 km by plane in one year
- using 37 kWh per day for cooling and heating
- an allocation of 4 kWh per day for all lighting purposes
- an allocation of 5 kWh per day for home gadgets
- an allocation of 15 kWh per day for associated food and farming provision
- an allocation of 12 kWh per day for associated transportation of goods
- an allocation of 48 kWh per day for the production of associated commodities
- an allocation of 4 kWh per day for defence.

Potential production of renewables per person is based on:

- an allocation of 1.5 kWh per day for geothermal energy per day
- an allocation of 11 kWh per day for energy from tidal lagoons, stream farms and barrages
- wave energy of 4 kWh per day (from 50% efficient wave machines spread along 500 km of Atlantic-facing coastline delivering 40 kW per metre of power spread equally among a population of 60 mil)
- solar thermal energy per day of 13 kWh (all south-facing roofs in the country have 50% efficient solar thermal panels equivalent to 10 m² per person delivering 55 W/m²)
- energy of 50 kWh per day from solar farms (5% of the country is covered with 10% efficient photovoltaic panels - 200 m² per person delivering 10 W/m²)
- solar voltaic electricity per day of 5 kWh (all south-facing roofs in the country have 20% efficient panels equivalent to 10m² per person delivering 22 W/m²)
- solar biomass of 24 kWh per day (3,000 m² of fuel crops per person with 67% efficiency delivering 0.33 W/m²)
- allocation of 1.5 kWh per day from hydro electricity (7 times the present consumption)
- allocation of 32 kWh per day from deep offshore wind power (windmills spread over an area of 27,000 km² of coast, 30% bigger than Wales and delivering 3 W/m² of power is spread equally among a population of 60 million)
- allocation of 32 kWh per day from deep offshore wind power (windmills spread over an area of 13,000 km² of coast, two thirds the size of Wales and delivering 3 W/m² of power is spread equally among a population of 60 million)

The above is the estimate of a typical affluent person's energy consumption (also an aspiration of the average European and British consumer with a current consumption of 125 kWh per day per person, excluding imports and ignoring solar energy acquired through food production. The consumption of the average American is twice this figure). MacKay's depressing conclusion is, however, that mainly because of the objections of the public and campaign groups and financial considerations, the most energy the average Briton might get from

renewables is 18 kWh per day per person (14%). The potential for nuclear power is considered later in this chapter and concentrated solar power, derived mainly from CSP plants situated in desert regions, is described in chapter 10. The problems outlined in the above analysis of Britain's energy needs and renewable's potential may be typical of those likely to be experienced for energy planning throughout the developed industrialised world.

Many environmental and energy experts are now maintaining that there are no readily available replacements for fossil fuels and that future localized systems for growing food and providing energy will take place in a climate of economic decline. Future debates may then revolve around how best we can adjust to a simpler way of living without the conflict that is likely to arise in the scramble for diminishing reserves of fossil fuels. Coal could peak around 2030 at about 30% above the present level of reserves.

The consequences of peak oil and gas and how Ireland might be able to respond, are contained in a collection of papers delivered at a conference organised by the Foundation for the Economics of Sustainability (FEASTA) and compiled into the book *Before the Wells Run Dry*²². Some of the alternative models presented, could make a substantial contribution to the post peak oil and gas situation. However, it also concludes that renewables will not be able to supply enough energy to continue economic growth at anything like the current rate. Growth needs to be abandoned as a developed country aim if poorer countries are to have enough energy for even a modest rate of development. Renewables could replace fossil fuel energy to some extent (see chapter 10), but this will require large government investments. The Stern Review even believes that economic growth can continue and that all that needs to be done to overcome the problems caused by global warming is to spend our way out of trouble. However, this optimism ignores the extent of our dependency on oil, gas and coal and how they drive economic growth and over-estimates the potential for alternatives in the short term. Some of the limitations of the alternative fuels and technologies which are increasingly being suggested, are outlined below.

Nuclear power

Involves the use of fossil fuels to mine and transport uranium, build the

reactors, enrich the uranium, store the waste and then decommission the plants. Many of the costs involved with existing plants will have to be paid for by future generations in an energy deficient world. As high grade uranium runs out, a situation could arise where the energy involved with the nuclear process is more than the amount of energy it yields²³. The dangers of nuclear power are too obvious to state. As David Fleming points out in his paper *The Lean Guide to Nuclear Energy*, many of the claims being made by the nuclear industry are grossly misleading. The OECD Nuclear Energy Agency maintains that the world has 275 years supply of uranium - and that this could be up to 675 years if uranium is derived from phosphate reserves.

David MacKay outlines the possible energy potential of uranium if derived from mined, ocean and river sources, assuming it is spread equally among the world's 6 billion people:

- (a) mined uranium for once-through uranium reactors - 0.55 kWh/day/person
- (b) fast breeder reactors - 33kWh/day/person
- (c) fast breeder reactors using ocean-derived uranium - 7 kWh/day/person (increased to 420 kWh/day per person if the reactors are made 60 times more efficient)
- (d) once-through reactors using river derived uranium - 0.1 kWh/day/person
- (e) fast breeder reactors using river derived uranium - 5 kWh/day/person.

He points out that almost all the recoverable uranium is in the oceans, not in the ground. This is about 3.3 mg/m^3 of water - a total of 4.5 bil tonnes worldwide, but that no-one has yet demonstrated uranium extraction from sea water on an industrial scale. The amount of uranium that could be mined or obtained from phosphates amounts to about 27 mil tonnes. A 1 GW nuclear power station uses an average of about 162 tonnes of uranium each year. A metal which can also be used in a nuclear reactor process is thorium.

Many of the figures above would give the impression that nuclear power could be the answer to the world's energy needs as fossil fuel resources decline, but as Fleming indicates, this could not be further from the truth and it will not be many years before the nuclear industry

will need all the power it generates to clean up the wastes accumulated since the 1950s. The arguments he puts forward in support of this contention are as follows:

Uranium from seawater

This operation is massive and requires a huge amount of energy. Two cubic metres of water is needed to yield enough natural uranium to supply 1 tonne of fuel ready for use in a reactor. A 1 GW reactor would require 400 m³ of sea water to be processed every year. 1 tonne of natural uranium is needed to produce approximately 160 TJ (terajoules) of energy (net 120TJ), whereas the energy required to supply the uranium from seawater, ready for entry into the fuel cycle, is in the region of 195-250 TJ; this is more than the energy derived from the reactor.

Uranium from phosphates

The concentrations of uranium in phosphates are only about 0.01% with a low practical return on energy invested (PREI). The importance of phosphates for agriculture and health are highlighted in chapter 10 and in the light of concerns that supplies might not soon be able to meet demand, deriving uranium from phosphates would be irresponsible. A similar argument applies to the use of land for growing bio-fuels instead of food crops.

The process of deriving uranium from phosphates requires the use of toxic solvents and produces organofluoro-phosphorous and fluorohydrocarbons (potent greenhouse gases).

Uranium from granite

The concentration of uranium in granite is only about 0.02% (4 gms/tonne). A 1 GW nuclear power station using 200 tonnes of uranium each year would require the mining of 100 mil tonnes of granite. The extraction process would require energy of 650 petta joules (PJ). This is 25 times the 26 PJ the reactor would supply. A 1GW coal fired power station requires 2 mil tonnes of coal each year.

Fast breeder reactors

Fast breeder reactors using either plutonium or thorium hold out the prospect of an everlasting supply of energy - but only in theory! The whole fast-breeder cycle using plutonium, consisting of three processes none of which have ever worked as intended, has itself never worked. There are three fast-breeder reactors in the world: Beloyarsk-3 in Russia, Monju in Japan and Phénix in France. Monju and Phénix have long been out of operation. Beloyarsk is still operating, but it has never bred.

There is about 240 tonnes of plutonium in the world held in stock - enough to fuel 4 reactors for their lifetime. But what if instead of using uranium-235 as the energy source, it were possible to breed plutonium-239 as the start-up fuel to breed more plutonium-239? Both the Nuclear Energy Agency and the International Atomic Energy Agency suggest that if all available sources of ore are exploited and fast-breeder reactors perfected and developed, we may look forward to 20,000 years of nuclear energy at current rates of output. But that's a big 'if'. The reality is that the breeding process produces a highly radioactive mixture and breeder operation, reprocessing and recovery of plutonium on a smooth running commercial scale has never yet been achieved. Clogging and corrosion of equipment is a problem and there is some debate about the danger of plutonium accumulating into a critical mass and setting off a nuclear explosion.

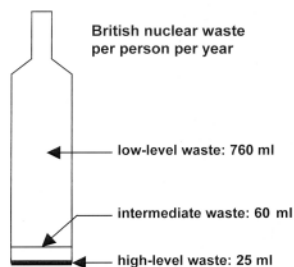
Another way of breeding fuel is to use thorium, a metal found in most rocks and soils. However, the process using thorium requires a start-up fuel - uranium-235, plutonium-239 or uranium-233. The four-step sequence of thorium breeding is complex and as with breeding plutonium, produces substances which are highly radioactive and can be used for nuclear weapons. Worldwide, thorium resources are estimated to be 6 mil tonnes. Carlo Rubbia proposes an alternative 'energy amplifier' reactor that he suggests would convert 6 mil tonnes of thorium into 15,000 TWh of energy, or 60 kWh/day/person over 1,000 years (Assuming 40% efficiency, this would translate to 24 kWh/day/person). If there is a long-

term future for nuclear fission, it will be thorium that drives it. However, there appear to be few indications that this will be possible in the foreseeable future.

The contention that nuclear energy does not require the use of fossil fuels and hence does not cause greenhouse gas emissions, is false. Energy is required to build the reactors, mine, mill, enrich and prepare the fuel and also to clear up the wastes produced at each stage, including the disposal of the old reactors.

Energy will also be required to dispose of the whole backlog which has accumulated since the nuclear industry started in the 1950s. Fleming maintains that this is about one quarter of the gross energy supplied. Carbon dioxide emissions are estimated to be in the region 88-134 g/kWh (about a quarter of emissions from gas-fired electricity generation).

Mackay highlights how small the amount of waste is and this raises a question as to whether it can be safely stored away permanently without too much difficulty. Even if fast breeder reactors were to be a viable energy option, how would people feel about a huge increase in the quantities of weapons grade material around the world?



Nevertheless, even if the amount of waste is considered small in comparison to the waste from other sources of energy supply, it still presents a significant problem. For example, in the UK, if reactors all operate to current shutdown dates and no more are built, there will be an estimated 36,590 cu m - enough to fill 14 Olympic sized swimming pools - of intermediate and high level waste. It is estimated that it will cost Britain £73 bil to clean up its nuclear waste; £50 bil of that will be spent on cleaning up the waste from Sellafield which is scheduled for closure by 2010²⁴. Dounreay, the nuclear power complex in Caithness, is currently being demolished at a cost of £2.5 bil.

Despite all the objections to nuclear power, in April 2009 UK Government ministers revealed a list of 11 sites for new nuclear plants. Atomic power will be the nation's salvation as it battles global warming and seeks to cut its carbon emissions, they insisted.

There is a widely shared recognition that there will be a severe shortage of uranium around 2013 and a question arises as to when the nuclear power industry will have to use all the power it generates to clean up its wastes:

The nuclear industry, which currently provides only 2.5% of the world's final energy demand, appears to be moving towards a turning point at which it will be energy bankrupt and incapable of dealing with its backlog of wastes from the energy it generates. There is a distinct danger that fossil fuels, which are the main front-end and back-end energy uses in the nuclear industry at the present time, will still have to be used for this purpose beyond the point at which both gas and oil will have peaked.

Fleming stresses the urgent need for research into the global

TABLE 2

ENERGY BALANCE SHEET: YEARS OF NET NUCLEAR ENERGY REMAINING FROM 2010 at current rates of extraction. (Assumed start-date for industry 1950. Assumed present 2010. Numbers in years)					
1	Estimate: years of positive PREI ore remaining	10	30	60	200
2	Front-end process energy (25% of remaining years)	2.5	7.5	15	50
3	Energy to clear new waste (25% of remaining years)	2.5	7.5	15	50
4	Energy to clear old waste (25% of last 60 years)	15	15	15	15
5	Total needed for front end plus back end (2+3+4)	20	30	45	115
6	Years remaining (1-5)	-10	0	15	85
7	Year of energy-bankruptcy: all energy produced is needed to dispose of new and old waste (6+2010)	2000	2010	2025	2095
Suppose the industry, starting from no waste, has 200 years before its usable ore runs out. During that time it generates a gross amount of energy which it feeds into the grid, but at the same time it must (a) provide the energy needed for its own front-end operation, (b) pay back the energy it used to mine its ore, build its reactors, etc., and (c) clear up its own wastes. Hence 75% of its gross output must be subtracted to find the number of years for which the industry can continue before using the whole of its output to pay back its energy debt and clear up its wastes.....					
The Lean Economy Connection 2007					

warming and ozone impacts of uranium hexafluoride and other solvents. I suggest that this research and other considerations, such as the impact of investments in nuclear power on the development of renewables, could be embraced by the new science I am proposing in chapter nine.

Despite the dangers, Britain appears set to commission the construction of new nuclear power plants by the French company, EDF Energy, which took over British Energy in September 2008. In Australia, Foreign Minister, Alexander Downer, even used the argument that the country's exports of uranium and natural gas (LNG) was making a substantial contribution to the reduction in greenhouse gas emissions worldwide. The international uranium industry is forecasting a massive increase in demand in the future. Thirty two nuclear reactors are reported to be under construction with a further 280 proposed for development around the world by 2025. The World Nuclear Association projects a 50% increase in demand for uranium by 2020 and that this will require 25 new mines to be developed around the world. A consulting nuclear scientist, Professor Leslie Kemeny, says that Australia is in a position to double its present 11,000 tonnes of uranium exports. South Africa will also be seeking to expand its exports of uranium.

Nuclear power can be more centrally controlled than wind and wave power and does not involve fluctuations in the supply of electricity. However, it is interesting to note that a much greater proportion of the energy delivered by nuclear power is used in construction and operation than is used for wind power. Wind turbines generate 39 times more power than is used in their construction and operation. For nuclear power plants the figure is only about 16 times more. In chapter 10 I argue that concentrating solar power offers a much more viable *top-down* contribution to reducing global warming and addressing the impending energy gap. However, I remain doubtful that renewables will provide sufficient energy to support current levels of consumption and economic growth.

Biofuels and biomass are already coming under criticism in respect of global warming as tropical rainforests are being cleared in Indonesia and South America to make way for oil palm, sugar cane and soya beans.

Sugar cane ethanol may save 13 tonnes of CO₂ equiv per hectare per year, but the same area of natural forest will absorb 20 tonnes. 80% of Brazil's greenhouse gas emissions come from deforestation. The refining and distilling of biofuels in Europe require large amounts of fossil fuels and the savings in greenhouse gas emissions can vary between 13% and 56%. If Europe's set-aside land were farmed for biofuels this would save only 1.5% of transport emissions (0.3% of total European emissions). Biomass plantations are estimated to only return 5 times the energy needed to grow and collect them and liquid biofuels have an even lower ratio. Forestry residues, however, yield 27 times the energy needed to collect them. Biofuel production doubled between 2000 and 2005, according to the International Energy Agency (IEA), the France-based policy advisor to 26 mostly Western member states. The United States, Europe, and Brazil produced nearly 95 percent of the world's biofuel in 2006. Canada, China and India made much of the balance. US producers rely most heavily on corn for their ethanol, while Brazilians use sugar, and Europeans make biodiesel from rapeseed and other vegetable oils. China and India use mostly sugar, although China also extracts fuel from rice and wheat. Biofuel powers roughly one percent of global road transport. The IEA expects this share to quadruple by 2030.

Expansion of biofuels is reducing the amount of land available for food crops and this will increase hunger and starvation in poor countries where farmers are persuaded to grow fuel crops which may often provide a greater financial return than food crops. This problem will be exacerbated as the cost of fossil fuels increases.

Hydrogen

This the simplest and most abundant element on Earth and would hold great potential as an energy store for heating and transport if it could be produced by means of low carbon electricity conventional steam reforming and the regenerative reforming of the products of a biomass gasification process. It has to be made, usually by splitting water (H₂O) to get the hydrogen. This requires all the energy you are going to get from burning the hydrogen and a bit more on account of inefficiencies. Therefore, hydrogen is an energy transfer medium rather than a primary source of energy. Hydrogen is obtained by splitting

water (H₂O) into hydrogen and oxygen. The energy to split the water should be nuclear (but see P 35), solar or wind power to limit carbon dioxide emissions. The only effluent resulting from the burning of hydrogen would be water vapour.

Werner Zittel²⁵ highlights the advantages of hydrogen which can: be burnt for heat as gas, through chemical processes to its conversion to electricity in fuel cells via electrolysis. Fuel cells store large quantities of electricity without running into the raw materials limitations that batteries represent.

If hydrogen could be produced using electricity from renewable energy such as wind or solar power, it would make a major contribution to reducing greenhouse gas emissions. One of the many technical challenges for the future concerns the use of hydrogen in transport. For example, to hold the same amount of energy as a typical vehicle petrol tank, a tank several times bigger than the car would be required to hold hydrogen in a gaseous form. Reducing the volume requires chilling the hydrogen to -253 °C to turn it into a liquid - a process that requires a third of the energy that the fuel would provide. Nevertheless major car companies have built cars that run on liquid hydrogen and are developing refuelling devices. Some hope to have affordable vehicles on the market within the next few years. Liquid hydrogen could be delivered by truck or in gaseous form along pipelines to filling stations. If the gas is pumped into containers under high pressure (up to 700 bar) storage problems would be significantly reduced and the process would consume about one tenth of the energy in the hydrogen stored. Liquid hydrogen, at 2.36 kWh per litre, has about one quarter the energy density of petrol and diesel. Any oil-fuelled vehicle can be converted to use hydrogen. Fuel cells, which could be easily mass-produced, are likely to replace much less efficient combustion engines. An alternative to transporting liquid hydrogen long distances is to electrolyse water locally, perhaps in the fuel station itself.

Nano technology

This involves the manipulation of matter at the minute atom level. Carbon nano tubes are 10,000 times smaller in thickness than a human hair. By manipulating matter at the nano level, scientists can make it behave differently. Nanoparticles can be used to improve the energy

efficiency of traditional materials. Examples range from lightbulbs that will last 60 years, now being developed at Cambridge University, to Envirox, a nanoparticle-based fuel additive used by Stagecoach to improve the efficiency of its buses.

It is already being used in everyday objects, from trousers that have been coated with nanoparticles to make them stain-resistant to sun creams that use nanoparticles to increase their absorbency²⁶. There is potential for use in semi conductors, in-body diagnostic devices and energy storage and purification and many more applications.

However, scientists involved in nano-technology are warning of potential health dangers. Carbon nanotube production could cause the release of toxic carcinogens and release smog forming compounds²⁷.

The technology, if widely used, could cause widespread unemployment.

Other alternatives

Carbon capture and storage at coal fired power stations is probably the greatest hope for politicians and industrialists that economic growth can continue whilst at the same time reducing carbon dioxide emissions. The Asia-Pacific Partnership of Clean Development and Climate includes Australia and China, the biggest exporter and the biggest importer, of coal. However, the development of 'clean coal' faces some major challenges including the setting up of regulatory frameworks and identifying storage sites. Research and development is still in its infancy.

Energy efficiency, waste reduction, solar, wind, wave and hydro have great potential but have come up against many obstructions in the past. Attitudes may quickly change following the Stern Review and these proven measures are likely to be expanded at a rapid rate. In December 2007 the UK government announced that 7,000 offshore windmills are planned and that these could provide the electricity for all homes in the country. There are also plans to generate hydro electricity from a barrage across the River Severn in the west of England.

One of the greatest dangers we face will be from the likely expansion of coal as a substitute for declining oil and natural gas reserves, thus increasing global warming still further. Energy efficiency improvements

in the past have usually been negated by increases in consumption.

Another proposal, which may seem rather improbable, is to bring helium 3, with its huge potential for energy generation, from the moon (where there are plentiful supplies) to the Earth by spacecraft.

The Worldwatch Institute presents an optimistic picture of the renewable energy potential but there would appear to be the need for more research . See Chapter 10. At present far too much faith is being placed in unproven technologies to solve the crisis of global warming.

Global warming - resource threats and opportunities

Global greenhouse gas emissions can be divided into two broad categories - energy emissions (mainly those considered in chapter 1) and non-energy emissions:

Perversely, global warming offers opportunities, as well as threats,

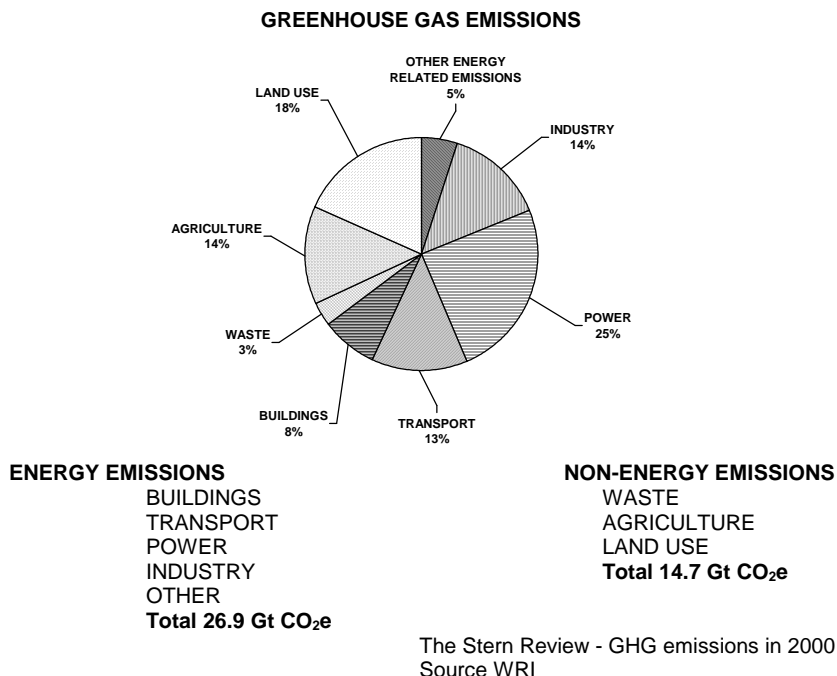


CHART 10

for accessing the resources needed to maintain global economic growth

for the near future, even if the distribution of the benefits will become increasingly unequal. The greatest opportunity arises from the melting of ice sheets in the Arctic which has opened up a summer navigable route between the Atlantic and Pacific oceans and access to large potential oil and gas reserves. The US Geological Survey estimates that one area near Greenland could contain 110 bil barrels of oil - about 42% of Saudi Arabia's reserves. However, winter darkness and icebergs will present major obstacles and costs for exploiting reserves in such a harsh environment.

Global warming is expected to cause major problems in obtaining cooling water for coal and nuclear power stations and reductions in water levels in reservoirs serving hydro electric power stations. In Australia this problem is already causing significant increases in electricity prices. A 1000 MW plant needs between 30 and 50 million litres of water a day. Air cooled plants are more expensive to build, use more fuel to run them and emit more greenhouse gases, than water cooled plants.

Energy is not the only resource that will be adversely affected by global warming. Despite increased crop yields in some regions due to warmer weather, the overall impact on food supplies globally is likely to be negative both in respect of crops and fish stocks as a result of extended periods of drought and heavy rainfall, water pollution, forest fires, hurricanes and flooding resulting from rising sea levels and tidal waves. In May 2008 the Independent reported a growing global food crisis caused by speculation which was driving the prices of basic foodstuffs out of the reach of the hungry while giant agribusiness corporations were making huge profits. The prices of wheat, corn and rice soared over the previous year and the World Bank said that 100 million more people face starvation. Monsanto reported that its net income over the 3 months to the end of February 2008 was twice that of the same period in 2007. Cargill's net earnings increased 86% over the same 3 months and Archer Daniels Midland by 42%. The Food and Agricultural Organisation (FAO) reports that 37 poor countries are in urgent need of food.

Countdown to the extinction of humanity

Before we can react with urgency to what appears to be an increasingly

imminent global catastrophe, it is necessary to appreciate the nature of the threat. Then people the world over must understand the measures which have to be taken to avert the danger and appreciate that there is still enough time left to do so. I am going to emphasise the climate change and global warming threat in this chapter because I think that the measures needed to avert the danger it poses will also help to avert those from other major threats, like peak oil and depletion of topsoil and natural forests, for example.

Symptoms of global warming are occurring sooner than predicted. This should be of great concern to everyone once it is appreciated how the process of heating will accelerate as the concentration of greenhouse gases rises.



I have been trying to think of a simple analogy to illustrate this and came up with one that some readers will consider to be rather strange. When I was a boy, quite large falls of snow were guaranteed during the winter months (rarely is that the case any more). My friends and I would first make a small snowball and then roll it until it had gathered enough snow to itself to make a ball almost as big as ourselves. Then we would push it to the edge of a slope and let it tumble down the hill making itself bigger and bigger in the process until it was brought to a

disintegrating halt by a fence at the bottom.

What are the feedback processes that cause accelerated warming? First it is necessary to understand that the build up of greenhouse gases can create feedback mechanisms - some with warming and others with cooling - effects. The important point to bear in mind is that the warming effects outweigh the cooling ones. As the quantity of greenhouse gases builds up in the atmosphere this causes effects that increase the warming. The warming itself causes effects which increase the warming still further. The main effects are summarised below:

- Rising CO₂ will cause acidification in the oceans killing plankton which sequesters carbon dioxide thus increasing CO₂ concentration in the atmosphere.
- Vast stores of methane (a greenhouse gas 24 times more potent than CO₂) are trapped or 'frozen' in crystal lattice form in sea bed deposits. Rising temperatures in the oceans would release methane into the atmosphere. Methane will gradually break down into CO₂ and water vapour, but CO₂ has an atmospheric life measured in centuries or even millennia.
- Methane is also trapped in large expanses of frozen tundra and this would be released with thawing.
- As temperatures rise, the concentration of water vapour in the atmosphere rises. Water vapour is itself a very powerful greenhouse gas. So this is also a strong and rapid feedback process.
- Increased water vapour would also cause cloud formations that have both warming and cooling effects, the overall impact of which is uncertain. However, warmer cloud systems would increase the energy and impact of storm events.
- The effect of melting ice would be to replace a white shiny surface which reflects heat back into space with a dark surface absorbing heat.

Human activities, including deforestation, present farming practices

which break down soil carbon and convert it to CO₂ and involve large amounts of fossil fuels, industrial processes and transport using fossil fuels, have already raised the carbon dioxide concentration in the atmosphere above the level which scientists believe will cause catastrophic climate changes. This is above the level that would make a 2°C temperature rise causing such changes, inevitable. The recorded level of CO₂e (carbon dioxide equivalent) in 2006 has been measured at 420 ppm and the rate of accumulation (now at 2 ppm per year) is accelerating. Hence the feedback dynamics outlined above indicate that not only is it an urgent necessity to stop the use of fossil fuels, but also to adopt measures that would remove CO₂ from the atmosphere.

When we consider the vastness of the universe and the thinness of the layer of gases that enables humans and many other creatures to survive, it is not so difficult to appreciate how just a small change in the interplay of forces that preserve these life support systems can lead to catastrophe. David Wasdell explains how it is necessary to reduce the difference between the energy received from the sun and the amount of energy radiated back into space (known as radiative forcing) to zero in order to preserve these life supporting conditions. At any given time the value of radiative forcing “depends on a set of sources and sinks, drivers and feedbacks. All of these factors are dynamically interdependent and vary over time” ²⁸.

Human activities have upset the balance, with the outcome of trapping more heat closer to the surface of the earth. He maintains that a state of equilibrium at which radiative forcing results from a concentration of 440 ppm of CO₂e could result in an average global temperature of 11°C and that the critical threshold or tipping point of unstoppable runaway global heating would be initiated well before the 2°C increase in the average global temperature is reached. This is all the more disturbing in the light of a suggestion by the Environmental Change Institute in April 2009 that the current CO₂e emissions rate is likely to raise the temperature to 4°C or more. He calls for a radical re-evaluation of the current strategic response to global warming. James Hansen, director of the National Aeronautics and Space Administration Goddard Institute for Space Studies (NASA), issues a similar warning “Continued growth of greenhouse gas emissions for just another decade practically eliminates the possibility of near-term return of atmospheric

composition beneath tipping level for catastrophic effects... Remaining fossil fuel reserves should not be exploited without a plan for retrieval and disposal of resulting atmospheric CO₂". Global heating changes in real time; global warming follows slowly with a long time delay (analogous to water in a saucepan that takes many minutes to boil in response to the fierce heat source applied). "The task of climate stabilisation (stopping of feedback-driven runaway climate change and its consequent major extinction event) depends on reducing radiative forcing to zero".

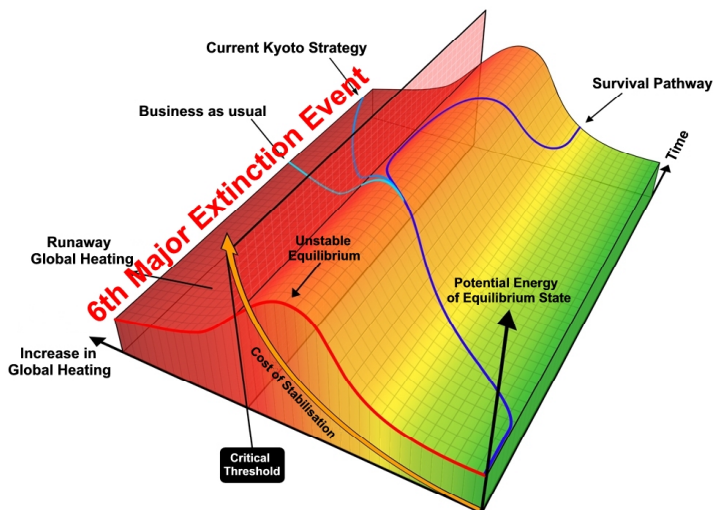
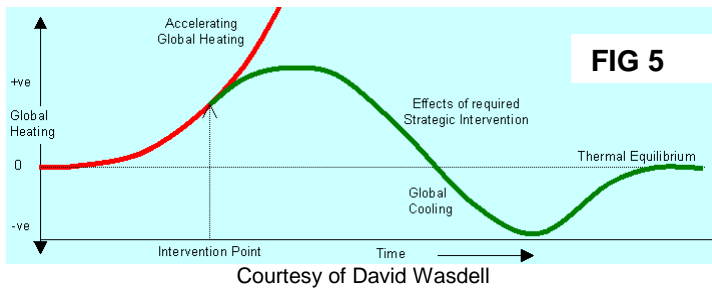


FIG 4

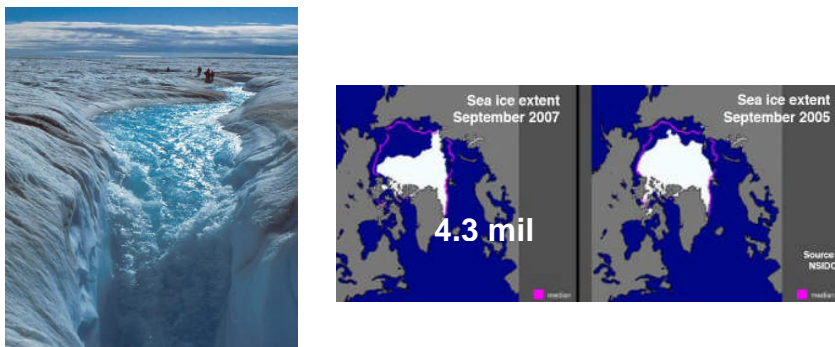
Courtesy of David Wasdell, The Meridian Programme

A state of dynamic equilibrium supporting human life exists when radiative forcing remains close to zero. Radiative forcing is now being driven away from zero as a result of greenhouse gas emissions and the resulting feedback mechanisms. Radiative forcing (or global heating) is the heat engine driving climate change.

The Independent (9th Sept 2007) reported that the Arctic is the fastest warming place on Earth. New data suggests that the rate of melting could mean a 2m or more rise in sea level by the end of the century.



A total melt of the Greenland ice cap would cause a 7m rise in sea level. The Ilulissat glacier is advancing into the sea at the rate of 2m per hour (15km per year). The rate of melting is so fast that earthquakes registering 3 on the Richter scale have been triggered. The countdown to the extinction of humanity may have already been set in motion, but ultimate disaster may well be averted if global agreements and radical lifestyle changes take place over a short period of time to halt the use of fossil fuels and remove much of the CO₂ currently present in the atmosphere. Only in isolated instances are the changes precipitated by rising global temperatures expected to be benign. The most likely outcomes in the foreseeable future are:



Melt water descending into a moulin, a vertical shaft carrying water to the Greenland ice sheet base.

Photo: Roger Braithwaite, University of Manchester

- extensive flooding in low lying regions as sea levels rise by a half a metre or more by the end of the century
- increased movement of tectonic plates and earthquakes resulting from melting ice
- increases in the numbers of severe storms, including hurricanes, cyclones and severe flooding
- longer periods of drought over increasingly larger areas resulting in widespread hunger and starvation
- widespread shortages of clean water for drinking and for crop irrigation - a situation aggravated by population growth.

Sadly, current development is related to the priorities of rich countries intent upon economic growth and globalisation based on neo liberal policies. These are focussed on securing access to diminishing supplies of fossil fuels and are not grounds for hope.

Probably the greatest challenge facing humanity over the coming decade will be to use fossil fuels wisely in the transition to renewable forms of energy.

It is highly unlikely that this will be possible whilst maintaining current levels of consumption and economic growth. Finances will have to be more carefully focused on providing the infrastructure required for totally different methods of delivering energy and building the safety features to guard against the expected forces of nature resulting from global warming. The Earth's capacity to remove greenhouse gases from the atmosphere is the greatest resource and the economic system should be adapted accordingly.

Features of the scramble for resources will add to the sufferings imposed by climate change and may include:

- Direct seizure of energy assets by military means.
- Destruction of energy assets to deny their use to rivals.
- Military confrontation arising from competitive efforts to exploit

new energy resources on the high seas, where legal claims of sovereignty are absent; in archipelagic regions like Southeast Asia, where they are routinely contested; or in Arctic and Antarctic, where they are subject to treaty regimes whose resilience has not been tested.

- Indirect control of energy assets through the creation of puppet states.
- Military protection of, or attacks upon, the energy production and transportation infrastructure, including oil fields, refineries, pipelines, port facilities, and so on.
- Active military control of international straits through which energy assets move.
- The development of exclusive energy trading blocs, reminiscent of the systems of “imperial preference” that existed before 1945.
- The conveyance of major military assets to regional energy producers in exchange for preferential market treatment, or with a view to enabling them to impose themselves upon neighbouring states.

Why is there no mass movement for change?

Increasingly we are being told by scientists that humanity is fast approaching an extinction event, so why are there not mass demonstrations on the streets throughout the world to protest at the lack of political action? Even if the present generation and its children are not drastically affected by the changes taking place in the climate, it now appears certain that our grandchildren will suffer greatly as a result of resource depletion and climate change if radical changes do not take place.

On the 7th September 2008 the BBC launched a series of 3 programmes presented by Dr Iain Stewart *Earth: the Climate Wars* which perhaps provide one explanation for the lack of action in civil society and at the highest political level - namely lack of scientific consensus in the past and distorted publicity directed by powerful vested interests.

Dr Stewart reminds us that it was not so long ago that many scientists were convinced that global cooling was taking place based on the evidence of some very cold winters in several parts of the world at the time. I recall attending a lecture which suggested that increasing amounts of rainfall (certainly the case in the UK in 2008) would mean more snowfall in the polar regions that would trigger a new ice age. At that time 30 years ago I did not know what to believe.

Even the advances which allowed comprehensive satellite temperature observations appeared at first to disprove the warming theory developing from ground based temperature observations and studies of the growth rings in ancient trees across the world. However, the first measurements had not taken into account an orbit correction. When this correction was applied, the readings confirmed those temperatures taken on the ground. Nevertheless, the realisation that scientists make mistakes may make many people still believe what we all want to believe - that global warming is not happening and that the scientists continue to get it wrong!

Fatalists may say “We are too late anyway so why don’t we *make hay while the sun shines?*” Politicians may feel incapable of taking action because they might then have to admit that their *sacred cow* of economic growth coupled with scientific ‘fixes’ (e.g. carbon capture at coal fired power stations and iron filings spread on the oceans to enhance phytoplankton carbon sequestration), will not get us out of the mess we are in.

A hike in CO₂ levels of just 65 ppm could be enough to trigger the *tipping point* and yet the development of just one particularly ‘dirty’ oil reserve in Alberta, Canada is expected to cause an increased concentration of 3 times this figure in just 30 years. The oil sands (sometimes called tar sands) are the second largest oil reserve in the world and provide 10% of US oil. It is 3-8 times more carbon intensive than conventional oil and requires huge amounts of chemical thinners, natural gas and water and produces toxic waste that is an environmental disaster. A full exploitation of this reserve (the size of England) is expected to destroy 80% of wildlife in the region. Currently an area the size of Florida is being exploited. Among those companies and banks involved in this destructive and dangerous process are the Royal Bank of Scotland plc, HSBC Holdings plc, Barclays plc, Shell, Superdrug,

Caterpillar, Hitachi, Leibherr International, Koch Industries Inc, Nouvelle Paper Products, Lycra and '3' mobile phone network (www.ethicalconsumer.org/oilsandsboycott). A clear verbal explanation of this issue by Andrew Nikiforuk can be found at <http://www.youtube.com/watch?v=VjjnEzoxE18>

Politicians tend to be fixated on meeting the short term wants, rather than the longer term needs, of their electorate and future generations and solutions to this crisis remain elusive.

Another obstacle to change and the failure to recognise the seriousness of the threat, is the tendency to base future projections on what has happened in the past -



The man is standing near the edge of the Victoria Falls. If he looks upstream the movements in the great Zambezi river provide him with no indication that he stands near the edge of an abyss.

Humanity must now decide whether, in a moment of blind sleep walking, it wants to take those few steps backwards.

Photo: National Geographic

CHAPTER 3

Bullies in the Global Casino

Why is it that an alliance of the rich and powerful and the majority of civil society, appear indifferent to the gross inequality built into the prevailing trade and economic system and the way it is leading us all to disaster? In chapter 6 I deal with some of the features of this system which defy all reason, but here I have outlined some of the dire outcomes of a form of bullying at different levels in society, partly based on my own experiences, that are all too frequently used by those who drive the system. My African experience has shown me that both corruption and bullying can operate at all levels of society.

A crazy conflict

On the night of the 6th/7th May 2000 I was awake and waiting apprehensively in a second floor flat of a building in Freetown, Sierra Leone, for an attack and occupation of the city by rebels involved in the country's long and especially brutal, civil war. I was staying with Sally, the sister of my friend, Edward Kargbo, and her family.

The previous night I had slept fitfully and uncomfortably due to the oppressive heat and the next day my hosts had thoughtfully fixed up a camp bed and my mosquito net on the outside veranda and I quickly drifted into a deep sleep. At about 2.00 a.m. on Sunday, Sally urged me to come inside quickly and told me that the rebels were reported only 20 miles away and were headed towards Freetown.

For about 5 mins I felt overwhelmed by a feeling of panic at the thought that within the next hour or two we could be threatened by rebels at the point of a gun. How would they react upon seeing me?

Would I be taken hostage? However, after that short reaction I felt strangely calm - concerned rather than fearful. We remained calm, but generally silent, as we waited in expectation of an onslaught upon the city. Edward's friend, and I talked occasionally in whispers.

Thankfully the children sleeping on the floor were oblivious to what was happening. They had been through all this once before and would have been terrified at the prospect of this happening again. I reflected upon the animated account by Sally's seven year old son on the previous night of the horror of the rebel occupation a year previously. He described how he had cowered in fear as one of the rebels had demanded money from him and how he had dodged through the streets trying to avoid other rebels [What men are these to threaten a small boy?].

At the start of the occupation, the rebels, as is the cowardly nature of bullies, had driven hundreds of unarmed civilians before them as a shield against the bullets and shells of Nigerian forces. Groups of people were herded into buildings and then burnt alive, houses were looted, limbs chopped off and other atrocities were perpetrated. Civilians were killed, not only by the rebels, but also at various times by indiscriminate shelling from the Nigerians.

The night passed uneventfully and day broke with the sound of bells from the church on the other side of the road. Apparently the rebels had been repulsed by UN forces. It was nearly 8.00 a.m. Edward arrived and said that he felt the situation in the country was unstable. "I should leave for Conakry in Guinea at once". He was generous in the reason he gave for urging me to leave - "If you stay I will worry about you as well as my family and anyway you can do more good for us if you leave" (I felt that deep down he wanted me to stay and hoped that the situation would stabilise within a few days so that I could return. I regret that I was not so confident, but I had very mixed feelings about leaving). As some Lebanese (who dominate much of the country's economy) began to arrive at the heliport, a few people were concerned that they would bribe officials and jump the queue. I do not know whether this happened or not. I was reminded of the film 'The Killing Fields' when it showed the Americans leaving Phnom Penh in panic as the Khmer Rouge attacked the city.

A man dressed in a long green jacket and red trousers and wearing a

bobble hat and dark glasses was talking to people in a comic fashion at the top of his voice and this added to the surreal nature of the situation. I guessed he was a local comedian, but he was talking in Krio which I had difficulty understanding. I had the strange idea that he might even have been mocking those who were leaving and if he was, I would not have cared as I already had a feeling of guilt. I don't know his motive for appearing on this most unlikely stage, but his presence certainly relieved the tension.

As we left, Edward assured me that he would ring my wife to let her know I was safe - and I knew that he would. We waited for what seemed like two hours with people pushing and shoving at the office kiosk with Edward hovering ready to collect my ticket. I was beginning to get the feeling that I might be staying after all!

However, the ticket finally arrived and we relaxed and took photographs of each other. Johnny Paul Koroma, himself once in alliance with the rebels, but now one of the leaders in the government, was periodically heard giving assurances over the radio that "the armed forces were ready to protect the nation at all costs even if the UN troops were to leave. Everyone should remain calm". As I left, British troops entered - and later routed the rebels in a matter of weeks. A conflict that had lasted for 10 years was very quickly brought to an end. It took me over a week to get back to the UK via Guinea and the Gambia. A short time after my return I was to reflect on some fortunate changes in the programme for my visit.

My original intention was to visit Sierra Leone a week previously, but an aircraft instrument fault halted the flight and I had to make alternative plans. Had I left according to my original plans I would have been in an area attacked by rebels and where 3 overseas journalists were killed.

My visit to Sierra Leone with my daughter in 1988 was my first experience of Africa. We were invited by the founder of a small non-government organisation based in Freetown. During our short visit, chance encounters with people from a Freetown slum named Kroo Bay, was to lead to a deeper involvement with the country.

In 1993, after providing a small grant for three water supplies at Kroo Bay, I took a sum of £10,000, raised from appeals to friends and businesses, to build a community centre. This was requested by the

Freetown Kroobay Development Association (FKDA) (which I had encouraged the community to establish during my 1988 visit) which represented the community of 5,000 people from five different tribes. However, despite an assurance to the contrary, I found that no planning permission nor construction plans had been obtained for the building and I quickly decided to risk only half the money I had brought. This was used to purchase materials and make concrete building blocks. A trainee architect from Forah Bay College prepared the plans and I worked with the FKDA making concrete blocks for the walls. However, I was to leave the country three weeks later not knowing whether the planning permission would ever be obtained. (In fact the building was started three months after I left and after many disruptions caused by the war, was completed in 2002 with the help of a grant from the World Health Organisation).

During this visit I gave a grant to the organisation which had invited me in 1988 and to my hosts on this visit who used the money to organise a seminar at Port Loko on organic farming, primary health and appropriate technology. Port Loko was a river port from which the British had collected slaves for transport to America. This abominable trade was to lay the foundations for many of the tensions between people living in Freetown and the rural areas. Sadly Africans were not blameless in the slave trade and many willingly captured fellow countrymen and delivered them into colonial bondage. Whether they always knew about the terrible cruelty their captives would then endure, is another question.

Our seminar was organised at the Bai Bureh Hall and included group discussions, three lectures, a film on leaf concentrate for curing night blindness in young children and entertainment by the scouts and guides from the local college. (Bai Bureh was a national hero from a small village who led a six month rebellion against Britain's colonial administration when it imposed a 'hut tax').

I have often been impressed by the ingenuity and organisational abilities of Africans when motivated to meet a deadline. This is quite contrary to the image we often get of Africans being lazy and notoriously poor time-keepers. I believe that Africa's colonial history of dependency and exploitation has laid the foundation for the major crisis we see today in most African countries.

It was during this visit that I met Edward Kargbo, a farmer from

Yonibana, ninety miles northeast of Freetown, who was among the participants at the seminar. He was a man I came to regard as a close friend. It was this association that first led me to visit the rural areas. Subsequently a £45,000 grant from the charity I helped to establish with some friends in 1995, was provided to help people recover from ten years of civil war. This was administered through the non-government organisation, Future in Our Hands Sierra Leone, which Edward had founded.

During this second visit I was to experience many signs of hope for the country, despite the incursions by rebels. On this occasion I stayed in a building housing about 14 people including a Pentecostal preacher I had chatted to whilst waiting to meet a government minister in 1988. She had arranged my basic accommodation. A few months before I arrived in the country a group of young soldiers led by Valentine Strasser, came to Freetown in April 1992 from the Liberian border to complain about lack of pay. President Momoh was out of the country so they made a decision to take over and called the newly formed regime the National Provisional Ruling Council (Tragically Strasser was later to become involved in atrocities and corrupt dealings). During my visit, Strasser was mobilising young people to clean up the drains and paint pictures on buildings and walls. There was a general air of confidence and hope. Young people were putting up road barriers and demanding a 'toll' to buy paint and tools for cleaning and painting. I engaged in a conversation with young men cleaning drains in the street where I was living and joined in with the work. On one occasion when I was shovelling debris from the open drain, I was suddenly aware of two pretty young ladies peering down at me. One said to me "That is what men should be doing" - as if to see a white man cleaning drains was an everyday occurrence. On another occasion I was walking down the street eating a banana and as had been the common practice, tossed the skin into the open drain. At that moment a young man behind me shouted "Didn't you see that waste bin we have just put up". It was one of those rare moments when I was delighted to receive an admonishment. Another moment of pleasure was to learn that the boys from Bullies in the Global Casino 69 the Kroo Bay slum had reached the final of the local football tournament. "Will you buy us new shirts for the final?" they requested. I agreed and they chose the colours of their favourite

team, *Blackstar Ghana*.

As there was no match in the City stadium on the day of the final, about 2,000 people had gathered to watch the local match. At full time the score was two goals each and in a failing light the result was down to penalties. Six shots from both sides penetrated the back of the net before the Kroo Bay goalkeeper made the deciding save that brought supporters flooding onto the pitch in a crescendo of excitement! About an hour later the team turned up outside my house with the champions cup - "We won this for you" one of them shouted. I was delighted that they had thought to involve me in their moment of triumph and pleasure.

I have visited Sierra Leone on several occasions since 1988 in connection with development projects in rural areas, city slums and internal displacement camps. In a country already made poor partly through exploitation by multinational companies and by home bred corrupt politicians, the internal conflict inevitably drove many thousands of people to the edge of starvation. In addition to this, many hundreds of thousands experienced unspeakable torture and humiliation, including the notorious severing of limbs. This conflict illustrates how those with a propensity to bully (who are mainly, but not exclusively, men) create misery and increasing poverty for large numbers of people. In a decade of fighting, 20,000 people were killed, 10,000 child soldiers took up arms, more than half the population of 4.5 million were left homeless and 250,000 women were abducted and raped.

Most of us will have some knowledge or direct experience of bullying in our schools and places of work and the unhappiness and despair this often creates. The outcomes of the war bullies activities are of a different magnitude, but there are some similarities in the human characteristics that give rise to all forms of bullying.

What the wars in many poor countries sadly show is the extent to which young children can be forced to translate the bullying of the playground into diabolical forms that even involve the murder of close family and friends. Many of the 'soldiers' in Sierra Leone were children and it was usually they who carried out the worst atrocities, often under the influence of drugs and usually upon the instructions of older men afraid of retribution from the spirits of their intended victims. The bullying which took place in Sierra Leone is all too common in many

parts of Africa and other countries of the so-called developing world.



Government and rebel soldiers get together during a period of 'peace'

I mention this personal African experience because it reflects an image that so often determines the attitude of those fortunate enough to live in rich countries, towards people from poor countries - "They would be able to develop if only they were not at each others throats all the time". However we would be seriously mistaken if we assumed that this problem is mainly confined within poor countries. A more insidious form of bullying, with even more devastating outcomes, takes place behind closed doors in the highest echelons of global power to determine who gets a share of the spoils of economic growth and globalisation . Can the conflicts and bullying taking place in many countries of Africa have their origins in this higher level bullying? If this form of bullying results in greater inequality and poverty in the poor countries of the world, then surely the answer to this question must be "Yes". It is this 'hidden' bullying, involving the politicians, business and financial leaders of rich countries, that I wish to highlight in this chapter.

Racism

Throughout history, bullying has been one of the most disturbing aspects

of human behaviour and a reflection of the abuse of power. To pick on the abuses of any one nation, tribe or individual as the worst manifestation of this abuse, would be pointless, but we should be aware of current abuses associated with the functioning of international trade and finance and the hegemony of the United States; all the more so because they have been carried out on the pretext of promoting democracy and freedom.

In order to understand how a global system of exploitation that widens the gap between rich and poor has come about, it is important to understand the role of racism. For whatever reason, throughout history groups of people, whether by virtue of sex, tribe, religion, wealth or colour, have considered themselves superior to those who are not of the same persuasion. Such superiority has been claimed by peoples of all races - Romans, Greeks, Japanese, Turks, Mongols, Russians, Aztecs and people from all the countries of Europe and a variety of names have been used to describe their victims - niggers, savages, barbarians, coolies, wogs etc. Bullies, from the playground to the highest echelons of global power, devise names for those they despise and look down upon.

The sins of Uncle Sam

In recent history, various administrations of the United States have ascribed the name “commu” (communist) to those regimes, especially in Latin America, wanting to introduce social reforms which the USA believe are contrary to its own economic interests and those of its banks and multinational companies. This behaviour has its origins in white supremacist racism practised by the colonial powers of Europe against the peoples they conquered.

Slavery was its very worst manifestation, but not the only one. Usually it has been, and still is, indigenous peoples who are the poorest and most ill-treated inhabitants of these former colonies.

The actions of political leaders in the USA and its Central Intelligence Agency (A criminal organisation established by the US government to promote its global interests) since the Second World War towards the governments of poorer nations, has been symptomatic of the behaviour of European colonists towards native American tribes.

The shameful history of Negro slavery and the colonists’ racism and broken treaties with native Americans, can in part explain the policies

that would later be adopted by all US administrations to varying degrees towards other countries. Those policies were to strongly influence international institutions of global power - the World Bank, International Monetary Fund and the World Trade Organisation, to the benefit of the United States and to the detriment of poor countries.

From 1945 to 2003, the United States attempted to overthrow more than forty foreign governments and to crush more than thirty populist-national movements fighting against intolerable regimes. In the process, the US bombed some twenty five countries, caused the end of life for several million people and condemned many millions more to a life of agony and despair ²⁹.

The United States destabilisation of Nicaragua was typical of the duplicity, misinformation and fabrication methods used during this period. The principle suggesting that 'the ends always justify the means' was carried to a grotesque extreme. In this case the 'end' was to rid the country of the revolutionary government of the Sandinistas who had ousted the repressive ruling Somoza dynasty which had ruled the country for forty three years.

US marines landed in Nicaragua on many occasions and when they left for the last time in 1933 they had installed the National Guard under the direction of Anastasio Somoza. William Blum, in his book, *Killing Hope*, recounts that "The Guardsmen, consistently maintained by the United States, passed their time on martial law, rape, torture, murder of the opposition and massacres of peasants, as well as less violent pursuits such as robbery, extortion, contraband, running brothels and other government functions." The Somoza dynasty laid claim to the lion's share of the country's land and business.

The first attempts to destabilise the country and support oppositions to the Sandinistas took place through the CIA during the Carter administration, but the knife was turned with a vengeance when Ronald Reagan took office in January 1981. Loans were withheld and the USA put pressure on the International Monetary Fund, the Inter-American Development Bank, the World Bank and the European Common Market to do the same. At the same time the US supported a vicious para-military force known as the 'Contras' which was made up of the defeated National Guardsmen from the old regime whose military operations involved extreme brutality against the civilian population. In

1984 the government announced that 910 state officials and 8,000 civilians had been killed by the Contras.

Ronald Reagan described the Contras, who had burned, dismembered, blinded, beheaded, tortured and raped unarmed civilians, as “freedom fighters” and the “moral equal of our founding fathers”. Instructions provided in CIA manuals for destabilising the country were perverse in the extreme and included advice on political assassination, blackmail, mob violence, kidnapping and blowing up public buildings. The manual also advised that “It is possible to neutralize carefully selected and planned targets, such as court judges, police and state security officials.”

Contra/CIA operators emanating from Honduras blew up oil pipelines. To add to the misery, Hurricane Joan hit the country in October 1988 and the Reagan Administration refused to send aid and did not help private American organisations do so.

On the 25th February 1990 the bullies eventually won the day! The Sandinistas were defeated in national elections by a demoralised population. The new US President, George H Bush, hailed this as “a victory for democracy”.

In monumental acts of duplicity and clandestine military and other subversive actions, often in collusion with former enemies in the Second World War, and usually under the pretext of fighting Communism, the USA has helped to destroy popular and often democratic movements for social change. I have listed below just a few examples by way of illustration:

The Philippines

In 1945, instead of supporting the Peoples Army Against Japan (the Huks) and helping them to establish a new democratic government of independence, the USA immediately set out to destroy their former allies. A reign of terror was instigated making use of many who had collaborated with the Japanese. The primary purpose of this repression was to lay the foundations for the exploitation of the country by US companies and thwart the Huk’s campaign for land reform.

The poor majority in the country continue to suffer to this day from both internal and external exploitation.

Greece

In 1944 the British Army, in the wake of the fleeing German forces, turned upon their former allies in the People's Liberation Army ELAS (which had been founded by the Greek Communist Party in alliance with other groups on the political left). They then installed a government led by Monarchists, quislings and conservatives, including 228 ex-members of the Nazi Security Battalions.

A succession of corrupt and repressive regimes, supported by Britain and the USA followed. Under the threat of withdrawing aid and through direct military intervention, the US imposed its dictatorial will on the people and government policies. A criminal internal security service (the KYP) modelled on the CIA, helped to instigate a reign of terror, which unsurprisingly involved systematic torture.

Repression reached a new height in April 1967 when a Colonel's junta, led by George Papadopoulos, who had served as captain in the Nazi's Security Battalions, came to power in a military coup. Martial law, censorship, arrests, beatings, torture and killings immediately followed, the victims totalling 8,000 deaths in the first month. This was the start of a seven year nightmare, marked by grotesque methods of torture.

Guatemala

In June 1954, the USA, at the instigation of President Dwight Eisenhower, John Foster Dulles and Allen Dulles and masterminded by the CIA, overthrew the legally elected government of Jacobo Arbenz.

The centrepiece of the Arbenz programme was land reform in a country where 2.2% of the population owned 70% of the arable land. A large section of land was owned by the US United Fruit Company which the government wanted to expropriate for the sum of \$525,000. However, the company wanted \$16 mil. The company and its subsidiaries owned most of the country's railway track, telephone and telegraph facilities and its most important Atlantic harbour and had strong influence with the US government. As it was to do in many of the countries in which it operated, the CIA mounted a campaign of false propaganda and other dirty tricks to

discredit the elected government as a prelude to the CIA and United Fruit sponsored coup.

The new leader, Col Casillo Armas, had thousands taken prisoner on suspicion of communist activity and many were tortured and killed. The United Fruit Company got all its land back, unions were banned and many of their leaders were murdered.

Through a succession of right wing regimes the terror was to continue for another 40 years. During this time it was the poor indigenous population who were to suffer the most. In 1960, an army rebellion against the corruption and influence of the USA was crushed by the CIA and the guerrilla movement in the countryside started to grow.

Many of the counter- insurgency, interrogation and torture methods were taught to the Guatemalan police and military by the US Green Berets at military academies in the US.

In the period October 1966 to March 1968, Amnesty International estimated that somewhere between 3,000 and 8,000 Guatemalans were killed by the police, the military, right wing 'death squads' and civilian vigilantes. This figure rose to an estimated 20,000 over the next 6 years. Shortly after the election of Ronald Reagan to the US presidency, US support for right wing oppressive regimes was increased throughout Latin America and within a few months 2,000 peasants were massacred by the Guatemalan security forces. Within 6 months of the coup which brought Efraim Rios Montt (a 'born-again Christian') to power in March 1982, 2,600 Indians and peasants were massacred.

These examples are typical of the repressive situations that were also to be created as a result of US interference and foreign policy in Korea, Albania, Iran, Syria, Indonesia, British Guiana, Vietnam, Cambodia, Laos, Haiti, Ecuador, the Congo (Zaire), Brazil, Peru, Dominican Republic, Cuba, Ghana, Uruguay, Chile, Bolivia, Costa Rica, Iraq, Angola, Jamaica, Seychelles, Grenada, Morocco, Suriname, Libya, Panama, Bulgaria, Afghanistan and El Salvador.

Many of the bodies established by the USA in their regions of

influence and propaganda have been given deceptively innocent sounding names - e.g. Economic Cooperation Administration; Inter-American Regional Labour Organisation; American Institute for Free Labor Development; Christian Anti-Communist Crusade; The US Information Service; Centre for Strategic and International Studies; US Office of Public Safety; International Police Services School, Washington; Higher War College, Brazil; Department of Information and Intelligence; CIA Technical Services Division; Drug Enforcement Administration; Institute of General Studies; The Asia Foundation; Congress for Cultural Freedom; Agency for International Development; Christian Women Agitators for Truth; National Council of Women; Soldier of Fortune Magazine; National Endowment for Democracy; Centre for Democracy; Council of Public Security and National Defence; Free Trade Union Committee; Free Trade Union Institute and the National Intelligence Service. This conglomeration of immense political power and global propaganda and misinformation included such popular international periodicals as the Readers Digest.

Hatred of US foreign policy must be understood in this historical context. A US response to this is likely to be 'Let them hate so long as they fear!'

While this period of US hegemony was being established across much of the world with dire consequences, especially for the poor, equally repressive internal nightmares were being experienced by the ordinary people of the Soviet Union and China under cruel and irrational policies of Joseph Stalin and Mao Tse Tung. The Chinese madness was to claim the lives of more than 120 million people and eventually lead to economic chaos.

China's nightmare

The suffering of the majority of the Chinese people is told graphically by Jung Chang in her book *Wild Swans*³⁰. In this she describes the history of China during the period between 1870 and 1978 and the impact of political changes on the lives of herself, her mother and grandmother and other family members. This period included the unification of China under the Kuomintang rule of Chiang Kai-shek in 1927, the Japanese invasion of 1931 and the period of Communist rule with its

promising beginnings that started with the *Long March* in 1934/35. However, the country was to free itself from Japanese occupation and feudalism only to descend into a nightmare world of totalitarian rule and irrational dictates in which petty bullies were to emerge from the mire in vast numbers.

Many good people who had helped China free itself from the cruel elitism of Japanese and Kuomintang rule, were branded 'rightist' in much the same way that people were branded 'communist' during the McCarthy era in the USA. However, the outcome of the branding was in most cases to prove far more severe for the victims and in many cases resulted in their murder. The families of the victims would also suffer severe discrimination. Many intellectuals were humiliated and tortured and many were executed. This nightmare was to continue with starvation brought about by economic policies that prioritised industrial production over food production - tens of millions died as a result. A period of sanity followed, but a dire situation for the country was to reach epidemic proportions in 1966 when China's leader, Mao Zedong, started what he named *The Cultural Revolution*.

Among the many irrational dictates issued by Mao were those to eliminate sparrows and remove grass from all lawns - "grass, flowers and pets were bourgeois habits and were to be eliminated". (This type of irrational and cruel behaviour was later to become commonplace in Cambodia's nightmare under the rule of the Khmer Rouge which arose from the destabilisation caused by US bombing). Some of the worst excesses of the Cultural Revolution resulted from Mao's encouragement of young people (his *Red Guards*) to attack their teachers. In practically every school in China, teachers were abused and beaten, sometimes fatally. Some children set up prisons in which teachers were tortured. The persecution was worst in Peking where, as related by Chang, "...the streets echoed with the screams of the victims". This account of the humiliation and brutality heaped upon the victims reminded me of the stories I was told about child soldiers in Sierra Leone who tortured their victims and forced them into carrying out degrading activities such as eating their own excrement. The analogy is relevant and compares with what was also to happen in Cambodia where formerly peace-loving and very normal young people were turned into monsters.

At the time of writing the Chinese government in its support for the

regimes in Sudan and Myanmar (Burma) has shown scant regard for human rights in pursuit of its own economic interests. Also, poor working conditions have been recorded in several Chinese owned mines abroad, including those in Peru and Zambia. Revelling in the international accolades for a successful Olympic Games and its phenomenal economic growth, is China set to become a new powerful capitalist bully in the global casino?

Did the period of repression in China justify the paranoid behaviour of the United States administrations in destroying democratic peoples movements and socialist governments on the pretext of fighting communism to further American economic interests? Of course it did not and the sad reality is that poor people continue to suffer as a result of US bullying, and that of other rich countries to a lesser extent, through its banks and multinational companies and the international bodies it dominates. This exploitation takes place in the current climate of neo-liberal political policies and globalisation founded on economic growth and 'free' trade.

Bullying behind closed doors

The chains that shackle the world's poorest people and ensure that mal-development continues to their extreme disadvantage, takes a different form today, but the outcomes are much the same. The new oppression carries on through the activities of the International Monetary Fund (IMF), the World Bank, large (mainly Western) banks, multinational companies and the World Trade Organisation (WTO). The unequal bargaining that takes place behind the closed doors of the WTO involves bullying in its most subtle, but extreme, form³¹. In all these multilateral agencies, the rich countries, notably the USA, European Community (the EC), Canada, Australia, Japan and to a lesser extent, Russia and China, conspire to make trading agreements which serve to increase the economic impoverishment of the poor countries of Latin America, Asia and Africa. These institutions of corporate and political power twist the knife into the gaping wound first created during Europe's shameful colonial period of exploitation and slavery (later to be joined by the USA) - a period in which countries representing the majority of the world's population were only permitted to trade in a narrow range of crops and raw materials. The companies that were formed to operate

this unequal trade were the forerunners of the multinational companies that are the main drivers of today's economic growth that widens the gap between rich and poor and is the main cause of the resource and ecological crises now confronting humanity.

Having been involved in campaigns to challenge this extreme exploitation over the past 30 years, I am now finding it very difficult to read in campaigning publications that nothing has changed. Organisations including the World Development Movement, Christian Aid, War On Want and many others, appear to have had little overall effect on government policy over a period of many years. Sometimes I have fantasised about the kind of gaol sentences that might be handed out to the leaders of Western Governments and their multinational companies and banks by some *Intergalactic Court*, for these crimes against humanity!

The unequal negotiations that take place between the representatives of rich and poor nations lead to agreements that even violate the WTO's own mission statement which requires development that improves the living standards of the poor. Developing nations are invariably bullied and coerced into endorsing 'agreements' with which they profoundly disagree. The representatives of US economic interests play the major role in the bullying that takes place.

The negotiations that take place are in reality based on the general principle 'that might is right' - those with the greatest economic and military might, representing less than a quarter of the world's population, dictate the terms. There are numerous examples that illustrate this point. The trade in cotton provides one example.

More than 10 million farmers in West and Central Africa (WCA) depend on cotton for their livelihood and millions more indirectly. "Over-production as a result of global subsidies estimated at US \$6 bil in 2001/2 (mostly from the USA, China and the EC) has led to world cotton prices collapsing over the past decade. While the WCA countries' production - amongst the most efficient in the world - increased by 14% between 1999/2000 and 2001/02, their export earnings fell by 31%". The situation since then has not improved and the USA continues to provide huge subsidies to its farmers in violation of WTO trade rules.

Current US and EU policies threaten to make the situation worse.

Oxfam America estimates US illegal subsidies at \$9.3 bil and that these lower the price of cotton on the international market by 10%. Most African farmers, meanwhile, must survive on an income of less than \$1 per day ³¹. All but 8% of US subsidies, are given for corn, wheat, cotton, soybeans and rice, to which are applied large quantities of chemical pesticides and fertilizers.

Ironically, fresh fruit and vegetables (essential for a healthy diet) are not eligible for subsidies. Both EU and US subsidised food aid threaten the livelihoods of poor farmers in 'developing' countries. Nearly half the population of the world depend on farming for a living and yet farmers in Europe and America constitute only about 2% of their populations. It should also be noted that US food aid must be bagged, processed and shipped by US producers.

In 2005, USAID purchased \$654 mil of food for international food aid programmes and spent nearly \$1bil in transport, storage and administration costs. Logistical costs ate up 60% of the US food aid budget ³². US subsidies and tariff support in 2005 amounted to \$43bil ³³. One of the negative outcomes of this trade distortion is that many farmers will turn to the growing of the more lucrative coca and opium poppy crops, thus compounding the growing drug addiction crisis in the West. Veteran 97 year old American campaigner, Doris Haddock, points out that subsidised crops are also destroying the livelihoods of Mexican farmers and contributing to the large migration of Mexican families to the USA. With tongue in cheek she remarks "By my calculations, the roughly 3 billion pounds of extra weight now being carried on the hips of working-age American citizens is roughly equivalent to the combined weight of the unauthorized immigrants now in our communities!". The provisions of the 2007 US Farm Bill (Sept 30th 2007), indicate that campaigning organisations and groups have had little influence on policy compared to powerful farm lobby groups.

EU and US trade representatives, Pascal Lamy and Robert Zoellick have featured prominently in the bullying that has gone on at the WTO (in 2007 Zoellick was appointed by George W Bush as president of the World Bank). The negotiating teams representing the rich countries have often conspired to force agreements that are to the disadvantage of poor countries. The US has openly threatened to blacklist WTO members that do not toe the US line and demanded the withdrawal of non-

cooperative negotiators. The EU often does not need to deploy US-style tactics because it can 'piggy-back' on the results of the US's own handiwork. Developing countries are often persuaded to support the EU position with the ever-elusive promise of EU agricultural reform (with which the EU has extracted countless concessions over the years, only to repeatedly renege on its promises) and the leverage that the EU enjoys as a consequence of its growing web of bilateral and regional trade agreements outside the WTO. In her book *Behind the Scenes at the WTO*, Fatoumata Jawara concludes "As the number of people disenfranchised by this crudely unequal globalisation project increases, global civil society resistance can only be expected to increase and move on to a larger stage".

Can the bullying and exploitation plummet even greater depths than those conducted behind closed doors at the WTO and in the major stock market 'casinos' in the capitals of the world? It would appear so from a new form of dirty dealing -

The vultures are descending!

When UK prime minister, Edward Heath, used the phrase *the unacceptable face of capitalism* when referring to the rapacious activities of Tiny Rolands and Lonrho, he could not have foreseen that the methods used were to become normal practise in global trade increasingly dominated by multinational companies. Perhaps the worst manifestation of the return of this highly exploitative form of capitalism is reflected in what are termed *Vulture Funds*.

As a result of many years of campaigning by civil society groups throughout the world, several rich countries, international institutions and banks have started to cancel the unpayable debts which were incurred by the generally corrupt ruling elites of third world countries. However, a scandalous loophole in the process has enabled some large companies to buy up the debt of poor nations cheaply when debts were about to be written off and then sue for the full value of the debt plus interest - which might be ten times what they paid for it.

In April 2007, OXFAM reported on a ruling in a UK court involving a claim by Donegal International against the Zambian Government. The debt originated when Donegal bought Zambia's long standing \$15 million debt to Romania for the knock-down price of under \$4 million

in 1999. Donegal claimed that interest and other payments had inflated the sum by another \$40 million. Donegal International is closely connected to Debt Advisory International of Washington, USA. Representing the company, Michael Sheehan describes himself as a debt advisor. The judge awarded \$15.5 mil of the \$55 mil originally sought by Donegal. Since qualifying for debt relief, Zambia has introduced free primary rural healthcare and announced plans to employ 4,500 teachers and hundreds of nurses. But one in three children in Zambia still does not go to primary school and nearly 80% do not receive secondary education.

By 2007 commercial creditors had delivered only 5% of the debt cancellation expected through the Heavily Indebted Poor Countries initiative. The HIPC Initiative was launched in 1996 by the IMF and World Bank with the aim of ensuring that no poor country faces a debt burden it cannot manage. There have been at least 40 lawsuits by commercial creditors against Heavily Indebted Poor Countries.

Extraordinary bullying

In 2003, A Kuwaiti-born, German citizen, Khalid El-Masri, wrongly taken for a member of al Qaeda, was detained by police in Macedonia. He was held for three weeks and then turned over to the CIA at Skopje airport. El-Masri says he was injected with drugs, and after his flight, he woke up in an American-run prison in Afghanistan containing prisoners from Pakistan, Tanzania, Yemen and Saudi Arabia. El-Masri said that he was held for five months and interrogated by Americans through an interpreter. He declared that he had been beaten and kept in solitary confinement. Then, after his five months of questioning, he was simply released. He was then flown out of Afghanistan and dumped on a road in Albania, from where he made his way back to his home in Germany. Khalid el-Masri's case has been given as an example of so-called 'erroneous renditions', meaning extraordinary renditions of completely innocent people. Although the "confusion" was admitted to Germany's then-Interior Minister, the CIA tried to keep the specifics of Masri's case from becoming public. The German government was requested by the CIA not to disclose what it had been told (even if el-Masri went public), on fears that this might expose the covert extraordinary rendition program, and thereby open up legal challenges. Some CIA officials have

argued that it has become, as one former senior official put it, 'a dumping ground' for CIA mistakes. The most disturbing aspect of this case is not only the torture that was alleged, but that this might happen to any innocent person anywhere in the world.

This concern was brought into sharp focus on 4th Feb 2009 when British judges criticised US refusal to release information concerning a British citizen, Binyam Mohamed, held at Guantanamo Bay. Secret CIA documents held by the Foreign Office detail the interrogation and treatment of Binyam Mohamed, who claims he was brutally tortured after being flown by US agents to a secret prison in Morocco with the active cooperation of British agents. This scandal has been compounded by threats from the new Obama administration to stop its intelligence agents working with UK counterparts on terror cases if information about the treatment of this prisoner is released to his lawyers. This blackmail flies in the face of President Obama's orders to ban torture and end rendition. "It is time to make a clean break from Bush administration policies of torture and extraordinary rendition and the secrecy that surrounds them", said Caroline Fredrickson, head of the American Civil Liberties Union³⁴.

President Obama has banned the extreme torture methods adopted by the CIA, but has also decided that no one will be prosecuted for carrying out such torture. In April 2009, vice president Dick Cheney complained that information about the effectiveness of these methods in yielding useful information to combat terrorism, had not been released. This suggests that the attitude of the Bush Administration was 'Extreme torture methods were justified if they yielded useful intelligence information'.

On the 11th June 2007, the UK TV Channel 4 programme 'Dispatches' exposed a new phase in America's dirty war on al Qaeda: the rendition and detention of women and children. Reporter Stephen Grey (author of *Ghost Plane: The True Story of the CIA Torture Programme*) investigated America's global sweep for prisoners - obtaining exclusive interviews with former detainees who claim they have been kidnapped and flown halfway across the world to face torture by America's allies. Turning his attentions closer to home, Grey gained exclusive access to an official European investigation which has found evidence that CIA prisons housing al Qaeda suspects have also existed in

Europe and revealed the interrogation techniques that have been used against such high-value prisoners. The Bush administration claimed such techniques stopped short of torture, but Grey discovered that many in the CIA disagree and are concerned that using them may leave them open to criminal proceedings in the future and make the evidence gained inadmissible in a trial. Grey then examined the new battleground of America's war on terror - the Horn of Africa. He travelled to Kenya and Ethiopia to investigate allegations of mass renditions involving women and children - where prisoners thought to have al Qaeda connections have been illegally transferred from country to country.

There seems little doubt that further horror stories will emerge about these renditions and the treatment of prisoners at Guantanamo Bay. The lessons of history are not being learnt and hard won internationally agreed charters on human rights are being swept under the carpet!

Killing social justice and democracy

The grossly perverse and uncaring attitude of rich countries in pursuit of economic growth and neo liberal policies, threatens the development of realistic international agreements to tackle climate change. Multinational companies and banks, frequently using unethical and corrupt practices, pursue policies that help to stifle practical activities and programmes which would offer hope for future generations and the poor. In pursuit of short term profits for shareholders and overpaid executives, they plough vast advertising revenues into persuading people, especially the young, to buy products which are nutritionally deficient, damaging to health and socially disruptive or encourage vulnerable people to take out risky loans which they are unlikely to be able to repay. In pursuit of these aims they frequently bribe politicians to instigate legislation to serve their interests, overlook illegal company activities and even bring in 'gagging orders' to stop whistleblowers from revealing these activities to the media.

In respect of the latter issue it is worth mentioning Jane Corbin's revelations in the BBC UK programme, *Panorama*, 'Daylight Robbery' on 10th June 2008. The investigation estimated that £11.75 bil may have been lost, stolen or just not properly accounted for, in connection with private conflict and rebuilding contracts in Iraq.

A US gagging order is preventing discussion of the allegations. The

order applies to 70 court cases against some of the top US companies. You might be hazarding a guess as to who they are! It must be an extreme embarrassment to the American public that the law of the land appears to have been so arrogantly disregarded by the Bush Administration and the multinational companies with which it was so strongly connected.

Henry Waxman, who chaired the House Committee on Oversight and Government Reform, said “The money that’s gone to waste, fraud and abuse under these contracts is just so outrageous, it’s egregious... It may turn out to be the largest war profiteering in history”.

The programme revealed blatant corruption in connection with US government contracts with private companies Halliburton, Bechtel, Parsons and Kellogg Brown and Root, a Halliburton subsidiary, resulting in not only additional costs to US taxpayers, but also in extreme risks for US civilian workers. The corruption included running empty trucks without any purpose and then charging for the fuel used and charges for soldier’s meals that were not actually provided. Halliburton is a Texan company for which vice president, Dick Cheney, was the chief executive. Many of the contracts in Iraq have been given to this company - frequently the only one invited to bid.

In her article for *The Blacklisted Journalist*, with the questioning headline ‘The Bushies: A gang of corporate crooks?’, Arianna Huffington, describes the links that existed between Bechtel executives and the Reagan administration. She also points out that Bechtel chief executive officer, Riley Bechtel, was appointed to George Bush’s Export Council, a White House trade advisory group.

The corruption and waste has also extended to the Iraqi government. Hazem Shalaan, who was appointed Minister of Defence in 2004, and his associates, siphoned an estimated \$1.2 bil out of the Ministry. They bought old military equipment from Poland, but claimed for top class weapons. Meanwhile they diverted money through a company named *The Ever Flowing Spring*, into their own accounts.

Multinational companies, especially those involved with the fossil fuel industry, have used their power and influence to try and discredit scientists warning of the dangers of climate change and the links to industrial activities and current farming activities, thereby stifling

progress towards renewables and organic agricultural methods. They believe that the future is in their hands and that the rest of us must meekly acquiesce.

Forced feeding !

Surveys indicate that most Europeans do not want genetically modified foods or foods containing GM ingredients and yet, under pressure from multinational companies and the World Trade Organisation, they are gradually being forced on an unsuspecting public via the back door.

GM crops are also being foisted on developing countries through IMF/World Bank structural adjustment policies. Soy cultivation is responsible for a major proportion of the deforestation taking place in South America and there is a danger that forest clearance in conjunction with global warming could turn the Amazon basin to dry savannah releasing 90 bil tonnes of carbon into the atmosphere and increase warming by 50%. The US produces nearly half the world's corn and 75% of this is genetically modified.

GM crops account for 9% of total land used for primary crops globally. Four cash crops continue to account for virtually all GM production: soybeans, corn, cotton and canola. Whatever the claims being made that GM crops could solve the world's food shortage crisis, a report by the International Assessment of Agricultural Science and Technology raises serious doubts about the effects of GM foods on health and the environment³⁵. Professor Watson, the chief scientist at the UK Department for Environment, Food and Rural Affairs (DEFRA), said that the industrialisation of agriculture, of which GM is a part, has led to the heavy use of artificial fertilizers and other chemicals and was not the answer to the world food crisis. "These have harmed the soil and polluted water ways. The leeching of the soil of essential minerals means food is less healthy than 60 years ago. UK GM crop trials have shown associated weed destruction has removed food for bees, butterflies and other insects and harm the food supply for birds".

His suggestion that organic farming practices offer many benefits, reinforces the findings of a 30 year study by the Rodale Institute³⁶ which compared the ability of conventional and organic farming to sequester carbon dioxide. The main conclusion was that organic methods, if

practiced on the planet's 3.5 bil tillable acres, could sequester 40% of current CO₂ emissions. However, conventional farming had resulted in a loss of carbon. "Some midwestern soils which comprised 20% carbon in the 1950s are now only 1% carbon. This carbon loss contributes to soil erosion by degrading soil structure, increasing vulnerability to drought by reducing the level of water-holding carbon in the soil and the loss of the soils native nutrient value". These practices break down soil carbon into carbon dioxide that is released into the atmosphere. Conventional agriculture in the US is responsible for 20% of its CO₂ emissions. The Intergovernment Panel on Climate Change estimates that agricultural land use contributes 12% of greenhouse gas emissions globally. Organically managed soils can convert carbon from a greenhouse gas into a food producing asset.

Despite the claims made for GM crop resistance to pest attack, there are signs that this is breaking down. A team of scientists at the University of Arizona has discovered that field populations of pink bollworm harbour three genetic mutations that confer resistance to genetically modified cotton. It may be only a matter of time before the pink bollworm and other pests adapt to Bt cotton. Already, more than 5,000 species of insects have evolved resistance after repeated exposure to natural and synthetic toxins³⁷. GM crops are also part of system of industrialised monocrop agriculture involving the use of fossil fuel based chemical fertilizers and pesticides which threaten natural plant polinators and hence future food supplies. Bees are under threat in many parts of the world and there could be many causes not yet fully understood. In the Sichuan province of China where there are no bees, villagers have had to resort to pollination with paintbrushes in order to ensure their pear crops.

Do GM crops mean less pesticide use? Arguments and statistics can be shown to show that they do and also to show that they don't. Herbicide-tolerant varieties have modestly reduced the average number of active ingredients applied per acre, according to the US Department of Agriculture, but the quantity of pesticides per acre has increased. In the case of Bt cotton the quantity of insectides has been reduced. In 2000, trials indicated that 30% more Monsanto Round-up Ready herbicide was applied than to the same area of non-GM corn. Four years

of data show that Monsanto Roundup-Ready weed management systems require a slight increase in herbicide use per acre. The debate about whether GM crops reduce or increase the use of chemical fertilizers, herbicides and pesticides will continue into the future. What concerns me is the impact the technology will have on the livelihoods of poor farmers who have been made dependent on the purchase of expensive patented seeds and chemical inputs and also on the expansion of organic methods using biological methods of controlling weeds and pests and enhancing the fertility of the soil. Charles Benbrook of the US Northwest Science and Environmental Policy Center at Sandpoint maintains that "The greatest long-term pest management benefits from agricultural biotechnology may well be process and management based, as opposed to product based. Sophisticated pest management systems in the future will rely on biotech to help evoke and sometimes strengthen, natural plant defence mechanisms. Biotech will make it possible for farmers to subtly tip the competitive balance within agricultural systems toward beneficial organisms at the expense of pests. It will expand the range and deepen the effect of a new era of 'countermeasures' that together might finally pull the plug on the pesticide treadmill"³⁸.

The form of bullying that supports the perpetuation of a system of farming that contributes so much to global warming is a threat not only to the poor, but to humanity as a whole. This is all the more unforgivable when a method of easing the crisis is so readily available. The Cuban experience described in Chapter 9 provides a practical example of how a transition from conventional to organic farming can be brought about. However, the process in each locality around the world will vary and be quite different from the homogenised and industrialised approaches adopted in conventional monocrop farming. As with genetically modified crops, however, these new organic methods are likely to involve a high degree of scientific research in order to control weeds and pests and enhance soil fertility and crop yields.

An article in the journal 'Advances in Agronomy (Vol 70, 2001)' describes how patterns of consumption could change in a way that enable the world's population to be adequately fed using organic methods. These take account of the generally lower yields found with organic methods as compared to conventional farming in developed

countries. In developing countries yields are much the same with both methods, whilst the inputs for organic farming are less. Organic farming in developed countries is likely to result in more home-produced proteins, thus reducing imports of protein crops, like soya, and hence releasing resources to meet domestic food needs. Consumer demand patterns may also change to favour low meat diets as awareness of the environmental, welfare and health costs of intensive livestock production systems increases. “A strategy that increases total food supply over time, while doing this with lower levels of resource use and environmental pollution per unit of food produced, is a fundamental requirement – increasingly organic farming is demonstrating its capacity to do this”.

It is the unwillingness of the developed countries to accept the main responsibility for climate change that prevents developing countries from taking vital measures to halt the destruction of peatlands and forests. Every year the destruction of forests and peatlands generates more than the emissions from the global transport sector. However, because the developed countries are not willing to make sufficient reductions in their own CO₂ emissions, there has been a general failure to reach agreements on avoided deforestation despite the fact that this is the cheapest form of carbon emissions abatement (\$3/tonne compared to \$585/tonne for biomass and \$146/tonne for nuclear power, for example³⁹). Such carbon offsetting schemes under the provisions of the Clean Development Mechanism and Joint Implementation of the Kyoto Protocol have often been discredited because of the nature of the projects (e.g. eucalyptus plantations and biofuels). Future agreements between rich and poor countries on avoided deforestation and peatland destruction could probably be achieved if they were part of a package which obliged rich countries to make substantial reductions in carbon emissions whilst at the same time funding renewables technology and monitoring of forest conservation in developing countries and providing them with avoided deforestation and peatland compensation based on an appropriately high carbon price. Vested logging and political interests must not be allowed to stifle the process and poor people must be able to obtain an income that is sufficient to discourage them from destroying the natural environment on which they depend for their survival.

Far from providing benefits for the poor, government policies towards indigenous peoples living in environmentally sensitive regions favour

exploitation of resources by multinational companies. These policies are frequently accompanied by extreme violence as reflected in a report from Survival International on 10th June 2009, for example. The Peruvian government is continuing to open up Indian territories in the Amazon to oil and gas companies and this is causing increasingly violent confrontations with police. On June 5th over 30 Indians and 20 police were killed and the president of the organisation representing the Indians has been forced into exile. Peru's President, Alan Garcia, has labelled the indigenous protesters 'savages', 'barbaric', 'ignorant' and 'second-class citizens'.

Organic farming and avoided forest and peatland destruction can be part of the solution to the global crisis. These and other solutions which involve drawing down CO₂ already in the atmosphere, will involve policies and actions that confine the bullies to the compost heap!

CHAPTER 4

A Share of the Spoils

Sugar - sweet or sour!

“Do you catch that smell?”

The remark was made by an opposition politician in the Kenyan government as he and his wife were taking my Kenyan friend, Rom Wandera, and I in a hired taxi to the Muhuroni region near Kisumu in the west of the country. The smell was similar to that of silage. “That’s the effluent from the sugar cane factory” he continued with the knowledge of the time he was once a manager at the factory.

Very small mud huts were dotted around the fields with pockets of squatter settlements near the plantations resembling the worst slums that could be seen anywhere. We were taken to his sugar plantation and he said that he was not able to sell the cane because prices were so low. The market for the sugar had been depressed by cheap imports - one of the many negative aspects of globalisation! I could not see that this crop was providing any benefits at all for the poor people of this area and indeed little benefit for the landowners either. I suspected that it would not be too long before the factory would be closed down and about 18 months later this is precisely what happened. Surely it would have been better for people to grow food crops? A local survey revealed that casual workers, unsurprisingly, had received only a meagre income, and middle class workers who had bought land to grow sugar cane to ensure a good standard of living for their old age, suddenly found themselves without their main source of income.

This visit had come about as a result of a letter from the politician’s wife who ran a women’s group which supposedly wanted to engage in

tree planting. However, it turned out that her husband wanted money to establish a neem tree plantation. Although I had become very familiar with the properties of neem, I had also begun to develop a dislike for plantations of any kind. I later provided a very small grant for the women to establish a tree planting nursery for agro forestry but heard nothing more about how the money was spent.

Life in the slums and rural villages

During this short visit to Kenya in 1998, we also visited ten poor communities in and around Kisumu to gather their opinions about setting up a savings and credit cooperative network. One of the women's groups gained their income mainly from prostitution and selling illicit beer and I was saddened by a comment from the most attractive woman in the group that she did not expect to live to an old age (presumably because she thought she would contract HIV) but was concerned about how her son would manage if she died.

An enterprising slum community was paying lorry drivers carrying 'waste' from the fish factory to leave their loads for processing by the community. Most of what others had disregarded ended up in the market and what was not fit for human consumption was fed to pigs. In fact, nothing was wasted!

A Muslim group living near the shore of Lake Victoria, gained most of their income from fishing and the men were putting the finishing touches to one of the large and impressive boats they had built, when we arrived. At this time, all fishing was being adversely affected by water hyacinth which was clogging the shorelines of all countries bordering the Lake. One solution to the problem being put forward by an overseas agency was to clear the plant using expensive imported dredgers. The problem was eventually solved by the cheaper and more effective method of introducing weevils that fed on the plant. Other groups were situated in the rural areas around Kisumu and were engaged in tree planting projects which were being funded by Plant a Tree in Africa, a charity I had helped to establish in 1986. I had been inspired by a talk from Professor Wangari Maathai, founder of the Green Belt Movement. In a small way I have been able to build on her initiative through the charity which has funded tree planting projects in several African countries.

The Agenda 21 Seminar

Under the banner of 'Agenda 21', one of the international agreements that came out of the Earth Summit in 1992, Rom and his friends organised a seminar that was to lead to the establishment of local initiatives for primary health care, AIDS awareness programmes, City environmental schemes and business training courses. Groups involved in the cooperatives network were also able to help each other, especially during a period of drought and mitigated some of the problems caused by low sugar cane prices by focussing on livestock and food crop production.

An urban slum revisited

Some of these impressions from Kenya were reinforced during the visit I made to Freetown, the capital of Sierra Leone, in 2002. The difference in the city which struck me most since my visits in 1993 and 2000 was an apparent marked increase in both the numbers of people and the numbers of cars. Almost 'wall-to-wall' people was the order of the day in many streets. For short journeys it was quicker to walk!

I was able to complete the monitoring I should have done in 2000 and this included a return visit to Kroo Bay, the city's largest slum. My overall impression of the area had not changed appreciably since my first visit in 1988, but there were some improvements. The new developments included a concrete road skirting the edge of the site, a footpath penetrating into the centre of the area and a block of showers and toilets, all constructed with funds from the World Bank (Why didn't the Bank do more I wondered given the large spending on the by-pass road built through the slum?). A day-care centre had been built with funds from Plan International and the 'community centre' was now a health centre and was completed with funds from the World Health Organisation.

A very large corrugated iron shed housing large ovens was a new addition and was being used to smoke fish ready for export to the USA and the UK where emigrants still had a taste for the 'old country' foods. More water taps had been installed and there were designated areas for washing.

Although we still saw children paddling in contaminated water and piles of rubbish were still lodged at the sewage outfalls, the health



Kroo Bay - 1988



Starting work on the community centre - 1993



Children still play in water polluted with sewage - 2002



The completed community/health centre 2002

situation for the community was now better than before. The new Health Centre now provided a ready facility for safe child delivery and the treatment of most diseases and minor ailments. There were plans to turn the unused part of the centre into a ward (perhaps the situation here would become better than that of the city hospital!). However, despite the positive developments, I observed that all the dwellings were still vulnerable to flooding which was likely to be increasingly severe as a result of the new paved areas. I also suspected that trees were still being felled in the catchment area draining to the Bay and that this would also increase the run-off.

This is a community of skilled artisans. At various points around the Bay blacksmiths were making tools and cooking utensils and other people were making shoes, clothes and many other items essential for everyday use. I was especially intrigued by a group of men making aluminium bowls of a high quality. A blind man was putting the

finishing touches filing off the sharp edges and a smile spread across his face when I touched him on the shoulder and praised him for his work. I wondered where the aluminium was coming from, but a few moments later my question was answered as we were passed by a group of boys with Coca Cola cans strung over their shoulders. I thought there was irony in the fact that fish processed in a slum was ending up on dinner plates in the USA and that US junk drinks were providing the means for the community to make high quality aluminium bowls. Perhaps these were also exported to America!

As with previous visits, I came across aimless groups of teenage boys gambling, but on the positive side, one of the Future in Our Hands (FIOH) groups had set up a roadside cooperative providing employment for about 100 youths and women. The range of products being made and sold was impressive and activities even included jewellery making, tailoring and hairdressing.



However, I also saw young men, both former rebels and their disabled victims, begging on the streets - another irony. But how did the trouble in the country all start? Some background information would perhaps help to put my own involvement into proper context:

In 1990, Charles Taylor established the National Patriotic Front of Liberia (NPFL) and launched a rebellion. In March 1991 NPFL soldiers crossed the border into Sierra Leone and gradually gathered support from Sierra Leoneans in the east disaffected with the government. Within six weeks they took over much of the south and east, the country's most important areas in terms of cash crop production and valuable diamond reserves. This is not the only time disturbances had taken place in this area. In 1982

the army had to put down disturbances among the Mende tribe who had become dissatisfied with their representation in the All Peoples Congress (APC) government, in power since 1967. In 1991 a new Sierra Leone rebel force, the Revolutionary United Front (RUF) was formed under the leadership of Foday Sankoh and joined NPLF infiltrators. In May 1991 a new government army was formed and bolstered by troops drawn from Liberian refugees (the United Liberation Movement (ULIMO)).

During the next 11 months, fighting continued spasmodically and was generally confined to the north and east of the country. In April 1992 opportunist young officers, complaining about lack of pay for their soldiers, took over the country during the absence of APC President Momoh. The National Provisional Ruling Council (NPRC) was formed under the leadership of the youthful Valentine Strasser.

On 25th May 97 the military under the leadership of Johnny Paul Koroma overthrew the new government and released 650 prisoners. They then invited the RUF rebels to help form a new junta. This was named the Armed Forces Revolutionary Council (AFRC). This was not recognised by the international community, including the United Nations, and sanctions were imposed. This caused even greater hardship for poor people in the city and the rural areas. It was reported that 20,000 people had been killed since 1990 (nearly all civilians) and one third of the 4.5 million population were in internal displaced camps or refugee camps in neighbouring countries.

On the 6th Jan 1999, rebels attacked Freetown and drove civilians before them as a human shield. Thousands were abducted and buildings and vehicles throughout the city were set on fire, often with people inside them. Nigerian troops made a tactical withdrawal. On the 21st Feb 99 Nigerian troops fought their way back into Freetown and drove out the rebels.

On the 7th July 1999, the Lome Peace Accord was signed under pressure from Britain, the USA and the UN. The

combined SLPP/AFRC/RUF government and the involvement of a UN peacekeeping force permitted some degree of normality, but the RUF continued to control a large part of the country and their leader Foday Sankoh was made the Minister of Resources and Mines. About 50,000 people were estimated to have been mutilated and 100,000 killed. In Makeni 20,000 people were considered to be in danger of starvation.

On 13 Jan 2000, Partnership Africa Canada reported that the records of the High Diamond Council (Belgium) show that between 1990 and 1998 the Antwerp diamond industry imported an annual average of nearly 5 mil carats of diamonds from Liberia and 600,000 from Guinea - 'In 1998, while the Sierra Leone government Gold and Diamond Office reported exports of only 8,500 carats, the High Diamond Council's own figures showed it imported 770,000 carats of diamonds from Sierra Leone during the same period'. [The RUF had bought guns with money from the sale of these *blood diamonds*]

In April 2000, 500 UN peacekeeping troops were taken hostage by the rebels.

This example of the inadequacy of UN forces and an underestimation of the dire situation in many parts of the country, was shortly before my short visit in May 2000. The visit in 2002 was at last the opportunity I had been longing for to catch up with my friend, Edward, and carry out a proper monitoring of the project started by the FIOH Fund back in 1997 with the support of the Big Lottery Fund. His own story of survival is remarkable and I came to realise just how important the FIOH Fund's financial support was during an 18 month period at the height of the conflict, when the Big Lottery Fund had withheld funding:

On Christmas Day 1994, rebels made their first attack on Edward's home town, Yonibana. All public buildings, including the primary health training centre (which was funded by FIOH UK), were severely damaged and two villages were burnt to the ground. Wells were poisoned and crops and seeds destroyed. In February 1995, Yonibana was attacked again and many people,

including Edward and his family of two wives and 9 children, fled to Freetown. I asked Momodu Bangura, head of the FKDA, if some of their money for the community centre could be used to mount an emergency food relief for the people of Yonibana. Momodu and Edward then took a large lorry load of food supplies to the town. This was quite a risky undertaking, given the level of rebel activity. On May 5th 1995, Edward was badly injured in an attack on a convoy taking more emergency supplies to Yonibana. His wounds took three months to heal and he had a limp when we met in 2002.

People started to return to Yonibana from the bush and from internal displaced camps during 1995, but rebels attacked again on 11th July and 28th December. Once again people fled to displaced camps in Freetown. I asked 10 schools in Swindon if they would ask their pupils to fill shoe boxes with emergency supplies - dried food and milk, pharmaceuticals, books and toys. There was a very good response to the appeal and about £4,000 worth of supplies were distributed at displaced camps in Freetown and at Yonibana.

A peace accord was signed on 10th January 1997 and in May 1997 the FIOH Fund received a grant of £43,000 from the Big Lottery Fund (then called the Community Fund) to help people re-establish farming activities at Yonibana.

On 25th May 1997 a coup was mounted under the leadership of Johnny Paul Koroma and prisoners were released from Freetown's jails. The new junta then joined forces with the RUF rebels. This alliance was not recognised by the international community and on the 24th October 1997 the Lottery Fund withheld funds for the project. With the aid of mercenaries and the Nigerian forces, President Kabbah was restored to power on the 13th February 1998. The Lottery Fund restored payments on 11th May 1998 and on 14th November the project was officially re-launched. However, almost immediately the rebels launched new attacks on Yonibana and on the 22nd December 1998 I lost contact with Edward. On 6th January 1999 rebels attacked Freetown and carried out many atrocities as I have already described.



On 21st February 1999, the Nigerian forces drove the rebels out of Freetown and on the 8th March, Edward rang me to say that he and his family were safe after spending 2 months in the bush but gradually travelling the 90 miles towards Freetown. The picture on the left shows Edward's family living in the bush.

What was very clear to me was that the spoils of trade were not filtering down to the poor in times of peace, let alone in a time of war. That anything at all had been achieved since 1997 was a tribute to the bravery of Edward and his staff. In fact, despite the destruction of the buildings provided with project funds, much was achieved both during and after the war to keep many thousands of people alive and to help with rehabilitation. FIOH Sierra Leone had obtained a good reputation as a reliable development partner and was receiving support from several outside agencies including the UK Department for International Development (DFID), CARE International and the World Food Programme (WFP). WFP had supplied a land rover two weeks before my visit and this was used for my monitoring. As we set off for Yonibana and Mile 91 along one of the few surfaced roads in the country with some of Edward's staff, he remarked "Ladies and gentlemen, shall we go to the UK?". He then switched on the air conditioning and suddenly the discomfort of Africa disappeared in a waft of cool air!

Thanks from the UK Ministry of Defence

People from one of the villages we visited were very proud to show me a letter of thanks from the UK Ministry of Defence for the help villagers had given after the capture of 9 British soldiers by a rebel group calling themselves the 'West Side Boys'. The army mounted a rescue operation to free the prisoners and the villagers had provided vital information about their whereabouts. Only one soldier was killed in the successful operation. I had also received some thanks from the MOD who had previously phoned me to request that one of its staff could visit my home

for an interview. I showed him some of my photos and he was very interested in one of a group of rebels which included a commander who was named 'Mosquito'. Whoever provided the photo, included a note that this angelic looking young man (about 17 years old) had personally killed 8 people. The MOD had wanted a picture of this man and were very grateful to have the photo for identification.

We don't call them rebels!

The rebuilt training centre at Yonibana was impressive. Vocational training was for war victims and *ex-combatants* as Edward had insisted that they be called. I could not help thinking of the Peace and Reconciliation process in South Africa, but confess to a feeling of unease at meeting those who had carried out extreme acts of violence. The Centre was providing training in carpentry, gara-dyeing, soap making, sewing, metalwork and tailoring as well as literacy classes.



"We have to integrate them back into society without expecting any kind of restitution". He pointed out that many of these young people were genuinely sorry for what they had done whilst a few still tried to justify their actions. Some people were telling me that many had gone mad because they could not come to terms with what they had done. I

asked Edward how he went about convincing people towards his point of view (and remember that he and his family suffered as much as anyone else in this pointless war). He told me that he reminded people that many had said that war was the only way they could get rid of corruption in the country. They got what they wanted even though it did not turn out how they expected. Now everyone wanted peace there was no option but to accept *ex-combatants* back into society. Although I still felt that it would be impossible for many people to forgive, I had to admit that what he said was right. Some of the young men in the workshop were *ex-combatants* and I spent a day working with them. The experience not only helped me to come to terms with my new awareness, but also realise the extreme difficulty they had working with bent saws made from poor quality steel. I was very surprised that such high quality furniture was being produced in such circumstances.

The welcome we received at Yonibana and indeed in all the communities we visited, was almost overwhelming and what pleased me most was the high regard people had for Edward and all his staff. In all meetings tribal chiefs, elders and community workers were very anxious to inform me about the way Edward and his staff had helped them while they were living in the bush. Nine FIOH members had in fact been killed while carrying out humanitarian work providing food and shelter. At one stage he bought a car with some of the money I had sent and set up a taxi service to provide for his family. When he first drove into the bush at the height of the conflict, people fled from the vehicle because they thought it was the rebels who had come. He had to shout out to them to come back. I was told about the way Edward had persuaded people to leave the bush and start growing crops with the seed he was able to provide. I heard gratitude for the emergency supplies provided by Swindon's school children. The books and pencils donated were used to start a school of about 200 pupils.

We were able to see only a fraction of the agricultural projects started by FIOH, but all of these were very impressive. Groundnuts, maize, rice, cassava, sweet potatoes and a wide variety of vegetables were being grown extensively throughout the areas of Mile 91, Yonibana and Rothen Junction (The Yoni Chiefdom). Some of these agricultural plots extended for about a mile. One area I visited in 1993 had been covered

in trees. This area had been denuded of trees because people displaced by the fighting had been forced to cut them down for fuelwood. This area was now covered with tree saplings provided by FIOH for agro-forestry.

At the time of my visit in 1993 Edward was working as manager of the local rice mill. This was no longer working as parts of it had been removed by the rebels. The building was now being used for storing food aid from the USA. There was of course a desperate need to repair this and other rice mills throughout the country because there was still too much reliance on imports. Edward and his staff were trying to convince farmers to grow more maize (sweet corn) because of its higher nutritional value.

Our next visit was to Makeni, a large town 60 miles further north situated approximately at the centre of the country. We were passed several times by truck loads of smiling Bangladeshi soldiers whose current peacekeeping role was to reinstate the country's major road network.

I was surprised at the size of the FIOH headquarters and the height of the rooms. My first remark on entering was "So this is the FIOH embassy". The building was rented from a man who did not want to charge for the use of the building. Edward had helped this man during the war and he wanted to show his gratitude in this way. However, Edward insisted on paying a small rental. A large meeting had been arranged for our visit and this was attended by the representatives of 15 non-government organisations (N.G.Os). FIOH was the very first NGO to start development work in the area and provided a valuable advisory service to other NGOs especially with regard to the aid programmes operated by DFID and the World Food Programme. One representative remarked to me "You can call on FIOH staff at any time of the day or night and they will always find time to listen and advise you".

I often noticed this about Edward. No matter what our plans, if someone turned up to speak to him just before we were to leave for a meeting he would always deal with the caller first rather than ask that person to call again at another time. This way of working had clearly rubbed off on his staff. I was very impressed by the way he consulted his staff about important matters and tried to resolve any disputes by consensus. But when a decision was to be made there was no doubt as

to who was the boss. He was tolerant and understanding, but there was no doubt about his authority and he had the respect of his staff whether they were paid or voluntary. He had 16 paid staff and 15 who were volunteers. I asked him how he had come to attract such good quality staff and why so few of them were women. He told me that the fact that most of his staff were men was not his choice. Originally he had advertised for voluntary staff and it was men who applied. He felt that it would only be those who were most committed to helping the less fortunate that would apply to help on a voluntary basis. However, despite the shortage of women on his staff, I did notice on several occasions how much Edward respected women and sought the advice of those with special qualifications.

He drew heavily on the knowledge of his agricultural technical adviser, Alfred Collier. He would often remark on his own lack of education and his wish to improve his knowledge of English. I acknowledged his desire for more education, but doubted whether it would add anything to his qualities as a communicator, motivator and leader.

Seed multiplication

When we visited just a few of the vast agricultural areas established with the help of FIOH, Alfred explained to me the FIOH seed multiplication programme. He told me about the time they had asked people who were able to grow crops to save some of their seed for use in those areas where rebels had destroyed crops. This was the start of the seed multiplication programme which involved shifting seed from crop growing areas to areas of destruction and need. New areas had been penetrated in both the Makeni and Yonibana areas through the construction of roads through scrub land with the help of the World Food Programme's *food for work*. The roads were of a high quality because FIOH insisted that the beneficiary communities take responsibility for ongoing maintenance.

Too many widows

FIOH had developed a policy of accessing remote villages that had not been reached by other agencies. We visited one of these which was 45 miles from Makeni and close to the border with Guinea. Rarely were we able to travel at a speed of more than 4 m.p.h. One road, which had not

been maintained for more than 7 years, had half metre depressions and the appearance of a very rough sea.

In this village we were shown a soap making process using a mixture of palm nut oil and caustic soda which had been introduced to many villages by FIOH. Houses in the area were very makeshift and had mud wattle walls and grass roofs. I was told of the particular dangers that would face these communities with the onset of the seasonal winds - *the Hamattan*. Even the slightest spark from an open fire could set the roofs of all the village houses alight in just a few devastating minutes. During the meeting at the village we were told of the hardships suffered during the rebel occupation and shelling from the Guinean side of the border. Whenever the shelling started, the rebels would go searching for men hiding in the bush and then slit their throats. When the Paramount Chief asked how many women were widows, about 70% put up their hands.

Not only was FIOH involved in rehabilitation work but when thousands of people fled from rebel attacks on Makeni, was also involved in emergency feeding at Yonibana.



A displaced camp

When many people fled from the rural areas they drifted into displaced camps in Freetown. We visited one of these where thousands of people had not yet been resettled back in their home communities. The camp consisted of rows of tents housing men, women and children. We spoke to two women who told us of the hardships they suffered when they first entered the camp where they initially had to live without any form of shelter and little food.

Despite all the horrors of 10 years of internal conflict, it is these two pictures that will be etched into my memory. One shows Edward giving



a bicycle to a boy whose parents had been killed, whilst the other shows children greeting me at Kroo Bay. What are they doing now?

I left with that worrying feeling that if the majority of young people in the country could not find work, then the re-emergence of the country's nightmare would remain an ever present threat that might increase if foreign aid and troops were to be withdrawn. Meanwhile the legacy of the war lingers on in broken bodies and the minds of young people haunted by the memories of the atrocities they had been forced to commit.

Trade Slaves

This was the title given to a television programme on BBC2 which illustrated the manner in which foreign multinational companies were stripping the resources of the country for which the government and local people gained only a pittance. Why are there so many poor people in Sierra Leone? With so many valuable resources - diamonds, gold, rutile, aluminium, fish - should not the country and its population of less than 5 million, all be rich? Well yes, they should be, but the spoils of international gambling on the major stock exchanges and economic growth have not trickled down to them. The mantra that 'you can only improve the living standards of the poor by making the rich even richer', dominates economic thinking dictated by the rich and powerful. The valuable resources of the country are exploited by foreign multinationals - not home-based companies - and it does not take much imagination to realise how the spoils are shared out. Who benefits from the coffee at Starbucks, a Mars chocolate bar, the sugar in a pot of jam? Who does not benefit from EC and US subsidies to their farmers? Certainly the farmers of the third world who cannot compete against subsidised imported food, do not gain the benefit!

Trickle down

Suketa Mehta, in describing the social and economic climate dominating his home city of Mumbai (Bombay) in India seeks to justify the proposition that the needs of the poor can only be met by indulging the affluent - "But it is also these rich who create wealth, who create the conditions, that will allow the mother on the streets to find a home for her children. They must be allowed their penthouses, their brandy, so the poor may be allowed their simple clean room, their rice and dhal. In the post-Marxist age, we can no longer believe that redistribution solves anything, that making the rich poorer will make the poor richer. It is the death not just of ideology but of ideas." ⁴⁰

Such is the thinking behind economics.

Mehta appears to destroy his own arguments when he then goes on to describe in graphic detail the extreme brutality perpetrated by criminals and police alike which permeates India's black economy. Life is cheap - the price of a contract killing can be as little as 5,000 rupees (£65) and common extortion rackets make the Kray twins seem mild by comparison. If Mehta's observations and experiences are correct, then the 'share of the spoils' in much of Indian society is determined by criminal elements often linked to religious and political alliances.

I have tried to show how the spoils of international trade and finance are distributed internationally by means of Chart 1 in the first chapter, but this cannot adequately express what this means for the individuals in the bottom 10% of global GDP. Jeremy Seabrook peppers his book on world poverty ⁴¹ with heart-rending case histories which more aptly illustrate, not only the physical effects of poverty, but the demoralising sense of powerlessness which many millions of poor people feel - the sense that no matter how hard they try, they cannot change their degrading circumstances. Although extreme poverty is greatest in Africa and Asia, the charts showing the distribution of wealth in nearly all countries have a very similar appearance at first glance. A tenth of households in the USA experience hunger or the risk of hunger, for example. Extreme poverty helps to fuel crime. In the past 20 years the US prison population has nearly doubled to over 2 million. A disproportionately large number of poor people are black. Almost 15% of the black male population are in prison. The apparatus of controlling

crime is a substantial contributor to economic growth. The cost of maintaining a prisoner is about \$50,000 a year. The permanent elimination of extreme poverty would be a simple matter with just a very small proportion of global wealth allocated for the purpose, but the poor are soon forgotten and out of sight - "It is the very modesty of the demands of the poor that drowns out their voices in the incoherent concert of the global media".

Statistics abound about the benefits of globalisation and economic growth and the numbers of people (mainly in China) this has 'taken out of poverty'. However, when listening to this message it is important to understand its nature and that of the messenger. Who benefits most from economic growth and hence highlights this outcome rather than the numbers of people remaining in poverty and the threats that over-consumption poses for humanity as a whole as a result of climate change, resource depletion and rapid population increases?

Economic growth is the 'sacred cow' of politicians and affluent consumers, the elites of poor countries, multinational companies and banks and multilateral institutions including the International Monetary Fund, the World Bank and the World Trade Organisation, whose policies are dominated by the rich. When the sacred cow is threatened, attempts to save it can come from many quarters, even from the poor who may rather be exploited than risk losing what they believe is their only means of income or survival.

Two significant statistics emphasise the gross nature of extreme inequality and wealth and illustrate not only the injustice built into the global economic system, but also how just a few individuals have the power and income to eliminate extreme poverty and hunger:

- i. The richest 20% of the world's population receive 150 times the wealth of the bottom 20%.
- ii. The assets of the 200 richest people are worth more than the total income of 41% of the world's people whose proportion of total wealth has halved in the past 40 years.

As I write, my current Email dialogue with a poor man in the Philippines has brought home to me some of the worst aspects of

globalisation. After struggling for many years without success to gain an adequate income in his home province for the basic needs of his family, he has come to Manila in search of work. He is working in a Call Centre owned by a US company. He works a six hour day for just £2. His brief is shown below:

Hello! (Good Afternoon!) (Good Evening!) May I talk to _____?

I am _____. I am calling from

How are you today? Good! Don't worry this is not a sales call!!!

Well, Mr/Mrs/Ms. You've been pre-selected to receive our NEW FLYAWAY PACKAGE; we're offering roundtrip airfare primarily for 2 adults to any major city in the Continental US at absolutely no cost. (Hawaii & Alaska are excluded). I bet you're now thinking what's the catch, right? We believe that your time and opinion is indeed valuable. Don't you? Great! Because that's what we're specifically asking for, we don't want your money, we just want your time and honest opinion. That's why we're inviting you to go down to our SHOWROOM in:

..... We choose to give out vacations to compensate your time and opinion.

Just for giving us 90 minutes of your time and honest opinion about our vacation packages, you're therefore guaranteed to receive the gift that we promise because we really believe that your time and opinion is VALUABLE.

Our package has demographic qualifications.

May I know if you are MARRIED or SINGLE? Are you between 25-70 years of age?

I have 2 BOXES here: one is less than \$40,000 annual combined income, the other is \$40,000 or more. Which BOXES do you want to check that you think you belong to?

If single FEMALE, you must have \$50,000 annual income or more, below you are not qualified.

Have you ever toured through GEVC in the past 12 months? If you already toured in the past 12 month, sorry, you are not qualified. However, no children below 12 years old, because we are not a licensed day care and we do not have facilities for children under 12 years of age. TEENAGERS ARE O.K.

MAY I ASK YOUR EMAIL ADDRESS OR FAX NO?

We give you our assurance that your PREVIEW would be ENJOYABLE, INFORMATIVE & REWARDING indeed! There is no pressure presentation, guaranteed THAT'S OUR PROMISE! in writing and you are under NO obligation to buy, sign or join anything. Just come visit our ORANGE SHOWROOM and give us 90 MINUTES of your time and honest opinion about our vacation package that I mentioned.

We have APPOINTMENTS BY OPTION OF YOUR CONVENIENCE on weekdays and weekends. What best works for you? Please let me know.

Thursdays? _____ Fridays _____ then offer two times or

Saturdays/Sundays (offer two times). The date would be: _____

Well, are you sure that this is a good day for you and your wife? Well, Great! Let me just write down your APPOINTMENT with us.

May I also suggest that you put this on your SOCIAL CALENDAR, please?)

Now, you are also going to receive a confirmation to your email or fax that guarantees everything in writing and gives you your appointment time and directions to our showroom. And because you are married, we request you to attend together with your wife.

Please don't forget bring 2 forms of valid ID's that can be a driver's license state of CALIFORNIA ID, or any form of credit card.

Your Address is? In case you have any questions, please do not hesitate to call us 1-888-341-6585. I'm not good in driving directions, we have someone in-charge who's an expert in giving you driving directions. (Please hold on)

Thank you very much indeed for your time and receiving this call. Have a nice day.

Qualified and not qualified:

Couples must attend together. It is a must to bring wife or husband. Both must join.

Between 25-70 years of age. (Over and under are absolutely not qualified). 1 gift per household. No Credit Card, No California State ID, NO CONFIRMATION, single men, co-habiting men, Indian surname, not qualified. Indian not qualified. Always remember \$40,000 annual combined income. Divorced is qualified, with live-in partner or cohabitating.

Single men are not qualified. Single women with \$50,000 exact or more are qualified to receive the gift package.

It is always necessary to remember that COUPLES MUST ATTEND TOGETHER.

NO TOUR IN THE PAST 12 MONTHS.

That is 1 flyaway gift per household.

Children under 12 are not allowed. Teenagers are allowed to join at the presentation but not in the airfare travel gift.

Qualified individuals to show up:

Someone who is between 25-70 years of age and with combined income of \$40,000 annually BEFORE TAXES:

Those Spanish, Chinese Speaking and unable to speak English fluently are not qualified.

He is complaining bitterly about the treatment he is getting from senior American staff and the anger and abuse he receives from the affluent individuals he has to cold call in California. He is given a script that he must strictly follow (in an American accent would you believe!) with each call aimed at getting people to visit the office in the USA with a carrot of an offer of free travel between certain locations in the USA if they take part in a 90 min interview.

I have included the script on Page 115 and invite readers to think about the response they might give on getting such a call. There is no excuse for abuse, but I would have politely put down the receiver with "not interested, thank you" after a first few seconds into the presentation. The Timeshare scams in Spain would certainly flash into my mind! Would there be a request for money in the small print before a 'free offer could be claimed? Has globalisation heralded a new form of colonialism?

The rapidly growing international tourist industry provides another example of grossly unequal wealth distribution. A typical example of the way the spoils of the industry are shared out are reflected in a tour

operator's all-inclusive holiday in Kenya:

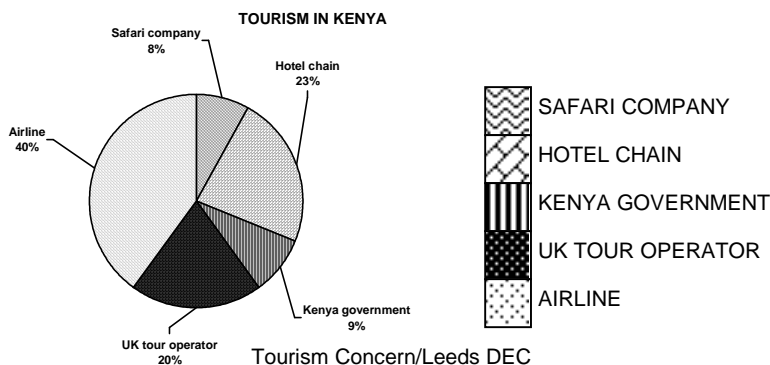


CHART 11

Only 40% will remain in the country and only 15% will be available for imports to serve development because of 'leakage' - i.e. the money leaves the country to pay for importing goods for the tourist industry and to service debts ⁴². The local Masai community gain virtually nothing.

Definitions of the needs of the poor are "wrenched from the poor themselves" and formulated in terms which serve the interests of the rich. For example, a commonly used measure of poverty is 'those people earning less than a dollar a day'. This is in itself a ludicrous measure made all the more so by the rapidly declining value of the dollar.

A more realistic way of considering poverty in the context of globalisation is to study the widening gap between rich and poor and how this has changed over time. Using figures from the UNDP Human Development Report 1999, Maggie Black ⁴³ illustrates how this gap has widened since 1820. The gap between the 5 richest countries and the poorest countries was 3 to 1 in 1820, but by 1973 the ratio had risen to 44 to 1. I have used statistics from the World Bank ⁴⁴ to compare the GDP of the poorest 10% of the world population with that of the richest 10% in 1988 and 2004 see Table 3).

Besides this increasing ratio, it should be noted that during these 16 years the GDP of the poorest group rose by 77% compared with 129% for the richest.

TABLE 3

1988				2004			
Pop mil	GDP \$bil		Ratio	Pop mil	GDP \$bil		Ratio
	Richest 10%	Poorest 10%			Richest 10%	Poorest 10%	
512	10,460	98	1:107	637	23,928	173	1:138

The legacy of colonialism was that poor countries were left dependent on the export of low priced basic commodities such as coffee, cocoa, tea, rice, tobacco and a wide range of raw materials mined and processed by the rich countries. While the prices obtained for these have remained low, the prices of imported finished goods have risen dramatically over the same period.

Wars, both civil conflicts and between neighbouring countries, and environmental degradation, have been outcomes of a grossly unequal international trading and financial system. While these systems remain in place, rising GDP will be of little benefit to poor countries and may in fact become an indicator of rising deprivation.

The 2000 British Government White Paper on international development stated that globalisation was to be managed 'to promote economic growth that is equitable and environmentally sustainable'. Seabrook provides an apt introduction to the following chapters. "Into these ten words are packed every contradiction of all the discussions on development of the past half century".

Without radical change, the future appears grim for all of humanity. As forests are destroyed, poverty and inequality and hunger increase, global temperatures rise and non-renewable resources are dangerously depleted, globalisation can rightly be termed the 'race to the bottom'.

The officials of Multilateral agencies continue to urge poor countries to end poverty through sustained economic growth and one of the main contentions of this book is that this is like using petrol to put out a fire. The absurdities associated with globalisation, economics and economic growth are dealt with in more detail in chapters 5 and 6.

CHAPTER 5

Globalisation and the Race to the Bottom

The global village

I have little doubt that the world abounds with highly paid consultants producing glossy magazines (like the ones I have received from Union Carbide diverting blame and responsibility for the Bhopal disaster and Monsanto extolling the global benefits of their genetically modified seeds) and Powerpoint presentations on the nature and virtues of globalisation. The patter might go something like this:

How many of you have used the Internet and communicate by Email or a mobile phone? Have you marvelled at the way people around the globe, even the poor, can gain access to these wonderful facilities for communication between people from widely differing cultures. There has never been such a tool for international understanding and communication! When we enter a supermarket we have access to products from across the world. There appears to be nothing that we cannot buy no matter what the season or the distance the product has travelled. The world is our oyster! Cheap air flights enable us to experience any location across the world - its smell - its visual delights - its clement climate - its cheap food and alcohol.

These delights are made available to us by the workings of international trade and finance and the way large companies and banks are able to trade and invest across borders. This is the meaning and nature of globalisation. How can we but rejoice in

this reality? There are some who criticise economic growth, but without this globalisation would not be possible, nor would there be sufficient funds for human progress and technological advances needed to improve our lives and find solutions to the many environmental crises we face in the future. Globalisation provides a win-win situation for everyone. We now live in a global village and our neighbours are no longer limited by time or space.

What I seek to show in this chapter is that this view distorts the true picture of what is actually taking place - that some of the stated benefits hold hidden dangers whilst at the same time the main drivers of globalisation and economic growth create increasing poverty and inequality and threaten the life support systems upon which humanity depends for its continued survival.

Making connections

In 2008 a fifth terminal was built at Heathrow Airport and the UK Secretary of State for Transport, announced proposals for a third runway - provisions that will accommodate a doubling of the numbers of people wishing to fly abroad. Around that time I was reading that the government of Peru was on the verge of signing a Free Trade Agreement (FTA) with the United States. Both of these developments can be seen as inevitable outcomes of globalisation. So also were the announcements that (i) a Ministry of Defence research agency Qinetiq, was sold off cheaply to the US private equity firm, Carlyle, involving huge payouts to the research group executives and excessive subsequent profits for Carlyle. and (ii) the death toll from a tidal wave that hit the coast of Bangladesh in 2007 was likely to reach 10,000.

Carlyle bought the one third stake in Qinetiq for just £42 mil and then sold it for £300 mil just 3 years later. The Qinetiq chairman, Sir John Chisholm netted £22 mil for an investment of £129,000 and chief executive officer, Graham Love, whose initial stake was £108,000, picked up £18 mil. What these examples show is that financial decisions, made every minute of the day, are guided not by social or environmental ethical concerns, but by gambling with a view to maximising profits and increasing economic growth for the benefit of

the affluent. The tidal wave could be linked indirectly to the greenhouse gas emissions caused by the expansion at Heathrow and poverty and inequality to the unequal FTA agreement and the gambling associated with the Qinetiq deal. The outcomes of activities around the world can be felt thousands of miles from where those activities took place.

Exploitation and hypocrisy in international trade

Peru's decision to sign a FTA with the US is the latest example of US hegemony and there is little doubt that this will spark a new series of civil society protests against US domination and exploitation, especially in Latin America. What does this agreement mean for workers in Peru and the US? The US sees such trade agreements as essential to its economic interests and of "vital importance to the national security of the US. Trade is a critical factor for the economic growth of the country and its world leadership. Stable trade relationships promote security and prosperity" (Trade Promotion Authority) and the "availability of the hemisphere's natural resources to respond to the US national priorities" (The Santa Fe document 2000).

Guaranteeing the free flow of trade and investment in economic activities related to those resources, access routes and deposits of crude oil and minerals, as well as access to genetic potential present in the enormous biodiversity in the Southern Hemisphere, especially Latin America, are central objectives for national security strategies of most industrial countries. FTAs provide a uniform way of facilitating trade and seeking to avoid all types of restrictions to access natural resources or to activities related to the service and technology sectors for large corporations ⁴⁵. The losers will include US citizens who have lost their jobs from the relocation of manufacturing and services to countries with cheap labour (especially in the automotive, electronics and textile industries). People in the countries to which the jobs have been exported will generally suffer the effects of environmental destruction, pollution, poor pay and working conditions and the rapid loss of the resources upon which their future prosperity depends. The winners will be US corporations that exploit natural resources, high tech agro industry, pharmaceuticals and chemicals along with services like banks, insurance and entertainment.

One of the dangers of these bilateral arrangements is the threat they pose to agreements made between neighbouring countries in the South and support networks for the poor. Peru is willing to relax its commitment to the Andean Community of Nations (CAN) in order to secure this agreement with the US. The US uses bullying tactics as it does at the World Trade Organisation (see chapter 3) to secure terms that reflect its own economic interests to the disadvantage of the citizens of the countries with which it trades.

The US demanded that the Secretary General of CAN should not participate in FTA negotiations with the Peruvian government. The US had previously suspended negotiations with Bolivia and Ecuador because of the reforms in their oil legislation aimed at securing more income. These agreements, along with the structural adjustment policies forced on poor countries by the IMF, are two of the ways in which safety networks for the poor are being eroded.

The application of subsidies provide further examples of the callous nature of rich country exploitation and the hypocrisy involved. Poor countries are increasingly forced to privatise their state owned companies and services and withdraw subsidies while at the same time the US and the EU continue to protect their agricultural sectors with massive state subsidies. In the US, this policy provides little benefit for small farmers involved in the production of crops associated with good health e.g. fruit, nuts and vegetables. Instead, the greatest subsidies are given to large farmers and corporations overproducing crops associated with growing obesity, heart disease, cancer and diabetes. It is estimated that US children born in 2000 have a 1 in 3 chance of developing diabetes.

Michael Pollan, in his book *The Omnivore's Dilemma*⁴⁶, describes how this situation has arisen because of the way that most of the food production system revolves around corn. Pigs, turkeys, chickens, beer, sodas, fruit drinks and a range of pharmaceuticals, household items and cosmetics are engineered to corn. Even cows, who were once fed on grass, now spend their lives indoors tethered to machines, eating corn. There are some 45,000 items in the average American supermarket and about a quarter of them contain corn.

Most corn production has become highly dependent on fossil fuels - about 80 litres per hectare. More than a calorie of fossil fuel energy is required to produce a calorie of food! A high proportion is involved in

the production and application of artificial fertilizers and pesticides. There is a terrible irony in the fact that Fritz Haber, the man who invented the means for producing chemical fertilizers which fuelled the corn explosion, also developed the poison gas used in the First World War and the gas used in Hitler's concentration camps. In 1920 he was awarded the Nobel Prize for "improving the standards of agriculture and the well-being of mankind". The nitrate run-off from these agri-business farms frequently ends up in rivers and streams where it stimulates the growth of algae. A huge 'dead zone' for fish has been created where the Mississippi flows into the Gulf of Mexico, for example.

Who benefits from corn? With an annual subsidy of \$5 bil you would think it was the farmers. However, it is the wholesale buyers of the corn and the processing companies who reap most benefits. The price farmers receive for their corn can be almost half the cost of production. When subsidies are low, the outcome can be bankruptcy or a decision to increase production using every available patch of land and apply more fertilizers. The overall outcome is that far more corn is produced than can be consumed. The beneficiaries include Cargill, Coca Cola, Archers Daniels and Smithfield multinationals.

Cheap corn impoverishes not only American farmers, but also destroys the livelihoods of farmers in the poor countries to which it is exported. This applies, not only to corn, but to other US subsidised crops.

The impact of subsidies on poor countries

A range of commodities subsidised by both the European Union and the United States have a devastating impact on poor farmers in Africa. Oxfam America describes the impact of subsidised cotton on West African farmers:

A typical cotton producing household in West Africa has about 10 family members, an average life expectancy of about 48 years and an adult literacy rate of less than 25 percent. Cotton is often the only source of cash income for these families who live on less than \$1 a day per person. Added income from increased cotton prices could make a world of difference, according to Oxfam.

The study found that with a complete removal of US cotton

subsidies, the world price of cotton would increase by 6-14%, prices that West African farmers would receive for their cotton would increase by 5-12% and household income would increase by 2.3 to 5.7%. This increase would result in additional income that could cover all health care costs of four to ten individuals for an entire year, or schooling costs for one to ten children, or a one year supply of food for one or two children.

Rice farmers in Haiti, Vietnam and Senegal have been unable to compete against subsidised rice imports from the USA. Senegal was once self sufficient in rice, but now has to import 400,000 tonnes per year. Similar examples are to be found for all subsidised commodities from both the USA and the EU exported to poor countries. Some South American countries are adopting farming policies similar to those in the EU and the US. Brazil's production of both soy and corn has exploded since the early 1990s, bolstered by investment from US and European agribusiness. Others may follow suit.

The detailed account of US agribusiness by A.V. Krebs in *The Corporate Reapers*⁴⁷ shows that little has changed in the past 16 years and the 2007 Farm Bill will deliver business as usual. Then, as now, the mantra of 'get big or get out' still applies. Agribusiness is far more than farming. By 1990, agribusiness accounted for 16% of GNP and yet farming itself, accounted for just over 1%. Farming used 18% of the energy involved in agribusiness as a whole. Throughout the world small farms have proved to be far more productive in terms of yield per hectare and yet large areas of land, increasingly owned/dominated by large agribusiness corporations, are being devoted to low nutrition and feed crops and now biofuels, rather than nutritious food crops. Krebs writes in 1992 that "Multinational agribusiness firms right now are creating a single world agricultural system in which they control all stages of production from farm to consumer. Once achieved, they will be able to effectively manipulate supply and prices for the first time on a world-wide basis through well-established monopoly practices." These remarks were prophetic. In the UK thousands of farmers and small grocery shops have been driven out of business by Asda/Walmart, Tesco and other large supermarkets. The rising price of wheat and dairy products,

due partly to high oil prices and food shortages related to flooding and other environmental factors, present both an opportunity and a threat for farmers. The future looks uncertain. In the next chapter I illustrate how this is monopoly trend is developing in the banking sector.

When corporations rule the world

David Korten paints a picture of a future world in which the forces of globalisation are “advanced by an alliance between the world’s largest corporations and most powerful governments”⁴⁸. This alliance is backed by the power of money and its defining project is to integrate the world’s national economies into a single, borderless global economy in which the world’s mega corporations are free to move goods and money anywhere in the world that affords an opportunity for profit, without governmental interference. In the name of increased efficiency the alliance seeks to privatise public services and assets and strengthen safeguards for investors and private property”.

Increasingly politicians are not able to carry through the mandate which their electorate naively believe they have given to them. Decisions on policy and on the way individuals should act, consume and think, are made in boardrooms of large private corporations and financial institutions and debating chambers of multilateral institutions including the World Bank, IMF and WTO, whose policies they influence to their own financial advantage with the collusion of leading politicians, mainly from the rich countries of the OECD. Very often it is the under-funded United Nations that is given the job of trying to repair the social and environmental damage caused by the policies of these powerful bodies. These policies involve extreme human rights abuses and are the antithesis of democracy.

The WTO has tremendous powers and its Dispute Settlement Body (DSB) has made decisions which have been grossly weighted in favour of the rich OECD countries and often reflect a bias towards the United States. This is partly because only the US and OECD countries are adequately represented in trade dispute discussions. From Jan 1995 to May 1998, over half of the 122 complaints presented before the DSB were against third world countries, which are involved in only 27% of world trade. They lost almost all their cases⁴⁹. The US signed the WTO Charter only on the condition that it kept its own Trade Act

provision to adopt unilateral retaliatory measures if a WTO decision is not considered to be in its interests. Major decisions in favour of the US have often operated against both rich and poor countries. The EU was forced to withdraw the preferential prices it gave to some of the world's poorest countries for bananas which provided an appreciable proportion of their foreign exchange earnings. The US complained that this was affecting the profits of its multinational companies, Chiquita, Del Monte and Dole, operating in Central America. A consideration of the fact that working conditions on US multinational sourced plantations were poor, was not a consideration allowable under WTO rules. Decisions have also gone against the EU wanting to ban the import of GM foods and hormone-fed beef raised on American farms. Many of the decisions made result from lobbying by multinational companies whose power and influence can be judged by their share of world trade. The sales of just 1,000 corporations account for one third of global GNP. Wal-Mart's annual sales of more than \$200 bil is greater than the combined GNP of 49 poor countries.

One of the greatest threats to democracy was posed by a plan put together by the some of the world's largest corporations and drafted by the International Chamber of Commerce - the Multilateral Agreement on Investment (MAI). Delegates from the OECD began discussing this in 1995 behind closed doors. The MAI set out to give private companies the same legal status as nation-states and laid out a set of rules that would enable corporations to defend their new rights against the objections of sovereign governments⁵⁰. For example, corporations could sue governments for passing laws that might reduce their potential profits. Foreign investors would also be allowed to challenge public funding of social programmes. If a government chose to privatise a state owned industry it could no longer give preference to domestic buyers. In addition, governments would be forbidden to demand that foreign investment benefit local communities or the national economy. They could not demand domestic content, local hiring, affirmative action, technology transfer or anything else in return for allowing foreign companies to exploit publicly owned resources. There were to be no limits on profit repatriation. The leaking of this plan by French activists in January 1997 prompted protest around the world not least from local

government authorities who recognised the threats MAI posed to local democracy. The MAI was scrapped, but corporations continued to press for MAI-like provisions at the WTO. The threat remains !

The rise of free trade zones (more than 1,000) has put further downward pressure on wages and social programmes and offer low taxes, lax environmental regulations, cheap labour and low overheads for the multinational companies whose interests they serve. The US plays the dominant role in this new world order.

The Bush Clan

The MAI plan, together with one of the greatest financial scandals in modern times, occurred during the presidency of Bill Clinton, (e.g. Both of his Secretaries to the Treasury had Enron connections). However, it is the links between the Bush family and the Enron Corporation that provides the prime example of the way some US corporations rip off the rest of the world and how they are linked to leading politicians⁵¹. The major shareholders and company executives were to become the legislators that served corporate interests. As Vijay Prashad puts it - 'the fat cats were to become the running dogs'. Criminality was writ large in the US Administration. The manner in which these crimes have been swept under the carpet is in itself a serious threat to democracy world wide.

Many major financial institutions were to become drawn into the web of corruption surrounding Enron activities and many profited from the association: J.P. Morgan Chase, Citigroup, Credit Suisse First Boston, Canadian Imperial Bank of Commerce, Merrill Lynch, Bank of America, Deutsche Bank, Lehman Brothers, Barclays Bank, Goldman Sachs and most notably Enron's accountants, Arthur Andersen. Many of the projects undertaken by Enron were funded by US taxpayers and the World Bank and other development agencies and banks. George Bush senior lived near Enron chief executive, Ken Lay, and it was Bush who signed the 1992 Energy Act that weakened the power of the regional utility firms and local government. The law gave rise to the formation of mega firms like Enron. Enron made financial contributions to aid George W Bush's political career, including \$10,500 to the Bush-Cheney Recount Fund that swung him the Election and followed this with \$300,000 for the inaugural festivities.

Enron employees and stock holders were to appear in prominent positions in the new administration: Robert Zoellick, Lewis Libby, Thomas White, Marc Racicot, Karl Rove and Ken Lay (who was for a time Bush's chief energy advisor and one of the 18 energy executives who formed the National Energy Task Force in 2001). The 18 energy firms represented are among the top 25 contributors to the Republican Party.

An example of Enron's corruption is the manner in which it defrauded the taxpayers of California. In 2000 the state imposed energy price caps at \$250 per megawatt-hour, but allowed energy to be bought out of state at a higher price if there were energy shortages. Enron bought electricity in California, exported it to one of its subsidiaries out of state and then bought it back at a higher price and sold it to the California Power Authority. This was repeated many times and each time the price was increased. Enron and other companies caused blackouts to give the impression of energy shortages. Federal law, pushed by Senator Phil Gramm, allowed Enron to trade electricity without any disclosure of its practices. Gramm evoked the spectre of 'environmental extremism' to explain the blackouts. In 2001 George Bush refused to cap electricity prices and allowed Enron to continue to make excessive profits.

Sleaze and double standards run through the Bush Family. Bush senior, who had helped to arm Saddam Hussein, allowed his ambassador, April Glaspie, to give Hussein the green light to invade Kuwait. Later, George Bush Snr's sons Marvin and Neil and Secretary of State, James Baker (who was on Enron's payroll), lobbied on behalf of Enron for energy contracts in Kuwait after Hussein's forces were driven out of the country. The reader will recognise the irony in this chain of events and the mindsets of those in the highest echelons of US corporate and political power. The Bush boys were also involved in putting pressure on the Argentinean President, Carlos Menem, to award a contract to Enron.

The youngest son, Jeb Bush, has been closely associated with criminals. In 1984 he began a close association with Camilo Padreda, a former intelligence officer with the Batista dictatorship overthrown by Fidel Castro. He was then the chairman of the Dade County Republican Party and Padreda was its finance chairman. Padreda had earlier been indicted on a \$500,000 embezzlement charge along with a fellow exile, Hernandez Cartaya, but the charges were dropped,

reportedly after the CIA stated that Cartaya had worked for them. Padreda later pleaded guilty to defrauding the housing and urban development department of millions of dollars during the 1980s. In the 1980s Jeb Bush was also on the payroll of the prominent Cuban exile Miguel Recarey, who had earlier assisted the CIA in attempts to assassinate President Castro. Recarey, who ran International Medical Centers (IMC), employed Jeb Bush as a real estate consultant. His job was to lobby the Department of Health and Human Services to exempt IMC from regulatory oversight. Recarey's IMC was later found to be involved in widespread fraud. In 1985, Bush acted as a conduit on behalf of supporters of the Nicaraguan contras with his father, then the vice-president. He helped arrange for IMC to provide free medical treatment for the Contras and acted as campaign manager for another prominent Cuban-American, Ileana Ros-Lehtinen, when she successfully ran for Congress. In 1998, Enron donated \$765,000 to the Florida Republican Party to elect Bush, with an additional \$200,000 to the Bush campaign directly.

In 2001, when Enron shares began to slide, Bush authorised the pension fund for Florida's state employees to put its money into Enron. The fund was to lose \$334 million. George W Bush was also to profit from his connections with oil companies and as President he appointed chief executives from multinational companies which were to profit from legislation drawn up by his administration. Vice president, Dick Cheney, was the CEO of one such corporation, Halliburton, which dealt in global oil services. He used his influence to enable Halliburton to gain contracts connected with the oil for food programme in Iraq and then in the forward operating bases in the region of the Afghan war. Cheney was to gain \$20.6 mil for his sale of Halliburton stock. Both Ken Lay and Dick Cheney were to play prominent roles in shaping US energy policy. The White House and Congress have bestowed enormous benefits on corporate America.

The connections with the Bush administrations and Enron do not end there. Enron's Senior Vice President for Global Finance, Linda Powers, was to be appointed George H Bush's Deputy Assistant Secretary of Commerce for Service Industries and Finance. She played a prominent role in the neo-liberal policies of the US, including the privatisation of public services. She once spoke in glowing terms about

the Dabhol Power Plant, an Enron project to be undertaken in India which was later to become associated with human rights abuses, corruption and environmental degradation. Despite the contention by the World Bank that the project was 'not economically viable', the US government extended about \$300 mil in loan guarantees to Enron for its investment in the project. Human Rights Watch reported:

A provision was introduced in the US Congress during 2001 to strengthen the Export-Import Bank's human rights oversight. But the Bush Administration, the head of the Export-Import Bank itself and many members of the US business community, opposed the provision, which was 'killed' by a committee of the House of Representatives in November 2001.

The 1999 Human Rights Watch report documents how contractors for the Dabhol Power Corporation harassed and attacked individuals opposed to the power plant. Police refused to investigate complaints, and in several cases, actually arrested the victims on trumped-up charges. The Dabhol Power Corporation, under provisions of law, reimbursed the abusive state forces for the security they provided to the company. These forces, located adjacent to the project site, were stationed there largely for the purpose of dealing with protests. While they reported to local police, their expenses were paid by the company, a subsidiary of Enron.

In one instance in June 1997, Maharashtra police raided a fishing village where many residents opposed the power plant. They arbitrarily beat and arrested dozens of villagers, including Sadhana Bhalekar, the wife of a well-known protester against the plant. They broke down the door and window of Bhalekar's bathroom and dragged her naked out into the street, beating her with batons. Bhalekar was three months pregnant at the time. In another instance in May 1997, police beat and arrested nearly 180 protesters who were demonstrating peacefully outside the company gates. The protests had largely ended by 1998.

Since the project's inception in 1992, Enron and the government of Maharashtra state, where the power plant is

located, repeatedly ignored public complaints. “Dabhol Power Corporation would not tolerate any human rights abuses by its employees and sub-contractors,” the company said in a 1997 statement. “If you have concerns about police actions, we suggest you take it up with the police or government body responsible for their operations.”

In 2000, Enron began to take steps to address future violations, but those efforts ended when the company collapsed. Because of the plant’s high cost of power, the Maharashtra state government announced in June 2001 that it was terminating its agreement with the Dabhol Power Corporation (DPC). Shortly after, DPC ceased operations and insisted that the government repay its debts. The dispute continued, but was further complicated when Enron declared bankruptcy on December 2, 2001. On January 17, 2002, Enron reportedly filed an approximately \$200 million claim with the US government’s Overseas Private Investment Corporation in an attempt to recoup losses from the Dabhol Power Corporation ⁵².

Enron was also able to gain a foothold in the Philippines and Argentina with the help of the US government, the Bush clan and pressure from the IMF.

Most of these Enron investments resulted in poor deals for these countries and their tax payers and provided benefits to other US companies to the disadvantage of indigenous firms.

In conjunction with other US and European companies, Enron was involved in gas pipeline projects in South America that cut swathes through the Amazonian forests and wetlands and resulted in torment for the long-suffering native peoples who lived there. The companies involved included British Gas and Shell.

The many crises associated with globalisation and economic growth cannot be laid exclusively at the door of the US, but US hegemony is the dominant feature of the present world order and the greatest obstacle to the creation of a form of development that can meet the basic needs of everyone whilst ensuring that future generations can have the means to

meet their needs. Whether President Obama can change this remains to be seen.

Affluenza

In 2007 I took part in a cold and wet protest march to the US embassy in London about slow progress from the US and UK governments on measures to combat climate change. This was planned to coincide with a meeting of world leaders in Bali. As I walked down Oxford Street towards my coach outside Hyde Park to take me home I felt depressed not only by the weather, but by a representation of the whole world intent on an orgy of Christmas spending. I diverted my path into Primark for a warm-up and caught part of a conversation “You know sometimes they close the doors to stop people coming in because of the overcrowding”.

I can quite imagine that the word *affluenza* coined by the American authors of a book of the same name, will become dictionary recognised as this ‘disease’ seems set to reach global epidemic proportions as more and more people strive for the Western lifestyle⁵³. The authors define the word as ‘a painful, contagious, socially transmitted condition of overload, debt, anxiety and waste resulting from the dogged pursuit of more’. Rising affluence by a growing minority on the one hand, and poverty for the majority on the other, appear to be the dominant features of economic growth and globalisation. The reader will be able to come up with his/her own list of the ways affluenza manifests itself. Sadly it is an illness which economic growth requires many more of us to catch. One indicator of the spread of the disease is that average oil consumption per person is rapidly increasing in many oil exporting countries and those with large populations like Russia, Mexico, China and Indonesia. Car ownership is rapidly increasing in all these countries. Many of the cars of choice include four wheel drive vehicles and prestige BMWs. In the UK we are told that a third of the food we buy is thrown away in a perfectly edible form - a scandalous waste, especially having regard to some dire forecasts for the UK economy.!

In August 2008 the British Chamber of Commerce forecasted that there would be an extra 300,000 unemployed before the end of 2010 and by that time the UK would be in recession. Energy costs in the USA and the UK are rocketing upwards, along with the price of food.

The race to the bottom

A growing minority of people, mainly in India and China, are gaining improved standards of living as a result of economic growth and globalisation. However, China's dramatic development has been achieved at great environmental and social cost. The Worldwatch Institute reports that "China has just 8% of the world's fresh water to meet the needs of 22% of the world's population - and virtually the entire northern half of the country is drying out. Extreme pollution exacerbates water scarcity by rendering some water virtually useless ." In 2004, monitoring indicated that water from half of the main rivers was not fit for human consumption.

In "India, only about 10% of sewage is treated , and both urban and industrial pollutants are commonly dumped directly into waterways." ¹¹⁸ Severe air pollution is also a feature of major cities in both countries. Of the 20 most polluted cities in the world, 16 are in China. Because of the increasing use of coal for energy, China has some of the world's worst acid rain. An estimated 30% of cropland is suffering from acidification with the resulting damage to farms, forests and human health.

Environmental deterioration is likely to be a major impediment to the economic development of China and India. Also, the fruits of development have not reached the poorest people living in rural areas. Some 800 mil Indians and 600 mil Chinese live on less than \$2 a day.

I have no doubt that rapid strides will be made in both countries to further reduce poverty and pollution and improve the natural environment, but the following features of economic growth and globalisation hold a spectre of a worldwide environmental and social crisis:

- economic growth is linked to fossil fuels, all of which may peak within the next 100 years
- trade and travel increase in a bid to increase economic growth
- because of the way in which economics determines how wealth is distributed, most travel and production will be directed to the trivial wants of the rich rather than the basic needs of the poor

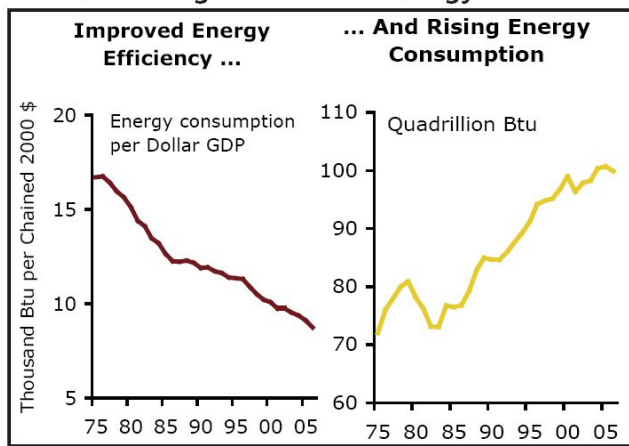
- growing inequality will fuel civil unrest, terrorism and mass migrations.

Neo-liberalism and excessive privatisation, driven by large multinational companies and multilateral financial institutions and banks, threaten democracy and human rights and the ability of governments to introduce policies to safeguard the environment and provide safety nets for the poor. Even within rich countries there are many signs that affluence has not been accompanied by happiness and social stability.

Different crises threatening both the standard of living and quality of life of people around the world, will impact on communities in different ways according to their ability to adapt and recover from them. However, as most people are now aware, it is climate change that is likely to impact on everyone. Even if the link between economic growth and the use of fossil fuels were to be broken (which is currently unlikely), the unsustainable depletion of many resources, including food, oil and natural gas will continue to be linked to economic growth and globalisation. Even the more efficient use of energy is unlikely to have a positive impact, as past experience suggests that this merely increases overall consumption - in much the same way that building new roads attracts more traffic onto them. In the US, for example, the energy involved in building and transport has increased in recent years despite energy efficiencies, partly because more people have large cars and bigger houses.

The net effect of 30 years of energy efficiency has been the increase in the world's appetite for oil ⁵⁵. Improvements in energy efficiency have led to increases in energy usage. In the US, CO₂ emissions in the transportation and residential sectors have risen 40% in the past 10 years, twice the growth in the rest of the economy. Transportation accounts for 70% of oil consumption. Despite fuel efficiencies, fuel consumption per vehicle has remained about the same because of increased mileages. There is a similar picture with aviation. While fuel efficiency per mile has improved by more than 40% since 1975, overall fuel consumption has risen by 150% due to the growth in volume of air

Americans Efficiently Consume Ever-Increasing Amounts of Energy



Source: EIA

CHART 12

travel. The result has been increasing CO₂e emissions from the transport sector.

While most countries appear set to increase their use of fossil fuels, the debt based global economic system is under strain and oil and gas peaks loom. In July 2008 the US Federal Reserve and Treasury announced a bail out of mortgage giants Fannie Mae and Freddie Mac whose shares have plunged as losses from their mortgage holdings threaten their financial survival. At the same time households in the UK are being told that their gas bills will increase by 70% by 2010. Also, 19,000 house repossessions were recorded in the first 6 months of 2008 and the Royal Bank of Scotland recorded its first loss in 40 years - £692 mil. In 2008, the Centre for Economics and Business Research forecasted the worst recession in the UK for 60 years. The number of people declaring insolvency during 2009 is expected to be 150,000. The number of bankruptcies recorded in the first quarter of 2009 was 19,026 - up 23.4% on the same period in 2008. The average house price dropped 15%. Around the world the signs of a global catastrophe are growing.

Another negative aspect of globalisation is international air travel and

tourism which threaten to turn the spread of a local disease into a global pandemic. For example, an outbreak of a swine flu virus in southern California and Mexico in April 2009 spread to 18 countries within a month⁵⁶.

Climate patterns are unstable and dramatic changes could occur over a relatively short time period. The race to the bottom appears to be hotting up!

CHAPTER 6

Economics is Bunk

Economics is bunk!

This was the title of the BBC Radio 4 programme presented by Edward Goldsmith (former editor of the *Ecologist* magazine) on 25th Sept 1994. Many of the arguments supporting his case are as valid today as they were then. The free mobility of capital combined with globalisation has replaced the principle of ‘comparative advantage’ in free market trading. There has been an increase in ‘futures’ (derivatives) trading i.e. gambling on the price of commodities that have not yet been produced or deriving the value of products from the value obtained for similar products. Huge wage differentials across the world have also led multinational companies to transfer business operations and manufacturing to countries where labour is cheap (notably China). This is also happening in service industries. This trend has led to a massive increase in energy use and greenhouse gas emissions as products are made by factories with poor emissions standards (usually using coal as the fuel source) and are transported very long distances.

Because of the way in which capital is accumulated through exploitative interest payments, economic growth inevitably involves an increasing gap between the rich and the poor across the world.

The direct link between economic growth and the use of fossil fuels will mean a world recession as oil and gas reserves become insufficient to meet demand. In this situation all societies will suffer - but some more than others. Governments and ordinary citizens in affluent societies have exhibited reckless irresponsibility by putting short term convenience and pleasures before the basic needs of future generations and the world’s poorest people.

Most scientists now agree that global warming will have serious

economic implications in the future even if stringent measures are taken now to cap and then reduce the use of fossil fuels year on year. Banks and multinational companies play a prominent role in compounding the environmental and social crises developing across the world. In the short term, however, the 2007/2008 banking crisis has revealed the absurdity of a deregulated global financial system based on greed and gambling. This crisis is not directly related to either global warming or resource depletion whose effects have yet to be fully felt. Early in 2009 base interest rates in the USA, UK and Japan headed towards zero and the year is likely to end with mass unemployment and nationalisation of most of the major banks.

Debt, corruption and misery

Nearly all the rules of free market economics and deregulation applied to the banking system were abandoned in the United States in September 2008 as many major banks were effectively nationalised in order to avert a financial crisis of monumental proportions. In both the US and the UK large mergers and nationalisation were used to avert national crises resulting from the flawed policies of the Republican and Labour governments in power. The outcome was increased unemployment, huge share devaluations and a widespread fear among depositors that their savings and pensions would not be secure. What was the sequence of events that led to this situation? The origins of this particular crisis can be traced to the inability of house owners in the US subprime mortgage sector to keep up with repayments and the exposure of many banks in the US and abroad to these risky loans. However, it is my belief that the seeds of this crisis had been sown long before and have their origins in economics and the global financial system as a whole.

In December 2007 the world's central banks announced they would inject £50 bil into the banking sector in a bid to head off a deepening of the credit crisis that started with the collapse of the subprime mortgage market in the US. This was small compared to the \$700 billion that George Bush was later suggesting should be pumped into its dysfunctional banking sector.

In 2007, because of exposure to this market, a UK bank, Northern Rock, faced closure and had to be bailed out with a loan from the Bank of England and was later nationalised 'temporarily'. In August 2008 the

government injected a further £3 bil into the bank in the form of shares thus putting more taxpayers money at risk. BBC business editor, Robert Peston, remarked that the money will be repaid only if the bank is sold at a profit. "If the government tried to sell Rock into the private sector right now, the loss would be colossal".

Many US citizens had been irresponsibly given mortgages when they had little hope of being able to keep up with interest repayments. In 2004, The Federal Reserve set interest rates very low and the Chairman, Alan Greenspan, encouraged poor families to buy property on variable rate mortgages⁵⁷.

"Innovation has brought about a multitude of new products, such as subprime loans and niche credit programs for immigrants. Such developments are representative of the market responses that have driven the financial services industry throughout the history of our country. With these advances in technology, lenders have taken advantage of credit-scoring models and other techniques for efficiently extending credit to a broader spectrum of consumers.

Where once more-marginal applicants would simply have been denied credit, lenders are now able to quite efficiently judge the risk posed by individual applicants and to price that risk appropriately.

These improvements have led to rapid growth in subprime mortgage lending; indeed, today subprime mortgages account for roughly 10 percent of the number of all mortgages outstanding, up from just 1 or 2 percent in the early 1990s."

The subprime mortgage industry collapsed in March 2007, with many of the largest lenders filing for bankruptcy protection in the face of spiraling foreclosure rates. For these reasons, Greenspan has been criticized for his role in the rise of the housing bubble and the subsequent problems in the mortgage industry, as well as 'engineering' the housing bubble itself:

"It was the Federal Reserve-engineered decline in rates that inflated the housing bubble ... the most troublesome aspect of the price runup is that many recent buyers are squeezing into

houses that they can barely afford by taking advantage of the lower rates available from adjustable-rate mortgages. That leaves them fully exposed to rising rates.”—*Business Week*, July 19 2004.

This problem is not confined to the US. It is currently estimated that between 1 and 3 mil people in the UK may be in a similar situation and face repossession of their homes. On the heels of the US subprime lending crisis, at least one former US government official believed that the United States may soon be heading into a recession. Former US Treasury Secretary Larry Summers, making comments to European journalists, said “ I would say the risks of recession are now greater than they’ve been any time since the period in the aftermath of 9/11.” At the start of 2009 this appeared to be the reality.

The following sequence of events has created an air of panic in the banking sector globally and has already caused widespread hardship -

- April 2007 - New Century Financial files for bankruptcy.
- September 2007 - Central banks inject \$180 bil into the banking system. Merrill Lynch announces a \$7.9 bil exposure to bad debts.
- February 2008 - Northern Rock is nationalised.
- March 2008 - Bear Stearns is taken over by J.P. Morgan Chase.
- July 2008 - Major US mortgage providers, Fannie Mae and Freddie Mac are nationalised.
- September 2008 - Lehman Bros file for bankruptcy and are allowed to collapse following a loss of \$2.2 bil. Merrill Lynch is taken over by Bank of America for \$50 bil. American International Group insurance company shares fall 63%, and it is given \$85 bil by the Federal Reserve. Central banks pump another \$130 bil into the banking system. Halifax Bank of Scotland is taken over by Lloyds/TSB for £12.2 bil. Citigroup takes over Wachovia. Bradford and Bingley share

price has fallen 90% in one year and its £41 bil loans and mortgage section is nationalised whilst its retail deposits division and branch network is sold to Banco Santander. Part of its demise arises from the exposure of £19 bil of risky mortgages it provided through the US firm, GMac. Washington Mutual, the largest high street bank in the USA, collapses and is taken over by J.P.Morgan Chase. The governments of Belgium, Netherlands and Luxembourg rescue financial firm Fortis with \$16 billion after no serious commercial bidder could be found. The German government and a group of private banks will provide a 35 billion euro (\$50 billion) guarantee for Hypo Real Estate to rescue Germany's second-biggest real-estate lender from insolvency. The Icelandic bank, Glitner, is nationalised. A fourth European bank, Franco-Belgian group Dexia, is on the verge of a state rescue deal after the group saw almost one quarter of its stock market value wiped out. Denmark's Roskilde Bank sold to Nordic bank Nordea and two regional Danish lenders, Arbejdernes Landsbank and Spar Nord Bank. Global central banks pump extra cash into the financial system as part of continued efforts to keep credit flowing. On the last day of the month George Bush's £700 bil bailout plan for the US banking system is rejected by the House of Representatives.

Will September 2008 be looked back on as the month when a global financial meltdown began - a month when an awareness of the disastrous outcomes of economics and a dysfunctional global economic system started to dawn on the public at large? Could the American banking system collapse? Will this be the start of a period of both hardship, awakening and an opportunity to develop ideas and actions to set humanity on a path that ensures the equitable sharing of wealth and provides for the needs of future generations?⁵⁸

The past and present reality, however, are not grounds for hope. Lessons may not be learnt and we will lurch from crisis to crisis with a crazy financial system having a ratio of *phantom* money to *real* money of 30 to 1. The problems result from fundamental flaws in the monetary system as a whole, but the USA has a special responsibility for the

2007/08 financial crisis that accelerated in September 2008.

The US Federal Reserve has rewarded the very institutions which acted the most irresponsibly over the last four or five years, while saving its own face for having failed in its regulatory mission. The message is loud and clear: US financial institutions can indulge in creating “innovative” risky artificial credit instruments, shifting the risks to unsuspecting borrowers and investors while reaping juicy fees and rewards. When things turn sour, as they have, the Federal Reserve comes to their rescue and bails them out with cheap and extended loans. That is a good way to carelessly encourage a greedy and out-of-control financial institution to create successive disorderly and disruptive financial crises. Will these drastic rescue measures restore confidence in the US and global financial system? Before trying to answer that question it is worthwhile looking at a financial instrument supposedly designed to manage or offset risk - *derivatives*.

Derivatives are in several forms; futures, forwards, options and swaps and can be applied to commodities, equities (stocks), bonds, interest rates and exchange rates. I am not going to try and explain the complexities involved with derivatives save only to say they are a form of gambling with varying degrees of risk. The nature of the risk was brought into sharp focus in 1995 when Nick Leeson, a trader at Barings Bank, made poor and unauthorised investments in index futures⁵⁹. Leeson incurred a \$1.3 bil loss that bankrupted a centuries old financial institution. When referring to derivatives, Alan Greenspan said that “What constitutes money has been obscured”. To my mind this remark should be applied to the whole international stock market casino. Warren Buffett, the second richest person in the USA, remarked “I view derivatives as time bombs, both for the parties that deal in them and the economic system”. In view of these damning remarks, it is worth looking at the chart 13 which shows how some major banks were exposed to derivatives in 2008⁶⁰:

The total exposure of US banks to derivatives was about \$200 trillion in 2008.

Many of the major banks in the US and Europe have incurred high financial losses and we may wonder where the money to cover the loss will come from?

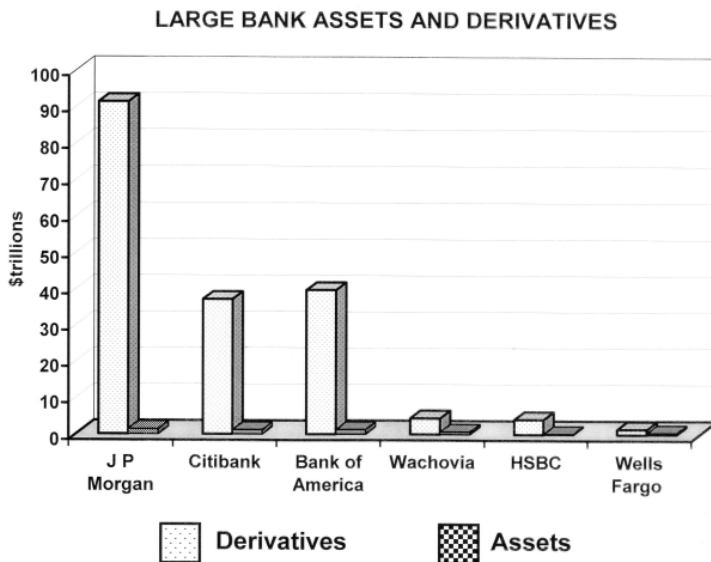


CHART 13

The Independent reported in Jan 2008 that Citigroup and Merrill Lynch went cap-in-hand to the Government of Singapore Investment Corporation (\$6.9 bil), existing investors (\$2 bil), Korean Government, Muzuho Corporate Bank of Japan (\$6.6 bil), Kuwaiti Investment Authority (\$5 bil), Abu Dhabi government (\$7.5 bil) and Singapore's Temesek (\$6.2 bil) ⁶¹.

What is the next step following major bailouts by the US government and giant mergers and fall-outs in terms of massive job losses and increased taxes? - take-overs by Chinese, Middle Eastern and Russian Sovereign Wealth Funds perhaps? Has the crisis barely started?

On the 25th Sept 2008 George Bush renewed his appeal to Congress for \$700 bil of taxpayers money to be pumped into the banking system. If this was not approved he warned that the "Entire financial system was in danger of grinding to a halt" leading to widespread unemployment and a long and painful recession. "Americans could slip into a financial panic".

How could such a mess have developed and so quickly?

Why economics is bunk!

Economic growth is measured in a ridiculous way that gives no indication of its social and environmental impact i.e. by gross national product (GNP) which lumps together the output of all goods and services, even those that have negative social and environmental outcomes. Thomas Greco lifts the lid on the absurdity of economics and the manner in which money is created, whilst at the same time stressing the importance of money in all our lives⁶². The problem with money in its present form is that “it systematically pumps wealth from the poor and the middle class to the rich”. Generally money is created only when someone is put into debt to a bank. “Money takes the form of bank credit that must be borrowed into circulation”. The banks usually require collateral which they will confiscate if the borrower fails to repay the loan. This is what led to the current financial crisis and house repossessions. “Money, as it emerges from the banks that create it, is not distributed fairly, because the allocation decisions are not made democratically, but rather by elite groups of corporate bankers who are not held properly accountable. They act in their own interests, pursuing goals that are typical of any corporate business - profit and growth.”

The possession of money should be evidence that the possessor has delivered value to the community in the form of goods and services. But money is frequently given to unproductive and privileged clients on more favourable terms than it is to everyone else and thus much wealth is redistributed from producers to privileged non-producers. As a result of globalisation and the mobility of capital, workers are being driven to the lowest common denominator of wages, working conditions and environmental quality and communities are increasingly deprived of control over their own quality of life. Economics drives politics and money is the central mechanism through which economic power is exerted.

The fundamental problem with interest (usury) charged by banks for loans is that this causes debt to grow exponentially. This leads to the unsustainable use of natural resources, trivial and harmful goods, destructive competition markets, scarce money and the grossly unfair distribution of wealth.

The long recent boom which tends to mask this inequality, was made possible by the collapse of the Soviet Union and the opening of China

and India to globalisation . The effect was to bring hundreds of millions of educated and low-waged workers into the framework of the international capitalist market. Along with the weakening of organised labour, the deregulated expansion of international finance and a flood of cheap imports into the rest of the world has resulted in a corporate profits bonanza and power grab which has shaped the economic and political temper of our times⁶³ .

Does the debt crisis provide the first indication in Britain that the government's neo-liberal agenda and the high dependence on the financial services sector for economic growth, is starting to unravel? Is the long period of low unemployment coming to an end? Is a radical change of direction required to stave off a depression? Immigrant workers and a large transfer of manufacturing overseas has held down wages in Britain and the USA. Will this trend continue?

In Britain, social breakdown is being manifested in statistics for violent crime, drug addiction, binge drinking, teenage pregnancies, sexually transmitted diseases, obesity and personal debts. Many social and environmental indicators place Britain at or near the bottom of European league tables. According to a study by the Joseph Rowntree Foundation in 2007 the gap between rich and poor in Britain is at the highest level for more than 40 years. Many rich people are living in areas segregated from the rest of society. While the number of people living in extreme poverty has fallen, the number of people living below the poverty line has increased, with more than 1 in 4 households classed as so-called breadline poor in 2001. At the same time the number of asset wealthy households rose dramatically between 1999 and 2003 with more than 20% of families falling into this category⁶⁴.

The BBC2 television programme 'What Britain Earns' (Jan 2007) revealed that 20% of the population received an income of less than £10,000 per annum, whereas 4,500 people received over £1 mil. This top income group received more than the 2.5 mil people on the lowest incomes. The director of Barclays Bank was found to have the greatest income with £23 mil per annum (his basic pay was £250,000). Many of those receiving high incomes were young people gambling on stocks and shares in the City of London.

The big rip-off and a global recession

The paper and coins we use for our purchases amount to no more than a promise that the receiver will provide us with goods and services to the embossed value. Not so long ago these notes were backed by a rare and durable metal - *gold*. Most of the features of the current crisis can be traced back to the abandonment of gold as the foundation of the US monetary system. This came in two stages. In 1933, President Franklin Roosevelt ended Americans' right to surrender paper dollars for gold and even to own gold bullion. Step two came in 1971 when President Richard Nixon "closed the gold window" and denied foreign governments the right to turn in paper dollars for gold. In 2005 Bill Haynes, a precious metals dealer, accurately prophesied the outcome (except the collapse in property prices)⁶⁵:

Roosevelt's move was a major step in shifting the world from the *gold standard* to the *gold exchange standard*. Under the *gold standard*, governments fixed the prices of their currencies in terms of a specified amount of gold and stood ready to convert their currencies into gold at the fixed prices.

Under the *gold standard*, a government is limited – both legally and practically – as to how much paper money it can print. As recently as the Lyndon Johnson administration, the US could print paper dollars equal only to four times the value of the nation's gold reserves.

Under the *gold standard*, governments that print too much paper money risk runs on their gold reserves. Runs occur as holders of the paper seek to convert to gold before the vaults are empty. A run on the dollar is what happened in the late 1960s, which culminated in President Richard Nixon closing the gold window in 1971.

"Closing the gold window" is a euphemism for the US defaulting on its promise to other countries to redeem dollars for gold. As an alternative, Nixon could have devalued the dollar and continued to redeem. In effect, he chose a one hundred percent devaluation, a *de facto* default on the promise to redeem.

In the 34 years before Nixon closed the gold window, the money supply in the US grew less than two fold. In the 34 years

after Nixon's action, the money supply expanded 13 fold. The Fed's massive inflation of the 1990s resulted in the greatest advance in stock market history. Continued inflation is now pushing housing prices to record levels. Automobiles now cost more than houses did only thirty years ago.

Despite establishment assertions that the dollar is 'sound', investors should prepare for further declines in the value of the dollar and plan their investments accordingly. History shows that no government, after going on a *fiat* monetary system, ever reverses course until its paper currency is destroyed. There is no reason to believe this time will be any different.⁶⁶

On the same day as the announcement of the nationalisation of Northern Rock, the TV Channel 4 Dispatches "How the banks bet your money", described how the subprime mortgage crisis might start a slide towards a global recession. Private equity financier, Jon Moulton, described how people working for British High Street banks, including Royal Bank of Scotland, HSBC, Barclays, HBOS, National Westminster, Lloyds/TSB and of course Northern Rock, obtained huge bonuses gambling on the risky short term loans in the US subprime mortgage industry. Northern Rock had a 75% exposure to what in economics jargon were referred to as 'collateralised loan obligations' (CLOs). The run on the Bank which followed the announcement of a bail-out by the Bank of England, was the first in 150 years. The delay fiasco that followed resulted from Gordon Brown's division of financial regulation between the Bank of England, the Treasury and the Financial Services Authority, with none of them having the statutory powers to deal with the crisis (this was not sought until 19th Feb 2008). The British taxpayer now carries the risk of £100 bil of debt and Moulton believes that a transfer of the bank to the private sector is unlikely.

In fact he believes that a melt down in CLOs is very likely to adversely affect pension funds, insurance funds, the construction industry and eventually the whole of society - a cancer that will keep spreading! The crisis in the USA has been devastating for thousands of poor families. Whole suburbs (especially in Cleveland, Ohio) have fallen into a state of disrepair and dereliction and many houses have been looted or occupied

by drug addicts. Many properties are now virtually worthless.

William Engdahl maintains that the United States is the “heart of a dysfunctional economic system, which is spreading instability, unemployment and depression globally”. This unstable situation is being perpetuated through US military power and the position of the dollar as the world’s reserve currency. This privileged position has enabled the US to use the resources from the rest of the world to finance much of its own development and military adventures and build up massive debts without fear of repayment. In the eyes of some Americans the US was merely using this money in its role as ‘the defender of the Free World!’ The US has used a policy of trade and budget deficits to lock the rest of the world into a dependence on the US money system. Foreign central banks hold about \$1.5 trillion of US government debt. The US trade deficit is running at approx \$500 billion. Globalisation is in fact just a code word for dollarisation⁶⁷. The US Treasury believes that US trade partners will be forced to always buy more US debt even if their own economies suffer as a result because they hold such large quantities of dollars. However, this perverse system now threatens to bring the whole world to the point of collapse. This could be triggered by the colossal US internal debt now estimated to be \$34 trillion (double what it was in 1995). Countries impoverished by IMF/World Bank structural adjustment policies and other OECD countries will be unable or unwilling to prop up the US economy by purchasing dollars. US industry will go into decline and unemployment will increase. In such a climate will the US continue to use its military strength to secure access to fossil resources in an attempt to maintain its own economic growth - resources that are expected to peak in the next few years?

Economist Richard Douthwaite points out that for many years, the reserve currency status of the US dollar has enabled it to import more goods and services than it exported. In 2006, for example, the US bought goods and services from the rest of the world worth \$2,202.1 billion and only sent \$1,436.8 billion back in return - a shortfall of 34.75%. Its current account deficit was \$856.7 billion. In the eight years between 1992 and 2000, the world’s central banks increased their dollar holdings by around \$800 billion. This gave America a cost-free loan of

the same amount, but this massive sum was only a small fraction of the cost free money that the world's savers poured into the US during that period. The conclusion is obvious: foreign savers have been financing much of the two deficits that the US has been running - its trade deficit and it's government's deficit. It was their money that enabled the US to become a super-power. Now they risk losing a lot of their capital as a result of the credit crisis.

For as long as world trade continues to grow and the present system of money creation persists, the indebtedness (and thus the seignorage gains) of the reserve currency issuing countries is likely to increase. But if world trade declines or a world currency is introduced, the reserve currencies would begin to return to their countries of issue in exchange for goods and services. On the basis of the figures above, only the US would suffer. The value of the dollar would fall and American living standards would fall sharply as a higher proportion of everything being produced in the US went abroad in exchange for the returning dollars.

The Danish based Saxo Bank made some dire predictions for both the Chinese and US economies for 2008. Oil prices were expected to rise to \$175 per barrel and to \$250 per barrel if the US launches military action against Iran. The US market was expected to decline by 25% and the Chinese by 40%. However, a falling US dollar would help US exports and reduce the amount of US foreign debts and may cause oil prices to fall if declining oil reserves don't keep the price high. The price of grain was expected to double. Three out of ten of large building companies were expected to go bankrupt and a crisis in personal credit was expected in the US. The value of US credit card accounts that were 30 days overdue rose 26% in October 2007 to \$17 bil. The British economy was expected to start declining.

The greed game

The manner in which the collapse of the subprime mortgage market came about and the eventual global financial implications was highlighted in a BBC 2 programme on 1st April 2008. The programme also described how just a few individuals who caused this crisis had made their fortunes in the process and will remain unaffected by the disastrous outcomes.

When Alan Greenspan lowered the US interest rate to 1% this triggered a borrowing spree across the world. Property and other equity was purchased in the certain knowledge that its value would increase - called *leveraging*. Brokers made large fees encouraging poor people to take out mortgages with banks to buy their own houses which were then sold on to other banks and investors across the world in a repackaged form known as *structured finance* (*collateralised debt obligations*). This is an example of the way it worked:

The loans to 3 borrowers are repackaged as one loan which is then sold on to 3 investors. One is a low risk investor and he is persuaded to take on the loan on the basis that he will have first call on the sale of any property if any part of the loan cannot be repaid. The second is a medium risk investor who gets next call. The third is a high risk investor who has last call. If all the borrowers are able to repay or the properties appreciably increase in value, then all three investors would make a profit. The repackaged loan was promoted by rating agencies as an almost guaranteed low risk, high return, investment termed a *triple A* (as might be any investment in a large oil company for example).

One of the essential points to bear in mind is that the responsibility for ensuring the repayment of the loans has now been removed from the original lender and the broker. Also the agencies providing the triple A rating did not make any enquiries about the borrowers' ability to pay back the loans. When interest rates for families on low incomes rose from 1% to 6% in the space of just a few months, repayment problems were inevitable. The ratio of subprime borrowers to non subprime rose from 1:13 in 2001 to 1:4 in 2006.

Other outcomes of low interest rates and cheap money was an increase in the numbers of companies taken over and then sold on by private equity firms and hedge funds (now larger than many large banks). The managers of these bodies receive huge salaries and bonuses. Large banks have engaged in activities similar to these bodies and their chief executives are also now amongst the super rich. Hedge funds are companies engaged in betting on share price differences of commodities in stock exchanges. Shares are bought and then sold. If the share price

risers then a profit is made. Private equity firms purchase companies which they then reorganise, often shedding staff, and then sell on at a profit to another company. In both cases the gambling has usually been carried on with borrowed money.

A crisis in the banking industry has resulted as banks have become afraid to lend to other banks because they do not know the extent of exposure to subprime lending. Loan interest rates have rocketed. Other losers are those who have lost savings, investments or their jobs. The numbers of prospective home buyers has reduced dramatically because fewer mortgages are on offer or they are unable to obtain the deposit required nor pay the increased mortgage interest rates. Ultimately almost everyone, except the super rich who created the problem in the first place, will be the losers.

In Britain the exposure to risky financial deals is now considerable. Financial dealings of the City of London stock markets now account for one third of the country's GDP and the manufacturing sector, engaged in proper wealth creation, has declined in recent years. The policies of the present Labour government, under the direction of Gordon Brown, have created the ideal climate for the super rich to indulge their fantasies - the £70 mil house with running costs of £1 mil per year, 200 foot long boats, a skull *death's head* encrusted with 8,601 diamonds costing £50 mil, a watch costing £1 mil.... If you are super rich, your wildest fantasy can probably be indulged just like the potentates and demigods of history! Judged by GDP alone, the British economy looks sound - but for how much longer? If the USA moves into recession as many economists are now predicting, how will Britain be affected? Gordon Brown has sought advice from Alan Greenspan and Tony Blair is receiving a fee of £500,000 per year from the US bank J.P. Morgan, which is heavily exposed to derivatives trading.⁶⁸

Do banks have ethical policies?

Probably few people think consciously about how their money is used once it is deposited in a bank, beyond being concerned about the security of their deposits and the interest they get on their investment. However, there is a growing concern about the way large banks have been implicated, not only in the third world debt crisis, but also in environmental degradation, animal cruelty, the arms trade, tobacco

production, unfair trade and other matters related to social justice.

In order to gain an indication of some of the major bank's attitudes towards the above issues, I contacted a selection of banks during 2003 and asked for their ethical policies. These included Abbey National, Lloyds TSB, Barclays Bank, Chase Manhattan Bank, Citibank International, HSBC Bank, Royal Bank of Scotland Group, Cooperative Bank and the Ecology Building Society.

The policies of the other major banks came nowhere close to those of the Cooperative Bank, and the Ecology Building Society (which are all detailed in Chapter 8) although most had modest policies on environmental protection and provided grants for social projects.

Many campaigners will remember the unethical practices of the main banks in relation to third world debt and investments in the arms trade. The Midland Bank (taken over by the HSBC Bank) was notorious in this respect by having a special investment department dealing with arms sales promotion and for its exposure to third world debt. Therefore it is now interesting to note that the HSBC bank has a similar policy to that of the Cooperative Bank towards arms sales: "We avoid undertaking certain categories of business, such as the financing of arms dealers, traders in military equipment, countries subjected to internationally agreed sanctions and schemes whose purpose is tax evasion". However, there was an apparent discrepancy between this statement and the caveat in its leaflet 'HSBC: Business Principles and Values', which was also similar to that of Barclays Bank: "We take a careful and limited approach to the financing of sales of defence equipment. We ensure that the vendor's government and other relevant authorities have granted the necessary licences and approvals." Not even the Cooperative Bank makes a wholesale commitment not to invest in companies dealing with arms exports. "We will not invest in any business involved in the manufacture or transfer of armaments to oppressive regimes". Many investors will be seeking to use a bank which will not invest in any company exporting arms to any country - whether they are considered 'oppressive' or not. Several of the major banks state that they will not invest in any business involved in the manufacture of torture equipment or other equipment that is used in violation of human rights.

Despite its stated commitment to gender equality, of the 13 directors

and senior managers illustrated in the HSBC 2000 Annual Review, only one was a woman. How this compared with other banks was not assessed.

HSBC also made a commitment to the *United Nations Global Compact and the Global Sullivan Principles*. None of the other major banks appears to have made this commitment. These *principles* lack detail but provide a minimal framework for companies and banks to set their ethical policies. However, issues such as tobacco production, arms sales, animal cruelty and experimentation, chemical pesticide use, genetically modified foods and many other issues which may be of concern to many potential investors, were not mentioned in these principles.

Some of the banks offered an ethical fund and an environmental fund (e.g. LloydsTSB). Does this alternative facility reflect an admission that their mainstream business is neither ethical nor environmentally sound? General statements such as “we comply with government legislation” or “we are committed to conducting business in an environmentally responsible manner that protects human health, natural resources and the global environment” are unlikely to impress anyone seriously interested in ethical issues. Also it was not clear from some reports whether improved in-house environmental performance was related to genuine savings or had come about as a result of staff redundancies and the closure of sub-branches.

Citigroup, (in 2007 speculated for a merger with the J.P. Morgan Chase⁶⁹), has come in for some scathing criticism in a report by John Hoefle in the Executive Intelligence Review of LaRouche Publications - ‘*US banks lead global financial collapse and mergers, derivatives losses reveal bankruptcy of the US banking system*’. Major US banks, including Citigroup, are said to be bankrupt several times over and are rumoured to have been propped up by the US Treasury. J.P. Morgan Chase is referred to as a “Giant casino specialising in the derivatives market”. These banks are accused of being involved in a wave of scandals (e.g. the collapse of ENRON and WORLDCOM) that reflects their “descent ever deeper into unethical and even criminal behaviour in an attempt to fleece enough money out of their customers to maintain the appearance of solvency”.

Barclays Bank and the Cooperative Bank offered to provide their Corporate Social Responsibility Report in the form of an audio cassette,

braille and large print versions. This is a positive service that should be provided by all banks. The policies of the Abbey National Group and LloydsTSB related only marginally to the ethical issues discussed above.

If the readers of this book are interested in the ethical issues discussed in this chapter, then I suggest that they write to ask for the ethical policies of their banks. They can then judge whether they need to move their accounts to other banks or building societies. It is possible that some of these banks might have changed their ethical performance since this survey was carried out.

A new global colonialism

Michel Chossudovsky describes how neo-liberal policies enforced by the International Monetary Fund (IMF), the World Bank and the World Trade Organisation have enabled the blatant theft of money and resources from countries throughout the world ⁷⁰. Among the outcomes have been the erosion of democracy, mass unemployment, poverty and starvation, the severe devaluation of national currencies, an expansion of the mafia and other criminal organisations and even genocide. This has been nothing less than a new form of global colonialism in which the colonists are not only Western countries, but their multinational corporations and banks (Mainly from the United States), including Citigroup, Bank of America, J.P. Morgan Chase, Goldman Sachs, Morgan Stanley, General Electric, Lehman Brothers, Salomon Smith Barney, Deutsche Bank AG, Royal Dutch/Shell, Nike, ABN AMRO, Merrill Lynch, Lloyds, HSBC and Dresdner. Much of this activity took place in the 1980's and 1990's. The New World Order feeds on human poverty and the destruction of the natural environment.

In the USA “in the wake of September 11th 2001, through a massive propaganda campaign, the shaky legitimacy of the ‘global free market system’ has been reinforced, opening the door to a renewed wave of deregulation and privatisation, resulting in corporate take-overs of most, if not all, public services and state infrastructure (including health care, electricity, water and transportation)”.

Elsewhere, some of the very worst outcomes of IMF and World Bank ‘shock therapies’ were experienced in Africa and countries which were part of the communist Eastern block. The structural adjustment

programmes they imposed has contributed largely to destabilizing national currencies and ruining the economies of developing countries and has led to the impoverishment of hundreds of millions of people. Even the internationally respected Nelson Mandela has presided over the creation of a 'new apartheid' which he courageously opposed for most of his life. Under pressure from the IMF, both land and resources have been transferred from poor black people to Afrikaners.

The IMF structural adjustment policy has resulted in the collapse of internal purchasing power, the eruption of famines, the closure of schools and health clinics and widespread unemployment. In many countries subjected to these so-called 'reforms' there has been a resurgence of infectious diseases, including tuberculosis, malaria and cholera. Also the World Bank's continuing focus on funding large scale infrastructure has speeded up the process of deforestation and the destruction of the natural environment. A typical example is the World Bank's encouragement of foreign companies to destructively log the world's second largest forest, endangering the lives of thousands of Congolese Pygmies⁷¹. A report by an independent inspection panel accused the Bank of misleading Congo's government about the value of its forests and of breaking its own rules. Congo's rainforests are the second largest in the world after the Amazon, locking nearly 8% of the planet's carbon and having some of its richest biodiversity. Nearly 40 million people depend on the forests for medicines, shelter, timber and food. The British government, which is a development partner of the World Bank and its third largest financial contributor, encouraged the Bank to intervene in the Congo forests with export-driven industrial logging and earmarked £50m for further Congo basin forestry aid. The panel found that Bank policies had the following effects:

- An area of 600,000 square kilometres (232,000 square miles) of forest was earmarked for logging companies. The Bank failed to address critical social and environmental issues. It ignored between 250,000 and 600,000 Pygmies believed to be living in the Congolese forests, even though their presence was well known and documented.
- It put the Pygmies in serious potential harm.

Chossudovsky aptly refers to the imposition of IMF and World Bank 'reforms' on over 150 countries as the "globalisation of poverty". Implementation of these reforms frequently requires the backing of the military and the authoritarian state and hence subverts true democracy, despite the pretence of 'free and fair' elections. Riots against the imposition of IMF policies have been brutally repressed. This Washington based bureaucracy now shapes the destiny of 80% of the world's population. Never has there been such a concentration of power in the hands of a small number of multinational companies and banks whose interests the IMF, World Bank and WTO serve. The outcomes of imposing these policies are reflected in the following statistics:

- **Nigeria** - the minimum wage declined by 85% in the course of the 1980s.
- **Peru** - the minimum wage in 1990 declined by 90% in relation to its level in the mid 1970s.
- **Somalia** - From the mid 1970s to the mid 1980s food aid increased fifteen-fold to the detriment of farmers and traditional crops (maize and sorghum). This, plus the imposition of currency devaluation, was the main cause of the impoverishment of farming communities. The best agricultural land was appropriated by government bureaucrats for growing cash crops for export. The privatisation of water and animal health services destroyed the traditional sustainable exchange economy of nomadic pastoralists who make up half the country's population. By 1989, expenditure on health declined by 78% and expenditure on education went down from \$82 to \$4 per student compared with the 1975 levels, school enrolment declined by 41% and a quarter of primary schools closed down. The economic reform package for Somalia is similar to that imposed on more than 100 developing countries.
- **Rwanda** - the restructuring of the agricultural system under IMF/World Bank supervision, precipitated the population into widespread poverty and destitution. This and the historical legacy of privileges given to the Tutsis by the Belgian colonists in their policy of 'divide and rule', created the climate for the brutal act of genocide that took place in 1994. This was triggered by the shooting down of

the President's plane by Tutsi rebels led by Paul Kagame.

Under IMF pressure, the Rwandan franc was devalued by 50% in 1990, agricultural subsidies were removed and state enterprises were privatised. Public services collapsed, child malnutrition increased dramatically and malaria increased 21% in the year following the adoption of the IMF programme.

In 1992 a further devaluation was ordered by the IMF. The increased focus on coffee, despite falling prices, resulted in a substantial drop in the production of staple foods. Subsidised food aid imports increased the crisis and destabilised local markets. Famine became widespread in the southern provinces.

In 1990 Tutsi led rebels backed by Uganda, Britain and the US, invaded Rwanda. Loans to Uganda were increasingly used to fund the war. At the same time, aid money, including a World Bank loan, was used to support the Rwanda military and Interhamwe militia. Over 1 million machetes were imported into the country.

- **Zaire** - The US client regime in Rwanda, led by Paul Kagame and trained by the US Green Berets, invaded Zaire in 1996 and backed the rebel group led by Laurent Desire Kabila. In May 1997, Kabila took power in Zaire. The reason for US support soon became apparent - gaining access to the country's extensive mineral resources. Kabila negotiated mining contracts with several US and British companies. Meanwhile the usual IMF package was imposed, condemning almost the entire population to abysmal poverty and the continuation of a civil war in which nearly 2 million people have already been killed.

The civil wars in Rwanda and Zaire were an integral part of US foreign policy, staged in accordance with strategic and economic objectives - the lives of Africans were of no consequence!

Washington has become the new colonial master.

- **South Africa** - Afrikaner agri-business has penetrated neighbouring countries with investments in commercial farming, food processing and eco-tourism. Under the 'Food Corridor' programme peasants lose their land and become farm labourers or tenants on large scale plantations owned by the Boers. This has occurred with the blessing

of the ANC and Nelson Mandela. In the Congo the Boers have been granted 99 year leases on agricultural land. This process has been encouraged by the IMF, World Bank and the WTO. The expropriation of peasant lands is often demanded by creditors as a condition for re-scheduling debts. The process weakens subsistence agriculture and displaces local level agricultural markets. Under the scheme millions of hectares of the best farmland are to be handed over to South African agri-business at give-away prices. EU money has also been provided to assist this process. This programme is set to expand into Mozambique, Zambia and Angola.

- **Mozambique** - A right wing Texas tycoon, James Blanchard, has been granted a concession over a vast area which includes the Maputo Elephant Reserve. During the civil war Blanchard provided financial backing for the brutal Renamo rebels backed by Apartheid South Africa.

These enclaves of white privilege are set to become 'states within states' - parallel government bypassing the state system!

- **Ethiopia** - The US supported both sides in the Eritrea-Ethiopia war and the beneficiaries were the arms manufacturers and agri-business multinationals. Health and education services were slashed under the usual IMF medicine and Price Waterhouse Coopers were charged with the task of co-ordinating the sale of state property at bargain prices to private companies.

Agricultural markets were wilfully manipulated on behalf of the agri-business multinationals. Price controls and all subsidies to farmers were removed. In 1996 one million tonnes of the grain harvest was exported to help service Ethiopia's debt. During the 1998-2000 famine, US multinationals, including Archer Daniels Midland and Cargill Inc, brought in their 'dirty' GM maize under lucrative World Food Programme food aid contracts. This contributed to the contamination of Ethiopia's genetic pool of indigenous seeds and landraces .

- **India** - The liberalisation of banking and the closing of rural credit cooperatives strengthened the village money lenders. In 1991, while rice exports increased, the expropriation of village lands increased, food prices rose by 50% and large sectors of the rural population starved.

The IMF/World Bank 'medicine' was to have a particularly devastating effect on former communist countries. The imposed programmes had the nature of a 'political punishment' on those countries for having the temerity to have been communist - the 'gathering of the spoils from a defeated enemy'. Among those to suffer were Vietnam, the countries of the former Yugoslavia, Russia and Albania. However, similar punishment was meted out to South Korea (a successful capitalist model) and several South American countries already suffering under 'free trade' agreements with the US.

The macro-economic policies imposed by the IMF and the World Bank on Vietnam since the mid 1980s have caused health clinics to close down, local level famines and school closures. Three quarters of children have dropped out of the school system. Recorded malaria deaths tripled during the first four years of the reforms.

Nearly 5,000 of the 12,300 state enterprises were driven into bankruptcy by 1994 and 200,000 public employees were laid off. Vietnam's most important industrial sectors were taken over by foreign private joint venture companies, mainly Japanese. A scandalous condition of international loans provided in 1993 was that Vietnamese companies should not be allowed to tender for public works contracts. The IMF has virtual control of the Central Bank which is not allowed to expand money supply or issue new currency without IMF approval. Large numbers of farmers have been encouraged to switch from food crops to cash crops for export and in 1994 famine broke out in many parts of the country. The deregulation of the grain market triggered famine and the World Bank recorded an increase in child malnutrition. The International Fund for Agricultural Development (IFAD) reported in June 2007 that rural poverty dropped by half between 1993 and 2000 but also stated that 63.7% of the population live on less than \$2 per day.

The main objective of the 1992 IMF reforms in the Russian Federation under Boris Yeltsin was to destroy the national economy and drive state enterprises into bankruptcy. Consumer prices, including bread, increased one hundred times in the first year and real earnings declined by 80%. The new measures have contributed to the devaluation of the national currency, criminalisation of economic activity, money laundering and capital flight and the plundering of the country's resources. In 1993 half of Russia's commercial banks and real

estate were estimated to be under the control of organised crime. Capital flight was estimated to be running at \$1 billion per month during 1992.

Wherever these IMF/World Bank so-called 'reforms' have been imposed the outcomes have been the same - the devaluation of national currencies, the destruction of state enterprises, reductions in education and health facilities, the enlargement of the national debt, increases in foreign investment and takeovers by foreign multinationals and banks and the expansion of dollarisation and US hegemony.

Walden Bello, a senior analyst and former executive director of Focus on the Global South, also describes how the global economic system works to the disadvantage of poor countries and threatens food security⁷². The rising price of oil, the transfer of land from food crops to biofuels and speculation in stock market futures trading has caused huge increases in the price of basic food commodities around the world.

This has been compounded by the subsidies that the US and the EU pays to its farmers. Food demonstrations have taken place around the world as a result. He focuses on two countries by way of example:

Mexico

Thousands of people in Mexico have staged demonstrations to protest a 60% increase in the price of tortillas. "...how on earth did Mexicans, who live in the land where corn was domesticated, become dependent on US imports in the first place? The Mexican food crisis cannot be fully understood without taking into account the fact that in the years preceding the tortilla crisis, the homeland of corn had been converted to a corn-importing economy by 'free market' policies promoted by the International Monetary Fund (IMF), the World Bank and Washington".

In the early 1980s Mexico had to apply for loans from the Bank and the IMF to service its debt to commercial banks. The price it had to pay was an acceptance of a policy "to eliminate high tariffs, state regulations and government support institutions, which neo-liberal doctrine identified as barriers to economic efficiency. Interest payments rose from 19 percent of total government expenditures in 1982 to 57 percent in 1988, while capital expenditures dropped from an already low 19.3 percent to 4.4 percent. The contraction of government spending

translated into the dismantling of state credit, government-subsidized agricultural inputs, price supports, state marketing boards and extension services.

Unilateral liberalization of agricultural trade pushed by the IMF and World Bank also contributed to the destabilization of peasant producers.

This blow to peasant agriculture was followed by an even larger one in 1994, when the North American Free Trade Agreement went into effect. Although NAFTA had a fifteen-year phase out of tariff protection for agricultural products, including corn, highly subsidized US corn quickly flooded in, reducing prices by half and plunging the corn sector into chronic crisis. Largely as a result of this agreement, Mexico's status as a net food importer has now been firmly established". This has enabled US multinational companies to dominate the trade in corn. The advantages conferred by NAFTA on US producers has, according to the 2003 Carnegie Endowment Report, thrown 1.3 million Mexican farmers out of work. A similar process is impoverishing farmers in the Philippines where the price of rice tripled over a period of just 4 months in 2008.

The Philippines

"The Philippines provides a grim example of how neo-liberal economic restructuring transforms a country from a net food exporter to a net food importer. The Philippines is the world's largest importer of rice. Manila's desperate effort to secure supplies at any price has become front-page news and pictures of soldiers providing security for rice distribution in poor communities have become emblematic of the global crisis".

As in Mexico, the World Bank and IMF, working on behalf of international creditors, pressured the Corazon Aquino administration to make repayment of the \$26 billion foreign debt a priority. Interest payments as a percentage of expenditures rose from 7% in 1980 to 28% in 1994; capital expenditures plunged from 26 percent to 16 percent. In short, debt servicing became the national budgetary priority. "Spending on agriculture fell by more than half. Irrigation stagnated and by the end of the 1990s only 17 percent of the Philippine's road network was paved, compared with 82 percent in Thailand and 75 percent in Malaysia. Filipino peasants were confronted with full-scale retreat of the state as

provider of comprehensive support – a role they had come to depend on.

The cutback in agricultural programmes was followed by trade liberalization, with the Philippines' 1995 entry into the World Trade Organization having the same effect as Mexico's joining NAFTA. WTO membership required the Philippines to eliminate quotas on all agricultural imports except rice and allow a certain amount of each commodity to enter at low tariff rates. While the country was allowed to maintain a quota on rice imports, it nevertheless had to admit the equivalent of 1 to 4 percent of domestic consumption over the next ten years. In fact, because of gravely weakened production resulting from lack of state support, the government imported much more than that to make up for shortfalls. The massive imports depressed the price of rice, discouraging farmers and keeping growth in production at a rate far below that of the country's two top suppliers, Thailand and Vietnam". Cheap imports resulting from liberalisation had a similar effect on other sectors of the rural economy. "The one-two punch of IMF-imposed adjustment and WTO-imposed trade liberalization swiftly transformed a largely self-sufficient agricultural economy into an import-dependent one as it steadily marginalized farmers". The pain was captured by a Filipino government negotiator during a WTO session in Geneva. "Our small producers," he said, "are being slaughtered by the gross unfairness of the international trading environment."

I have drawn upon the experience of Chossudovsky and Bello to explain the devastating effects of neo liberal policies when imposed upon poor countries. These negate some of the more sensible provisions of multilateral agencies in respect of corruption and poor administration by many third world governments. Some of the IMF structural adjustment policies and subsidised US food exports can compound the effects of local exploitation in a particularly devastating way.

Farmer suicides in India

Before 1994, agriculture and small scale industries in India received credit at favourable rates of interest. That all changed in 1994 when large institutional borrowers were included in the 'priority sector'. This

denied small producers adequate bank credit and poor farmers had to resort to money lenders charging high interest rates. Submitting to US pressure, the protection to agriculture was removed between 1996 and 2001. Between 1996 and 2001, prices of all primary products (cotton, jute, food grains and sugar) fell by 40 to 60 per cent and farmers who had contracted private debts in particular, became insolvent. The syndrome of hopelessly-indebted farmers committing suicides in Andhra Pradesh and Punjab started in 1998 and rapidly spread to other areas where cultivation of cash and export crops was predominant.

In recent years a range of factors has led to unprecedented rates of suicide in many states throughout India. In March 2008 an article in the San Francisco Chronicle⁷³ described the extent of this crisis for many thousands of poor farming families:

“While India’s economy surges forward on the crest of globalisation, thousands of farmers are taking their own lives every year to escape mounting debt and an uncertain future. According to the National Crime Records Bureau, at least 87,567 farmers committed suicide between 2002 and 2006. In Maharashtra state, there were 4,453 suicides in 2006, the last year for which statistics were made available, an increase of 527 compared with 2005. Sharp increases were recorded in several states.

Last year, Prime Minister Manmohan Singh pledged more than \$930 million in relief to bail out struggling Maharashtra farmers and “relieve the misery.”

Possible causes of suicides

Analysts cite several factors for the suicides, including crop failure and climate change, lower prices due to US farm subsidies, state restrictions on export trade, and the dumping of surplus crops in an over saturated domestic market. “The phenomena of indebtedness will recur as long as policies to depress agricultural prices continue,” said Sharad Joshi, founder of Shetkari Sanghatana, a leading farmers’ rights organization.

Ironically, many farmers are facing a backlash of their own remarkable transformation. In the 1960s, India underwent a

green revolution in favour of high-yield farming to counter acute food shortages. Plant breeding, irrigation development and the use of synthetic fertilizers ramped up production.

Today, India is a major exporter of rice, and the world's second-largest producer of fruits and vegetables after the United States. The changes caused higher operating costs and production that created a market glut exceeding demand at home and abroad. To remain in business, many farmers were forced to take out loans at high interest rates.

Once credit at exorbitant interest rates had been exhausted, they turned to private lenders, who charged even more. And that's when the suicides started, most activists say. "Suicide has become so common that no one takes it seriously anymore," said Giridhar Patil, an agricultural activist in Nashik. Such price volatility is a function of globalisation, most critics say - and is especially unstable for cotton farmers. As the world's largest cotton producer, the United States provides massive subsidies that allow American farmers to undercut overseas competition by selling at an artificially low cost. Moreover, many Indian farmers are now using genetically engineered Bt cotton seeds made by US-based Monsanto Co., which produce higher yields. The seeds and fertilizer, however, must be bought each year, costing farmers thousands of dollars".

The social crises impacting the rural areas of India have been compounded by IMF so-called economic reforms. Meanwhile the rising price of food globally appears set to create a crisis much worse than that resulting from the collapse of the US banking casino!

Agflation

While economics pundits in the western world and the Gulf States warn of inflation and stagflation, Matein Khalid, writing for the Khaleej Times, uses the word *agflation* to express his concerns about what he sees as the greatest crisis that could soon face the Middle East⁷⁴. "I am convinced that the Middle East's next macroeconomic demon will be a spectacular rise in food prices". He highlights the growing Chinese

demand for soya beans, low world stocks of grain, corn and edible oil and the increase in land being switched from food crops to bio fuel crops in the USA which wants to reduce its dependence on Middle Eastern oil:

Agflation will change international politics, redefine economic models and trigger regime changes across the emerging markets. Far more than crude oil or even bullion, price rises in the supermarket trigger mass consumer inflation psychology. So central bankers at the Fed, the ECB, the Bank of Japan, RBI, PBOC and SAMA will be powerless to prevent food prices from accelerating the embryonic global inflation nightmare. Global warming, the destruction of the rain forest, carbon emissions and events like Mad cow's disease, avian flu and Australian droughts, will make agflation as compelling a global issue, at Davos or the UN, as climate change.....

Australia's drought, Brazil's bad harvests, Russia and Ukraine's export restrictions and soaring global demand has led to epic rises in the price of wheat in bringing down Pakistani President Musharraf's PML-Q, the ostensible king's party now reduced to a pitiful toothless dictator party.

Indonesia's sovereign creditworthiness is at stake because of agflation since Jakarta spends a third of its budget on fuel/and electricity subsidies.

He believes that large increases in the price of wheat and rice will create a severe crisis in Egypt, Philippines, Burma and Vietnam. With water scarce, low investment in agriculture and dependence on imported food is a disaster for the Arab world. "Agflation, I am convinced, will be world history's next game changer, an ominous sword of Damocles over the poorest citizens of the global village".

The global oil economy?

Economic growth is driven by readily available supplies of fossil fuels, especially oil. Those supplies are soon expected to decline. Richard Heinberg, senior fellow of the Post Carbon Institute, makes some dire predictions for the post peak oil era⁷⁵. He suggests a complete collapse

of industrial civilisation by the middle of this century and a global depression worse than that of the 1930s. As a species we have failed to appreciate just how dependent our food supplies, transport and energy requirements depend on readily available supplies of oil. In 1859 when there were no oil supplies, the world's population was only 1 bil and might return to this figure in the future if alternative means of producing energy and growing food are not developed very soon. We have been eating up our own energy source and creating a pollutant in the process. We are in competition for resources not only with each other today, but with our descendents. Some of the changes he advocates are among those described in chapters 9 and 10.

Now that oil prices are rising rapidly and delivering windfall profits to the main suppliers, lessons should be learnt from what happened in the 1970s when the Gulf states quadrupled the price of oil. The money was deposited in western banks who then directed it as loans to many governments of developing countries, mostly in Latin America. The Economist maintains that "The Gulf's money was a disaster for Latin America, for recycled through western banks, it caused a decade long debt crisis. The Gulf itself suffered by inflicting stagflation on the West, thus causing a 20 year long slump in oil prices. This time the "sheer quantity of cash is hard to manage. .. Indeed some economists see an analogy with the 1970s. Gulf petrodollars have been recycled not to improvident governments in Latin America, but to improvident homebuyers in the uncreditworthy fringes of America".

The Economist might have added it was the poor who suffered the most as Latin American governments struggled to repay rising interest rates on the loans. Likewise the poor US homebuyers who were tricked into taking out mortgages at a time when interest rates were only 1% and then found that the repayments increased rapidly to a level they could not afford. The price that many paid was the repossession of their homes.

Whilst international tensions are set to continue as a result of the rising cost of food and sovereign funds derived from windfall oil profits are used to buy up real estate, resentment will grow in the rural areas of developed countries as rich people purchase property for holiday purposes while local residents cannot afford even the most basic homes.

Despite a growing interest in ethical investments, Leo Hickman highlights the way in which some funds base their sales pitch on ‘unethical investments’ such as tobacco, military hardware, gambling and alcohol. “It says a lot about the human condition that such funds are among the most lucrative” ⁷⁶.

Can anyone doubt that ‘economics is bunk’?

Redefining economics

Some economists underline the severe shortcomings of conventional economics by referring to its original meaning. Mark Anielsky contends that the Greek philosopher, Aristotle, made a distinction between *oikonomia* economics and *chrematistics* (meaning the art of money-making, with the root *chrema* meaning money, riches or something useful ⁷⁷). Herman Daly describes *chrematistics* as “the branch of political economy relating to the manipulation of property and wealth so as to maximise short-term monetary exchange value to the owner”. He also defines *oikonomia* as “the management of the household so as to increase its use value to all members of the household over the long run.”

The problem I have with this attempt to redefine economics and other attempts such as ‘green economics’, ‘heterodox economics’, etc is that they remain confined by a definition of economics which in reality resembles the definition Daly ascribes to *chrematistics*.

The dysfunctional nature of the global financial system is now clear. Is the current financial crisis just the start of a countdown to a collapse in human life support systems? Dmitry Orlov ⁷⁸ suggests that this ultimate collapse would first pass through a series of stages, but that an appropriate intervention in the early stages might avert the ultimate disaster:

1. Financial - faith in business-as-usual is lost
2. Commercial - faith in the market-shall-provide is lost
3. Political - faith that the government will take care of us is lost
4. Social - faith that your people will take care of you is lost
5. Cultural - faith in the goodness of humanity is lost (‘May you die today so that I die tomorrow’ Solzhenitsyn *The Gulag Archipelago*).

He suggests that some fundamental changes in the organization of society would need to take place at stage 3 at the latest in order to avert some brutish aspects of human behaviour in stages 4 and 5.

The world's resources are nearing the edge of collapse. Business people are going to lose trillions of dollars from a problem they aren't even grasping yet. The UK economy is set to contract by 4% in 2009, unemployment may rise to 3 million, whilst the government is set to borrow £600 bil over the next four years. Is this a portent of the global situation? The world needs a wake-up call and the adoption of a fresh language and a new frame of reference. In chapter 8 I have suggested some personal lifestyle changes and values reflecting a more sustainable and ethical form of future development.

CHAPTER 7

Don't shop at Supermarkets

Junk food and drink

At the end of September 2005 the UK Government announced that 'junk food' school meals will be banned and that extra funds would be provided to give children nutritious meals with adequate amounts of fruit and vegetables. This decision followed a high profile televised campaign by the TV personality, Jamie Oliver (who, surprisingly, has advertised supermarket products) exposing the poor quality of school meals throughout the country. This came after an equally damning series of programmes about the way British based supermarkets were providing poor quality food high in sugar, salt and saturated fats, including fruit picked early from the far corners of the world and bread made with enzymes to increase shelf life. In addition, a large proportion of animal products were being sourced from factory farms in which animals were being kept under appalling conditions.

Animal cruelty

Many of the chickens ending up on supermarket shelves had a miserable life suffering in large sheds or in cramped cages and are so heavy that their legs cannot support their own weight. This is evidenced by bruise marks visible on the birds displayed for sale. This meat is high in saturated fats (linked to heart disease). Nearly a pint of fat can be extracted from just one bird. Duck meat involves even greater cruelty. Ducks are also factory farmed and are not provided access to water on which they can swim. Not one duck farm supplying meat to supermarkets conformed to the RSPCA Freedom Foods standard. Steak usually comes from cows that do not have access to grass pasture but are

instead kept in pens with concrete floors. In all cases of factory farming, animals suffer either from disease or disabilities. 20% of cows are in pain at any given time.

Waste and exploitation

On the 3rd November 2005 TV News programmes in the UK reported that several dairy farmers were pouring their milk down the drain in protest at the low prices they were being paid by supermarkets for their produce. This was just one of many protests against the tyrannical manner in which large supermarkets are driving farmers to bankruptcy and putting local high street shops out of business, reducing the nutritional quality of food and imposing degrading working practices and poor pay on staff. 60-70% of all food in the UK now passes through four companies; Tesco, Sainsbury, Morrisons and Asda/Walmart⁷⁹. This control over the food chain allows supermarkets to determine the price they pay to farmers. Farmers are forced to take that price due to there being no other buyer left in the market place. This price-setting power, together with the requirement by supermarkets that farmers either supply them on a large scale or not at all, is behind the continuing industrialisation of agriculture. Big farmers are getting bigger to survive while small farmers are going bust. This is leading to prairie farming monoculture and unemployment. There are many aspects of supermarket activities that involve scandalous waste. The appearance of fruit and vegetables on the shelves is put before flavour and nutrition. For example, at the supermarket distribution centres, potatoes are scrubbed and the small ones rejected. They must be oval and without blemishes. In this process 30% are wasted. An organic supplier may have to reject 15% of his/her crop before delivering to a distribution centre where a further 25% (40% altogether) are likely to be rejected. The farmer will only be paid for those accepted. Farmers are treated in a shabby manner and must suffer further loss of profits when supermarkets decide to do 'buy one-get one free' promotions. It is the farmer who carries the extra cost, not the supermarket. Dairy farming is in crises, mainly as a result of the low prices paid to farmers for milk - 3,934 dairy farmers were put out of business between 2002 and 2005.

The dictatorial power of supermarkets over their suppliers is

described in the year 2000 independent report of the Competition Commission “We received many allegations from suppliers about the behaviour of the main parties [supermarket chains] in the course of their trading relationships. Most suppliers were unwilling to be named, or to name the main party that was the subject of the allegation. There appeared to us to be a climate of apprehension among many suppliers in their relationships with the main parties”⁸⁰. In 2003 a House of Commons Committee blamed supermarkets for fostering an environment that allows gang masters to recruit foreign casual workers to pick fruit and vegetables for a pittance.

The drive to provide out-of-season fruit and vegetables means that 95% of fruit and 50% of vegetables in the UK are now sourced from abroad. Despite the fact that there are 700 varieties of apple grown in Britain, only a small range are found in supermarkets and most are from abroad. Strawberries, usually El Santa, with little flavour, are favoured even when English strawberries are in season. A new profit making development is to sell packaged fruit and vegetables at inflated prices to the lazier consumer. For example, 512 gms of unpackaged whole lettuce cost only 58p, whereas packaged lettuce can cost 66p for 200 gms, over double the price. Packaged fruit can have 50% less nutritional value compared to fresh unpackaged fruit. Another serious source of waste is the amount of travel involved in bringing food from its source to the supermarket shelf. A typical family lunch is estimated to have travelled 26,234 miles. A report, by the Department of Environment, Food and Rural Affairs (DEFRA), estimates that transporting food to and around the UK produced 19 million tonnes of carbon dioxide in 2002, of which 10 million tonnes were emitted in the UK - 1.8 per cent of total UK carbon dioxide emissions. The report says that the overall social and environmental cost of food transport is £9 billion with impacts on road congestion, accidents, climate change, noise and air pollution. Supermarkets relationship with its suppliers resembles that which exists between multinational companies and nation states. Potential clients are played off against each other to get the best deal.

Squeezing the poor

The exploitation is even greater in relation to third world suppliers and this can make one of the biggest contributions to supermarket profits.

In the case of the price of bananas a typical chain of exploitation provides:

Plantation worker	1.5%
Plantation owner	10%
International trading company	31.5%
Ripener distributor	17%
Supermarket	40%

A similar pattern applies to other foods grown in the third world.

The takeover of Asda by Wal-Mart created even greater problems than those previously mentioned for Caribbean banana growers. Asda decided to source all its bananas through one supplier. Del Monte put in the lowest bid and obtained its bananas from large-scale plantations in Latin America. Asda has caused large reductions in the retail price in the UK from 114.1pence per kilo in 1990 to 79 pence in 2003. At the same time, costs to suppliers have risen because of the conditions imposed by supermarkets, such as mixing different degrees of ripeness in a single pack ⁸¹. Hundreds of different countries around the world grow bananas, but 97% are from one variety, the Cavendish. As a result of this genetic monoculture, the banana is prone to disease and production has become heavily dependent on pesticides which are a hazard for both growers and consumers ⁸². Many of these bananas are grown on vast, flat plantations in Latin and Central America and West Africa and Central Africa. In the Cameroon large areas of virgin forest have been cleared for banana plantations. They are picked under-ripe, dipped in anti-fungal chemicals to protect them from rot and then packed in the holds of cargo ships. Those arriving in the UK, for example, are then put in warehouses and treated with ethylene, a natural gas to make them ripen. Bananas provide big profits for supermarkets who have been involved in a price war. Asda/Walmart slashed prices in 2006, forcing other retailers to follow suit. This has proved to be a disaster for the growers. Organic bananas, on the other hand, are not treated with chemical pesticides and provide a much better return for the growers, mainly from the Caribbean.

The pictures below show some cash crop plantations in the Cameroon:



In the USA in Mar 2001 Wal-Mart had 3,000 stores with 950,000 employees. Wal-Mart did not allow unions and the wages of \$2-\$3 an hour were much lower than at unionised stores. Workers were paid only for the basic 28 hour week and overtime was not allowed. In June 2003 one single mother with two children earning \$6.25 an hour worked out that she could not provide enough for the basic needs of her family if she were to have done all her shopping at Wal-Mart.

Workers abroad supplying Wal-Mart products fare much worse. China Labor Watch reported that in factories of the Guangdong region of China workers were getting an average of just 16.5 cents per hour for a 7-day week ⁸³.

Supermarkets are spreading their influence across the country like a cancer. Perhaps the most insidious aspect of their rising power is their avowed intention to expand into the non-grocery market and it is small businesses and the very soul of our town centre environments that will suffer as a result. Friends of the Earth warn of the effects of Tesco's dominant position in the UK ⁸⁴:

- Local traders are being pushed out of business by new Tesco stores reducing consumer choice and damaging local economies. Tesco fills its shelves with imported produce instead of supporting UK farmers; surveys by Friends of the Earth have

shown that at the height of the UK apple season over half are imported.

- Farmers in the UK and overseas are being bullied by Tesco buyers as the company passes costs and risks back down the supply chain
- As alternative shops are lost, access to healthy food could be affected. Tesco performed poorly in a recent rating of major retailers contribution to healthy diets carried out by the National Consumer Council
- Workers overseas growing and packing food for Tesco and UK home workers assembling goods for Tesco are not getting basic employment rights

Supermarket influence in schools

Supermarkets are also seeking to influence school policies and children's attitudes by providing benefits to schools. There are dangers to democracy when multinational companies gain influence over school policies, irrespective of whether or not this furthers their commercial interests. Many corporations will regard generous donations of school equipment as a sound investment for creating a good public image and securing future profits from consumers who might remember the support they received while at school. However, these so called 'benefits' are not always what they seem. In 2001 the 'Which' magazine exposed the real purpose of an apparently generous scheme by Tesco involving vouchers that customers could use to get free computer equipment. "Over 23,000 schools benefited" so Tesco claimed. *Which* calculated that 4,490 vouchers would provide a school with a scanner. That meant that shoppers had to spend £44,900 in Tesco to get enough vouchers to buy an item that Tesco itself sold for £80. A school would have to generate £208,800 of Tesco shopping to receive £1,000 worth of equipment. In 2002 alone, Tesco distributed over 273 million vouchers for the scheme.

In 2003 university undergraduates received an invitation from Asda/Wal-Mart to participate in a '£6,000 giveaway' using their enclosed 'Asda gift card'. Although "120 lucky winners" might each get £50 (hence the £6,000), the promotion turned out be a ploy to get the parents of the students to 'top up the student's cards' by shopping at Asda. These supermarkets, by wooing young people, seek to make them 'part of their communities'.

In the USA the penetration of multinationals, including supermarkets, is even more pervasive. Companies like McDonalds and Burger King set up kiosks in schools. Pizza Hut corners the market in over 4,000 schools. In Canada and the US, many school boards have given exclusive vending rights to Pepsi-Cola⁸⁵.

Is it any wonder that the USA has the worst child obesity problem in the world!

Slam dunking Wal-Mart

This was the title Al Norman gave to his book in 1999⁸⁶ about his six year long campaign to halt the construction of big box stores like Wal-Mart and Home Depot which were destroying businesses and the character of small communities across the United States. First it is necessary to understand the nature of the beast.

Sales at Wal-Mart in 1999 totalled \$137 bil and as of that year operated 3,562 units in 7 countries. The company then had 910,000 employees and was opening a new store at the rate of one every 3 days. Sales in 2005 were about \$345 bil and its profit was over \$12 bil. The Walton family, whose father, Sam, founded the corporation, have a fortune of \$84 bil. Alice Walton, with a personal fortune of \$17 bil, is the richest woman in the world. In 2004, the income of the chief executive, Lee Scott, (excluding his salary of \$1.2 mil/year) from bonuses, stock awards and stock options, amounted to around \$22 mil. Compare this with the average pay of their low-paid employees of about \$17,000. A one parent, one child family required about \$28,000 for basic needs.

Wal-Mart is the epitome of corporate greed. In 2005 the United Food and Commercial Workers International Union⁸⁷, using mainly Wal-Mart's own information, scheduled the corporation's poor record on workers' wages, health care, pensions and rights, community and environmental impact, gender discrimination, child labour, immigrant employment and security checks on imported goods containers.

On many occasions the corporation has faced law suits for failing to provide meal breaks for workers. Wal-Mart's mean attitude towards its employees is disturbing. Unions are discouraged and some extreme action has been taken against those who have sought to establish unions. Wal-Mart closed its store in Jonquiere, Quebec in April 2005 after its employees received union certification. The store became the first

unionised Wal-Mart in North America when 51 percent of the employees at the store signed union cards. In December 2005, the Quebec Labour Board ordered Wal-Mart to compensate former employees of this store. The Board ruled that Wal-Mart had improperly closed the store in reprisal against unionised workers. In 2000, when a small meat cutting department successfully organized a union at a Wal-Mart store in Texas, Wal-Mart responded a week later by announcing the phase-out of its in-store meat cutting company-wide.

Wal-Mart has issued a 'Manager's Toolbox to remaining Union Free'. This toolbox provides managers with lists of warning signs that workers might be organizing, including "frequent meetings at associates' homes" and "associates who are never seen together start talking or associating with each other." The 'Toolbox' gives managers a hotline to call so that company specialists can respond rapidly and head off any attempt by employees to organize. Wal-Mart is committed to an anti-union policy. Unpaid overtime, including missed breaks and meal times, is encouraged.

Of particular concern is the inadequate health care insurance and pension provision for workers. Wal-Mart reported in January 2006 that its health insurance only covers 43% of its 1.39 mil employees. Wal-Mart's health insurance falls far short of other large companies. On average for 2005, large companies (200 or more workers) covered approximately 66% of their employees. Health care eligibility is restrictive. Part-timers - anybody below 34 hours a week - must wait 1 year before they can enrol. Moreover, spouses of part-time employees were ineligible for family health care coverage in 2006. Full-time hourly employees had to wait nearly 6 months before being able to enrol in the health insurance plan. Managers have no waiting period. Nationally, the average wait time for new employees to become eligible is 1.7 months. For the retail industry it is 3 months. Since the average full-time Wal-Mart employee earned \$17,114 in 2005, he or she would have to spend between 7 and 25 percent of his or her income just to cover the premiums and medical deductibles, if electing for single coverage.

The average full-time employee electing for family coverage would have to spend between 22 and 40 percent of his or her income just to cover the premiums and medical deductibles. These costs do not

include other health- related expenses such as medical co-pays, prescription coverage, emergency room deductibles, and ambulance deductibles.

Wal-Mart covers less of the health care costs compared to its competitors. In a state analysis, the Massachusetts Department of Health and Human Services found that in 2003, Wal-Mart covered only 52% of total health care premium costs compared to K-Mart which covered 66%, Target which covered 68%, and Sears which covered 80% . Wal-Mart's spending on health care for its employees falls well below industry and national employer averages. In 2002, as reported in the Wall Street Journal, Wal-Mart spent an average of \$3,500 per employee. By comparison, the average spending per employee in the wholesale/retailing sector was \$4,800. For US employers in general, the average was \$5,600 per employee. Therefore, Wal-Mart's average spending on health benefits for each covered employee was 27% less than the industry average and 37% less than the national average. In 2004, Wal-Mart spent \$1.5 billion on its health insurance. This amounts to an employer contribution of around only \$0.77 an hour per employee. This accounts for approximately a half-percent of Wal-Mart's \$285 billion in sales in 2004. In 2004, Wal-Mart spent nearly the same amount on advertising as it did on health insurance. In 2004, Wal-Mart reports that it spent \$1.5 billion on health care benefits and \$1.4 billion in advertising. Between 2003 and 2004, Wal-Mart increased its advertising budget by \$434 million, only increasing its spending on employee health care by \$100 million. That means Wal-Mart increased its spending on advertising by 45 percent while only increasing its spending on employee health care by 7 percent.

Because of the low wages, many Wal-Mart employees need extra government help and this puts an extra burden on all taxpayers. The estimated total amount of federal assistance for which Wal-Mart employees were eligible in 2004, was \$2.5 billion.

One 200-employee Wal-Mart store may cost federal taxpayers \$420,750 per year. This cost comes from the following, on average:

- \$36,000 a year for free and reduced lunches for just 50 qualifying Wal-Mart families.
- \$42,000 a year for low-income housing assistance.

- \$125,000 a year for federal tax credits and deductions for low-income families.
- \$100,000 a year for the additional expenses for programs for students.
- \$108,000 a year for the additional federal health care costs of moving into state children's health insurance programs (S-CHIP).
- \$9,750 a year for the additional costs for low income energy assistance.

Wal-Mart's growth can reduce worker's wages. The most comprehensive study of Wal-Mart's impact showed that the stores reduced earnings per person by 5 percent. This 2005 study by an economist from the National Bureau of Economic Research used Wal-Mart's own store data and government data for all counties where Wal-Mart has operated for 30 years. It found that the average Wal-Mart store reduces earnings per person by 5 percent in the county in which it operates. A reduction in wages has a multiplier impact in the surrounding area. For instance, in 1999, Southern California municipalities estimated that for every dollar decrease in wages in the southern California economy, \$2.08 in spending was lost - the \$1 decrease plus another \$1.08 in indirect multiplier impacts.

When a Wal-Mart is built in a town this usually has a negative impact on other businesses. In Maine, existing businesses lost over 10 percent of their market in 80 percent of the towns where Wal-Mart opened stores. Food stores in Mississippi lost 17 percent of their sales by the fifth year after a Wal-Mart super centre had come into their county, and retail stores lost 9 percent of their sales. Over the course of a few years after Wal-Mart entered a community, retailers' sales of apparel dropped 28% on average, hardware sales fell by 20%, and sales of speciality stores fell by 17%. In towns without Wal-Marts that are close to towns with Wal-Marts, sales in general merchandise declined immediately after Wal-Mart stores opened. After ten years, sales declined by a cumulative 34%.

In many factories abroad supplying Wal-Mart stores, working

conditions are poor. Workers making clothing for Wal-Mart in Shenzhen, China filed a class action lawsuit against Wal-Mart in September 2005 claiming that they were not paid the legal minimum wage, not permitted to take holidays off and were forced to work overtime. They said their employer had withheld the first three months of all workers' pay, almost making them indentured servants because the company refused to pay the money if they quit. Workers making toys for Wal-Mart in China's Guangdong Province reported that they would have to meet a quota of painting 8,900 toy pieces in an eight hour shift in order to earn the stated wage of \$3.45 a day. If they failed to meet that quota, the factory would only pay them \$1.23 for a day's work. Elsewhere workers producing goods for Wal-Mart also face appalling conditions, despite Wal-Mart's factory inspection programme.

In 2004, only 8 percent of Wal-Mart inspectors' visits to factories were unannounced, giving supervisors the chance to coach workers what to say and hide violations. Wal-Mart claimed it planned to double unannounced visits by its inspectors but that would still leave 80 percent of inspections announced.

A former Wal-Mart executive James Lynn has sued the company claiming he was fired because he warned the company that an inspection manager was intimidating underlings into passing Central American suppliers. Lynn documented forced pregnancy tests, 24-hour work shifts, extreme heat, pat-down searches, locked exits, and other violations of the labour laws of these Central American countries.

In common with a number of other US multinationals, some of which have been mentioned in previous chapters, Wal-Mart and the Walton family have supported politicians and organisations seeking to change legislation that threatens their economic interests. Extracts from a report by the National Institute on Money in State Politics describe how Wal-Mart has been actively pursuing a strategy to limit its state tax burden⁸⁸.

"The details of efforts by Wal-Mart to reduce its state taxes have come to light in the form of court papers filed as the company defends itself against a North Carolina lawsuit challenging the use of real estate investment trusts (REITS) to avoid some state taxes. The internal correspondence indicates that Wal-Mart hired the firm of Ernst and Young to develop state-specific strategies for exploiting tax loopholes.

From 2000 to 2006, Wal-Mart contributed \$1.1 million in 13 states, to state-level candidates and party committees.

In 2001, Wal-Mart sought bids from accounting firms on strategies for reducing state taxes in eight states: Arizona, California, Florida, Illinois, Indiana, Michigan, Minnesota and Pennsylvania. State-level candidates and party committees in those states received \$2.2 million from Wal-Mart between the years of 2000 and 2006, with committees in California collecting more than half of the contributions. The California tax code is considered one of the 'most stringent in the country.'

Wal-Mart gave an additional \$205,622 in Texas, where Ernst and Young set up a limited partnership that allowed much of the company's earnings to be transferred out of state. This practice was used by enough companies that the Texas legislature has since changed the law.

Candidates and party committees in North Carolina, where Wal-Mart's use of REITs is being questioned, received \$27,750. The Attorney General, who brought the case against Wal-Mart, collected \$4,000 from Wal-Mart in January of 2005 even though he was not up for re-election in 2006.

Wal-Mart's contributions in the nine states where it considered reducing its share of state taxes totalled almost \$2.5 million, or 65 percent of its contributions from 2000 to 2006.

Party committees received 55 percent of Wal-Mart contributions in the nine states, or \$1.36 million. The top recipient of Wal-Mart funds was the California Republican Party, whose more than \$1 million in receipts comprised 41 per cent of Wal-Mart contributions among the nine states.

State legislators, who are responsible for making tax law, collected almost \$929,000 accounting for 38 percent of the donations. Legislators in California, which was a 'key state for Ernst & Young's project,' received 44 percent of Wal-Mart's contributions to legislators in the nine states where it aimed to reduce its share of state taxes.

In the nine states where it pursued a strategy of tax minimization, Wal-Mart contributed \$2.17 million to Republican candidate and party committees and \$293,106 to their Democratic counterparts.

Wal-Mart contributed overwhelmingly to candidates who won their

rices or incumbents who were not up for re-election. Losing candidates received just 8 percent of Wal-Mart's donations to candidates."

Wal-Mart Watch has produced a series of fact sheets including those on the company's anti-union and discrimination policies, relationships with native Americans, employee benefits and health care⁸⁹.

Why is it that US expenditure on security at ports is only 3.5% of that spent on airport security? Part of the reason is that only a small portion of cargo containers undergo security checks and commercial interests are given greater priority than security⁹⁰. Those commercial interests are led by Wal-Mart, the world's largest retailer and the United States' biggest importer. The company, through its Washington, D.C., lobbyist, the Retail Industry Leaders Association (RILA), has time and again since 9/11 opposed new port and supply-chain security rules that might cut into Wal-Mart's record profits.

In the past few years, Wal-Mart has opposed:

- the introduction of anti-terrorist 'smart containers' and electronic seals for cargo containers coming into US ports. The retail industry called them 'feel good (security) measures'.
- independent and regular inspections of supply-chain security practices around the world.
- tougher rules requiring Wal-Mart to let Customs know what it's shipping in and where it comes from.
- new container-handling fees to pay for improved port security.

One of the United States' top port security experts, retired Coast Guard Cmdr. Stephen Flynn, puts the cost of helping protect US ports at 0.2 per cent of the value of cargo in the containers. The cost to Wal-Mart would be only about \$36 million. RILA and Wal-Mart insist that making cargo containers and supply-chains secure against terrorist attacks be voluntary. The successes of Wal-Mart are made doubly dangerous by the shift of manufacturing work from the United States to developing countries .

Ready meals

Clearly one of the most valued commodities throughout the world

is time.

In the affluent society and many regions of the developing world, the appeal of ready made processed meals is growing. Nothing is easier than popping a ready meal in the microwave or grabbing a fast food takeaway on the way home from a busy day in the office or factory. In simple health terms it means that we are consuming more fat (particularly saturated fat), sugar and salt - all of which have been repeatedly linked to obesity, high blood pressure, cardiovascular disease and certain cancers⁹¹. There are also growing concerns about additives. There are 540 additives currently available. In the West it is calculated that we each eat between 6 and 7 kgs of food additives each year.

Don't shop at supermarkets

Despite the corporate might of the supermarket, the greatest power still lies in the hands of the individual consumer - the power of the purse.

The only hope for Britain's farmers, the global environment and your community is for the UK to return to a position where no single business is responsible for more than 1% of UK food retailing. The only way this will be achieved is for the public to boycott supermarkets and instead support independent stores, farm shops, farmers markets, veg box schemes....

Shopping at supermarkets is the past - the future starts today!

CHAPTER 8

Sustainability and an Ethical Way of Life

Sustainable development

In the run up to the United Nations Conference on Environment and Development (UNCED) in 1992 chaired by Norway's prime minister Gro Harlem Brundtland, many non-government organisations throughout the world campaigned for an agreement that would address the twin crisis of global poverty and environmental destruction. Many had identified economic growth as a major contributor to this crisis.

The response to these concerns was an agreement named Agenda 21⁹². Although the document contained many laudable aims, there were several key statements which indicated that the voices of concern were not going to be taken seriously:

- Clause 2.3(a). Sustainable development should be promoted through trade liberalization.
- Principle 12. States should cooperate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries.....

There were several caveats (Principles 12, 15 and 16) that stipulated that policies and actions should not prejudice economic growth nor distort international trade and investment. Clause 1.13 (a) called on developing countries to remove biases against exports and discourage inefficient import-substitution and yet Clause 2.14 (a) urged them to diversify in order to reduce dependence on commodity exports.

These caveats indicated that many of the aims contained in the body

of the Agreement were doomed from the start. The most serious caveats were in many statements that appropriate environmental and health and safety standards need not apply to developing countries - presumably work with hazardous wastes dumped on poor countries, spraying pesticides without using safety equipment and long working hours often using child labour, would come into this category! Were it not for the constraints imposed by setting sustainable development within a framework of economic growth and globalisation, many of the aspirational aims of Agenda 21 might have been achieved. In reality the crisis has deepened and our children and grandchildren must continue to wait for a form of development *that will not prejudice their future ability to meet their own needs.*

Greed and competition rule OK!

All the previous chapters have painted a gloomy picture of the current world situation and the crises that face humanity. Suddenly it has dawned on many people that a global system based on economic growth and debt has enabled the one remaining superpower to impose its own neo-liberal agenda on the rest of the world for the purpose of gaining many vast resources for which it has not had to pay. Other rich nations have piggy-backed on this extreme abuse of power to obtain their substantial share of the spoils. This juggernaut is being driven by just a small number of ruthless and greedy individuals who conspire at the highest levels of corporate power. They use economics to perpetuate an unsustainable and divisive process of development based on the belief that the resources of the Earth are limitless.

We are told by conventional economists that we must accept that this capitalist process of development and international 'free' trade is the only one that can exploit the Earth's resources in the most efficient and effective manner. They believe that this process will provide everyone with the best benefits possible, even if only a few of these trickle down to the vast majority. They maintain that the provision of 'safety nets' will deal with problems of inequality. They argue that economic growth and inequality is unavoidable because it is in accordance with our human nature which is, above anything, based on the egoistic wish for, and tendency to fight for, more material goods and advantages for oneself. Therefore they say that our economic system has to be based on

competition for economic self-interest as the main driving force. This idea has resulted in an economy of free competition which not only uses our egoistic tendencies as its driving force, but compels us to compete for economic self interest, if we are to avoid being losers (personally, in business and as nations).

Whilst owners and capitalists paid their share of social costs, the damage to society and the environment could be somewhat reduced, but when the idea of liberalistic, unregulated economy became universal, not least through the requirement that capital should be allowed to flow freely across all borders (contrary to the ideas of Adam Smith, it should be said), democratic control over capital became increasingly impossible. In fact, any effort to impose social or environmental taxes on banks or corporations has only made them transfer their business and capital to a country where such controls do not exist. The international bodies which should be exercising control over these large entities, have instead served their interests to the detriment of human rights, democracy, the natural environment and sustainable development.

Is there a need for fundamental change? Are we to stand by helpless in the face of this abuse of power? Is a new world order possible - one that is not based on competition, greed, exploitation, conflict, gambling, excessive consumption and corruption, but on values such as sharing, co-operation, fellowship, simplicity and honesty?

In trying to answer these questions I have:

- questioned whether the dogma that the quest for economic self interest and material growth is the deepest human desire
- described existing models that go some way to reflecting values that are not currently guiding conventional economic theory
- suggested the structures of society and individual behaviour that could reflect these values and challenge the status quo
- suggested how a strategy and principles could be developed, under the framework of a new science, to develop international and national structures to solve the social, environmental and conflict problems that are caused by today's brutal economic competition.

Who are the powerful?

There must be some truth in the contention that those with the power dictate the future course of world development. But in whose hands does this power lie? All that has been said before suggests that it is multinational corporations and large banks, aided and abetted by leading politicians mainly in the richest countries and the emerging giants of China and India and a resurgent Russia emerging from deep recession. To these could be added the leaders of the rich oil states of the Middle East who, being concerned about their country's diminishing resources, are using their immense 'sovereign wealth funds' to acquire important assets throughout the world. However, a close examination of Chart 1 in the first chapter shows that potential power clearly lies with the majority of the 10% of the world's population who have 62% of global GDP. People within this income group can change the course of future development irrevocably through their consumer choices, political campaigning and adoption of an appropriately simple way of life. A global ethos involving giving, cooperation, mutual aid and working together will help to build new social bonds and solidarity with those who are disadvantaged.

A simple and ethical way of life

In 2008 I watched a television programme about three 13 year old pupils, two girls and one boy, from a school in England who had the task of visiting South India and finding a fair trade company that could make shirts for their school mates. They had been learning about the poor conditions and low wages of children making shirts for well known brands. They had wondered how the shirts in the shops could have been so cheap.

Their first meeting was with young girls working seven days a week pollinating cotton in the fields (boys were not suited to this work they were told!). They then visited a plantation where the workers, in this case both adult men and women, were spraying with dangerous chemicals (banned in the West) without any protection. They were introduced to several people who had been blinded or had severe deformities as a result of using these sprays. In total contrast, their next visit was to a plantation where cotton was being grown organically. Child labour was not used. Wages were low but working conditions were good. They then visited a town where there were large numbers of

cotton garment making factories, but were not permitted to see the working conditions. However, they were able to meet children being cared for by a charity who also provided for their education. These children said that they once worked in one of these factories. They had to work almost continuously and were beaten if they were too slow. When they cut their hands they were told that they should carry on working.

Their next visit was to a factory where the owners were only too happy to show the good well-lit air-conditioned workshops without any child labour.

At this factory they were able to get good quality sample shirts made at a reasonable price, but not made from organic cotton. The workers received reasonable wages. They decided that they would take these shirts back to their school - but they had one more visit to make.

Their last visit was to a poor rural locality where a small village workshop was making garments from organic cotton. The children realised from the conditions in the surrounding area that families were extremely poor. They had three shirts made here but the quality was not so good.

On returning to their school their first thought was to promote the better made shirts from the air conditioned factory. They then changed their minds when they realised that this would defeat their purpose of finding the best ethically made shirt. The shirts they sold to their school mates were the ones made in the village workshops. They decided that this provided the best option for poor people.

For these three youngsters this was a very fast learning curve, but how did all these school children feel every time they wore fair trade shirts with their own hand knitted logo in the corner? This visit raised several unanswered questions for the three travellers. Why did the girls working in the fields seem so happy when so many of their friends, for all their privileges, complain so much and seem so dissatisfied with their lives? Why was everyone they met in India so friendly towards them?

What was noticeable to me was the exasperated, but restrained, looks on the faces of the workshop manager's faces as the three debated what they wanted for their special shirts (the hidden thought bubbles probably contained the words 'if you were my kids I would tell you to wear what you were given and like it!').

What the children had realised was the very clear connection between their purchases and the lives of poor people living thousands of miles away and that they could through their consumer choices improve the lives of the poor, even if only in a small way.

Perhaps in the future they might question why their shirts were not made in England. Why were not shirts for English children being made in England and shirts for Indian children made in India thus cutting out the unnecessary use of fuel and greenhouse gas emissions involved with the long distance transport from factory to supermarket?

In the following pages I will present the argument that this form of questioning needs to be applied to all forms of consumption in order to achieve a type of development that can sustain human life well into the future. The suggestions made may at first seem radical, but I urge the reader not to dismiss them without first carefully considering the arguments on which they are based. Do we want multinational companies and large banks to dictate the way we live? Do we trust them to safeguard our life support systems and those of future generations? Do we want our children to be slaves to alcohol and drugs and drift into the kind of despair and ill health reflected in so many social indicators? Of course we do not!

I believe that positive change is possible and within the short time that the global crisis demands, but only if those large numbers of people in the 'affluent society' understand the true extent of their power and are willing to make changes in the way they live. Large numbers of people making modest changes will have far more impact than a small number making radical changes. However, quite big changes will be required by the affluent if disaster is to be averted - small changes will just not do! I believe that many of the examples and models I have described will show that these changes, whilst meaning perhaps a lower standard of living, will in fact lead to a better, more fulfilling, quality of life. Detailed studies that have been carried out in the US and Canada to determine the extent of the correlation between economic growth and peoples' quality of life, have raised such questions.

In a US study, of the 28 indicators of quality of life, only seven showed an improvement between 1950 and 1999. A study carried out in Alberta, Canada, used 51 *genuine progress indicators* (GPI) to derive an

overall *GPI well-being index*. This was plotted against GDP for the period between 1961 and 1999 and showed a fourfold increase in GDP but a 20% decrease in GPI ⁹³.

In his book 'The Growth Illusion' ⁹⁴, Richard Douthwaite makes the detailed case that indefinite economic growth will prove impossible in the face of :

- an estimated world population of 11 bil by the end of the century
- a decline in the reserves of fossil fuels
- a rise in the numbers of people acquiring a 'Western' lifestyle of high consumption of meat and material goods
- large areas of land being switched from food to fuel crops
- the degradation of land due to the past excessive use of chemical fertilizers and pesticides.
- the increasing financial and environmental costs of climate change.

Irrespective of whether economic growth will be possible in the future, is there any evidence that large numbers of people would opt for less material goods as a means to a better quality of life? Although difficult to quantify, there would appear to be a promising trend towards simpler living and that this has come to be a respected part of mainstream culture. Duane Elgin contends that as many as 20 million adults are pioneering "a way of life that is outwardly more sustainable and inwardly more spiritual"..... "Our evolutionary intelligence is now being tested. The choices made within this generation will reverberate into the deep future. Although human societies have confronted major hurdles throughout history, the challenges of our era are genuinely unique. Never before have so many people been called upon to make such sweeping changes in so little time. Never before has the entire human family been entrusted with the task of working together to imagine and then consciously build a sustainable, just, and compassionate future" ⁹⁵.

Scrap the car!

At a public meeting addressed by a senior politician about 25 years ago, I suggested that most people could easily manage without a car and could thereby improve our environment and reduce congestion and

pollution. I had no firm opinion about the effects on climate change at that time. The reaction from quite a few people in the audience was one of anger rather than ridicule. My lifetime experience of 68 years without a car has in fact added to the quality of my life. However, I also know that ownership of a car will, for a minority, be essential.

The anger I experienced at that meeting would probably be the reaction of the 5,000 workers at the Honda factory in Swindon, UK, where I live who, on 20th February 2008, celebrated the production of the factory's two millionth car. This followed an announcement by the Indian company, Tata, that they were about to launch the production of the 'Nano', a car selling at a price of only £1,200. Such a low price would bring car ownership within the reach of countless millions of people in India, China and many other countries of the 'third world'.

Both of these developments highlight a global transport dilemma which has been assessed by Stuart Staniford for the year 2050. Based on the assumption that the average world GDP per capita will then be about \$28,000 ⁹⁶ he estimates there could be 4 billion cars. If sufficient fuel were available, then the consumption of 50 million barrels per day of gasoline might be expected. However, only 35 million in total is expected and most of this will be required for purposes other than cars. If it is assumed that only 10 million barrels were available, then some alternative to gasoline alone would be required to meet expectations.

Hydrogen is one possibility via electrolosis, but "it has the huge problem of requiring a new infrastructure. So there need to be both early adopters on the infrastructure side (investors willing to fund hydrogen pipelines, gas stations owners willing to put in a hydrogen pump, etc), and early adopters on the consumer side (people willing to buy hydrogen cars). And in the early stages, both of these kinds of early adopters are going to have a miserable time because there won't be enough of the other kind close by. (*I buy a hydrogen car, but have to drive 100 miles to buy hydrogen, or I open a hydrogen station and I lose my shirt because there are only three hydrogen car owners in my city.*) In the meantime, a hydrogen car is at a serious disadvantage to a gasoline car. Therefore, they won't get adopted any time soon". He suggests that a more feasible alternative is that hybrid gasoline/electric cars move "onto a plugin-hybrid stage in which the car has a larger battery and motor and gets

plugged in to the electric grid at night or during the day at work. This has a far less serious adoption barrier. We already have distribution infrastructures for electricity and liquid fuel, so the only early adopter needed is the buyer of the plug-in hybrid. To the extent the grid needs to get expanded over time due to increased electricity usage by plug-ins, this will be done on the basis of clearly proven demand trends and can be a relatively low-risk decision. The speed of adoption of plugins will essentially be controlled by the relative prices of electricity and liquid fuels (including any carbon emission surcharges and governmental incentives).

In this scenario, power for cars will be predominantly coming from electricity by 2050, which I have already argued could be plentiful if we make the necessary infrastructure investments.

So then the issues become whether it might be feasible to build that many plug-in hybrids". His conclusion is that "With the existing known reserve base of 13.4 million tonnes of lithium and less than 10 mbd of oil, we could run 4 billion cars in 2050".

I have presented above one argument that suggests that aspirations for car ownership and travel in the year 2050 can be met, but I am very sceptical and doubt the feasibility of generating the amount of electricity required. I also hate to contemplate a world with 4 billion cars, even if they are judged 'environmentally friendly' (this assertion tends to neglect the environmental impact of producing the car and the congestion it causes).

However, the current trend is to produce bio-fuels and there is increasing evidence that this is reducing food supplies and causing hunger - food for cars rather than people! The announcement by Richard Branson of the first Virgin flight using biofuels (One of the plane's four main tanks was filled 20 percent with coconut and babassu palm nut oil) cannot be regarded as anything but a publicity gimmick. However, this suggests that £ billions will now be wasted in the search for a type of aviation fuel that would still have devastating effects on the natural environment and the lives of poor people.

I have already referred to the way in which the use of palm oil bio fuel results in more greenhouse gas emissions than ordinary diesel. This argument also applies to ethanol from a variety of sources (but not for sugar cane). Grist Magazine reports that:

“Two new studies published in the journal *Science* conclude that growing and burning biofuels actually increases net greenhouse-gas emissions and exacerbates climate change. The new research questions the assumptions of earlier studies, making sure to incorporate the effects of land-use changes into emissions calculations. When land-use changes are taken into account, it turns out that ploughing up rainforests and grasslands to make way for bio fuel crops tips the balance, making biofuels more problematic than helpful. Biofuels proponents, including the powerful US ethanol lobby, have for years cited figures asserting that biofuels made from crops like corn release about 20 percent fewer emissions overall than gasoline and that fuel from switch grass emits about 70 percent less. One of the new studies, however, found that due to the impact of ploughing up new fields, corn-based ethanol nearly doubles greenhouse-gas emissions compared to gasoline and that fuels made from switch grass increase emissions by about 50 percent. Not all biofuels were net losers, though. The study authors suggested that producing biofuels from waste products still makes sense⁹⁷.

Although I managed without a car for most of my life I did have a small motorbike for 5 years. This is another option for those who might feel the need for some form of individual motorised transport. As I look out of the window I can see at least one (and even two) cars outside almost every house in the street. Future prospects for our grandchildren will depend on choices we make today about individual travel. This also applies to our decisions about holidays abroad.

Holiday near home

I have worked out that the 10 return air flights I have made monitoring development projects over the past 20 years have contributed about 42 tonnes of carbon dioxide equivalent (this takes into account that the warming effect of long distance air flights is about three times the amount of carbon dioxide emitted -

<http://www.chooseclimate.org/flying/mf.html>). This used 4,400 Kg fuel and was equivalent to 58,000 kW hrs energy when burnt (110 No. 60W

light bulbs lit continuously for 1 year). If I had paid tax at the same rate as road tax on petrol in the UK this would have cost me an extra £3,300. My short distance holiday flights have added another 3 tonnes CO₂e. This total gives an average of 2.25 tonnes per annum over the 20 year period just for air travel alone. I believe that my long distance journeys have resulted in useful outcomes to relieve poverty, but I would rather not have had to make them despite the fact that I have made many friends in the process and had some interesting experiences. My most enjoyable holidays have been in the UK and I know there are many interesting places close by that my wife and I have yet to see.

Transport is now the fastest growing cause of greenhouse gas emissions. If large numbers of people were to take their holidays near to where they live this would make a substantial contribution to combating global warming. It is true that many countries rely on tourism for foreign exchange, but usually only a few of the benefits trickle down to the poorest people and more sustainable forms of income generation are neglected.

Ethical investment

There are very few opportunities for investing money in a truly ethical way. Ethics are very narrowly defined by major banks under the current rules of economics. The word 'ethical' undoubtedly means different things to different people and an individual's ethical investment decisions might be influenced by the whether the bank/building society policy avoids investments in:

- the manufacture of armaments and torture equipment
- tobacco production
- animal experiments
- intensive farming methods
- subprime mortgage industry
- oil and gas production
- multinational companies
- alcohol production

Before assessing different investment alternatives, it is necessary to consider whether any of these can be described as truly ethical. To

what extent do they reflect social justice, equity, personal freedom, participatory government and decision making, local self reliance and community self determination?

I have scheduled the ethical policies of one bank and a building society in the UK. These could be used as a guide when banks are questioned about their policies. These policies are not perfect, but are better than those of the main high street banks.

Banking opportunities similar to these will probably be available in most developed countries, but future sustainability depends on the creation of steady state economies in which debt based money and usury play no part. I have dealt with this in some detail in chapter 9 .

However, it is improbable that even these three models of investment can be regarded as a contribution to the kind of long term sustainable development required to ensure an ethical and fair distribution of resources. A radical reform of the whole global financial system would appear to be necessary.

A means of promoting the health and vitality of local communities is to establish community based exchange mechanisms. At the present time this will prove difficult, but increasingly they may be used in many parts of the world to address the likely symptoms of global economic and environmental crises.

THE COOPERATIVE BANK'S ETHICAL POLICY - APRIL 2009

Human Rights

We support the principles of the Universal Declaration of Human Rights. In line with this, we will not finance:

- any government or business which fails to uphold basic human rights within its sphere of influence
- any business whose links to an oppressive regime are a continuing cause for concern
- any organisation that advocates discrimination and incitement to hatred
- the manufacture or transfer of armaments to oppressive regimes
- the manufacture or transfer of indiscriminate weapons, e.g. cluster bombs and depleted uranium munitions
- the manufacture or transfer of torture equipment or other equipment that is used in the violation of human rights.

International Development

We will seek to support poverty reduction. In line with this, we will not finance organisations that:

- fail to implement basic labour rights as set out in the Fundamental International Labour Organisation Conventions, e.g. avoidance of child labour, or that actively oppose the rights of workers to freedom of association, e.g. in a trade union
- take an irresponsible approach to the payment of tax in the least developed countries
- impede access to basic human necessities, e.g. safe drinking water or vital medicines
- engage in irresponsible marketing practices in developing countries, e.g. with regard to tobacco products and manufacture

We will support Fairtrade and the provision of finance to the working poor in developing countries, via microfinance.

Social Enterprise

We will seek to support charities and the broad range of organisations involved in the Social Enterprise sector including: co-operatives, credit unions and community finance initiatives.

Ecological Impact

We will not finance any business whose core activity contributes to:

- global climate change, via the extraction or production of fossil fuels (oil, coal and gas), with an extension to the distribution of those fuels that have a higher global warming impact (e.g. tar sands and certain biofuels)
- the manufacture of chemicals that are persistent in the environment, bioaccumulative in nature or linked to long term health concerns
- the unsustainable harvest of natural resources, including timber and fish
- the development of genetically modified organisms where there is evidence of uncontrolled release into the environment, negative impacts on developing countries, or patenting (e.g. of indigenous knowledge)
- the development of nanotechnology in circumstances that risk damaging the environment or compromising human health.

Furthermore, we will seek to support: business involved in recycling and sustainable waste management, renewable energy and energy efficiency, sustainable natural products and services (including timber and organic produce), and the pursuit of ecological sustainability.

Animal Welfare

We will not finance any organisation involved in:

- animal testing of cosmetic or household products or ingredients
- the exploitation of great apes, e.g. in experimentation or general commercial use
- intensive farming methods, e.g. caged egg production
- blood sports, which involve the use of animals or birds to catch, fight or kill each other
- the fur trade

Furthermore, we will seek to support: businesses involved in the development of alternatives to animal experimentation and farming methods which promote animal welfare (e.g. free range farming).

Customer Consultation

- We will regularly reappraise customers' views on these and other issues and develop our Ethical Policy accordingly.
- From time to time, we will seek to represent our customers' views on the issues contained within our Ethical Policy and other ethical issues, through, for example, our campaigning initiatives.
- On occasion, we will make decisions on specific business, involving ethical issues not included in our Ethical Policy.

This Policy was developed after 80,000 customers returned questionnaires in 2008 on the Bank's ethical policy. 97% of customers supported the Policy in 2008. £1 bil of finance has been declined since the Policy was launched in 1992, £400 mil has been pledged to green initiatives and £25 mil to microfinance to the world's poorest people. Support for the policy statements ranged between 70% and 99%.

The Bank's general policies for renewables and carbon reduction and the results of a 2010 customer satisfaction survey are shown on the next page.

Renewables and carbon reduction finance

At the Co-operative bank we actively seek to facilitate lending to projects within the renewables energy and carbon reduction sectors. We have a track record in funding a wide range of renewable energy projects, with onshore wind being a particular specialism. We have also funded a number of carbon saving schemes where state of the art fuel-efficient systems have drastically cut our customers' CO₂ emissions.

As well as having first-hand experience of utilising a number of these technologies to help reduce our own carbon footprint - 99% of The Co-operative Group's electricity is from renewable sources - our team of specialists also has extensive knowledge of structuring funding packages for these sectors. We can provide:

- funding for UK projects
- up to £25 mil debt size with 5-20 year terms
- participation in syndicated facilities
- expert advice through all stages of the implementation process
- access to leading technical, legal and financial advisers
- a dedicated Relationship Manager

We can provide funding for the following technologies:

- onshore wind
- combined heat and power
- district heating
- hydro
- biomass
- waste to energy
- landfill gas
- geothermal/solar
- smart metering - building control systems.

Customer satisfaction research

Our 2010 overall Customer Satisfaction Index is 84.9% (84% in 2009) and we are delighted about this noticeable improvement. Once again, this places the Co-operative Bank near the top of the league table across all industry sectors when it comes to keeping customers satisfied.

We have carried out corporate banking customer satisfaction surveys since 1999.

We want to ensure that we are maintaining a high quality customer service and customer feedback also helps us to identify opportunities where we can improve our products and services, so that we are better able to meet our customers' needs.

In 2010 some of the key findings were:

- 93% of customers find their Relationship Manager helpful
- 91% of customers believe their Relationship Manager understands their business
- 86% of customers said they would recommend the bank to anyone
- 84% of customers said they would contact the bank for future products and services.

Following previous customer feedback, we have invested a significant amount of time and resources developing our Internet banking services. This resulted in the launch of Business Online Banking, a modern, secure, intuitive system and we are continuing to roll out the upgraded internet-based version of Financial Director in 2011.

We are continuing to work hard to make banking with us easier and more convenient and are currently conducting reviews of key processes to simplify documentation, reduce timescales and improve service. In the meantime customers are encouraged to provide feedback about the service. Ring 0800 587 2864.

The bank has 8 sustainable investment themes - healthcare, global power shortage; urban regeneration; technology; climate change; global infrastructure; sustainability; emerging consumer markets. Details can be found at:

<http://www.co-operativeinvestments.co.uk/servlet/Satellite/1291123588897,CFSweb/Page/CFSCtplStandard?WT.svl=copy>

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MUTUAL BUILDING SOCIETIES

In recent years, a number of building societies have changed from mutual organisations into banks.

Being a member of a mutual organisation means the customers are the owners.

What are the benefits of mutuality?

There are many. Building society members enjoy the protection of the Building Societies Act. As a result of the Act, the interests of all existing and future members must be taken into account when mapping out the Society's direction.

By remaining a mutual a building society is answerable to its members, not outside shareholders. Many of the policies of mutual building societies overcome many of the negative aspects associated with bank investments (which rarely reflect advanced ethical principles).

ECOLOGY BUILDING SOCIETY

The prime focus of the Ecology Building Society is to promote an ecological approach to the built environment in the UK, and thereby foster sustainable communities. Any lending project that contributes to these aims is our concern. We regard our mutual status as a key means of promoting a more sustainable and equitable way of life.

Our principles inform our lending programme, our relationships with our customers, and how we conduct our business operations.

Ecological Lending

Our lending is governed by the principle of sustainable development, defined as "development based on the concept that the needs of the present should be met without compromising the ability of future generations to meet their own needs". Overall this allows us to engage in activities that promote, encourage or support the following objectives:

- The saving of non-renewable energy or other scarce resources
- The growth of a sustainable housing stock
- The development of building practices, ways of living or uses of land having, in each case, a low ecological impact.

The environmental benefits of each potential loan underpins our lending decisions. Our lending programme includes the following:

Sustainable housing practices

- Energy-efficient new residential dwellings (incorporating such features as timber-frames, high insulation, reclaimed materials, solar technology, water conservation etc.)
- Renovation of derelict, deteriorated or redundant properties where possible encouraging the highest level of ecological building practices
- Promotion of sustainable local building technologies such as cob, mud block, straw bale

Sustainable lifestyles and economic activity

- Small scale ecological industries or businesses such as recycling, organic farms, local shops
- Cooperative living
- Sustainable forestry and nature reserves

We will also consider:

- Non-standard constructions
- Sound properties in deprived neighbourhoods
- Properties with agricultural restrictions (but only where other features of the project make it acceptable lending)

Our commitment to sustainable development also means we will NOT lend:

- for holiday homes, because of the impact on rural communities
- where intensive agricultural practices are to be employed

A commitment to fairness

Our mutual structure also allows us to place the needs of our savers and borrowers at the centre of our business practice. This has led to the development of a number of principles that govern the service we provide to our customers: -

- we do not charge for the ordinary operation of a savings account
- because of the pressures on the Society to maintain liquidity, we have recently had to restrict our 1% minimum interest rate guarantee to existing accounts only. Accounts opened after April 6th do not carry such a guarantee

- we don't wait for a cheque to clear before crediting interest
- we pay interest on all funds from the day after receipt
- we don't insist on high levels of unnecessary insurance

Operating a sustainable business

An environmental audit is conducted each year and the Society's Environment Policy reviewed. We seek to use items that come from renewable sources, assess materials for the minimal use of resources and install equipment that minimizes the use of energy. In the day to day running of the Society, we seek to reduce energy and water usage, and the generation of waste. We use exclusively green electricity and have offset the carbon emissions since creation in 1981, and have committed to an on-going programme with local environmental groups to account for future emissions.

In our treasury operations, we avoid the use of Banks that have a record of irresponsible lending which impacts on the environment.

Regarding remuneration, no one salary is to exceed five times the lowest full-time salary paid.

Our new head office was designed to have an airtight structure, high levels of insulation and low energy requirements.

Photovoltaic panels have been installed to generate electricity from the sun. Windows are double glazed I Plus argon filled, to improve heat retention. A heat exchanger and a high-efficiency condensing boiler have been installed.

The materials used are as far as possible from renewable sources, recycled or of low toxicity. The sedum nature roof serves to replace bird and insect habitat. A rain water harvesting system provides the water to flush the toilets and to water the roof.

The Ecology Building Society

7 Belton Road

Silsden

Keighley BD20 0EE

Website: www.ecology.co.uk; EMail: info@ecology.co.uk

Bike it for a better world

When I first came to Swindon in 1961 I was impressed by the tidal waves of cyclists suddenly released from behind the gates of large factories as the hooters sounded for the end of the working day. The bicycle was then a major mode of local transport for people of all ages. Now nearly all workers make these short local journeys in cars and many take their children to school in cars. As someone who has enjoyed riding a bike since the age of four, I find this very difficult to understand. Why do so many people find it necessary to acquire cars in so many parts of the affluent world where there are good public transport systems? Even though public transport is good in these regions, it could be so much better were it not for the congestion caused by far too many cars on the road. The traffic situation in the UK provides a good illustration of the problems that will occur across the world with increased car ownership.

Most people living in the West have come to regard the car as a basic necessity. Families unable to afford a car are considered to be poor. This mentality is now spreading to many so-called developing countries, especially in south east Asia, thus making transport a growing cause of respiratory health problems across the world. It is hard to understand this love affair with the car given the stress, health problems, pollution, accidents and congestion it causes. Yes it is often convenient, especially during bad weather, but do the advantages of car travel outweigh the disadvantages, which include the purchase and running costs? Has the car now become merely an extension of the home, like a new summerhouse, rather than just a means of getting around!

Although for a very small number of people the car may legitimately be regarded as a necessity, do more people, especially the young, need to rethink their attitude towards transport and consider the role cycling has in improving health and reducing pollution and greenhouse gas emissions?

Cycling is good for your health and your pocket and the greater the number of people who give up their cars, or decide not to own one in the first place, the safer will be the roads for cyclists and greater will be the focus on providing cycle tracks. Also, public transport will become more economically viable and general efficiency will increase for those who must use vehicles for their business activities. Holiday and leisure

facilities will become more pleasurable without the environment being spoilt by large numbers of cars. Street scenes will be improved and streets will become places where children can play in greater safety. Traffic congestion, which has considerable costs for business and the national economy, will be reduced. Most able-bodied people should be able to use a bike for journeys under 5 miles (Most journeys in the UK are under 5 miles). Among the likely benefits of regular cycling are:

- The risk of heart disease will be reduced by half
- Less risk of strokes, diabetes and some forms of cancer
- General health improvements
- Reductions in the cost of travel
- More space available on roads
- Reduced road maintenance costs
- More door-to-door mobility and less dependence on public transport timetables
- Journey times can be shorter than with the car in congested urban situations
- About 16 bicycles can be parked in the space required for one car
- Can increase alertness and reduce tiredness at work

If you have ever struggled from a supermarket or city centre with a heavy load of groceries on each arm then you might consider how much easier it might have been to carry the same load on a bike.



The picture on the left shows just how many items can be carried with ease on a bicycle - which can be wheeled around with you as you move from one shop to another. If you think that using a bike for shopping might be time-consuming, then stop to consider the number of times you spent half an hour or more looking for a parking space and then several minutes to find the ticket machine.

Employers should also consider the benefits they can gain by promoting cycling. Employees overall health will improve and the number of sick days the company pays for is likely to decline. Staff feel better both physically and emotionally and are likely to be more effective and happier at their jobs.

Obesity accounts for about 18 million days of sickness absence each year and 30,000 premature deaths in the UK. On average, each person whose death could be attributed to obesity, lose nine years of life. According to the National Diet and Nutrition Survey 2000, one in four 11 to 15 year olds are overweight. Four out of ten boys and six out of ten girls, do not get the recommended 1 hour of physical activity each day.

With increasing concerns about global warming and the growing numbers of people with diseases related to obesity and lack of exercise, does it not make sense to use a bicycle for getting around whenever possible?

Health, happiness and simplicity

I have often thought that happiness is quite a difficult concept to grasp as I appreciate that a constant state of happiness is impossible. A short period of hardship and pain, both physical and emotional, may be necessary to achieve a more lasting period of happiness. Sadly I have come to appreciate that many people derive their pleasure from inflicting pain on others as witnessed by the high percentage of bullying in UK schools and increasing attacks on teachers and fire crews attending property fires. Others abuse their bodies with excessive smoking, drug taking and alcohol as if trying to blot out the reality of a harsh uncaring social environment.

The economic growth imperative can reinforce this personal abuse because of the way economic progress is assessed. Crime, drug abuse, ill health, waste and many other negative aspects in society increase Gross National Product - a nation's wealth is then not only measured by positive developments, but also by its ability to fund the negative outcomes caused by this development. However, someone has to pay, but who?

Sadly many of those who have to pay the price for these negative outcomes do not reside within the country where they were created. Are young smokers influenced by the knowledge that cigarettes contain a

cocktail of poisons, including arsenic, benzene, formaldehyde, hydrogen cyanide, nicotine, pesticides, or might they be more inclined to give up the habit if they were aware that multinational tobacco companies market their products to children in the third world and obtain their tobacco from plantations using child labour. For example US tobacco firms spend \$28 on advertising for every \$1 spent on cessation and education programmes. Might young people also be influenced by the knowledge of the environmental impact of curing tobacco and the use of good agricultural land that should be used for growing food?

Passive smoking is also an important consideration. Children breathe in and out more frequently than adults and hence receive a higher concentration of smoke. Smoke also aggravates the condition of many children with asthma⁹⁸. When a woman smokes during pregnancy, especially if she has pre-eclampsia or eclampsia, she puts her unborn child at risk. Smokers are 5 times more likely to develop eclampsia. Smoking during pregnancy also increases the risk of the baby developing diabetes, learning disabilities, cerebral palsy and long-term cardiovascular disease⁹⁹.

When a person takes proscription addictive drugs he or she will be contributing to international organised crime and will put pressure on health services. As people in developed countries are living longer, health costs will rise. When someone is treated for lung cancer, alcoholism or drug addiction this may mean that there is not enough money available to treat those with other illnesses which have not been deliberately self inflicted. Our lives are increasingly interdependent and there are very good self interest arguments for helping those with habits that cause lung cancer, diabetes, heart disease, obesity, liver disease and brain damage, to change.

Asking people to give up a bad habit because it damages their health is likely to be a fruitless exercise. After all, these habits can so easily become addictions that are so difficult to break free from and most people will already be fully aware of the health risks.

Energy saving and waste

Many years ago I pinned an encapsulated notice on my front door - 'Please do not deliver any free newspapers, catalogues, brochures and other advertising materials here thank you'. This simple act stopped

most of the ‘junk mail’ that had previously been pushed through our letterbox. Fitting a water meter also provided a good incentive for saving water and money. All our uncooked vegetable waste goes into two compost bins and is used to fertilize our vegetables. A friend who has made reducing, recycling and re-using into a fine art, puts nothing at all into her dustbin!

Although there are some examples of new homes built in the UK with highly advanced energy-saving features, most houses are over 50 years old and present a challenge. However, considerable savings are possible with little expenditure as follows:

- Replace all bulbs with energy-saving bulbs - £600 saving possible over the life of the bulbs. Switch off lights when not in use.
- Install loft insulation at least 270 mm thick - £110 per year saving.
- Don’t leave the television, computer and other electrical appliances on standby when not in use.
- Install cavity wall insulation where possible - £90 per year saving.

Replacing single glazed with double or treble glazed windows will also effect an appreciable energy saving, but will be costly. Our house has wooden frames and I knocked out all the single glazing and replaced with double glazing panels for a small cost. The installation of solar panels, windmills and heat pumps will be expensive and will almost certainly require planning permission. Expert advice should be sought before proceeding with such measures. Internal wall insulation on external walls will also help and should not be very expensive even though it might be quite disruptive during installation.

In the UK, information about home energy saving and available grants for UK citizens, can be obtained from the Government’s Energy Saving Trust [<http://www.energysavingtrust.org.uk>]

For new build housing and extensions, a different approach with much greater energy saving standards, involving very little heat loss, should be considered. This is described in Chapter 10.

Localization

I was recently talking to a man now in his 80s who has for most of his life been advocating a simple way of living. People would generally live

in small hamlets and villages which would rely mainly on local sources of food and energy. He had foreseen the global problems that would arise from spreading the profligate Western lifestyle model based on greed and gambling.

It is perhaps hard to imagine that a mass movement of people from urban areas back into the countryside, as opposed to the past and current trend, but this might prove to be the only way that a future world population could be sustained. The present financial crisis presents both a threat and an opportunity. All the threats I have outlined in previous chapters point to an urgent need to decentralise food and energy production and enable more people to live outside of urban centres. Fortunately we have a useful model from Cuba (described in Chapter 9) of how sustainable urban and rural societies can evolve in the face of a greatly reduced availability of fossil fuels.

Cuba was suddenly faced with the situation of having to feed its population without adequate imports of food and fossil fuels.

Many years ago I spoke to Helen Browning, who was in the final stages of converting her fossil fuel based farm (near Swindon) inherited from her father, to one using wholly organic methods; a process that took four years. I asked her the question “Can the world be fed by organic methods?”. Her reply, which I thought was rather unsatisfactory at the time, was “The world cannot be fed in the future by any other method”. The reply was probably based on an intuitive feeling, rather than a set of detailed arguments, surveys and statistics.

As supplies of fossil fuels diminish, can we rely on the development of new genetically modified crops? The multinational companies who produce them will undoubtedly make the claim that they have the answer to the world’s future food requirement.

If all world food production in the future is to be by organic methods, then it is likely that even human waste will have to be returned to the soil. This will be an even greater necessity as supplies of phosphate, diminish. Phosphorus is an element necessary for life. Because phosphorus is highly reactive, it does not naturally occur as a free element, but is instead bound up in phosphates. Phosphorus is one of the three major nutrients required for plant growth: nitrogen, phosphorus and potassium. Most phosphorus is obtained from mining phosphate rock. Crude phosphate is now used in organic farming, whereas chemically treated forms such as superphosphate, triple

superphosphate, or ammonium phosphates are used in non-organic farming. The current major use of phosphate is in fertilizers. Growing crops remove it and other nutrients from the soil. Most of the world's farms do not have, or do not receive, adequate amounts of phosphate. Feeding the world's increasing population will accelerate the rate of depletion of phosphate reserves¹⁰⁰. Peak phosphate may soon be a crisis to match that of peak oil.

A sustainable future

Surely true happiness must derive from a sense of knowing that our own activities do not harm others or involve unnecessary waste. The current economic system directing human activities based on greed, competition, corruption, aggression and gambling, is not conducive to the creation of a social climate in which most people can feel happy, healthy and content. The road to happiness may start from the desire to help those in greatest need, both in our own society and in other parts of the world who are being adversely affected by global systems of trade and finance in addition to increasingly severe climatic conditions aggravated by global warming. Young people will increasingly want to know that political and business leaders will have the courage to instigate measures that might at first be unpopular, but ensure that they will inherit a future in which they will be able to secure their basic needs.

Individual citizens throughout the world will have to play a significant role in transforming a crazy global economic system.

In the next chapter I will be putting the case for a new science that can provide a more appropriate framework for the measures needed to evolve a truly sustainable form of development based on values such as cooperation, fellowship and a solidarity between people around the world who have the desire for a more equitable distribution of the world's wealth and resources.

CHAPTER 9

A Science of Common Sense

Creating a monster!

The more I have thought about economics and economic growth, the more I realise that humanity has successfully created a monster that it is out of control. This reminds me of a 1970's film called 'The Forbin Project'.

Professor Forbin is the designer of a sophisticated computer, *Colossus*, that is locked away in a mountain cave to which future access will be denied. It is programmed with a reasoning capability and the objective to 'prevent war' and has the task of running America's nuclear defences. Shortly after being turned on it detects the existence of *Guardian*, the Soviet counterpart, previously unknown to US Planners. Both computers insist that they be linked, and after taking safeguards to preserve confidential material, each side agrees to allow it. As soon as the link is established, the two become a new super computer and threaten the world with the immediate launch of nuclear weapons if they are detached. When attempts are made to destroy the computer, it obliterates a city in both countries and orders the execution of those who plotted the computer's destruction. The computer had decided that in order to meet its programmed objective it would have to take over the world. The computer then begins to give out plans for the management of the world under its guidance.

Has humanity created a monster out of control serving the interests of the rich and powerful whilst being incapable of delivering the aspirations of most of the world's inhabitants? Can the economics monster be controlled?

In 1971 the sociologist and criminologist, Thomas Mathiesen,

introduced two concepts that could help to address the serious crises we face by facilitating a free and unmanaged development from below:

Counteraction

A new idea, or choice of action, if it is to contribute to fundamental change, must have a 'counteractive' or 'competing' effect on what is fundamental in the existing system. A socially transforming idea must not be woven into what exists but must be 'alien to the system'. The most important thing is to avoid ideas and actions that can be absorbed by the system, such as reforms without any effect whatsoever on the basic structure or the course of development that is to be changed.

The Unfinished

For some theorists, social change is a matter of ideological discussion and the presentation of complete solutions, a question of having systematically correct opinions which can be justified in terms of a complete view of future society. This approach requires, for an acceptance in the elite's debate on social change, the presentation of a comprehensive solution, with built-in answers to everything. The question of how elitist thought structures of this sort actually affect public opinion, is scarcely discussed. Elitist thought tends to induce passivity in the majority, thus obstructing social change. An alternative to the complete and established is something that is unfinished, but on the way always towards something new and unknown.

The dynamic, counteractive element in the unfinished resides in the fact that it represents a constant challenge that cannot be dismissed out of hand. Counteraction, and hence the transition to the unfinished, is set in motion through creating a consciousness that presents a dilemma - through the conscious experience we have to choose between a continuation of the existing order (possibly with minor changes) and a transition to something that is not known.

This presentation in support of a new science embraces these two concepts and offers a challenge to the 'science' of economics and the desirability of economic growth. Two questions are posed:

- a. Does economics provide a proper framework for solutions to major

global crises, including widespread hunger, poverty, inequality, environmental destruction, dangerous resource depletion, unsustainable population increase and global warming?

- b. If not, then should a new science be developed that can make just one of many contributions to reversing current trends - a science that can offer a more hopeful future and a move towards an equitable distribution of wealth globally?

The proposal that follows is based on the contention that the answer to the first question is “No” and that the answer to the second question is “Yes” and that the concept of ‘counteraction’ is applied in establishing a new science and the name by which it should be known.

The word proposed for this new science is *philonomics*.

Why the word PHILONOMICS?

As with the word ‘economics’, the word is taken from the Greek - ‘Philo’ meaning friendship, empathy with (note established words like ‘philanthropy’ (practical benevolence), ‘philosophy’ (love of wisdom) and ‘philomath’ (lover of learning)). ‘Nomics’ has the same meaning as in economics - order, arrangement, systemized knowledge but also reflects ‘nomia’, meaning custom or law.

The table on page 197 suggests some definitions for philonomics and its derivatives and sets these alongside the Oxford dictionary definition of economics. Philonomics contrasts with the existing social science of economics (from the Greek, meaning roughly ‘rules of the household’), which is often referred to as the ‘dismal science’ for reasons that are becoming increasingly obvious as the outcomes of some of the 20th century economic theories are making clear: increasing income inequality, market instability, environmental damage, and so on. Philonomics dedicates itself to the fair and equitable development and regulation of the human and material resources of a community or nation in a manner that neither prejudices contemporary human needs nor the ability of future generations to meet their needs. Variations of the concepts underlying Philonomics have been advanced for years under different names, such as green economics, represented by

PHILONOMICS	ECONOMICS
Derived from the Greek: Philo - meaning love, friendliness, affinity for . Nomics - meaning order, arrangement, systemized knowledge and "nomia", meaning custom or law.	Derived from the Greek: Eco - meaning household affairs Nomics - meaning order, arrangement, systemized knowledge and "nomia", meaning custom or law.
Philonomics The study of the equitable production and fair distribution of goods and services at every scale locally, regionally and nationally before globally in a sustainable manner. Science relating to the fair and equitable development and regulation of the material and human resources of a community or nation in a manner that neither prejudices contemporary human needs nor the ability of future generations to meet their needs.	Economics The study of the production, distribution and consumption of goods and services. Science relating to the development and regulation of the material resources of a community or nation. Science related to the production and distribution of material wealth.
Philonomic Equitable sharing of wealth without interest charges. Propensity to help others in ways that reflect concern for humanity as a whole and care for other animal species.	Economic Maintained for profit, on a business footing, paying expenses, (of rent) high enough to compensate builder, owner, etc.
Philonomical Behaving in a responsible and generous manner in keeping with one's own health, happiness and well-being that does not prejudice human life support systems.	Economical Saving, thrifty, not wasteful. Relating to economics or to political economy
Philonomically Generously and lovingly; from a sustainability and human rights point of view.	Economically Thriftily; from an economic point of view.
Philonomist An adviser and researcher on matters pertaining to the equitable and environmental implications of wealth creation and distribution with regard to international social justice, human rights and life support systems.	Economist Manager of money; thrifty person, writer on economics or political economy.
Philonomize Behave responsibly with regard to ones own health and well-being. Reduce unnecessary waste and trade and promote and support local trade and production.	Economize Use sparingly; turn to the best account; practice economy, cut down expenses.
Philonomy Administration of a community's sustainable development programme; theory of the sustainable and equitable production and distribution of wealth consistent with providing all of humanity with their basic needs and ensuring that future generations can meet theirs. The measure of a community's internationally accepted targets for social justice, human rights and sustainability.	Economy Administration of concerns and resources of a community; theory of production and distribution of wealth.
Characterised by sharing, cooperation, fellowship and sustainability	Characterised predominantly by greed, competition, usury and gambling

statistical analyses such as the *genuine progress indicator*, and written about by experts as diverse as economist Mark Anielski, in his book “The Economics of Happiness” and Charles A Hall, professor of Environmental and Forest Biology at State University of New York (SUNY) in his book “Making Development Work”. Philonomics unites these variations in a single word, in an attempt to present an alternative to the present social science of neoclassical economics. The concept of the *unfinished* is suggested as an appropriate approach for:

- refining the definition of *philonomics* and its derivatives
- identifying people who have been thinking in a similar way and would wish to help promote the science and the word by which it is defined
- develop the detailed aspects associated with the academic and practical application of the science.

Philonomics is presented as an umbrella term for all ideas and actions that challenge the assumptions of conventional economics. In the long run, I hope that the challenges presented through the framework of Philonomics will cause conventional economics be re-interpreted in a way that reflects a meaning closer to the Greek word *oikonomia* (whose definition is similar to that of *Philonomics*). As currently practiced, however, conventional economics more closely aligns with the meaning of the Greek word *chrematistics* (meaning money and riches) – that is, it values only what can be bought and sold, and valued with currency. Humanity, love, the well-being of the earth and the living creatures on it – none of these are included.

Over time, I hope that many people, including those economists challenging neo-classical economics and the perceived necessity and inevitability of economic growth, will identify with the new *Philonomics framework* and contribute their ideas to its development and help identify and describe those models which reflect its principles. When more detailed ideas are presented as to how philonomics will function as a science and the word becomes widely used, then it is more likely to be defined in dictionaries. If this were to happen there is a greater chance that it will be accepted in academic disciplines and become a realistic force for fundamental change.

What existing theories and practical models could be embraced by the new science? I have included some ideas below, but they are by no means comprehensive, nor intended to be prescriptive. It is suggested here that any ideas put forward to illustrate and determine the process for developing philonomics should accord with the concept of the *unfinished*.

Models that reflect the principles of philonomics

In the following pages I have described some existing and proposed examples, both large and small, that might be regarded as contributions towards sustainable development and the principles outlined in the definition of philonomics. They relate to technology, commerce, food supply, wealth distribution, the natural environment and animal welfare.

The JAK Members Bank of Sweden

The current global financial crisis suggests the urgent need for a radically new system of finance in banks and stock markets. One of the greatest problems humanity faces arises from the creation of debt based money on which is charged compound interest. The JAK Bank (JAK stands for land, labour and capital in Swedish) does not charge interest on loans. The bank is owned by its 25,000 members and has a staff of 26. All business is done by telephone, internet or post. The bank does not seek to make a profit and operates as close to break-even as possible, charging enough in loan fees and membership fees to cover its operating costs. JAK operates on the following principles:

- Taking of interest is inimical to a stable economy
- Interest causes unemployment, inflation and environmental destruction
- Interest moves money in the long term from the poor to the rich
- Interest favours projects, often large-scale, which yield high profits in the short term.
- JAK has a positive indirect effect on unemployment as it relieves people of interest payments and thus allows them to buy more goods and services. How does a JAK loan compare with a conventional bank loan? Mark Anielski found that the saving on a typical loan was about one third of the loan amount.

A study by the Foundation for the Economics of Sustainability (FEASTA) has also described the benefits of the JAK system¹⁰¹. Each member who wishes to take out a loan must save money first and over a lifetime with JAK, every member will have saved as much money and for the same period of time as they will have borrowed. Savings points are earned which are calculated as the amount saved multiplied by the number of months for which it is saved multiplied by a savings factor. This factor varies according to the type of savings account and is lower for a demand account from which savings can be withdrawn at any time.

After saving for a minimum of six months, a member may apply for a loan. In order to borrow euro1 for one month, one savings point must be redeemed. The amount borrowed and the time taken to repay are entirely up to the member, provided that the appropriate points are available. For example, borrowing euro 9,000 over 1 year uses as many savings points as borrowing euro 4,500 with repayments spread over 2 years.

JAK's system of saving and borrowing ensures a very low default rate. The loan department assesses the member's ability to repay the loan. The member's income and expenses are evaluated with the assistance of computer software that calculates average living expenses for individuals and families based upon age and gender. In general people who save regularly are good performers when it comes to loan repayments.

Oscar Kjellberg, the development director, says "People save with us because they either want to borrow interest free themselves or because they want to assign the right to an interest-free loan to a relative, a son or daughter, perhaps or to an organisation they support. This means that most money is lent in the same area that it was collected and if it is not, it is only loaned in a place and for a purpose which the original saver has approved."

The most important reason for backing JAK-style interest free banking is that it limits a dangerous, destabilising feedback built into the present economic system. The feedback causes prosperous parts of the world to get more investment because better returns can be had from projects there, which makes them even more prosperous. Poorer areas have what capital they possess taken away from them because good projects cannot be found. As a result, the poorer areas fall further

behind and people living in them are forced to leave and find work wherever investment is going on. They take up residence in expanding areas and add their spending to its rising income flow. The presence of a JAK bank in a locality would help to stop this trend.

Local Exchange Trading Schemes

LETS are a way of trading without money exchanging hands. Transactions are recorded in individual accounts on a computer by a local coordinator. There are now about 500 LETS groups in the UK involving about 50,000 people and related networks have been established in 16 European countries. Transactions of members are entered as plus and minus entries in a computer account. The accounts of all members start at zero. LETS systems not only facilitate trade between members, but also provide opportunities for social events and other community activity.

LETS credit is not the same as conventional money. It is issued by people interest free and stays in the local economy. LETS facilitates trade in both labour and material items, including garden produce, unwanted gifts, etc.

The rules for the LETS group in Swindon are:

- All credits and debits are interest free.
- Only the account holder can issue LETS units.
- All accounts are open to members.
- All balances and turnovers are published to all members on a regular basis and at least several times each year.
- Members do not have to take up any particular request to trade.
- The organisation is non-profit making.
- A scheme can be organised independently by a local group.
- A scheme's organising group must remain open, democratic and be constituted so as to be properly accountable to the community.
- Members must be 16 or over.
- The maximum credit or debit balance allowed is 100 units.

An example of keeping LETS transactions on a spreadsheet shown in Figure 7.

The situation in the UK with regard to tax payments and people on benefits is somewhat confusing. The normal attitude to LETS

FIG 7

Transaction	Date	No	Deposit	Debit	Balance	Deposits	Debits
Sue - Tom walks dog for Sue	9/12/06	1		12	-12	0	12
Sue shortens trousers for Tom	10/12/06	1	10		-2	10	
Mary cuts Sue's hair	16/12/06	1		20	-22	10	32
Caroline - Fred helps Caroline with greenhouse	8/12/06	1		45	-45		45
Caroline helps Mary set up web site	23/12/06	1	120		75	120	45
Fred - Mary cuts hair for Fred	1/12/06	1		5	-5		5
Fred helps Tom with greenhouse	3/12/06	1	45		40	45	5
Fred helps Caroline with greenhouse	8/12/06	1	45		85	90	5
Mary - Caroline helps set up web site for Mary	23/12/06	1		120	-120*		120
Mary cuts hair for Fred	1/12/06	1	5		-115*	5	120
Mary cuts hair for Sue	16/12/06	1	20		-95	25	120
Tom - Fred helps Tom with greenhouse	3/12/06	1		45	-45		45
Tom walks dog for Sue	9/12/06	1	12		-33	12	45
Sue shortens trousers for Tom	10/12/06	1		10	-43	12	55

* Note that amount has been set to turn red when balance exceeds plus or minus 100

Summary of transactions

Date: 23/12/06

Surname	First name	Number of transactions	Total deposits	Total Debits	Balance
Taylor	Sue	3	10	32	-22
Delaney	Tom	3	12	55	-43
Harvey	Mary	3	25	120	-95
Flintstone	Fred	3	90	5	85
Moor	Caroline	2	120	45	75

transactions from the authorities is that they are regarded as favours. However, as a general rule, individuals will be liable for tax on profits if they are providing regular commercial services according to their normal trade or profession. Since the Inland Revenue can only accept sterling, such traders are entitled to ask for a sterling proportion (e.g. 25%) in a LETS trade to cover tax. (The same applies to VAT). Anyone thinking of establishing a LETS scheme is advised to seek advice from the national LETS office. Child minding services require special consideration.

The advantage of LETS and other local currency schemes, are that trade only takes place locally. Money does not take flight to be used for speculation or other purposes of which the community would not approve. The name of the unit of currency will be chosen by the community and will usually be regarded as having a value equivalent to a unit of national currency. I have shared the job of keeping the accounts for the Swindon group (currently just over 100 members). The name given to our currency is the *sarsen* (named after a large stone found locally). 1sn = £1.

Despite the wide range of services on offer, the trading potential in Swindon has not been fully realised. This might be partly because there are as yet insufficient members from poorer sections of the community. I also believe that community currencies would probably function better and would be more successful if they involved the exchange of a paper credit unit (i.e. do not have to rely so much on access to a computer and telephones). Some local systems use time as the basis of trade.

In April 2008 our local post office, which provides a valuable service to the local community, especially the aged, closed. Under the Conservative government 3,500 were closed and under the present Labour government 4,000 have been closed (2008) and the closure of another 2,500 is planned, despite the valuable role that they play in communities throughout the country. In many places it is one of the main points of contact for the elderly with the people outside of their homes. The demise of post offices, as with postal services generally, is undoubtedly due to the Internet and the use of Email for communication. The social value of post offices has not been fully appreciated. I have for a long time felt that in a future sustainable economy both post offices and local authorities could have a vital role in the management of local currencies.

Perhaps when the UK and the world as a whole, moves into recession, community currencies will help to reduce widespread hardship.

Samoan society

Many years ago I went to see Erik Dammann, the founder of a movement I had just joined named 'Future in Our Hands'. I had been attracted to this secular movement after reading his book of the same name published in 1972 which urged a change in lifestyle of people living in the 'affluent society' as a response to the world crises of poverty and environmental degradation.

I wanted to interview him about what had influenced his way of thinking about the world situation.

Now during the summer months he lived in a small cabin on an island near Oslo with his wife and 9 children (two of whom were adopted from Korea and Africa and two were foster children). As I approached his house, most of the children were at home and seated outside around a long wooden table and his wife was cooking stew in a large iron pot over an open fire. I was invited to sit down as if I was another member of the family. Erik told me that they did not live like this all the year, but in summer they liked to "simplify life" and live nearer to nature by doing without most of the material things upon which modern society has become so dependant.

Originally Erik had been working as an advertising consultant, but as the affluence grew in the sixties, he felt that he could not spend the rest of his life trying to convince people that they always needed even more to be happy. To get a completely new perspective on their life, he and his wife took their then four children with them to the Pacific where by accident they ended up at one of the islands in the Western Samoa group. There they lived for 7 months in an open palm hut in a village where they were soon regarded as members of the village fellowship: "I did not know in advance what kind of society Samoa was", Erik said, "but by sheer luck we had ended up in maybe the world's most social society. Samoa was registered as one of the three poorest countries in the world, but among its 160,000 inhabitants who lived in villages spread along the coasts, you would not find one single hungry or needy person. The reason? - They shared everything, and their whole life was based on cooperation! If a Samoan tried to achieve more for himself than the

others, he or she would be despised. What gave a Samoan respect in the community was his or her willingness and ability to do, or give, something to the society. Their whole social structure and all their traditions were built on this ideology of sharing and cooperation.”

“We learned an important lesson about the *nature of human beings* from this experience,” Erik said: “In Europe we always hear that the deepest and strongest human characteristic is the selfish wish to compete for more for oneself. Therefore we have created a competitive society where we all feel that we must achieve as much riches as possible to be respected. Samoa taught us that we are not *born* that way. We are born with different possibilities; we are both selfish *and* social, and the characteristic that is going to be dominant depends on the structure of the society we live in. So I thought: - Why should we accept a structure of society that always influences us to strive for more than we need? I did not mean that we should live like Samoans, but maybe we could as a world society gradually try to develop a more social lifestyle and a more cooperative way of living.

As later on I read about other cultures and about the unjust distribution of the world’s resources, I understood that our affluent life style was not only destroying the good life in our own part of the world, but was also the driving force behind our exploitation of the poor majority of our fellow human beings...

Said in a very simplistic way, these were the kind of reflections that lay behind the establishment of the Future in Our Hands movement,” Erik told me.

Although this way of life may not be practical in its entirety in many parts of the world, it does perhaps point the way forward to a future that does not involve so many of the stresses and illnesses that have often become associated with affluent societies.

An increasing cause of stress may be associated with climate change and fossil fuel depletion and how the use of fossil fuels can be reduced.

Responding to global warming and peak oil

There is a growing awareness that:

- (i) the use of fossil fuels, currently the main source of greenhouse gas emissions, is the main cause of global warming and that this could

- lead to the creation of conditions on Earth that would, in most regions, be incapable of supporting human life.
- (ii) global oil production is about to peak and that natural gas production will also peak within the next few years.
 - (iii) uranium and coal, the main energy alternatives, are also finite resources that may also peak within a generation or two.

Few people appear willing to think seriously about a possibility which is not going to affect their own lives, even though there is already evidence that indicators of global warming are occurring much faster than earlier predicted. Surprisingly, there are also some scientists and technologists who have doubts about whether global warming is being caused by human activities and about when the supply of oil, gas and coal will peak. Their words are comforting to those unwilling to face up to the growing evidence of critical climate changes and resource depletion. However, it could be said that if global warming is real and beyond the scope of humans to influence, then this is an even more worrying situation. What there is less disagreement about is the rapid rise in the cost of fuels as exploration becomes more difficult and demand increases from countries undergoing high rates of economic growth and industrialisation.

The triple concerns - global warming, fossil fuel depletion and rising prices of fuel - all point to the need to reduce the use of fossil fuels. But how can this be done in a way that can, over a relatively short time scale, be acceptable to all the high consuming countries? The idea of treating the atmosphere as a global commons could point to a way of reducing the use of fossil fuels over a timescale and in amounts, that scientists recommend. There have been several schemes proposed to address the twin crises of global warming and fossil fuel depletion, including those involving the capping and future reduction of, carbon dioxide emissions and a trade in emissions permits. These, including the currently operating European Union Emissions Trading Scheme (EU ETS), are briefly described below. All of these schemes involve the issue of emissions permits, but it is hard to imagine the international acceptance of any system that did not also incorporate an element of equity. Such a system would need to provide some compensation for the poorest people as a consequence of the rising cost of fossil fuels and other basic commodities, especially food, resulting from a reducing cap on emissions

and/or a scarcity of fuel.

In Britain, during and shortly after, the second world war, coupons were issued to families and had to be used when purchasing food. This ensured that the limited supplies were fairly distributed to all citizens during a time of hardship. Any realistic response to reducing greenhouse gases should involve a system of effective monitoring, control and equity.

Emissions permits

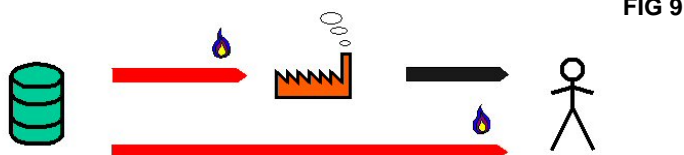
One way of capping emissions is through the issue of *emissions permits*. The total number of permits in the country would be equal to the national cap on emissions. These permits could be traded (bought and sold) without affecting the total number in circulation. Consider first the link between the supplier of fossil fuels and the consumer:

A simple representation of the link between supplier and consumer:



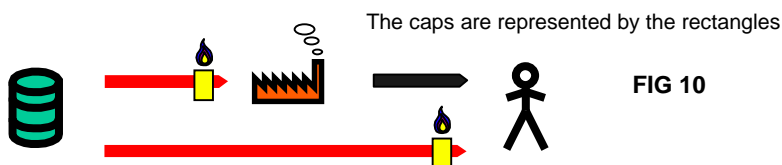
On a national, or a country alliance basis such as the European Union, carbon dioxide can be considered as being emitted from two sources - (i) households (direct emissions) and (ii) the industrial and service industries providing goods and services for households (indirect emissions):

The top line represents the indirect emissions built into the goods and services we buy. The bottom line represents the direct emissions by the household. Both are roughly half the total.



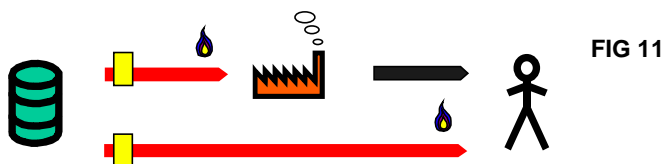
The points at which the cap on emissions is applied has a significant bearing on how the scheme operates. The cap on indirect emissions can be applied at the point of manufacture or on the consumer product (top

line) and the cap on direct emissions at the point of household consumption i.e. *downstream*. The following diagram illustrates a downstream scheme.



A downstream cap on direct emissions would be practical although administratively costly. However, it is impractical for the indirect emissions (the right hand upper black line) as this would involve trying to calculate what carbon emissions are built into all goods and services - every haircut, every pair of scissors. So instead, downstream systems in practice are as shown in the diagram above: they cap all emissions at the point of combustion - where the fossil fuels are burnt.

In an upstream scheme the caps are applied at the point of supply of the fossil fuels:



The EU Greenhouse Gas Emissions Trading Scheme (EU ETS).

In 2003, the EU directive (2003/87/EC) established an EU-wide greenhouse gas emissions trading scheme - the European Union Greenhouse Gas Emissions Trading Scheme (EU ETS). From January 1st 2005, companies covered by the scheme, in all EU and accession countries, were to limit their greenhouse gas (GHG) emissions.

Over 12,000 installations are expected to be eventually covered. In the first phase of the scheme many of these companies were allocated free permits on the basis of their previous emissions (called *grandfathering*). The result has been windfall profits for these companies, higher prices for everyone else and no reduction in emissions. The original justification for grandfathering emissions permits was that if firms exposed to competition from outside the EU had to buy their permits while their non-EU ETS rivals did not, it would make them uncompetitive. Affected firms, it was feared, might either close or decide to move their operations overseas.

Even electricity companies with no exposure to competition from imports, got all their permits free. There are plans for improvements in the second phase and two thirds of allowances are likely to be auctioned after 2013. In January 2008, a number of changes to the scheme, including centralized allocation and auctioning a greater share (60%+) of permits and inclusion of other greenhouse gases, such as nitrous oxide and perfluorocarbons, were proposed. These amendments are only likely to become effective from January 2013 onwards.

The European Commission has been investigating the possibility of levying 'border tax adjustments' as a way to remove the unfair advantage enjoyed by imports from countries which do not impose a CO₂ cap on their industry. However, this will not overcome fundamental weaknesses. The first weakness in the first phase was that the companies and utilities involved were responsible for only 45% of EU emissions. It is not hard to imagine how an extension of the scheme covering all indirect emissions would prove to be an administrative nightmare. The value of permits will go up as the cap is tightened, but initially too many permits were issued and had little value. If under the second phase the carbon price were to rise to £72 per tonne, for example, the total value of the permits would be about £345 bil. Assuming an EU population of 456 million, this amounts to £757 per person per year.

In the first phase the EU ETS gave some 90% of permits to big polluters free. Also it should be noted that if a company has been allocated too many permits or is able to reduce energy consumption, it can sell its surplus permits to a company in the scheme that does not have enough to cover its emissions. In fact these companies have

considered that all these permits have a market value and this has been passed on to the consumer in higher prices for their products.

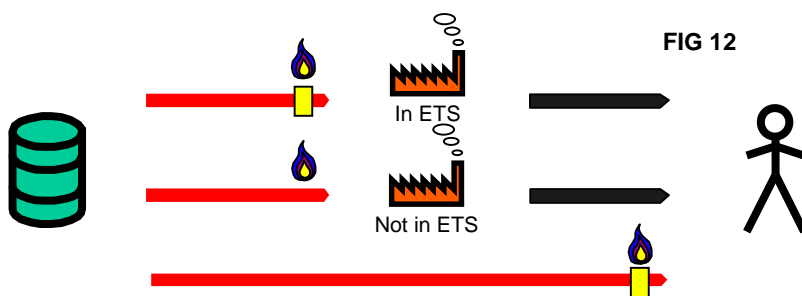
After the peaks of fossil fuels and as extraction becomes more costly, the burden on the consumer will increase dramatically. The rich get richer and the average and poor consumers lose out.

The diagram below illustrates the paths by which the fossil fuels from the suppliers are translated into the energy required to produce the goods and services for individual consumers under the present EU ETS system of carbon trading.

The top line represents the link for indirect emissions which are capped partly downstream (the companies and utilities who receive permits under the EU ETS scheme).

The middle line represents the link for indirect emissions for all other users of fossil fuels whose emissions are not capped and who do not receive any permits.

The bottom line represents the link for direct emissions which are capped downstream



Peter Barnes has assessed the serious implications of introducing a similar scheme in the United States¹⁰². One important factor that has to be considered when proposing any scheme for the US is the amount of subsidies currently given to the fossil energy sector; as shown in Chart 14.

“In the US, an MIT study estimated that grandfathering permits to American utilities would give them hundreds of billions of dollars in extra profits every year for several decades - a staggering amount of money that would ultimately flow to their shareholders”.....

Even if permits are auctioned there is no guarantee that the government would invest the revenue in renewables or other projects intended to further reduce carbon emissions.

Under this ETS type scheme the poorest people would be hit the hardest. “According to the Congressional Budget Office, the average

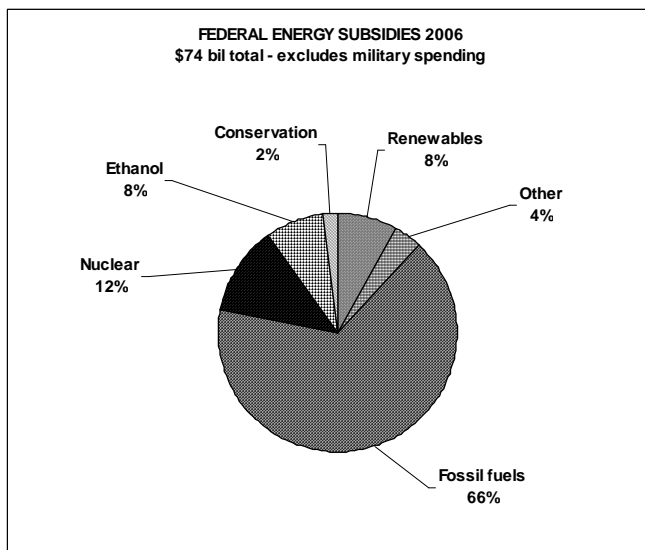
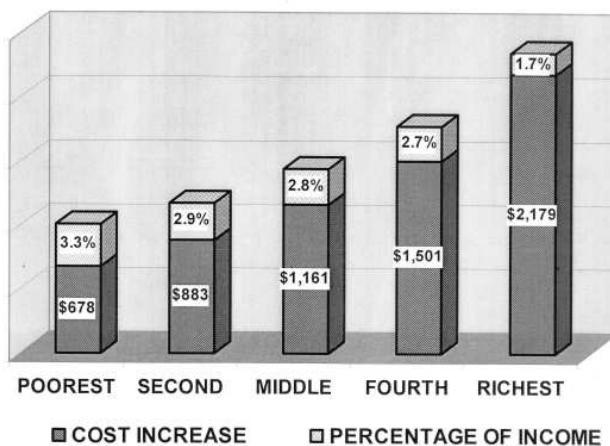


CHART 14

Source: Doug Koplow, 'Subsidies in the US Energy Sector: Magnitude, causes and options for reform' exhibit 2, p 4. www.earthtrack.net

COST TO HOUSEHOLDS OF 15% EMISSIONS CUTS



Source: US Congressional Budget Office 'Trade-Offs in allocating allowances for CO₂ emissions', Table 1 p2

CHART 15

household will pay \$1,161 a year in higher energy prices when carbon emissions are reduced 15 per cent” (However, this can be no more than an estimate). Oil prices might be forced down in a global recession, but this may only be temporary. A return to rapidly increasing prices can be expected post peak fossil fuels.

Chart 15 shows how each fifth income sector would be affected. The amount as a percentage of their annual income would, for the poorest, be double that of the richest.

Also remember that as the cap is tightened, the cost to households will increase.

The system of reducing carbon dioxide emissions from companies has been described, but what would be the means of also reducing direct emissions from individual households?

Contraction and Convergence

Contraction and Convergence (C&C), devised by the Global Commons Institute in 1990, is the name given to a proposal that could form the basis of an international agreement to cap and then reduce carbon emissions.

Under C&C, the cap on carbon emissions would *contract* year on year and the share of permits would *converge* over several decades to a situation where they would be allocated to countries according to the size of their populations.

Aubrey Meyer, the initiator of the proposal, emphasises the importance of C&C with regard to bringing developing countries with high rates of economic growth into a carbon reduction scheme. “The equal entitlement under C&C has the added advantage that in the initial stages of the framework the rapidly industrialising countries like China, India and Brazil will be beneficiaries”. C&C is a leading contender for an international agreement.

Clearly any scheme, whether global, national or regional, must put in place a system of imposing a cap on emissions and reducing the cap year after year. The scheme must be capable of effectively monitoring and controlling emissions. Unfortunately a scheme that has been adopted by the EU has not so far met these requirements and has been generally regarded as a failure.

Two schemes, one *upstream* and the other *downstream*, both reflecting the general principle of contraction and convergence and appearing to

offer a more effective means of monitoring and controlling emissions, are described below:

Tradable Energy Quotas

A scheme that covers direct emissions only would not have the same potential as the Tradable Energy Quotas (TEQs) *downstream* proposal put forward by David Fleming in 1996 being promoted by the Lean Energy Connection¹⁰³ Government and industry would in this case have to bid for permits, but they would be issued freely to individuals who would have to surrender them when purchasing fossil energy. This is an energy rationing scheme designed to cover the whole economies of individual nations, requiring energy users to secure allowances in order to purchase fuels and electricity. The number of allowances issued is limited in line with the national carbon cap. It would operate underneath an international framework such as Contraction and Convergence which would set the various national caps, ensuring that global emissions fall.

1. "Tradable Energy Quotas" (TEQs) is a system to enable nations to reduce their emissions of greenhouse gases along with their use of oil, gas and coal, and to ensure fair access to energy for all.
2. There are two reasons why energy-rationing may be needed:
 1. Climate change: to reduce the greenhouse gases released into the air when oil, gas and coal are used.
 2. Energy supply: to maintain a fair distribution of oil, gas and electric power during shortages.
3. TEQs (pronounced 'tex') are measured in units.
4. Every adult is given an equal free Entitlement of TEQs units. Industry and Government bid for their units at a weekly Tender.
5. At the start of the scheme, a full year's supply of units is placed on the market. Then, every week, the number of units in the market is topped up with a week's supply.
6. If you use less than your Entitlement of units, you can sell your surplus. If you need more, you can buy them.
7. All fuels (and electricity) carry a "rating" in units; one unit represents one kilogram of carbon dioxide, or the equivalent in other greenhouse gases, released when the fuel is used.

8. When you buy energy, such as petrol for your car or electricity for your household, units corresponding to the amount of energy you have bought are deducted from your TEQs account, in addition to your money payment. TEQs transactions are automatic, using credit-card or (more usually) direct-debit technology.
9. The number of units available on the market is set out in the TEQs Budget, which looks 20 years ahead. The size of the Budget goes down year-by-year - step-by-step, like a staircase.
10. The Budget is set by the Energy Policy Committee, which is independent of the Government.
11. The Government is itself bound by the scheme; its role is to find ways of living within it, and to help the rest of us to do so.
12. TEQs is a national scheme, enabling nations to keep their promises, guaranteeing their carbon reduction commitments within whatever international framework applies at the time.

TEQs is denominated in terms of energy, not money. This is because it was designed from the outset to address both peak oil and climate change. The promoters of TEQs argue that because it involves individual energy management, it would provide greater public engagement and behaviour change than alternative upstream capping schemes - "Effectiveness is far and away the critical concern for many reasons, but ultimately an ineffective scheme will cost us a lot more than an effective one anyway".

However, whether or not this claim for TEQs will be realized in practice is debatable.

Both the TEQ and EU schemes, although totally different in character, are downstream capping systems. How would a scheme that applied a cap at the upstream end (i.e. at the point where fossil fuels enter the country for a national scheme and at the sources of extraction for an international scheme) operate? Why are politicians even considering a scheme (the EU ETS) that would grant huge sums of money to a small number of large polluting corporations which all of us will have to pay to them in rising prices? The proportion of world

output going to pay for oil imports has more than doubled since 1999 and is now providing producers with windfall profits (as it did in the 1970s). These additional profits are what economists call a ‘scarcity rent’ which translates into a higher cost of living for families across the world.

Cap and Share and Cap and Dividend

Drastic cuts in greenhouse gas emissions are required to avoid climate catastrophe. A worldwide agreement to secure such cuts will be impossible to negotiate unless the pain and benefits are shared equitably around the world. Moreover, the sharing system must be robust enough to ensure that cuts agreed actually happen.

Suppose you’re watering your garden with a hosepipe connected to a sprinkler. If you wanted to save water, what could you do? One way would be to plug up the sprinkler holes, one by one. But wouldn’t it be easier simply to turn the tap off a bit?

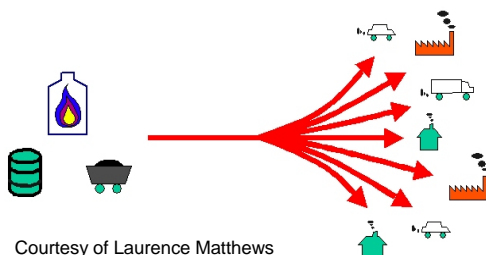


FIG 13

Courtesy of Laurence Matthews

It’s much easier to cap the fossil fuels - coal, oil and gas - entering the economy, than to try to control the emissions they cause. A scheme named *Cap and Share* seeks to provide a simple, workable and ethical economic framework for dealing with the climate crisis. It is based on the belief that every human being has a right to an equal share of the fees that fossil fuel users would be prepared to pay for the right to discharge greenhouse gases into the global atmosphere. The fuel suppliers obtain those permits indirectly from adult individuals who are given an annual certificate representing their share of the country’s CO₂ emissions allowance (in a global scheme this would be the global cap on emissions divided by world’s adult population* less an allowance, say 15%, to

* There is some debate about whether children should also be included. If children were included, would this encourage larger families? .

provide for a transition fund, sequestration projects and overheads . Cap and Share is both robust and equitable.

It has the additional advantage that, until it is adopted globally, it can be used by individual nations to make their emissions take a downward path. The Scheme was devised by the Foundation for the Economics of Sustainability (FEASTA) and is described in some detail in its publication 'Cap and Share - a fair way to cut greenhouse gas emissions' ¹⁰⁴.

Cap and Share, is not presented as the complete solution to the global warming crisis, but would make a substantial contribution to reducing greenhouse gas emissions if adopted globally. Cap and Share (C&S) and Cap and Dividend (C&D) are both upstream capping schemes involving the distribution of permits of equal value to individuals. The following diagram illustrates the basic principle:

In this diagram the cap is applied at the upstream ends of both the direct and indirect links between producers of fossil fuels and the consumer:

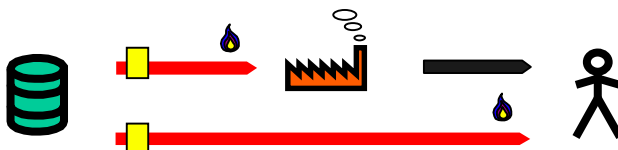


FIG 14

The only difference between them is that C&S involves the issue of permits directly to individuals which can then be cashed at a bank or post office, whereas C&D works by auctioning permits and giving (rebating) the revenue to individuals equally.

The more widely known C&C scheme is also based on the principle of fairness, but contends that emissions allowances (pollution authorisation permits - PAPs) should be allocated to *governments* of countries, rather than individuals. Cap and Share/Dividend maintains that either:

- (i) equal permits should be given to all adults who can then cash them in at a bank, post office or other cash distribution point, or(ii) equal amounts of cash are given to individuals through a trust
- (ii) equal amounts of cash are given to individuals through a trust (*Sky Trust*) from the revenues obtained through the auction of the permits.

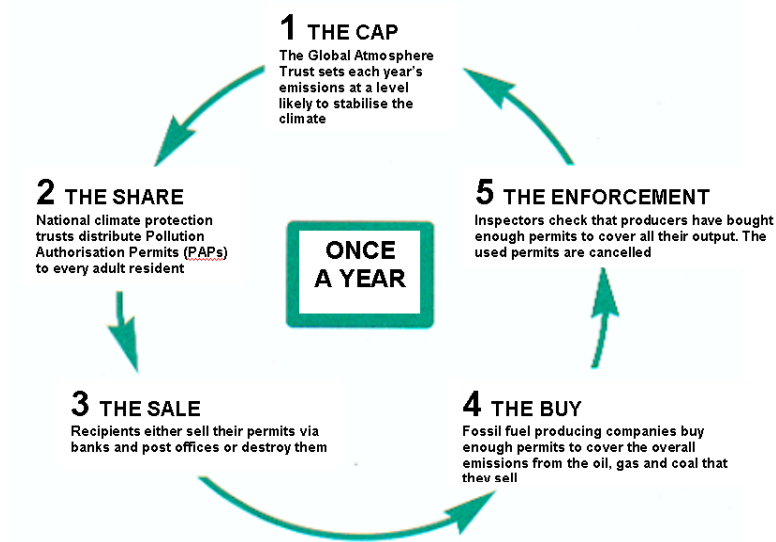


FIG 15

The important point to bear in mind is that C&S can operate at the regional, national and international level and even be applied to just certain sectors of the economy. It is also adaptable for use in conjunction with the EU ETS.

For a national, rather than international programme, permit prices would be different in each country and would depend on supply and demand and on how stringent the cap was applied (not directly on whether the country was rich or a big carbon-user).

If C&S operated globally (or in a group of countries) then there would be a single permit price. There would also be a uniform allocation across countries of permits per capita, and this would fix the stringencies of caps in the various countries. If a rich and a poor country were linked, then the price of permits in the rich country would go down and in the poor country they would go up. Permits would flow from the poor country to the rich and money in the other direction.

The essence of C&S is that it shares out the 'scarcity rent' that will arise either because of oil, gas and coal resource depletion or because the supply of fossil fuel has been made artificially scarce because of the need

to prevent climate change. It does so by making the PAPs it issues scarcer than the supply of fossil fuels so that, rather than all the scarcity rent going to the producers, it is shared by everyone. Delays in negotiating an international climate treaty involving an effective emissions cap will simply mean that huge sums in scarcity rent continue to flow to fossil energy producers, a flow that could unbalance the world economy and cause social unrest on a massive scale.


When considering how the scheme will operate in reality on a global scale, several questions come to mind. Who would decide on the cap, administer the distribution of permits and ensure that the agreed reductions in carbon dioxide emissions was actually happening? Who would administer and control the distribution of permits in each country? How could the costs of special unforeseen difficulties in adapting to the changes be accommodated?

If C&S were to be adopted internationally, a Global Atmosphere Commons Trust (GAT) would cap greenhouse gas emissions at their present level. Then, using the best scientific advice, it would tighten the cap each year so that emissions eventually fell to a level at which they were no longer causing the climate to change. The distribution would be done through national Climate Protection Trusts (CPTs) upon receipt from the GAT. Fossil fuel producers would then need to purchase enough PAPs to cover the eventual emissions from the fuels they sold. Only these small number of fossil fuel suppliers would need to buy permits from the banks.

A corps of inspectors would be set up to verify that the quantity of fossil fuel each company produced was in line with the number of PAPs it had bought.

The third question would be answered by establishing a Transition Fund administered by the GAT which would withhold about 15% of PAPS which it would sell. A proportion of the proceeds would be allocated to national governments which had proved that some or all of their citizens were much more seriously disadvantaged by emissions restrictions or the effects of climate change than people in other countries. The Transition Fund would not be used for poverty relief or to compensate for historic injustices. All of it would go to capital projects.

Could the whole of an individual's PAP allowance be cashed by


Climate Protection Trust

fossil fuel Pollution Authorisation Permit

You can help stabilise the climate

This permit allows you to control your share of the tonnes of carbon dioxide that can be emitted this year.

If you take it to a bank or post office before the expiry date, you will be paid the price per tonne on the day you take it in.

If you do not sell it, the tonnes of carbon dioxide will be removed from this year's emissions.

Only the person named on the permit can cash it, so take some form of photographic identification with you, such as a passport or a driving licence.

FIRST QUARTER 2008

2.65 tonnes


CARBON DIOXIDE

Cash: 1 January to 31 March

Signature _____

Date _____

STAMP



123456 789000

PAID €

J TYNDALL 123456789000

person to which it had been issued? Not necessarily - say 10% could be stipulated for community projects to develop local energy supplies or to reduce fossil energy use. In every local area, projects would compete with each other to persuade people to give them enough of the special permits to sell to raise enough funding to go ahead.

Because the main fossil fuel suppliers are in a position to 'hold the world to ransom' and would react to any reductions in their income that C&S would bring about, a rent-sharing agreement with them would be required. They could be brought into such an agreement with an undertaking to help them adapt to a post fossil energy economy (by developing concentrating solar power for example).

Governments will benefit by taxing the economic activities generated when individuals cash their PAPs.

Considering the UK alone, it is not hard to see the considerable difficulties and bureaucracy involved in measuring the carbon dioxide emissions from those involved in the EU ETS downstream scheme, which also incorporates the unfairness already described. The downstream TEQ scheme, however, has a strong equitable base but TEQs will cost more to set up and to run, since all transactions involving a fuel purchase will have to be tracked, and also all companies will have to be policed.

There are tens of thousands of organisations and smaller companies and 60 million individuals making a downstream permits system expensive and very difficult to administer. However, if the cap on

emissions is applied upstream, then a far more practical, simple and equitable system is possible. The advantages of the C&C, C&S or C&D over downstream schemes like the EU ETS become immediately apparent when the systems of control and monitoring are compared. In the case of the former, upstream suppliers must have permits before they sell fuels into the economy. In the UK these fuels enter the economy through 10 oil refineries, 4 natural gas import terminals on the North Sea coast, 10 deep mines and 30 open cast mines and 12 dedicated coal port facilities. Figures are collected at these locations about exactly how much oil, gas and coal enter the economy. Such a system would be simple and cost very little. In this way all the greenhouse gas content emitted from burning fossil fuels throughout the entire UK economy can be controlled.

Although C&S can be operated in conjunction with the EU ETS, it would clearly be better if all direct and indirect emissions were covered by the simpler C&S scheme. This would also mean that individuals, rather than companies or governments, would be compensated directly for the rising costs of fuel. If the scheme were to be rolled out internationally, this would also help to alleviate the poverty of the world's poorest people who would be otherwise made even poorer by rising fuel prices. Unfortunately, the British government is considering the continued application of the EU ETS carbon trading scheme for large companies coupled with a similar scheme for companies and local authorities, etc which are too small to be included. These would be supplemented by 'green taxes. The *Cap and Share* or the similar *Cap and Dividend* (or the proposal put forward by the Global Commons Institute, *Contraction and Convergence*) may be the only fossil fuel reduction schemes acceptable to the rapidly developing nations of SE Asia and Russia.

In the USA, the Political Economy Research Institute indicates how Cap and Dividend and Cap and Giveaway would impact on people in the country's five income bands. Chart 16 shows that for a 15% GHG reduction target the annual income of the poorest fifth would decrease by 6.2% under the giveaway scheme, but would increase by 14.8 % under the dividend scheme. The income of the richest fifth under the giveaway scheme would increase by 5.1% and under the dividend scheme would reduce by a mere 2.4%.

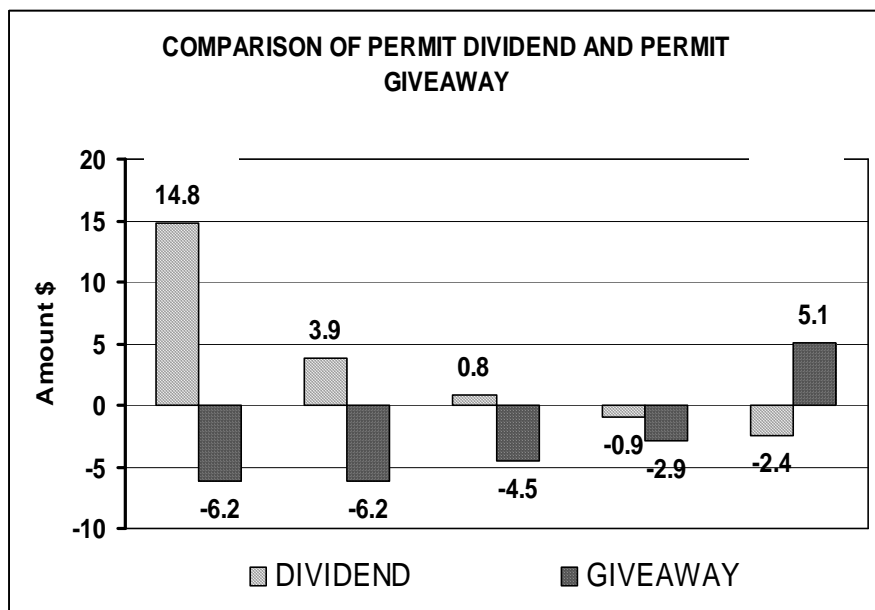


CHART 16

Source: Adapted from James K. Boyce and Matthew Riddle. 'Cap and Rebate: How to curb global warming while protecting the incomes of American families. PERI, Working Paper 150, Oct 2007, fig 5 p 35. www.peri.umass.edu

In June 2008 consultants AEA Energy and Environment presented a report on Cap and Share to the Irish government's Comhar Sustainable Development Council. This report 'Cap and Share: Phase 1; policy options for reducing greenhouse gas emissions Interim Final Report' for the transport sector only. Cap and Share was compared with the following alternatives:

- DTQs/TEQs - Domestic tradable quotas/Tradable energy quotas
- PCR - Personal carbon rationing
- RAPs - Rate all products and services
- Carbon tax
- Voluntary schemes
- Fuel excise duty

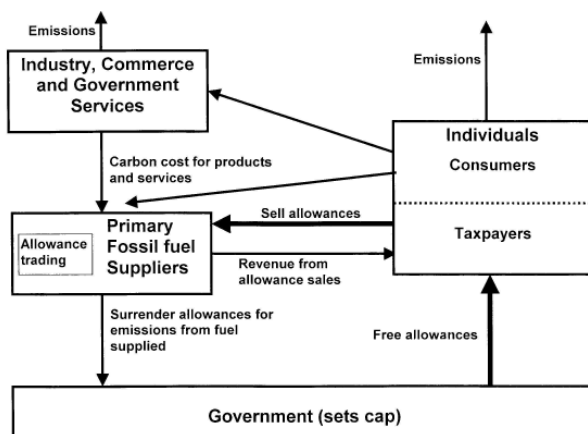


FIG 16

Of all these alternatives, the report concludes that Cap and Share is the most favoured.

Copies of the Cap and Share proposals and the independent report can be obtained from the Cap and Share web site -
http://www.capandshare.org/download_files/C&S_Feasta_booklet.pdf
http://www.capandshare.org/download_files/C&S_AEA_report.pdf

A second report on Cap and Share was commissioned by Comhar in 2008 - 'A Study in Personal Carbon Allocation' and produced by AEA in conjunction with Cambridge Econometrics -
http://www.capandshare.org/download_files/Comhar_Cap&Share_Report.pdf

The Lean Economy Connection (LEC) does not feel that these reports accurately assess the advantages it sees that TEQs have over C&S permits. It will be seen from Table 4 that TEQs score better in terms of public engagement. This relates to the belief that when individuals have energy rations they will become more energy/carbon numerate. It is believed that individual energy counting will create a sense of common purpose and that because of this the carbon energy descent will be achieved more quickly and efficiently. However, this will be difficult to prove and it should be borne in mind that individuals will gain more financially from C&S permits because they cover all fossil fuel

In Table 4 below increasing numbers indicate better performance

TABLE 4

Scheme	Cost effectiveness	Public engagement	Environmental outcome	Equity	Simplicity
Personal carbon trading schemes					
Cap and Share	1	1	2	2	1
DTQs/TEQs	0.5	2	2	1	0.5
PCR	0.5	2	2	1	0.5
RAPs	0	2	2	2	0
Ayres	0	2	2	2	0
Sky Trust	1.5	0.5	2	2	1
Other mechanisms					
Carbon Tax	2	0	1	0	2
Regulation	1	0	1	0	1
Voluntary Schemes	1	0	0	1	1
Fuel Excise Duty	2	0	1	1	2

use, not just the fuels we buy like petrol and heating oil. Another point made by LEC is that it is the speed of the fossil energy descent that is the most important factor and that this objective would be best achieved by TEQs. However, this contention is also difficult to prove and an equally strong case could also be made for C&S, whose initiators have the very same objective.

There is little doubt that both schemes would encourage investments in renewables. However, it is also clear that neither scheme would work if individuals did not have enough opportunities to reduce their use of fossil energy. Hence, governments will need to make adequate investments in renewables and public transport in line with the reducing carbon cap and these would need to be substantial even before a carbon capping or energy rationing scheme was initiated.

Cap and Share as a Global Scheme

Studies of Cap and Share in South Africa¹⁰⁵ and India¹⁰⁶ under a global scheme reveal the considerable contribution it would make to the relief of poverty despite price increases caused by a tightening cap on CO₂ emissions and the high dependence of both countries on energy produced from coal.

Both reports consider the impact of introducing C&S pollution authorisation permits (PAPs) for a high CO₂ price of 400 euro/tonne.

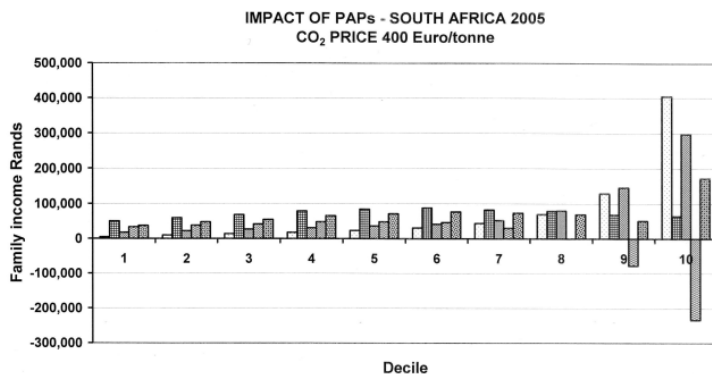


CHART 17

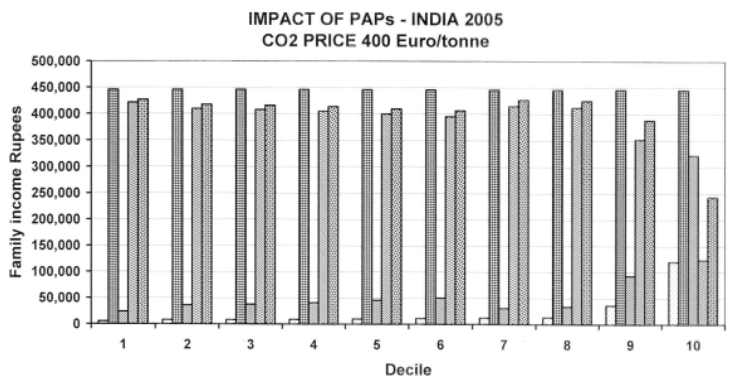


CHART 18

The two reports consider the effects of a range of carbon prices and a per capita CO₂ emission allowance of 3.71 tonnes (4.37 tonnes less 5% for a transition fund, 9% for sequestration projects and 1% for overheads).

Coal provides 93% of South Africa's electrical energy and emissions from burning fossil fuels have doubled in the past 25 years. Demand for the country's coal exports will decrease in time and there will be a strong incentive for the country to develop renewable sources of energy. Because of the high coal dependence, the initial impact of C&S would have a considerable negative effect on the country's GDP whilst at the same time reducing extreme poverty and inequality. The richest three income deciles are net losers while the bottom seven are net winners. Over time there is likely to be a relative decline in long-distance international trade so that opportunities for import substitution will improve.

In India C&S would have an all round positive effect with 90% of the population standing to gain. National income could double mainly because most people currently use little fossil energy. Incomes of the poorest 10% would increase 80 fold for a carbon price of 400 euro per tonne.

I have sought to obtain the UK stance on reducing greenhouse gas emissions through a letter to my Member of Parliament. The reply he received from HM Treasury in 2008 suggest that the prospects for a proper consideration of Cap and Share in the UK do not look good -

"The UK is a strong supporter of the EU ETS and the Government is committed to building on the EU ETS as its main means of pricing carbon in the economy, and of ensuring that emissions are reduced cost-effectively. The scheme already covers approximately half of the UK and EU's emissions, including emissions from electricity production. Its introduction in 2005 had led to the creation of a growing carbon market, valuing carbon by placing a limit on the overall quantity of CO₂ which can be emitted. Links to credits from developing countries through the Clean Development Mechanism, or from developed countries through the Joint Implementation (JI), increase opportunities for emissions savings to be made at the point of

least cost and drive financial flows and investment in low carbon technologies”.

A new world currency

Is it important which currency is used by the producers to purchase their PAPs? Clearly it is important for the reasons I have described in chapter 6, which show how the US benefits from having the major reserve currency. Trading PAPs for dollars would provide grossly unfair returns for the US economy. FEASTA proposes that a new world currency, the *ebcu* (emissions backed currency unit) should be issued by the GAT and given to member governments over a period of years according to the size of their adult populations. The value of the *ebcu* would be fixed in relation to the right to emit a tonne of carbon dioxide. The Trust would announce that, if ever the price of the right to emit rose above a certain price per tonne, it would reduce the number of *ebcus* in circulation. This would be done either by issuing *ebcu* bonds or by offering more PAPs for sale and removing the *ebcus* it received in payment for them from circulation. In this case, the Trust would claw back the extra PAPs it had issued by distributing less the following year. On the other hand, if the *ebcu* price of the carbon dioxide emissions rights was less than the target figure, the Trust could either cut the tonnage of PAPs it distributed, or if the world economy was in seriously depressed state, increase the number of *ebcus* distributed to governments. This mechanism would put an upper and lower limit on the *ebcu* price of a tonne of CO₂ and provide stability for the world economy.

As *ebcus* were trickled into the financial system, they would gradually replace the dollar, the pound, the euro and the other reserve currencies for all international transactions, not just the trade in emissions permits. Governments would be required to introduce legislation requiring their countries international trading to be done either in *ebcus* or in one of the currencies of the two trading partners as a condition of getting their *ebcus*.

Governments would also be required to use a proportion of the sum they received each year to pay off some of their overseas debts. If some of their debt was, for example, in dollars, they would sell their *ebcus* for dollars and pay back their dollar loans. This would do two things. First, it would reduce the number of dollars in circulation, making

space for the ebcu and preventing the issue of the new money having an inflationary effect. Second, it would increase the demand for dollars, thus supporting their value and reduce the risk of the currency collapsing during the period when the ebcu was being phased in.

National currencies would have a floating exchange rate with the ebcu, one determined by supply and demand. Countries which converted quickly to renewable sources of energy and consequently did not need to buy so much fossil fuel, would do well. Their currencies would be strong and they would find that imports were cheap. Countries which are less dependent on fossil fuels for their export production will experience less inflation and out-compete those which need more.

Despite their contribution to reducing emissions from burning fossil fuels, none of the schemes above will be sufficient to make the necessary reductions in greenhouse gas emissions. This is because they do not reduce emissions arising from waste, land use and agriculture, erosion of carbon sinks and feedback effects. The development of organic farming and biochar and avoided rainforest and peatland destruction discussed in this book, offer a partial solution. However, measures should also be taken to plant a variety of tree species to expand forests that duplicate the habitats of old growth forests and where possible, replant degraded coral reefs. This will in effect require a much greater emphasis on placing a large financial value on the natural resources upon which we all ultimately depend for our survival.

Carbon taxes

A Carbon Tax is also an upstream system. But carbon taxes do not form a cap. Governments will be reluctant to set carbon taxes at high levels - but even if they do, people will still buy more and more fossil fuels if they can. If we are serious about capping carbon, we have to stick to caps, not leaky systems like carbon taxes.

Carbon offsetting

Last year the Organisation for Economic Co-operation and Development produced a report titled 'Biofuels: Is the Cure Worse Than the Disease?', which addressed the food v fuel debate. It concluded: "The potential of the current technologies of choice - ethanol and biodiesel - to deliver a

major contribution to the energy demands of the transport sector without compromising food prices and the environment is very limited". The report found that land was required on a significant scale to produce biofuels and this had "put pressure on food and water prices". It also said the biofuels being produced were uneconomic: "In most cases the use of biofuels roughly doubles the cost of transportation energy for consumers and taxpayers."

Energy saving and tree planting schemes have been put forward as a means of sequestering carbon but, although some may have a social benefit, their offsetting potential is often suspect. Some tree planting schemes are detrimental and this issue has been covered in previous chapters. Buying offsets in the belief that we can just carry on as usual is a game of pretend at best. At worst it provides an excuse for large companies to give the appearance of taking global warming seriously to improve their image whilst in reality doing very little.

Cuba - a sustainable model for the future

When Monty Don, the TV gardening programme presenter for the BBC, visited Cuba, he remarked that the organic farming system there provided a model for future food production. In fact the systems that Cuba was forced to adopt in health, transport, food production, education and community organisation as a result of the collapse of the Soviet Union and the trade embargo imposed by the USA, provide a model that many developed nations should begin to copy in preparation for the coming post peak fossil fuel situation. A DVD produced by the *Community Solution* (www.powerofcommunity.org) presents the peak oil argument and the background to the crisis and the responses by the Cuban government and people.

When the Soviet Union collapsed in 1991, the impact on the Cuban economy was severe. Cuba lost 80% of its imports and its GDP dropped by 34%. At the time Cuba was heavily dependent on imports of both food, medicines, oil and farming equipment. Most of the population was connected to the National Electricity Grid and had adopted a *green revolution* agricultural policy highly dependent on fossil fuel based chemical fertilizers and pesticides. The population was threatened with malnutrition, starvation and experienced a decline in electricity supply and medical services. Half of Cuba's oil had been imported from the Soviet Union.

The Cuban people had suffered decades of hardship as a result of interference from Cuba's powerful neighbour under various US presidents. Its problems increased substantially after rebels led by Fidel Castro defeated the brutal and corrupt Batista regime in 1959. Despite several attempts to assassinate Castro and repeated measures by the US to restrict investments and trade, Cuba developed social, educational and scientific programmes that were the best in Latin America. Some were superior to those of the US.

The crisis brought about by the collapse of trade with the Soviet Union became worse when the US tightened the trade embargo in 1992. The country had, over a very short time period, to establish new systems of agriculture and energy in order to feed its population. Systems that were highly dependent on fossil fuels had to be abandoned. Crops were planted wherever possible in both urban and rural areas using organic methods.

Scientists, who had hitherto been involved in industrial or cash crop agricultural research, were switched to the task of developing the best organic farming methods, including biological pesticides. Food was rationed and this continued for the next 5 years. Food subsidies were also given to avoid extreme hardship.

Although high yields had been obtained from conventional farming, Cuba had not grown enough food for its population. Half of its rice and vegetable oil was imported. Few of the country's 90,000 Russian made tractors could be used. The government allocated 40% of its state owned land to small farm cooperatives and small private farms on which tractors were replaced by animal traction - horses and oxen. Land was leased free of rent and government taxes so long as the land was used for growing food crops. Bio pesticide exports became a new source of revenue.

Fossil fuel supplies were so low that power cuts could last for 16 hours and there was little available fuel to run cars. Windmills and solar panels were erected to provide electricity to health clinics and schools. Long buses named *camels* were built for public transport and 1.2 million bicycles were imported from China and another half million were manufactured in Cuba.

Crude oil and biofuel from sugar cane became the main source of energy. Urban farms provided half of the food consumed in Havana and

structure and fertility on previously state owned farms had been depleted by the use of mechanised farm equipment and chemical fertilizers and the restoration of fertility using organic methods took up to five years. Fernando Funes reports that “The current annual production of medicinal plants, and of herbs and plants used for dyes, is 1,000 tons, with plans to increase that amount in the coming years” ¹⁰⁷.



Photographs courtesy of the Community Solution

The number of people involved in farming rose to 140,000 and farm workers are now amongst the more highly paid sector. Land was also used for medicinal plants and in 2002 there was 700 hectares under organic production.

Volunteers from Australia provided training in permaculture methods and a new focus was placed on ‘working with nature’ using crop rotation to control pests and using compost and green manure to improve soil fertility. Porous sheeting was also widely used in order to make pest control easier and to provide shade. The quantity of chemical pesticides was reduced from 21,000 to 1,000 tonnes per year.

Society was essentially localised with little state control. Social workers, medical staff and teachers were able to work in the localities

where they lived. The need to travel was reduced because bus transport was difficult with waiting times often up to 3 hours or more.

Also many people were not used to riding bicycles long distances. However, car sharing, hitchhiking, increased physical activity and cooperative methods of working, reduced health problems and increased sharing and friendship between people.

There were many remarkable achievements during what Cubans refer to as the *special period*. Free education and health care has been maintained. Infant mortality rates and life expectancy compare with those of the United States despite the fact that Cubans use only one eighth the amount of energy as Americans. Instead of the 3 large universities that were based in Havana, there are now 50 spread throughout the country. There are twice as many doctors (57) per 1000 people than there are in the US. Cuba is now providing medical expertise to Venezuela in exchange for oil.

I have a concern that as trade embargoes are lifted and Cuba increases its trade with the outside world it might revert to encouraging foreign investment and an unsustainable form of development. I hope that this will not happen because Cuba currently provides an example that the developed world will soon need to copy.

Transition towns

The Transitions Towns initiative was started in Kinsale, Ireland and then Totnes, Devon, in the UK. The idea was to create community initiatives that would respond in a practical way to the twin challenges of Peak Oil and Climate Change. The aim is to localise and plan alternatives to our fossil-fuelled energy intensive lifestyles, looking for best solutions generated by everyone, rather than waiting for hardships enforced from above, catastrophes, societal breakdown and even martial law. Energy Descent Action Plans are prepared involving energy-saving initiatives and sustainable activities in which local needs are met as much as possible from local sources. The object is also to encourage less energy intensive forms of transport and methods of producing food through cooperative action [<http://www.transitiontowns.org/>].

A new science of common sense

In presenting the idea for the new science of philonomics I am not suggesting that it should replace economics, but rather that it should

guide the priorities for the application of economics and other sciences. In this process I would see economics primarily as an accounting tool. I would hope that those economists, of which there are many, who are critical of the status quo and want to see a fairer and more sustainable system of creating and distributing wealth operating within a new set of values, might be drawn towards such a new discipline.

In a process of change responding realistically to the many crises and injustices described in previous chapters, I am hoping that all sections of world society from the very rich to the very poor might recognise that we all have a common cause and face a common enemy - one to which we can only surrender and cannot defeat - the awesome forces of nature set to destroy the whole of humankind. What I am putting forward is a weapon in our armoury that might help to turn the tide in our favour.

The challenge we now face is unique in human history and it would be far too optimistic to hope for a cyclical process of economic decline and recovery that enables the continuation of economic growth and scientific advances we have witnessed over the past 100 years. Solutions to the global energy crisis no longer appear to be within our grasp and each passing day calls out for a totally new approach - one based on human solidarity and a desire to conserve rather than exploit, to cooperate rather than compete, to share rather than take.

What will philonomists do?

This is a fair question but, as with any new science, the direction it might ultimately take cannot be predicted (it will remain unfinished). Clearly it must be quite different to what has gone before and should be framed within and be guided by, a new set of values appropriate to the global crises we face. The examples I have given are just a small fraction of the hopeful initiatives taking place around the world. A comprehensive study and presentation is beyond the scope of this book. The first important task as I see it is to establish the name for the new science within the public consciousness and draw together as many people as possible into a debate as to how the science can be established as a recognised academic discipline.

I envisage the establishment of Institutions and Academies where the new science will be taught and for which there will be recognised

qualifications.

All companies will be required to employ philonomists who will determine the energy and greenhouse gas emissions involved in the companies' products, using a complete lifecycle analysis from the gathering of the raw materials to delivering the products to the customer. Some work has been done on this for some building materials (kWh/kg), but I am advocating that this should be done for all items of production to assess the true *sustainability cost* that conventional economic analysis does not provide.

Philonomists will, I suggest, also be required to investigate and present to the government the environmental and human rights implications of a company's activities again using a complete lifecycle analysis. Other issues that could be assessed are fair trade and animal welfare. I envisage that philonomics will become a internationally recognised discipline acceptable to all societies and countries without the suspicions currently associated with economic growth seen by many as the means by which the rich take from the poor and destroy their future prospects for survival.

An equally important task for philonomists will be to make recommendations about the forms of development needed to ensure that the needs of future generations can be met. This will require both a wholistic, as well as the more reductionist, approach which has been the main feature of scientific study and research in the past. I see such an approach resulting in more informed decisions regarding new technologies, such as genetic modification for example, which appear to be guided primarily by the profit motive, rather than the needs of people as a whole.

My chief motivation for writing this book has been to present **philonomics** to the general public in the hope that it might gradually come into common usage. The more times the name enters the public arena the greater the possibility that it will be accepted as dictionary word.

A moral imperative

It may not have escaped the reader's notice that if Cap and Share were to become an international scheme, then all permit values would be the same and hence the value for those living in the developed

countries would be less than that under a national scheme.

Cap and Share is hence a scheme that would help to distribute wealth globally and be a major tool for reducing poverty and hunger. Would the majority of those in the affluent society be willing to accept such an international scheme? In May 2009, the scandal of excessive expenses claims by MPs, which poses a very serious threat to democratic institutions in Britain, highlights the need for an independent body (as proposed by C&S) to oversee any permit auctioning scheme. In my opinion this is not only a moral question, but a self interest one also if the affluent are to equate their own self interest with that of their grandchildren or future generations. Before answering “Future generations must look after themselves” think carefully about the way lifestyle choices and consumption patterns of today will inevitably affect their capacity to do so.

Samoan society and a cooperative pattern of development adopted by the Cuban people out of necessity and in the transition towns movement, offer some useful focused models for the future. However, it is my contention that in the spirit of *the unfinished* and within the *counteractive* framework of a new science, the whole of civil society will need to be actively involved in the process of change. Do we wish our grandchildren to look back on our lives with an accusing finger?

CHAPTER 10

The Future in Our Hands

A future without humanity

On a trip to a meeting in London in 2008 I was intrigued by the title of a book being sold at the railway station “What would the world be like without us”. Why would the author want to engage in such an apparently pointless exercise? Does anyone really give a damn about how the world will be without humans even though we know this will be the case at some point in the future? Or does a book on this subject at this time reflect a growing public feeling that this may become a reality much sooner than we had thought possible?

The rising price of fuel, increasing negative equity for homeowners, house repossessions and increasing numbers of children and old people living below the poverty line, are dominating the News in the UK. Although fears are also being expressed about the prospects for rising unemployment, the potential economic and physical impacts of resource depletion and global warming have not yet filtered into the public consciousness. Nor do politicians, who must be fully aware of the threats, appear willing to make their electorate aware of the dangers, as they know that to do so would mean killing their sacred cow of development through economic growth. To some extent the arguments are academic, as the signs indicate that economic decline (recession) has already hit the UK and a global depression is in prospect. In the second quarter of 2008, house repossessions (over 11,000) increased 70%. Over 1 million people are expected to be pushed into negative equity and unemployment is expected to rise from 1.8 mil to 3 mil. Is there time to turn the situation around? Is the future still in our hands?

The future is in our own hands

From an early age I developed a concern for people in other parts of the world suffering from hunger and starvation; which I believed were solely due to harsh environments and natural disasters. In my late thirties I began to realise that such suffering had more to do with man made structures of trade and finance. Later I also began to realise how such structures were adversely affecting natural life support systems.

Could we rely on leading politicians, business people or scientists to first appreciate the threats and then take the necessary action to avert disaster? Ordinary citizens, like myself, immersed in the trials and activities of work and family life, were powerless and in most cases insufficiently informed, to influence the course of future events - or so I thought! It was around this time that I became aware of a movement named the Future in Our Hands, started in Norway in 1974, which followed the publication of a book of the same name written by the founder, Erik Dammann. After reading the book, I was convinced by its essential message that it was through (i) an awareness of the effects of global structures of trade and finance and their historical origins and (ii) personal change by people living in the affluent society, that positive change could develop to provide a good quality of life for everyone in the world. It was a move towards an appropriately simple way of life by the affluent, guided by values of sharing, co-operation, fellowship, compassion and truth, that would help safeguard life support systems for future generations and enable an equitable sharing of the world's resources. I also began to realise that it was the focus on values that gave the movement's philosophy international relevance to all sections of society from the very poor to the very rich. I knew that exploitation and corruption are to be found in urban slums as well as the highest echelons of corporate power.

It can be said, with some justification, that the FIOH philosophy is both naive and even dangerous because it threatens the means by which wealth is currently created and is not consistent with dominant human tendencies. Those tendencies, in keeping with the current rules of economics, are towards competition, self interest, greed and gambling. The economists view might be that, without these features, progress would not be possible and the benefits would not trickle down to the

poorest people. There is, however, a growing realisation that a system guided by such characteristics is not sustainable and that the resources that drive economic growth are diminishing at an accelerating rate. This situation will only get worse as a result of population growth and the numbers of those joining the ranks of the affluent. What FIOH was saying to me first and foremost was change yourself before you expect others to change their way of life. But this in itself was not enough - I would need to engage in campaigns that would help bring about changes in political policies and initiate projects that would help to reduce poverty and improve the natural environment. Having made that first commitment the road ahead has become increasingly clear. The more involved I became, the more I realised that many more people are endeavouring to follow the same path and like myself, stumbling many times along the way. It has been a great privilege for myself and my wife to meet many wonderful people along this road both in our home and abroad since the 1980s, including:

- a woman from Guatemala who belonged to an organisation of women seeking to find out what had happened to their 'missing' sons and daughters (almost certainly murdered by the police or right wing paramilitaries).
- Two men from the Tibetan Youth Congress who had been on a 'fast to death' (over the Chinese occupation of Tibet) until it was stopped by the Dalai Lama.
- Two Indian boys who cycled all the way from Bander-e-Abbas in southern Iran to Oxford in the UK
- A Sierra Leonian man who spent six months surviving in the bush with his two wives and nine children whilst, at great risk to his own life, he helped other starving people with shelter and food. He was later injured in a rebel ambush. He is still working to help victims of the war.
- An Indian man and his wife, who were both brought up in leprosy colonies but were, later in life, to establish an organisation working to help leprosy victims, street children and tribal people in some of India's poorest states.
- A young asylum seeker from the Ivory Coast who came home one evening in 2006 to find her parents dead on the ground, murdered

by rebels. She came to Swindon after first being left alone at Heathrow Airport. She has learnt to speak English and is studying to become an accountant. In October 2008 she was granted permission to stay in the UK.

We have also been privileged to meet those who campaign tirelessly for changes in unjust political policies and academics who doggedly engage in research and present proposals that would, if adopted on a national or global scale, offer realistic solutions to the crises that humanity now faces. All these remarkable people would be the first to admit that the key to positive change lies in the hands of ordinary citizens of the *affluent society*, not only in the West, but in the growing economies of the developing world, who are willing to adopt an appropriately simple and cooperative way of life and share their wealth with the poor.

All sections of world society must, in solidarity, engage in a process that (i) distributes wealth in a way that ensures that everyone has a reasonable quality of life and standard of living and (ii) does not prejudice the ability of future generations to meet their needs. Quite a task! Where can we begin?

How much is enough?

It is primarily towards the affluent in society that this question is directed. A consideration of climate change is a good place to start. Chart 19 shows the approximate component sources of emissions in the UK. What is immediately apparent is the high quantity of emissions associated with personal transport and manufacturing. This is why I have advocated scrapping the car and holiday air travel in the previous chapter. This alone would halve personal emissions. There are many products on the market that enable people to reduce their gas and electricity consumption and even save money in the process. However, some products, including solar panels require appreciable initial investment with returns only in the long term.

What level of emissions should we be aiming for? Dr Hillman, Senior Fellow Emeritas at the Policy Studies Institute, suggests the levels shown in Table 5.

As can be seen, with each passing year the task becomes more difficult. In fact his suggested target for 2005 was not achieved. In

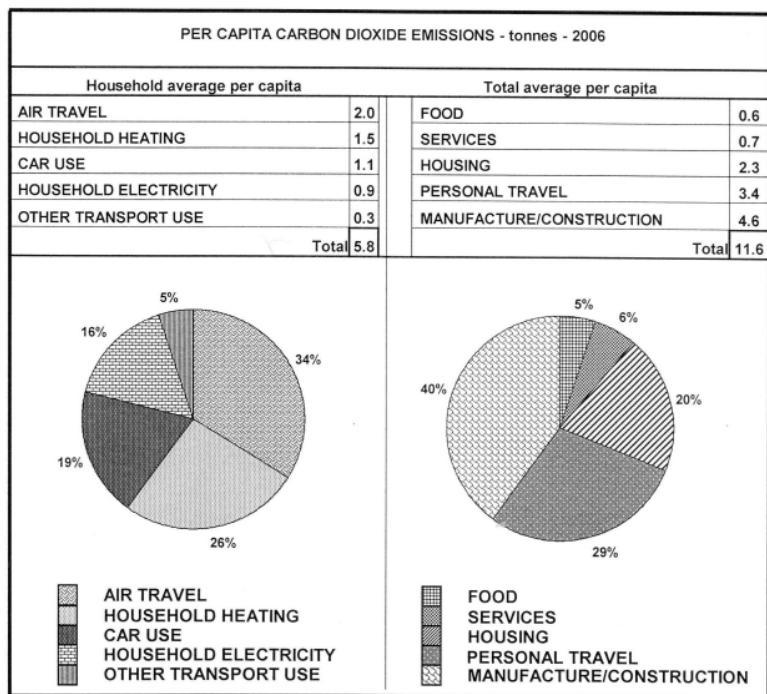


CHART 19

YEAR	GOVERNMENT TARGET OF 550 PPM (60% REDUCTION) Tonnes per year	GOVERNMENT TARGET OF 550 PPM (60% REDUCTION) (Individual energy use)	Dr Hillman's TARGET OF 450 PPM (60% REDUCTION) Tonnes per year	Dr Hillman's TARGET OF 450 PPM (60% REDUCTION) (Individual energy use)
2005	10.4	5.2	10.4	5.2
2010	9.6	4.8	8.9	4.5
2020	8.2	4.1	8.9	4.5
2030	6.8	3.4	3.0	1.5
2040	5.3	2.7	2.6	1.3
2050	3.9	2.0	2.1	1.1

TABLE 5

assessing the practicality of this challenge, the best I can do is to consider assess this in the light of my own energy use. In 2008 and 2009 I took part in a survey being conducted by the Centre for Alternative Technology. This involved measuring home energy and transport use. The emissions for myself and my wife together are an average of 1.2 tonnes (0.6 tonnes each) per annum (Gas 0.1 tonne, electricity

TABLE 6

	a Amount	b Coefft	Household Average	Individual Average	axb YOU (Kg CO₂)
Electricity - Kw hr		x 0.45	2,000	870	
Gas - Kw hr		0.19	3,400	1,480	
Heating oil - litre		2.975			
Petrol car as driver - km		0.20	2,420	1,950	
Diesel car as driver - km		0.14			
Rail Intercity - km		0.11			
Rail – other - km		0.16	200	90	
Rail underground		0.07			
Bus - London		0.09			
Bus – Outside London		0.17	230	100	
Bus - Express coach					
Bicycle		0.00	0		
Air – Within Europe		0.51	4,210	1,830	
Air – Outside Europe		0.32			

Do not include miles travelled in a car as a passenger

0.25 tonne and transport 0.25 tonne). The transport and manufacturing emissions associated with the goods we consume are difficult to assess. If we assume the average of 5.2 tonnes, this gives a total of 5.8 tonnes. Some lifestyle changes like eating less meat, avoiding shopping at large supermarkets and supporting local shops, avoiding investments in the High Street banks and avoiding ‘junk’ food and drink, growing some of our own food, etc, might justify some reduction in this total, but this is impossible to assess accurately (a job for philonomists perhaps!). This dilemma illustrates the urgent necessity of a top down scheme like Cap and Share which would drive down emissions from both the home and industrial sectors. If readers are interested in assessing their own emissions, the table below will help:

A focus on the future

Recognising the obstacles to change can engender feelings of fatalism, indifference and powerlessness, but I believe that all caring individuals must draw strength from the millions of initiatives, only a fraction of which have been mentioned in this book, now taking place across the world. Very fundamental change is needed in the way wealth is created and distributed and I have made my case for maintaining that economics and economic growth must be abandoned as the framework for future policies and activities. The new science of Philonomics, guided by values such as cooperation, sharing and fellowship, could be the basis of

the new framework. The ideas, research and policies being put forward by philonomists should not 'be set in stone' but continually adapted in accordance with the concept of the unfinished. We do not want to leave a legacy that cause future generations, in their poverty and misery, to look back with bitterness at our failure to act on their behalf. A young girl who spoke to the meeting of the world's leaders at the Earth Summit in 1992 remarked "what you do makes me cry at night. You grown-ups say you love us but I challenge you to please make your actions look like your words".

Although I do not wish to be prescriptive about the changes needed, I offer the following suggestions, derived from my research and understanding, that can form the bases for a debate, one in which all sections of society from the very rich to the very poor can engage in common solidarity. The ideas suggested below are drawn from many sources including the Foundation for the Economics of Sustainability and books by Richard Douthwaite¹⁰⁸ and James Bruges¹⁰⁹.

Money

Money systems will reflect equity and social justice, rather than gambling, greed, selfishness and competition. They will also be used to help drive progress towards the aims described below. Richard Douthwaite suggests that four currencies are necessary :

- an international currency for trading between nations
- a national exchange currency for trading within nation
- various user-controlled currencies
- a store of value currency

The need for an international currency is in part related to the crisis caused by the gradual depletion of fossil fuels which, in the short term at least, means that energy will be the basis of the new currency. A new international issuing agency would be formed under the Cap and Share proposal described in chapter 9 which would provide all the world's citizens with an equal compensation for the rising costs of fossil fuels and most other commodities. This proposal would also have the effect of driving investment in renewables. This new currency, the ebcu

(emissions based currency unit) could be used for all international trade, but I assume that in this event it would be known by a different name.

Under a national monetary system commercial banks would not be permitted to create money. Money would instead be printed by the Central Bank and the government would spend it into circulation by building schools and hospitals, for example.

The LETS scheme I described in a previous chapter is one example of a user based currency. Other similar schemes operate around the world and some are based on time rather than local money. The main point of all these schemes is that they facilitate only local transactions and social activity. In the UK context, having had first hand experience of a local currency scheme

(LETS), it is my belief that the government should allow local authorities and post offices to issue local currencies in the form of notes and coins. In the UK thousands of post offices have been closed down in recent years, causing a lot of hardship, especially for old people for whom the local post office is an important form of social contact outside the home. Also, local authorities have seen their power and role in the community diminish as a result of neo-liberal policies in recent years. This is not healthy for democracy. Both would be considerably revived with a new role of distributing currency which could only be spent locally. Central government would have to determine what percentage of national wealth could be operated this way. I believe that local currencies would play a vital role in preventing extreme hardship and encouraging voluntary help and social activities throughout this country, and in others were they to adopt a similar approach. Money will obviously play an important role in the transition to a more sustainable future, as will top down solutions to the provision of energy.

Solar v Nuclear - the race is on!

Although there are very few signs for future hope within the political sphere, some governments and large companies look set to develop some major projects for wind and solar power.

According to DESERTEC (<http://www.desertec.org>), solar power has the potential to provide all of the electricity needs of Europe, the Middle East and North Africa (EUMENA) from concentrating solar

power (CSP) plants. Also, using CSP, less than 3% of the world's deserts could produce electricity equivalent to the world's total present energy consumption and less than 1% could generate the present world electricity consumption. However, it would be prudent to use CSP in conjunction with other sources of renewable power - wind power, power from waves, tidal streams, tidal lagoons and others.



Trough Systems use parabolic trough shaped mirrors, each one of which focuses light on to a tube containing oil or similar fluid that takes the heat to where it can be used to raise steam and generate electricity.



Power Towers use a large field of sun-tracking mirrors to concentrate sunlight on to a central receiver on the top of a low tower to raise steam and generate electricity.



Fresnel Mirror Systems are similar to trough systems but use long flat mirrors at different angles to concentrate sunlight on to a tube containing heat-collecting fluid.



Dish System uses a large sun-tracking mirror with a Stirling engine generator at its focal point to convert heat energy into electricity.

Courtesy of DESERTEC UK

CSP is quite different from the better known photovoltaics. It involves a simple technique of concentrating sunlight with mirrors onto a tower or pipes containing some sort of gas or liquid that is heated to around 400 deg C. The steam produced drives turbines and generators to create electricity. Many types of system exist, of which the parabolic trough, the power tower and the parabolic dish are the most common. It is feasible

and economic to supply the whole of EUMENA with electricity via a high voltage direct current (HVDC) super grid.

The current world electrical power demand is 18,000 TWh/y (Terawatt-hours per year). Europe is 4,000 TWh/y.

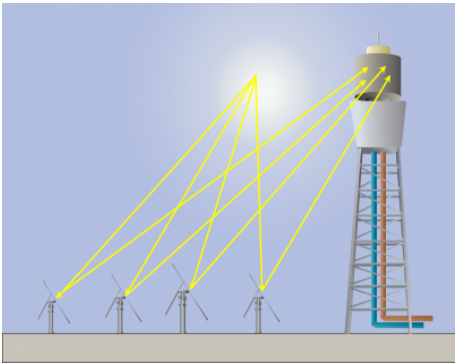


FIG 17

Brightsource Energy's 100 MW plant uses 80,000 mirrors and the 200 MW plant uses 150,000 mirrors. The mirrors reflect sunlight onto a boiler atop a central tower and this heats water inside a boiler to 550°C, generating steam. The steam powers a turbine to produce electricity. The steam air-cools back to water and returns to the boiler.

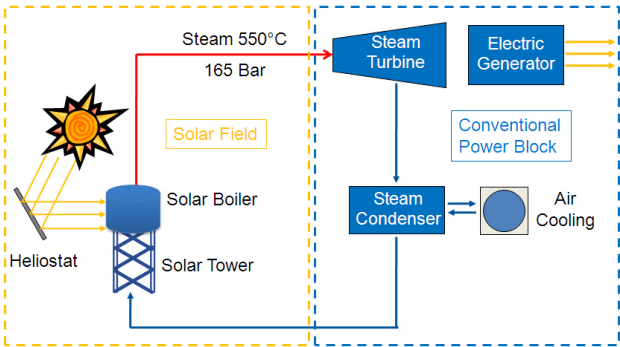


FIG 18

Solar towers with central receiver systems can also be integrated into fossil fuel plants for hybrid operation in a wide variety of options and have the potential to generate electricity with high annual capacity factors by using thermal storage.

The DESERTEC concept developed by TREC is an important vision of future energy supplies and other benefits in EUMENA. The main elements of the concept are these:

- Deep cuts in CO₂ emissions from electricity generation throughout EUMENA using a wide variety of renewable sources of energy, with a phase-out of nuclear power. An important part of the energy mix is clean electricity from areas of desert, taking advantage of the truly enormous quantities of solar energy in those regions and the simple, proven technology of CSP.
- Transmission of renewable electricity throughout EUMENA via a 'Supergrid' of highly-efficient 'HVDC' transmission lines. Recently, it has become clear that countries in northern Europe may, at an early stage, start to benefit from 'desert' electricity via the existing HVAC transmission lines.
- Desalination of sea water using waste heat from CSP plants - a valuable bonus in arid regions.
- The partially-shaded areas under the solar mirrors have many potential uses including horticulture (using desalinated sea water): a source of food and other useful products.
- Jobs and earnings throughout EUMENA.
- Reduced risks of conflict over shortages of energy, water, food and usable land.
- Collaboration amongst countries of EUMENA, with substantial benefits for all, can help to reduce tensions, improve relations and build understandings amongst different groups of people—a positive alternative to the confrontational policies of recent years.

The DESERTEC ideas can be applied in many other parts of the world. Countries like China and India can leapfrog the 'dirty' phase of development, making cuts in CO₂ emissions whilst maintaining or increasing their energy supplies. Countries like Saudi Arabia can move directly from being oil-rich to being solar-rich.

The USA can meet all its electricity needs from its south western states. These things can help break deadlocks in international negotiations about cutting CO₂ emissions.

Across the world the potential for CSP is massive (see Fig 20).

A November 2007 report of the German Aerospace Center stated

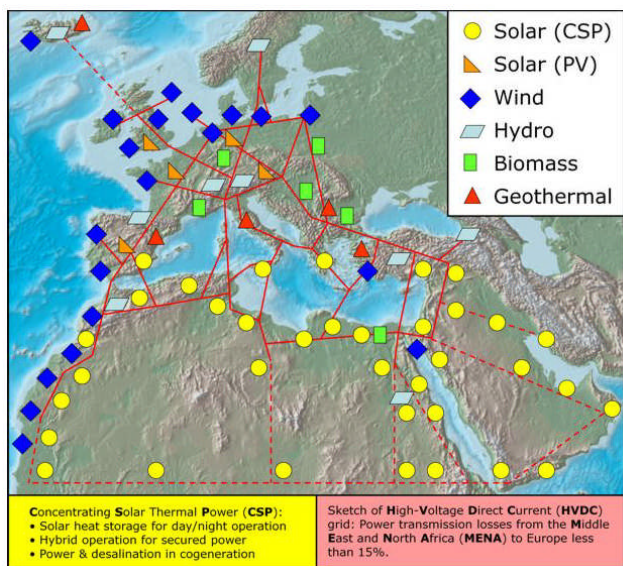


FIG 19

A schematic representation of the DESERTEC proposals: the generation of electricity from renewable sources and its transmission throughout EUMENA via low-loss HVDC transmission lines.

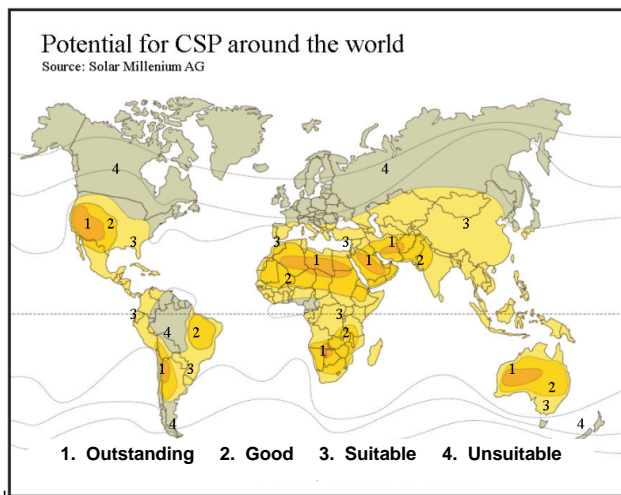


FIG 20

that “The expansion of CSP in the electricity sector of Europe and MENA (Middle East and North Africa) will have considerable socio-economic and environmental impacts, most of them positive....”

The solar irradiance averages about $2,400 \text{ kWh/m}^2/\text{y}$ across the Middle East and North Africa. Over the year about 16% of the direct solar irradiance on the aperture area (that is the cross section surface of the reflectors) of a parabolic trough collector can be converted into electricity. For those parabolic troughs with a lot of space in between the mirror rows, only 30% of the sunshine on the total land area is reflected and concentrated (land use factor), that means that only 4.8% of the total solar irradiance on the land surface is converted into electricity.

Linear Fresnel collectors have lower aperture efficiency than troughs but better land use factor while central receivers may have better aperture efficiency but lower land use factors than troughs. In the long term better efficiencies of around 10% can be expected. DESERTEC considers that the generation of $2,900 \text{ TWh/y}$ by the year 2050 for local power and seawater desalination in MENA and for power export to Europe. This would require a total area of $12,000 \text{ km}^2$ (0.12% of the Sahara desert). In terms of climate, CSP plants are expected to have a slight cooling effect.

I have sought to show in Chapter 2 just how difficult, if not impossible, it would be to maintain current levels of consumption and economic growth by means of renewables and nuclear power even in developed countries. Concentrating solar power is a top down technological contribution to future energy needs and reductions in greenhouse gas emissions, but electricity is currently only a small proportion of the total world power consumption*. David MacKay suggests an area $1,000 \text{ km} \times 1,000 \text{ km}$ would be required - four times the area of the UK completely filled with concentrating solar power. Twice this area would be required to provide everyone in the world with the average European consumption. Another major problem facing the

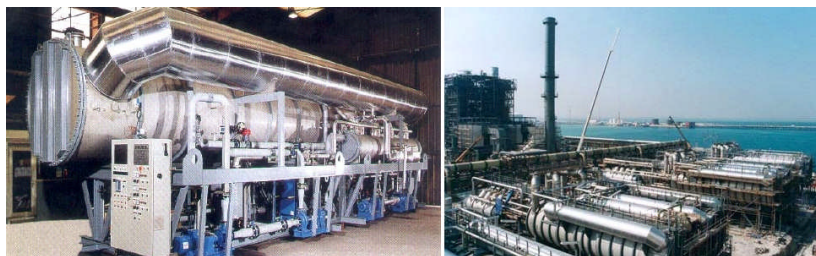
* World electricity consumption is $18,000 \times 10^9 \text{ kWh/y}$. One square kilometre of desert could supply 240 GWh/km^2 . This would require an area of desert devoted to CSP of $18,000 \times 10^9 / 240 \times 10^6 = 75,000 \text{ km}^2 = 274 \text{ km} \times 274 \text{ km}$. Total world power consumption from all sources is $15,000 \text{ GW}$. This would require an area devoted to CSP nearly eight times larger. Probably an even larger area would be required due to lower efficiencies.

world is to supply everyone with an adequate supply of water. CSP could also help in this regard.

Desalination of sea water

Population growth is threatening the availability of fresh water in many regions of the world. With agriculture accounting for approximately 70% of all water used, the water crisis is closely linked to food production and economic development. Conventional agriculture is very inefficient in its use of water with several hundred litres needed to produce just one kilogram of produce.

Although seawater is abundant, conventional desalination consumes substantial energy, usually derived from fossil fuels. There is a need for affordable and sustainable means of producing food and water, without reliance on fossil energy reserves. Concentrating solar power has huge potential for providing the energy required for use in existing desalination plants such as the one shown below:



Multi-effect desalination unit with thermal vapour compression (left) and complete plant (right). Source:/entropie 2006/

The German Aerospace Report included the projection shown in Figure 21. There is a less complex small scale system that can be used for desalination and process could be incorporated with CSP for large scale projects.

The *Seawater Greenhouse* described below is designed to produce fresh water and cool air while allowing maximum light penetration. It is a unique concept which combines natural processes, simple construction techniques and mathematical computer modelling that offers a sustainable solution to the problem of providing water for agriculture in:

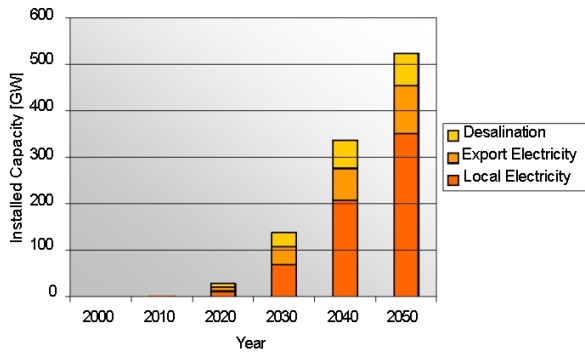


FIG 21

arid, coastal regions. The process uses seawater to cool and humidify the air that ventilates the greenhouse and sunlight to distil fresh water from seawater. This enables the year round cultivation of high value crops that would otherwise be difficult or impossible to grow in hot, arid regions. The Seawater Greenhouse uses the sun, the sea and the atmosphere to produce fresh water and cool air. The process recreates the natural hydrological cycle within a controlled environment. The entire front wall of the building is a seawater evaporator. It consists of a honeycomb lattice and faces the prevailing wind. Fans assist and control air movement. Seawater trickles down over the lattice, cooling and humidifying the air passing through into the planting area.

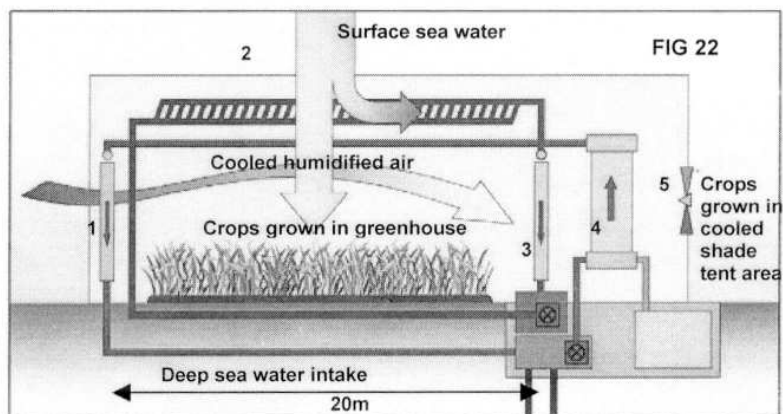


The Light Works prototype greenhouse in Tenerife, Canary Islands
Courtesy Charlie Paton

The Greenhouse is driven by solar and wind energy. Sunlight is

separated into visible and infrared light. Visible light passes through the roof to drive photosynthesis. Infrared light is trapped in the roof canopy and is ducted from there to the seawater evaporator. Thus solar energy converts seawater to water vapour. The structure acts as a 'wind-catcher'. It faces into the prevailing daytime wind to assist ventilation. Fans are required under most conditions. The wind-fan combination moves air through the front evaporator and chills the sea water which then provides cooling for the rear condenser and thus the production of fresh water.

The electricity requirements are modest and in the absence of grid power, can be provided by photovoltaic panels without the need for



1. Surface sea water trickles down the front wall evaporator through which air is drawn into the greenhouse. Dust, salt spray, pollen and insects are trapped and filtered out leaving the air pure, humidified and cool.
2. Sunlight is selectively filtered by the roof elements to remove radiation that does not contribute to photosynthesis. This helps to keep the greenhouse cool whilst allowing the crops to grow in high light conditions.
3. Air passes through a second sea water evaporator and is further humidified to saturation point.
4. Saturated air passes through the condenser which is cooled using cold deep sea water. Pure distilled water condenses and is piped to storage.
5. Fans draw the air through the greenhouse and into the shade house area.

batteries, inverter or standby generator. There are thus potential synergies between the Seawater Greenhouse and both wind and solar power. The overall process is extremely energy efficient. 1kW of electricity expended on pumping will remove 500kW of heat. Water can be produced at low energy costs ($< 3\text{kWh/m}^3$).

An exciting new plan called the *Sahara Forest Project* combines the energy generating potential of CSP with that of the seawater greenhouses to produce large quantities of pure water for growing crops.

The Sahara Forest Project

This project is proposed at a significant scale such that very large quantities of seawater can be evaporated. The greenhouses are arranged as a 'long hedge' to provide a windbreak and shelter to the outdoor planting scheme and to minimize the area of evaporation.

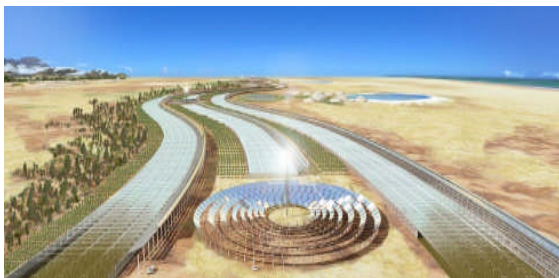


FIG 23

At intervals CSP arrays would be installed. Along the windward edge of the greenhouses an elevated CSP parabolic trough collector would provide added benefits to the Seawater Greenhouses by acting as wind catchers.

Orchards are planted in the vicinity of the greenhouses which provide water for their irrigation and a micro climate of humid air. Further downwind the planting of native species and drought tolerant energy crops such as *Jatropha* is envisaged as a source of bio-fuel and to enhance soil fertility.

In most desert regions, humidity falls with increasing distance from the coast. Lower humidity translates to cooler growing conditions, enhanced fresh water production and enhanced rates of evaporation.

These conditions will in turn increase the rate of night time dew formation, particularly where low night time conditions are experienced. A 10,000 hectare area of seawater greenhouses will evaporate over a million tonnes of seawater per day. If the scheme were located upwind of higher terrain the air carrying this 'lost' humidity would rise and cool, contributing to the occurrence of cloud and dew. This precipitation could fall as rain or be collected using fog-nets thus allowing further areas of desert to be re-vegetated. The new plant growth and the soils would sequester significant quantities of carbon from the atmosphere.

The two technologies have very commercially attractive synergies:

- CSP systems need water for cleaning the mirrors and for the generation of steam to drive the turbines which the greenhouses can provide.
- The Greenhouse evaporators make very efficient dust traps (as do plants that are growing outside) which benefits the CSP since the mirrors stay cleaner and therefore operate more efficiently.
- In solar thermal power plants, only about 25% of the collected solar energy is converted into electricity. If combined with sea water another 50% of the collected energy, normally released as heat, can be used for desalination. This way, up to 85% of the collected solar energy can be used and with each TWh of power 40 million m³ water can be desalinated in cogeneration. (<http://www.desertec.org>)

Whilst solar power holds out a hope that future generations can meet their energy needs with minimum resort to the use of nuclear power and fossil fuels, it is unlikely that current levels of energy production can be sustained. With so much energy being consumed in the homes of the rich industrialized countries, it is imperative that homes of the future must become more energy efficient. Also urban transport especially must become less reliant on the use of cars. This presents a challenge for town and city planners.

Eco development and sustainability

There are several concepts to consider when designing the housing developments of the future. The first is the concept of eco development in which homes are built to high insulation standards but are also

considered in relation to the outside environment in respect of travel modes and the disposal of surface water, for example. This concept can be broadened into a consideration of sustainability in which housing developments are also planned in relation to the provision of food, energy and other basic needs from local resources. I have gathered together the following recommendations after speaking to Sally Harper, Kevin McCloud (presenter of the TV programme 'Grand Designs') who is undertaking an 'eco development' in Swindon. I corresponded with Folke Günther and Ted Trainer in respect of ideas for sustainable developments.

I have also described the way in which the municipal authority in Gronningen, Holland, has brought about a town centre development which has virtually excluded most car travel in favour of public transport, thus creating a very pleasant, attractive, quiet and pollution-free urban environment.

However, I have first considered the practical aspects of designing a new energy-efficient house and improving the energy efficiency of an existing home.

Passive homes

The concept of the *passive house* developed by Prof. Bo Adamson and Dr Feist in 1988 can also be applied to larger buildings such as schools and offices. The object is to design ultra-low energy use buildings with high insulation for both cooling and space heating.

Air tightness in the building's insulating envelope is an important feature of the design. Ventilation is supplied by mechanical heat recovery ventilation systems, with a heat recovery rate of over 80% and high efficiency electronically commutated motors. The system is optimized to provide about 0.4 air changes per hour. Heat retention is such that a conventional central heating system is not necessary (see Figure 24).

A cottage I visited near Oxford provides a good example of how to convert a very energy wasteful building into one that reaches near passive house standards with an added bonus of incorporating natural insulating materials (see Figure 25).

The floor of the cottage was excavated in order to provide space for an underfloor heating system connected to a biofuel boiler. Three solar panels were installed on the roof.

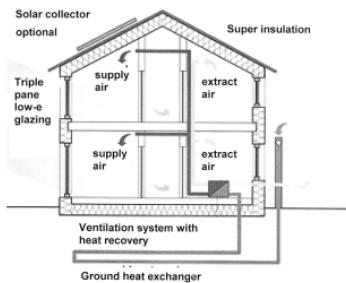
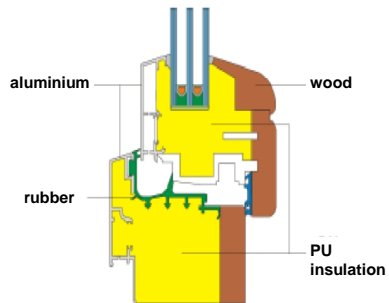


FIG 24

(Source: Wikipedia)



Windows are normally triple glazed (with low-emissivity coatings and with argon or krypton gas fill and warm edge insulating glass spacers) with air seals and thermally broken window frames.

Fig 25



Owner, Sally Harper, holds a briquette incorporating rapeseed waste that is used in conjunction with wood logs as the fuel for the under floor heating system.



150 mm of Sheep's wool insulation added to internal faces of exterior walls



Walls and ceilings lined with sheeps wool and heraklith board (which can be lime-plastered)



Solar hot water cylinder 270 litres for the 4 sq m of solar panels

The philosophy behind the building construction was to combine efficiency and conservation using ecological practices. Reclaimed and organic materials were used along with renewable energy technology. The building methods reflected the owners concerns about global pollution and natural resource depletion. In the UK only around 5 percent of insulating materials are produced from renewable raw materials such as reed, flax, hemp, straw or wool. However, insulating blankets made from natural materials have definite advantages: Their production requires relatively little energy, they are not harmful to health and when they are no longer needed, they can be disposed of by composting or carbon-neutral incineration. The insulating properties (thermal conductivity) of these materials compares well with conventional materials such as fibreglass and mineral wool.

The floor of the house was excavated in order to install a recycled glass solid vapour permeable floor. Underfloor heating also has physiological benefits - warm feet - cooler head.

External walls were internally lined with sheep's wool clad with *Heraklith*, a wood/wool board requiring 10% of the energy used in the manufacture of conventional insulation materials. The roof was also insulated with sheeps' wool. The single glazed windows were replaced with double glazed K glass with a heat retaining inner coating.

Having insulated the building envelope, the reduced heating needs have been met using a biogas boiler feeding both the under-floor heating and the hot water radiators. Wood and rapeseed waste briquettes provide a carbon neutral heating source. The briquettes have a high calorific value and provide an environmentally friendly alternative to coal.

The 4 m sq of solar panels provide hot water in the summer when the biogas boiler is switched off and act as pre-heat for hot water in the winter. There is a new extension to the property and for this hemp has been extensively used. A hemp lime was packed within wooden shutters around a conventional timber frame to form the walls which carry the structural load of the roof. The walls were lime rendered externally and lime plastered internally. The finishes are breathable and are a real alternative to conventional cavity walls. This method can be used as an alternative to wattle and daub in the renovation of old buildings.

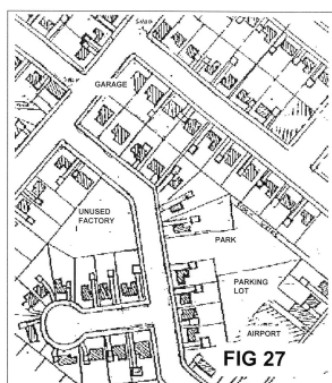
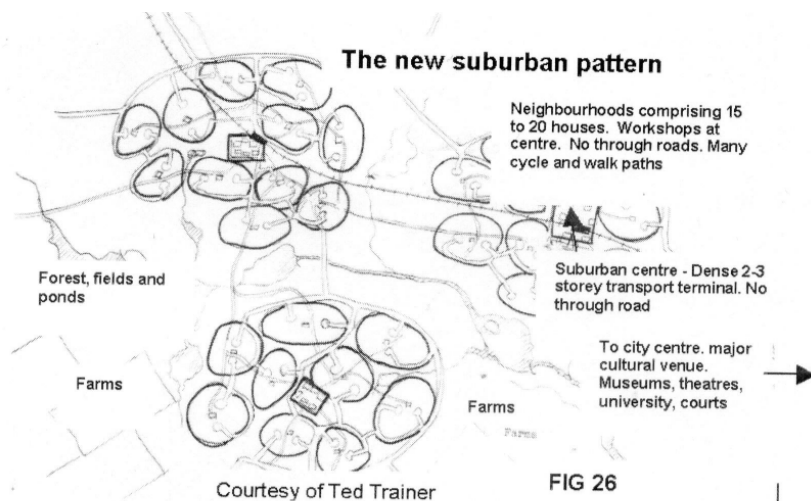
Whilst at the present time some of these measures may not be

affordable by most UK home owners due to current economies of scale, the cost of most types of insulation materials will be repaid in a few years in lower energy bills. According to the UK Energy Saving Trust, about a half the heat lost from a typical home is through the walls and loft. Cavity insulation offers an average saving of £120 a year for example. Proper loft insulation could reduce energy bills by £155 a year. If every UK household topped up their existing loft insulation to the recommended 270mm, the cumulative saving would be about £560. David MacKay provides some energy saving figures for a range of individual actions. The starting point is roughly that of the above-average consumer:

Put on a woolly jumper and turn down your heating's thermostat (to 15 or 17°C say). Put individual thermostats on all radiators.	
Make sure the heating's off when no one is at home.	
Do the same at work.	20 kWh/d
Stop flying.	35 kWh/d
Drive less, drive more slowly, drive more gently, car pool, use an electric car, join a car club, walk, use trains and buses	20 kWh/d
Change lights to fluorescent or LED.	4 kWh/d
Don't buy clutter. Avoid packaging.	20 kWh/d
Eat vegetarian, six days out of seven.	10 kWh/d
Eliminate draughts.	5 kWh/d
Double glazing.	10 kWh/d
Improve wall, roof and floor insulation.	10 kWh/d
Solar hot water panels.	8 kWh/d
Photovoltaic panels.	5 kWh/d
Replace fossil-fuel heating by ground-source or air-source heat pumps.	10 kWh/d

Sustainable development and localization

Cuba's response to the special period crisis offers a model as to how future development planning in industrialised countries might respond to the growing global energy crisis. This model and the following ideas proposed by Ted Trainer, reflect the importance of local food and energy production for local need in a process of 'localization'. The four characteristics that a sustainable society are that it be (i) far less affluent - people must live simply (ii) more self sufficient (iii) more communal and cooperative (iv) operating without economic growth.



The first requirement is for a severe cut back in unnecessary consumption, greater amounts of recycling and the production of long-lasting durable items that can easily be repaired. Whole industries, such as those involved with car and aircraft production, may have to be phased out. Fig 26 illustrates how the principles of localization could be applied for rural communities and Figs 27 and 28 show how a typical housing development could be changed.

Changes will be needed in social systems and procedures. The suburbs will become thriving regional economies. Many firms will be decentralized enabling most people to get to work by bicycle. A large proportion of businesses will be engaged in the food production and distribution sector. Much of the current transport infrastructure will be removed to create space for community orchards, forests and ponds much of which will also be associated with local food provision. Animals will play an increasingly important role for transport, farming and the provision of clothes, insulating materials and manure for organic farming. As fossil fuels start to run out, solar power will be increasingly used for larger scale industrial purposes, but activities involved in meeting basic needs can be expected to become more labour intensive. The need to provide most people with employment may become an essential strategy to avoid societal breakdown and conflict. The current competitive focus of economic growth policies will need to change to those which promote cooperative communities in which many items are shared rather than individually owned. These ideas are greatly at variance with the current trend by large companies and governments to promote centralized systems of energy distribution like coal fired power stations, nuclear power and agri-business using genetically modified crops. Articles in favour of embracing GM technology appeared in *The Observer* (1st Feb 2009) in connection with fears about a food crisis in the UK which currently imports over half the food consumed in the country¹¹⁰.

A process of localization is likely to involve a reversal of the current trends that involve people migrating from rural to urban areas. Folke Günther paints an outline of how that transformation might evolve and the basic principles on which it might be based (Figure 29).

The ideas suggested above paint a picture of what might be referred to as a planned process of localization, but Colin Challen in his book

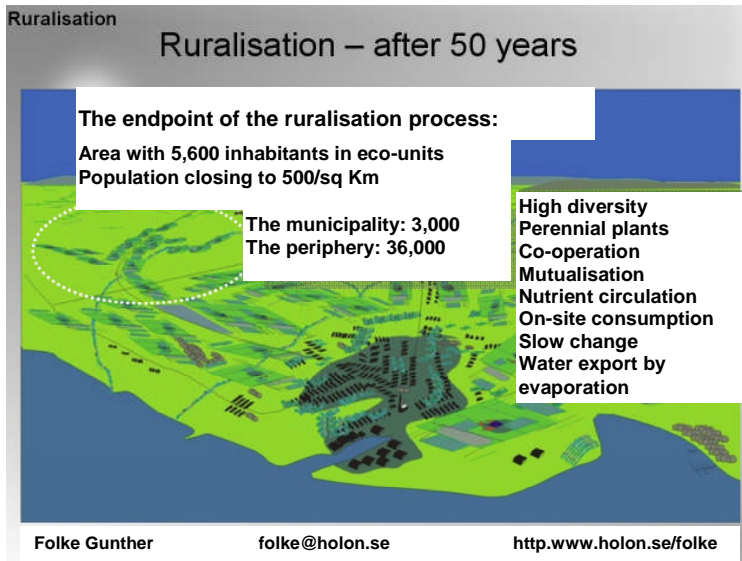


FIG 29

Too little, too late about the inadequacy of British Government policies in respect of global warming, paints a depressing picture of unplanned localization. He quotes one of the scenarios (*tribal trading*) of a government think tank known as the Foresight programme:

The world has been through a sharp and savage energy shock. The global economic system is severely damaged and infrastructure is falling into disrepair. Long-distance travel is a luxury that few can afford and for most people, the world has shrunk to their own community. Cities have declined and local food production and services have increased. There are still some cars, but local transport is typically by bike and by horse. There are local conflicts over resources: lawlessness and mistrust are high.

There are no longer clear and well-enforced national borders. Rather there are relatively separate and self-governing city states, a re-localisation of the world. Surrounding such walled cities there is an enormously dangerous and chaotic environment which few people will enter without arms. Long range travel is dangerous

and only undertaken by those who are armed. No longer do states possess the monopoly of legitimate violence. And there are now powerful empires, of McDonalds and Microsoft, although future empires are likely to be based on the control of water and energy sources which are in increasingly short supply and guarded by armed gangs. With such patterns it is likely that the first shall be the last and the last shall be first. Global cities like London will have become ungovernable and unregulatable.

The planning of large urban centres will present some difficult challenges. Sustainable models may be difficult to find, but the re-planning of the city centre in Groningen, Holland, may provide some helpful ideas in the transformation towards the conserver societies of the future. Since 1977 Groningen has pursued a policy to reduce car traffic while maintaining a good level of accessibility using mainly public transport. With a share of 43%, Groningen has become the world's third leading city for bicycle use, while maintaining the right conditions for economic activities.

The Municipality's Department of Town Planning, Traffic, and Economic Affairs has various instruments to achieve these goals in traffic policy. First, the town planning policy has to be based on the model of the compact city, with short distances between residential areas, working, and shopping locations. Second, priority has to be given to the building of special facilities for environmentally friendly transport alternatives like bicycles and public transport. Finally, the philosophy of the integrated approach has to be adopted in order to implement measures in various areas of policy in a co-ordinated fashion. From the town planner's point of view, this means that new residential areas are built close to, or in the existing city. This keeps the distances between home and work, or home and school, relatively short, so that the use of these means of transport should form good alternatives to the private car in terms of travelling time. Similar criteria apply to the location policy for new plants and offices. Offices have to be situated in places which are readily accessible by public transport and bicycle - particularly if the companies concerned employ a lot of people.

The location of shops and shopping centres should follow the principle of a spread of retail outlets throughout the city.

The residents should have the opportunities to shop for their everyday needs in their own neighbourhoods, while the inner city serves as the main shopping centre. Out-of-town shopping centres are not permitted.

The technique of integrated town planning is becoming more and more natural in the current land-use planning policy in the Netherlands. Comfort standards for cyclists have been upgraded by asphaltting the main cycle paths. A special sign-posting system for cyclists has been introduced. Other measures are concerned with facilities near traffic lights, such as waiting spaces in front of cars and cycle paths passing the lights. Infrastructure facilities in the city centre, or at junctions of public transport have been equipped with bicycle racks and clamps and guarded bicycle shelters have been opened. The shelters are sometimes combined with lockers, toilets, telephones, etc. The planning approach is oriented towards a hierarchical network: from the train for the long distances, to local buses and taxis for transport in the city.

An equally important element of the attractiveness of public transport is the quality of service, especially in regard to timetables. To achieve punctuality, there are several special facilities for buses (e.g. traffic lights which can be influenced by a transmitter in the bus, and special lanes reserved for buses).

In the future, motorists will only be able to park their cars in multi-storey parking on the edge of the city centre, or leave their car at the outskirts of the city. Here there are parking and bus facilities from where the bus to the centre of town can be taken. Street parking will be abolished in the city centre. The use of bicycles and of public transport is encouraged through the expansion of the number of parking facilities for bicycles and by introducing new bus routes with environmentally-friendly buses.

The policy and plan will also be reviewed every 4-5 years in consultation with the local population and key regional stakeholders: including economic, environmental, and social representatives.

Planning of this type will be required in the future not only to meet the challenge imposed by the depletion of fossil fuels, but also to combat climate change.

There's too much up there already!

If the contentions of David Wasdell and James Hansen about feedback mechanisms are correct, then not only must the world move towards non-fossil fuel energy, but much of the greenhouse gases in the atmosphere must be removed. How can this be done?

I have already mentioned the potential of organic farming methods to remove large quantities of CO₂ from the atmosphere. Another possibility arises from a study of ancient farming methods used by the native inhabitants of South America which found that charcoal was used to increase the fertility of nutrient deficient soils. The enriched soils were named terra preta. James Bruges explains the carbon sequestration process ¹¹¹ - "Plants, through photosynthesis, capture carbon dioxide all the time. They release it when they decompose. Cut the plants, turn them into charcoal before they decompose and bury the charcoal. Charcoal in the ground attracts microbes and nutrients and the soil's fertility can increase spectacularly. And, what's more, the soil's subsequent ability to capture and retain carbon dioxide also increases".

For a time the charcoal attracts nutrients from the soils but this problem can be overcome by using in conjunction with sewage. "Indian eco-scan toilets separate urine for immediate use and guide faeces into chambers that can be emptied in turn after six months. Both urine and matured faeces, together with farm manure and compost, can be added to a charcoal pit before being spread onto the land. This system captures carbon and revolutionizes the sewerage system". This process would enhance still further the carbon sequestration potential of organic farming.

Whilst organic farming and charcoal offer a solution to climate change, pomegranates may offer one way of dealing with what for many is a more pressing problem related to the illicit drugs trade.

Poppies and pomegranates

In April 2007, James Brett, a reformed drugs dealer from my home town of Swindon, started his mission to persuade Afghan farmers to switch from growing opium poppies to pomegranates instead¹¹². The very first farmer he spoke to agreed on the condition that Brett guaranteed to subsidise him and his family until the pomegranate trees were grown and ready to harvest. Having launched his pomegranate juice on the UK

market four years previously, he was keen to find good fruit and plough the profits into increasing production. The farmer was told that he would get two and a half times more for the pomegranate than he would get from the same area of opium poppies.

Afghanistan provides 93% of the world's opiates and the illegal trade is worth £1.3 bil a year to Afghanistan - one third of the country's GDP. After Brett had spoken to elders in the relatively stable region of Nangarhar, they agreed that they would cease poppy cultivation in the province from 2009.

Brett launched his *Pomegreat* juice in 2003 and in 2007 his company had a turnover of £33 mil and was selling 2 mil litres per month. His aim is to duplicate the project, named POM 354, throughout the country and this will involve building trust between the government and tribal factions. This project is a testament to the power of very ordinary individuals to bring about positive change and hope for the future.

Planning for sustainability in poor countries

Some of the suggestions previously described for so-called developed countries may be equally applicable to poor societies in Africa, South America and Southeast Asia, but communities in rural areas and urban slums will almost certainly need to develop strategies that help people to cope in a much degraded natural environment and against increasingly severe forces of nature.

Many years ago I was inspired by a talk given by Professor Wangari Maathai, a Kenyan lady who founded the country's *Green Belt Movement* and this prompted me to establish a UK charity *Plant a Tree in Africa*. I was fortunate enough to meet her when I arranged for her to give talks to school children in Swindon. In her autobiography¹¹³ she describes her battles against unjust political policies and engrained cultural attitudes which discriminate against women. She also describes the Kenya of her youth which suggests that stepping back into the past somewhat may point towards changes needed to develop sustainable living patterns in countries throughout the world:

“In traditional African societies food security was at the family level even though there was also a collective responsibility

in the community for food security for all. Seasons were synchronized and there was a living culture associated with food production, seed selection and post-harvest storage.

Important structures at every homestead included granaries for grains and beans while certain crops like bananas, sugarcane, roots crops and green vegetables were always available in the field, and especially between harvests.

At the onset of the colonial era in Africa and introduction of cash crops (coffee, tea, nuts, sugarcane plantations, horticultural crops, etc.) all that changed. The traditional farming culture was demeaned, discredited and destroyed along with much of other heritages of Africa. Crop land was commercialised for cash crops, granaries disappeared from the homesteads, and people became dependent on processed foods from shops. The cash economy took over.

At the same time species of trees like the eucalyptus, black wattle and conifer trees replaced indigenous species, not only on farmlands, but also in forest areas. As a result farmlands have lost water and certain crops like bananas, sugarcane and local species of arrow roots no longer thrive on the drier farmlands to give food security to local communities”.



Professor Wangari Maathai and children's TV science presenter, Johnny Ball, at a junior school in Swindon.
Courtesy of Swindon Advertiser

It is my belief that in many poor countries a change in gender attitudes and the greater empowerment of women through cooperative networks will be vital to the establishment of sustainable development models that can improve the lives of all sections of society. The adoption of organic farming methods, small scale appropriate technology and the principles of localization already described, are equally relevant to these countries as they are to developed countries. As there are large areas within these three continents suited to the building of concentrated solar plants, it is hoped that in the future poor societies will benefit more from solar energy than they have in the past from fossil energy.

Womens Cooperatives

When I visited the Cameroon in 1999 in connection with a project to replace eucalyptus with native trees for agro-forestry, I took with me the idea for setting up womens cooperatives (see Chapter 4) I had developed with a Kenyan friend. The partner organization, Strategic Humanitarian Services, (SHUMAS) led by Ndzerem Stephen, arranged for me to discuss the idea at three womens meetings.



Some members of a womens cooperative with Ndzerem Stephen

Due to the dedicated work of SHUMAS, a network of womens cooperatives has been formed throughout the NW Province and, to a limited extent, in other areas. As I had hoped, these cooperatives are starting to develop ambitious plans for the development of their

communities. The progress made by the cooperatives was just one of many positive developments I witnessed when carrying out the final monitoring inspection of the project named the Eucalyptus Replacement Project Phase II (EUREP II) the FIOH Fund had supported with funding from the Big Lottery Fund in the UK. The main activities of EUREP Phases I and II were the planting of 3 million indigenous trees in farming and catchment areas and the felling of 1.5 million eucalyptus trees which had deprived people of water in the dry season and reduced crop yields. The main outcomes were that 9,000 women can farm close to their homes and that people in the targeted areas can now obtain drinking water all year round. The following feedback from one of the cooperatives reflects a new energy and confidence among women.

FORMER SITUATION	CURRENT SITUATION
<p>We were scattered and never cared to come together because we did farming far away from our homes because the eucalyptus trees were planted around our homes by men.</p>	<p>We now farm around our homes and have enough time to come together</p> <p>Children now attend schools as they do not now have to come with us to distant farms. We have gained experience by coming together e.g. joined savings and credit groups with small interest charged on loans</p> <p>We now have small businesses that help to solve some of our problems like paying school fees and buying drugs</p> <p>We are healthy and do not have to rely on our husbands for money</p>
<p>We thought that only males had the right to inherit the property of parents</p> <p>We never attended seminars and training programmes</p>	<p>We have attended many seminars organised by SHUMAS and the Diocesan Commission for Justice and Peace, Bishops House, Kumbo, Human Rights agent and the International Federation of Female Lawyers in Cameroon</p>
<p>We were shy to express ourselves among men and only played the part of listening</p>	<p>Now we express ourselves freely because of the lectures from SHUMAS and human rights agent who told us that every person is the same before the law and has the right to express his/her views freely.</p>
<p>Our opportunities for income generation were very limited.</p>	<p>We now produce tablet and powder soap and hire a hand cart for transporting items.</p>
<p>We thought HIV/AIDS was a curse from God and an opportunity for white people to sell us condoms.</p>	<p>Through seminars we have learned that the disease is real. We go out to schools and talk at churches and talk over the rural radio about the dangers and the precautions that must be taken. There have been significant changes in sexual behaviour as a result.</p>

We thought that bread and cakes production was the duty of men. We did not know about the importance of business e.g. Buyam Sellam	We now have our own small bakery and members can take part in bread making and poff poff production. We sell what we make and employ male youths to carry to far distant places by motorbike to sell.
If a woman was illiterate when she married we thought this was the last chance for her to become literate.	The eucalyptus replacement project has enabled women to have more time to engage in adult literacy classes. These include married women who were once illiterate.
Single parents had to resort to work on farms just to feed the family. They had insufficient income for their children's education.	FIOH Oku has encouraged single parents to join the cooperative and learn how to engage in income generating activities. The cooperative has provided them with small loans and they are now able to sell items in the market. Some have been able to send their children to school and have given testimonies on how their lives have improved.
Women believed that only men had the right to determine how many children they should bear.	From the lectures and seminars women became aware that men and women should jointly agree the number of children.
Husbands decided which political party their wives should vote for in Elections.	Through the education of the human rights agent in Oku and messages from Mike Thomas of the FIOH UK Fund, women now know their rights to vote in their own right.
Only men had the right to erect buildings and got the credit for doing so despite the help of women.	Women now realise that they can take the initiative in putting up a building. Our women have bought a plot of land and have erected their own meeting hall.
Men brought in second wives without the consent of the first wife, claiming it as their right.	Through the cooperative we have taught women the importance of marriage certificates and various types of marriage. If monogamy is the choice then men have no right to bring in a second wife or mistress.
Women thought only of their own needs and rarely discussed problems together. We did not engage with women from other villages.	We now exchange visits with other womens cooperatives in our network. We exchange ideas and learn from each others experience.
Widows used to sleep on bare floors in very smoky houses that constituted a breeding ground for germs and diseases.	Now most women, especially FIOH women, do not now sleep in such houses. When their husbands die they sit in a special room with friends who comfort them.

Future plans:

1. To organize seminars on the importance of eucalyptus replacement
2. Complete our meeting hall by cementing the floor and plastering the walls and provide lights and chairs.
3. Purchase a bread machine and blender.
4. Purchase two motorbikes so that we have a better means of transporting our products to market. Bread sellers with motorbikes get to market before us and often we have no customers when we arrive.
5. Increase our savings so that we can increase our capital.

6. Purchase a computer and photocopier
7. Purchase mobile phones.
8. Intensify HIV/AIDS messages.
9. Conduct more educational seminars
10. Nurse and plant more natural trees
11. Produce biscuits from sweet potato flour
12. Contact the president of the paper common initiative group to show us how to make our own post cards, envelopes, paper from local materials.
13. Encourage more women to join the adult literacy classes.
14. Purchase a big oven for baking bread.
15. Encourage more single women to join the cooperative.
16. Purchase an engine saw to help the work of carvers.

Activities planned to achieve our objectives

1. Create more kitchen gardens around our homes.
2. Plant more natural trees around our homes.
3. Install more water pipes.
4. Work on people's farms for pay.
5. Obtain monthly subscriptions from members
6. Engage in more handicrafts for sale.
7. Hiring out our dance group for special occasions.
8. Seek outside grants to increase our capital.

The description above of how the women have been able to improve their lives is a testament to the power of cooperative action and sharing - a feature that that will become increasingly important in all societies throughout the world, both rich and poor.

Cameroon monitoring visit 2009

The scene looked ominous. People were standing in a line at the side of the road peering over a steep bank. A freshly formed slip was visible in the road surface. The date was the 6th March 2009 and I was travelling in a Hilux 4x4 truck with Stephen's wife, Billian, and 3 of the SHUMAS staff on our way to the main project area around Kumbo in the North West Province.

One of the small buses, similar to the ones I had travelled in the previous day, had come off the road and tumbled down a slope and turned over at the bottom about 60m below. All that I had on me, which I thought might be of some use at the scene, was a bottle of water. I slid down the slope with this, grazing my arm and filling up my sandals with sandy soil in the process.

The first figure I encountered was a young man sitting on a log with a

coat wrapped around his head. His chest was caked in blood. He was motionless and clearly dead. Someone shouted at me not to remove the coat and it appeared to me that this head covering was more an attempt to hide a gaping wound than render first aid. Four other lifeless bodies were spread around the site and some of the passengers were injured. Several people were clicking away on their mobile phones at the scene, but I decided that it was not appropriate for me to take any photos or video recordings. We were told that one man had walked away with slight wounds and another had been carried up the slope on a ladder. A woman with some fractures and still suckling her baby, had also been taken to the hospital in Kumbo. I checked the pulse of another man who I thought might still be alive, but he was also dead. However, another man lying on his back, who people at the scene thought was also dead, looked to me to be alive. I bent over him and asked if he could hear me. He opened his eyes. I gave him a sip of water (instinctively I thought it would be wrong to give him too much). He thanked me. He was not brain damaged! I asked him if he could move his left leg. He did this. He was not paralysed! However when I asked him to move his right leg, he complained of back pain. He clearly should not be moved until trained medical staff arrived! A man came over and placed a coat under his head to make him more comfortable. I held his hand and gave him another sip of water. A young man tore his shirt (I am not sure why!) and I put some water on this and mopped his forehead. A young lady came over and I suggested that she held his other hand. That is all we could do until an ambulance arrived. When I visited him at the Bansa Baptist Hospital two days later he gave me a smile of recognition. He said that he had had some internal bleeding and I realised that this was probably why I had instinctively not given him much water. The doctor said that he was doing well, but the man in the bed next to him looked to be in a critical state. Later I took him one of my shirts. I reflected on my own lack of medical knowledge and whether my small actions were appropriate and what I might have done if we had arrived at the accident scene soon after it happened. By African standards, the hospital might have been classed as good, but I could not help making comparisons between the cramped conditions in the ward and the spacious facilities I saw in the new Swindon hospital when visiting one of my relations.

Despite this disturbing experience and a few days of sickness and two weeks of travel on uneven and dusty roads, I was to leave the country with many positive feelings mainly derived from the inspirational work of Stephen and his wife and the SHUMAS staff.

The Organic Farming Training Centre (Bio Farm)

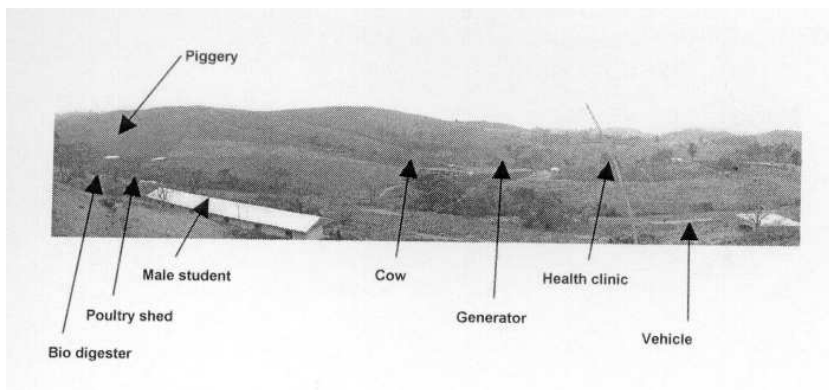
On a previous visit I had discussed the idea of establishing a training centre for organic farming methods and made some fruitless attempts at securing funding for this. However, SHUMAS had been able to secure the necessary funding from a Spanish organisation and the Kumbo Council had donated a huge area of land for the purpose. One of our trustees, Alan Stewart, who had visited the previous year, spoke with great enthusiasm about what had been achieved at the site.

Remarkable progress had been made since his visit and the first group of about 30 students were undergoing training at the Centre. One bio digester had been completed and excavation for another was underway.

The young man who had been appointed to care for the livestock showed us around the Farm and I was impressed by the extent of his knowledge about animal welfare in general and the record keeping programme devised for student training. All the students were required to keep welfare records on all the animals. We were shown the raised rabbit hutches in a large shed, the piggery, poultry shed, cattle pen and the stall for the bullocks (These were used for pulling the plough. A tractor was also used for this purpose when it was necessary to rest the bullocks).

The guest house was situated at the highest point on the site and a small windmill provided the electricity for this and the male student accommodation nearby. A generator supplied the electricity for the administration block and methane from the digester provided the fuel for cooking. The future plan was to make the Training Centre almost wholly self-sufficient.

That night my mind was taken back to my time in Sierra Leone at the £1 a night 'hotel' (a long hut with about 6 separate rooms) in a rural village where I stripped off and looked with wonder at the night sky before tipping a bucket of cold water over my head - a moment of peace and bliss! Here I had that same feeling as I looked up at the same stars



(most of which you can never see in the UK) and listened to the monkeys chattering in the distant pockets of virgin forest.

A religious scam!

There seems to me something particularly cruel and insidious about a scam carried out in the name of religion. On the day I arrived in Douala, Cameroon's second largest city, I stayed at a hotel whose television screens were assaulting me with the latest religious scam involving mass meetings at which a self-styled preacher calling himself 'Brother Joshua' was performing 'miracle cures' and 'casting out devils'. Staff at the hotel seemed to be also taken in by this charlatan and other people I met during my stay, who should have known better, were also being fooled. This contrasted with the practical good work being done by some nuns from the Catholic Church, who I was to meet later.

I had come to realise from previous visits to Africa that spirituality seems to be ingrained into everyday life and that to try and deny this reality would be foolish. However, I was already aware that a mixture of Pentecostal religious fundamentalism and witchcraft operating in a region of Nigeria was having devastating outcomes, particularly for children who were branded as 'witches'.

The cruelty inflicted upon these children was almost beyond belief.

Sadly I was to discover that many children with physical and mental disabilities in the Cameroon suffered from the negative aspects of some traditional superstitions. I was to learn of one particular disturbing case where a woman took her child with deformed legs to a 'witch doctor' who told her that her child was in fact a snake that would reveal its true self if cast into a river. With that he insisted that he took the child off alone to prove the case. He returned to the mother with the assertion that the child "had indeed turned into a snake". This case was reported to me by a man, for whom I had the greatest respect, working with children who had severe physical disabilities or both physical and mental disabilities.

G.L.O.R.E.S

This man, Dr Alfred Wingo, had established his organisation, Global Rehabilitation Services, in Bafoussam, after many years of training in prosthetic rehabilitation and mental health care in the USA.

When I visited his clinic about 20 adults and 10 children with physical disabilities, or both physical and mental disabilities, were gathered there. I used my video camera to record the nature of each child's disability and noted the progress they had made since receiving treatment.



Children awaiting treatment



The author with some of the children



Dr Alfred and his assistant physiotherapist with a child undergoing treatment



Alfred helping a Dutch surgeon with an operation

A young man was having weights applied to his leg. This was clearly a painful procedure. A baby was undergoing the first stages of treatment involving massaging her legs. This was also clearly painful for this child. A girl with mental problems was screaming and would not permit any treatment at all. Alfred told me she was alright with him when he was on his own with her. He said he had to coax her and give her a lot of

treats. He stressed the importance of identifying problems at the youngest possible age, as the treatment is then much simpler and more effective. He said that the parents often waited until deformities were at an advanced stage. He showed me photographs of children both before and after treatment. Sometimes corrective surgery was required and with this he had help from overseas surgeons who visited Bafoussam periodically.

Our Green Desert !

This was the name a tribal chief, the Fon of Nso, gave to eucalyptus plantations when I visited him with Stephen in 1999. In fact there was a growing awareness that these trees were the cause of lowered water tables, taps and springs drying up during the dry season from December to April and for reduced crop yields in the vicinity of the trees (see case study in Chapter 1).

In fact problems with eucalyptus trees and indeed some other imported 'exotic' species, are not confined to the NW Province. There are many hundreds of different species of eucalyptus and the one commonly seen in the NW Province is named *eucalyptus grandis*, presumably because of the height to which it can grow (commonly 40 to 60m). Environmentally and socially, eucalyptus can have benefits by lowering water tables in swampy areas which are a breeding ground for mosquitoes.



It has been claimed that they can reduce salination in the soil. They can also be a useful source of timber and fuelwood and have a range of other uses depending on the species. However, in the NW Province and in other regions of Africa and South America, their introduction has had generally negative outcomes such as lowering water tables and drying up springs and they should be looked upon as a pernicious weed.

Sometimes deliberate government policies forcing the introduction of eucalyptus trees, have caused this problem. In Kenya, the spread of eucalyptus trees around the internationally famous (for its flamingos) Lake Nakuru, following the government ban on logging in 1999, has raised fears about reductions in water tables. Reductions in stream flow and the drying up of springs has been observed on the slopes of Mount Kilimanjaro in Tanzania.

This, together with erosion and longer periods of drought, has been attributed to the felling of trees in indigenous forests and the introduction of eucalyptus and cypress trees. This has been a deliberate government policy in the past. Since the early 1970s there have been government campaigns for tree planting along the riverbanks and natural spring water sources in Tanzania. The campaigns were aimed at managing those sites against excessive deforestation and reduced stream and river flows from mountainous areas. Since the government extension workers were few, primary school students and their teachers were required to raise seedlings. Some tree nurseries were also established by town councils. These were used for afforestation programs. Each farmer whose piece of land, locally called *kihamba*, bordered a river or surrounded a natural spring water source, was required by the village authorities to leave uncultivated at least 30 m around these water courses. Further, they were required to plant tree seedlings issued by the town councils or nearby primary schools. The farmers adopted the measure as a government edict. Ten to fifteen years after implementation of government enforced afforestation, some negative impacts were noted. For example, certain previously swampy areas were completely dry. The drought was attributed by farmers to exotic tree species such as Java palm, locally called *Mzambarau*, cypress, wattle, pine and eucalyptus.

For many people the very thought of cutting down trees of any kind would not seem to be environmentally friendly. The object of EUREP I

and II, has however, been threefold:

- to replace the eucalyptus trees with native species that can be planted in, and enhance, water catchment areas and provide a habitat for wildlife in the future
- to create more land for farming so that women can farm close to their homes and families can earn more to enable their children to go to school and meet medical expenses especially
- to encourage and facilitate local employment opportunities for youths to help slow the drift into urban areas.



Kenneth is a young man who was an assistant in the EUREP I nursery and who now obtains a good income from raising tree seedlings and helping his mother on her farm plot

Agro-forestry

Not only does agro-forestry have benefits for growing crops because of the nitrogen the trees provide through their root systems, but it also has an important role in reducing global warming. Recent research has shown that tree-based farming systems, whether mixed or monoculture, store up to 35% of the carbon stored by a primary forest, compared with only 10% at the most in annual cropping systems.

Agro-forestry is likely to be more profitable for small-scale farmers than annual cropping. If they were to be properly compensated for the carbon sequestration under the international agreement named the Kyoto Protocol's Clean Development Mechanism, their income would

be even greater. As it is, poor farmers in developing countries adopting agro-forestry methods are currently subsidising the well-being of people in the rich countries. This benefit should be increased even more if organic farming methods were also used.



Nitrogen-fixing trees planted in a farming area - March 2009. Crops will be planted here with the coming of the rains in April



The large SHUMAS nursery where over 2 mil seedlings (60 species) were raised



Areas of agro-forestry planted with crops in April 2008

Cash crops are usually grown for export abroad in order to gain foreign exchange to buy the things that the Cameroon cannot produce itself. However, the country rarely gets a fair price for them and builds up a debt which it cannot repay. Increasingly, poor people are

understanding the need to grow more food locally to avoid dependency on expensive food imports. Women and children especially are benefiting from this change of emphasis and men are also realising the economic benefits of growing food in a volatile global cash crop market.

A visit to a prison

Stephen's sister, a Catholic nun, appeared to me to be a very able administrator with a very great concern for the poor and underprivileged. She was very keen that I should visit the prison and I joined her on a visit before I left Bamenda.



I was not surprised that the facilities in the prison were very basic, but the flimsy fencing around the prison was unexpected. I guess the armed guards were sufficient deterrent to escape attempts! I chatted freely to some of the prisoners, who were mainly young men between the ages of about 17 and 25. Some were confined in a more secure section of the prison and those due for trial wore chains around their ankles. I made the probably quite pointless remarks to them about how they were wasting their lives. What was very clear to me was that these were very intelligent young men who could probably engage in a useful trade or, if I am to be more cynical, engage in legally acceptable criminal behaviour in African politics or in the major Western banks and stock exchanges! I was shown the accommodation for both men and women prisoners and

the very basic facilities for the care of prisoners who were ill. I was told that in some prisons it was possible that the police would intercept items brought in for prisoners and sell them on the open market. I had already experienced police corruption in several African countries, including the Cameroon.

Schools environment programme

When I visited the project area to monitor EUREP Phase I with my wife, Glenys in 2001, I asked some schoolchildren what species of tree they could name. Their answer was “the eucalyptus”.

The FIOH Fund was, with the practical management of SHUMAS, able to establish a schools environment programme in 10 schools in the N W Province. This involved practical training in organic farming methods and establishing tree nurseries on plots adjacent to the schools. Many of the children had persuaded their parents to switch from chemical to organic farming methods. The pictures below show some of the activities.



Some of the many uses of trees



Outdoor lectures



Quality of life

As I finish this book I am pondering what the term I have used several times, namely *quality of life*, means for me and the next generation. Not long after I retired I decided to undertake a two year university course to obtain a Masters Degree in Environmental and Development Education. For my dissertation I carried out a survey of student and teacher attitudes in 10 Swindon secondary schools to matters such as human rights, poverty, animal welfare, international development and the environment.

The technique I used to try and gain honest answers from students to questions was to pose the attitudes of 8 fictional characters expressing views that could be slotted into four broad categories:

Cornucopians - those that wanted the 'high life', did not believe that humans were responsible for global warming, had visions of a high tech future in which science would have all the answers to human problems, believed that traveling to the planets would become commonplace, had little regard for such issues as the environment and global poverty, etc

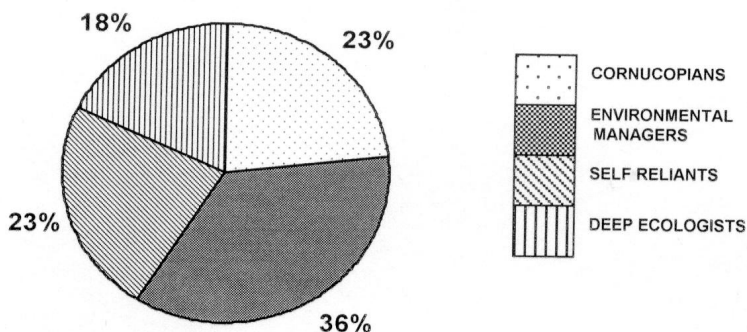
Environmental Managers - those who thought the status quo was OK, would be careful managers of money, watched a lot of TV and played computer games frequently, liked designer clothes, wished to own a car, had only a small interest in human rights and the environment and agreed with current systems of trade and finance and the potential of scientific advances to solve human problems.

Self reliants - believed in making lifestyle changes and engaging in campaigns to address environmental concerns, global poverty and climate change, resource depletion, were interested in other cultures but had no special desire to travel, would buy Fair Trade products, etc.

Deep ecologists - those who wanted to adopt a simple lifestyle, would use the bicycle and public transport as their chief mode of travel, believe in the need to switch from fossil based agriculture to organic methods, would not invest in the main High Street banks and would

avoid supermarkets and the products of multinational companies as much as possible, etc.

The students were asked to cross out all those statements, of these eight fictional characters, that they did not agree with. The results are expressed in the following chart:



how the chart would look if the survey were to be undertaken today. The survey also revealed that only 12% would decide to manage without a car. Encouragingly very few expressed any racist views and over 90% were opposed to any form of racism. A small percentage indicated that they enjoyed bullying.

The majority put good family relationships as the issue they thought the most important. It is this that adds most to my own quality of life. Looking back on my life I remember the pleasure the 3 dogs in my life have given. I think of the teen years I spent visiting my Uncle and my cousins in Ireland on a farm where there was no toilet and the nearest water was from a natural spring about half a mile away. My neighbour's children use our garden as if it were part of their own. Swindon is surrounded by beautiful countryside.

At this point I have stopped to have a conversation with my wife. Our views about quality of life are the same - having enough for a modest standard of living without worrying about not having enough money - having good health - love of family - friendship with neighbours - a feeling of being useful and wanted. But it is not a state of being

completely stress free and in a constant state of happiness nor indeed of avoiding difficult situations.

A global environmental and economic catastrophe looms on the horizon. People across the world must take up the challenge in common cause - time is running out! At the moment the future still lies in our hands. The 'tipping point' at which we lose charge of our destiny and surrender to the awesome power of natural forces, is fast approaching.

Conclusion

Humanity has reached a critical turning point. The decisions we make now will determine whether the prospects for future generations will be those of despair or hope. It is both a critical and yet an exciting moment in history. Time is short and radical change is needed to avert catastrophe. I have advocated a new science guided by the concepts of *counteraction* and *the unfinished*. I am suggesting this framework and approach as a means to gathering a multitude of ideas and activities at all levels of world society needed to avert the ultimate catastrophe and create a more equitable world society.

This process may require 'thinking the unthinkable' and casting aside many of the structures which have determined the manner in which 'wealth' is created and distributed. It is impossible to be prescriptive, but I have summarized below some of the measures that might be required. What I want to emphasize is the need to set the discussion and actions for sustainable development (reflecting the needs of all people both now and in the future) within a framework beyond the current constraints of economics and economic growth. I believe that these could be considered under three headings:

- top-down measures at the level of national government and international agreements
- bottom-up measures at the personal and grass roots community level
- intermediate measures involving local government and small businesses.

Some of the measures which I think might be suggested in *thinking the unthinkable* I have scheduled in Appendix A.

As 2008 drew to a close I received a letter from the ethical building society with whom I invest telling me that it is faced with a bill of £270,000 resulting from payments under a government compensation scheme to investors in the failed Icelandic banks, Bradford and Bingley and other banks. This problem is one for which mutual building societies have no responsibility. It is of course grossly unfair that such prudent financial bodies should have to underwrite the riskier business models of the banks. Prudent savers are also now being penalized as a result of the dramatic fall in the Bank of England base interest rate. But this is a small problem compared to the following recent events both in the UK and the USA, which are a portent of hard times to come around the world during 2009:

- Wall Street financier, Bernie Madoff, was found to be responsible for the collapse of his investment fund. In the USA unemployment rose by 2.7 mil and by 182,000 in the UK over the past year. According to the Council of Mortgage Lenders more than 120 houses per day are being repossessed in the UK and 75,000 families could lose their homes in 2009.
- Unemployment in the UK reached 2 mil and is expected to rise still further in 2009 - up to 3 mil. The base interest rate is expected to plummet to zero - a big blow to savings.
- Major car firms in both the USA and the UK are seeking huge government bailouts. A third of suppliers to the automotive industry in the USA are at risk of bankruptcy according to a Review prepared by Grant Thornton Corporate Advisory and Restructuring Services. In the UK 800,000 jobs depend on car manufacture.
- The British Government has committed a staggering £1.3 tril to bailout reckless and dysfunctional major banks whilst allowing its chief executives to retain their exorbitant salaries. Sir Fred Goodwin, whose policies made the main contribution to the collapse of the Royal Bank of Scotland, was awarded a pension of £720,000 a year.

Britain's model of bailing out the banks that caused the economic crisis in the first place, has been copied by the USA, Ireland and several

other developed countries. I cannot see that such a policy will prove successful. The outcome will undoubtedly be increased taxation and unemployment for future generations.

These and similar events are set to cause even greater hardship for poor communities everywhere, many of whom will already be suffering the effects of bad governance, environmental degradation and climate change.

What are the prospects for change? The 2008 State of the World book by the Worldwatch Institute, *Innovations for a Sustainable Economy*¹¹⁴, points a way forward which starts with a proper economic evaluation of the natural environment “Far from being free, the value of ecosystem services is sobering. For instance, honeybees work as pollinators is worth up to \$19 billion a year in the United States alone”. Bees play a major role in securing food supplies worldwide and there are current concerns about the deaths of large numbers, probably due to a parasitic mite and possibly the increased use of nicotinoid pesticides¹¹⁵ [Worldwatch Institute, *State of the World* 2008, <http://www.worldwatch.org/>].

Peter Barnes of the Tomales Bay Institute, advocates a proper evaluation of the commons and the establishment of international trusts to manage them. Fees would be charged to gain access and revenue used to manage them, especially the oceans, atmosphere and the great forests (see *Cap and Dividend* in Chapter 9 in respect of controlling carbon emissions and in a globally equitable manner).

Clearly any solutions to safeguard the environment for future generations must bring about greater equality within and between nations. This is not reflected by present systems of measuring wealth. For example, despite rising GDP in the USA in 2005, income inequality reached its highest level since 1928. The GPI (a measure of well being) in 2004 was \$4,419 compared with a GDP of \$10,760.

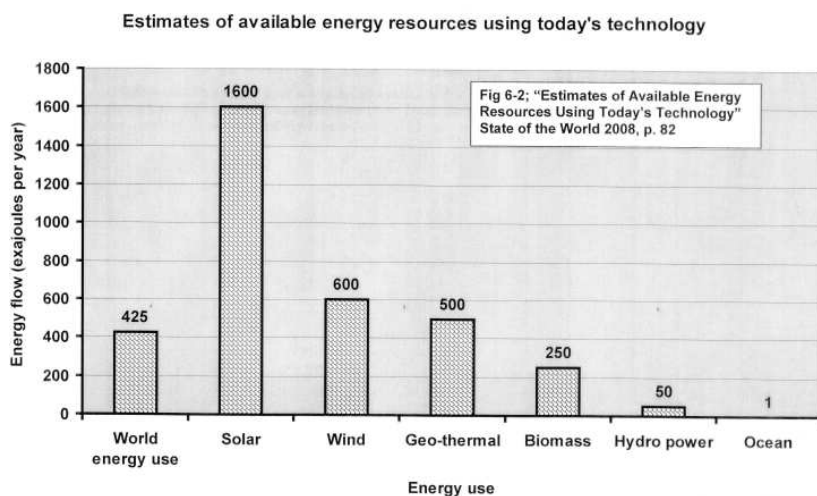
Greater energy efficiency throughout industry, retailing and commerce globally can be expected over the next few years. However, a need to reduce overall consumption whilst at the same time ensuring adequate employment levels, will require different processes in the life cycle between gathering of basic resources and the delivery of the finished products to the consumer. This will require an assessment of energy use at all stages. Walter Stahel illustrated the importance of

extending the life of products in terms of energy use. He found that 75% of industrial energy was used in the mining or production of basic materials such as steel and cement and only 25% in turning those materials into finished goods. This provides an indication that methods of production will need to be more labour intensive (and hence create more employment e.g. organic farming methods and small localized companies and workshops) in order to reduce energy use, particularly that derived from fossil fuels. This change in production methods is also likely to be consistent with another very apparent need - to create a greater sense of community globally, but particularly in Western society. There has been a fourfold increase in family breakdown in the UK since 1950 and participation in social and community activities has declined in the UK and the US. Other indicators of societal breakdown, such as increased consumption of alcohol and proscriptive drugs, put pressures on the health service and can have serious outcomes for societies thousands of miles away. The narcotics trade is strongly linked to organised crime, terrorism and human trafficking across the world. For example, Mexico's narcotics traffickers now control most of the internal delivery routes and those from Colombia in a \$142 bil a year s trade in cocaine, heroin, marijuana, methamphetamine and other illicit drugs. The final destination for most of these is the USA and Europe. Thousands have been killed or kidnapped, including police and innocent civilians, in a brutal war between rival gangs - 1,400 estimated deaths in 2008 alone¹¹⁶.

The type of consumer society which has led to the present crisis is one which encourages individualism and competition and discourages community social behavior. With each passing day the need for change becomes increasingly apparent. One impending crisis relates to the increasing demand for meat and fish and undoubtedly in the future new sustainable methods will have to be found for farming both livestock and fish. Two thirds of ocean fisheries are now fully exploited. In China, total fish consumption has increased ten fold since 1961 and global meat consumption has increased fourfold. New farming methods should include raising more cows on grass, a measure which should decrease flatulence (and hence methane emissions). A Swedish study in 2003 found that beef cattle raised organically emit 40% less greenhouse gases and use 85% less energy than cattle raised on grain. About 37% of fish

caught are used as feed for larger fish that require massive inputs of feed, energy and biocides to control disease. It is worth noting that the most sustainable fish are lower down the food chain and hence have a lower risk of mercury contamination. Farmed fish now account for 40% of all sea food eaten around the world. There will need to be an increase in biological methods of controlling parasites and disease and closed container farms where water can be treated and separated from surrounding marine waters.

The Pacific Northwest Laboratory found that the land-based wind resources of Kansas, North Dakota and Texas could meet all the nation's electricity needs. Here is the global picture:



Source: UNDP, Johansson et al

What is the potential for nuclear power? A study by the Massachusetts Institute of Technology estimated that 1,000 to 1,500 new reactors would be needed by 2050 to play a meaningful role in reducing global emissions - a construction pace 20 times that of the past decade. (MIT did also advocate that nuclear power should be retained as one of the

options for reducing emissions). The US is expecting 32 plants to be ordered by the end of 2008. In this chapter I have made a strong case for concentrating solar power as an alternative to nuclear power. This is reinforced by a study by the US National Renewable Energy Authority which concluded that solar thermal power built in 7 states could provide seven times the nation's existing electric capacity from all sources.

The need for investments in renewables is urgent. In the USA alone, 121 coal-fired power plants have been proposed (they could cause 30 bil tons of carbon dioxide over their 60 year lives).

There are some signs of positive change with regard to carbon sequestration. Under the Clean Development Mechanism, projects connected with land use, land use change and forestry (LULUCF) are being approved and the World Bank has established a BioCarbon Fund with one aim being to help countries protect existing forests. This may in part reflect a growing understanding of the carbon sequestration potential of forests and peatlands. In Aug 2008 the think tank, Policy Exchange, prepared a report which concluded that investments in avoided deforestation and peatland destruction would be 50 times more cost effective than investing in biofuels as a means of reducing carbon emissions¹¹⁷.

Water availability in many parts of the world is reaching a critical level. Water usage has been increasing at twice the rate of population increase. It has been estimated that by 2025 three quarters of the world's population will face some degree of water scarcity. There is an urgent need to place a proper value on water supply and manage it sustainably, but this must be undertaken in a way that ensures adequate supplies to the poor.

This need for proper evaluation also applies to biodiversity. For example, does it make any sense that the value of cutting down rainforest for soybeans or palm oil is greater than leaving the forest intact? Such an evaluation will perhaps require broadening the concept of 'conservation banking', although there will undoubtedly be some differences of opinion on the balance between the use of market mechanisms and direct government control.

Whilst recognizing the importance of top-down measures, such as investments in solar power and renewables, I see the future mainly

through the development of grassroots social networks that mobilize human energy in all societies, rich and poor. The Green Belt Movement in Kenya and tree planting by farmers in Niger are a testament to the impact of this approach. With government incentives and support from non government organizations and overseas volunteers, farmers in Niger have planted trees and improved soil conditions over an area of 7 mil hectares. The outcome has been a reduction in poverty and reduced vulnerability to hunger. The lesson is that the poor are helped through encouragement and support to become the authors of their own destiny - to build their own individual assets (material and financial) as well as their capabilities (human, social, psychological and political). I believe that this approach will become increasingly relevant in the 'affluent society' as the current recession bites deeper.

I am not confident in the desire or ability of existing power structures centered around the priorities of multinational corporations and banks, to play any meaningful role in a process of change that leads to a more sustainable development and equitable sharing of the world's resources, despite some positive signs of 'greening'. For example, Wal-Mart's investments in energy-saving and energy efficient products needs to be assessed in the light of its ethical rating by the *Ethical Consumer*¹¹⁸. This magazine uses 19 criteria to assess the ethical performance of companies - environmental reporting, nuclear power, climate change, pollution and toxics, habitats and resources, animal testing, factory farming, animal rights, human rights, workers rights, supply chain policy, irresponsible marketing, arms and military supply, genetic engineering, boycott call, political activity, anti-social finance, company ethos and product sustainability. Wal-Mart was placed bottom of the list of 19 companies assessed with an ethiscore of zero and a bottom rating in 14 criteria. Tesco had a score of 0.5. I use this example to emphasise the need for individuals (consumers) to scrutinize for themselves the ethical credentials of powerful bodies and politicians and take action accordingly. Perhaps if more people had applied this principle, the current financial crisis would not have been so severe.

In the USA a radical reform of the Farm Bill as suggested by Farm Sanctuary and Brighter Green, would make a huge contribution to healthier lifestyles and animal welfare in the US and poverty

reduction¹¹⁹. Greater support for organic farming and farmers growing fruit and vegetables, farmers markets and withdrawal of subsidies for corn, soy livestock production, is advocated. Similar changes are required in reforming the E.U. Common Market. The many civil society initiatives I have described offer a glimmer of hope for the future and it is now the time for politicians the world over to take up the challenge they present. On 20th January 2009, Barack Obama was inaugurated as the 44th President of the USA and shortly after announced a \$825 bil package to stimulate the US economy. Financial crises are spreading throughout the industrialized world and I would not be surprised to see most of the major banks in the USA, the UK and several other countries nationalized before the end of 2009 amid huge unemployment (possibly 3 mil in the UK alone). However, alternatives to the current crazy global financial system have been proposed by alternative economics thinkers.

I have outlined three alternative monetary systems In Appendix B. The first is the *debt economy*. This is the system that exists today in which money is essentially created by banks when loans are provided. The second is the *debt free economy* in which the central bank issues money into circulation through the high street banks. The third is an *emergency economy* which is being proposed by the Foundation for the Economics of Sustainability (FEASTA) and intended to deal with the growing financial crisis in Ireland and many other developed countries. In this case 'money' is in the form of computer entries and is issued into circulation by an independent Trust.

It is also very likely that monetary systems of the future will need to become more localised in association with localised systems of growing food and providing energy. The reader will have noted my very special interest in trees and some limited efforts to promote and support tree planting in Africa. I would like to end my book on a positive note with an account of an inspiring initiative in Tamil Nadu, India.

Project GreenHands is a grassroots initiative to challenge the trend towards extinction of India's sustainable agricultural practices. It is a direct social and environmental response to end the suffering and degradation of the rural population of Tamil Nadu with a focus on agro-forestry and a vision to expand the programme to other states. I see this as a complement to Wangari Maathai's vision in Africa and other tree

planting by civil society groups and non-government organizations in other parts of the world.

In Tamil Nadu, millions of people are becoming the caretakers of tree saplings. In the past 4 years over 7 million trees have been planted by over a million volunteers across 27 districts. As I have explained in other chapters, people in India have suffered from the industrialized neo-liberal approach to farming based on fossil fuel-based fertilizers and pesticides. This has had the outcome of degrading the soil and environment and driving many thousands of farmers to bankruptcy and even suicide.



Sadhguru Jaggi Vasudev, a driving inspiration behind the programme.

For further information
contact:
www.ishafoundation.org



The dominant economic paradigm is making poverty, social injustice and environmental degradation worse. This book is a call to action and global solidarity counting down to a better life for ourselves and future generations. A special responsibility is placed on the affluent to provide financial support for the process of change.

ACKNOWLEDGEMENTS

In the process of researching for this book I have drawn on the experience of many people whose commitment to social justice and fairness I have greatly admired over many years. In particular I wish to thank Erik Dammann, who founded the movement *Future in Our Hands* and Richard Douthwaite, who has written several books on sustainable and ecological economics and local currencies and who helped to found the *Foundation for the Economics of Sustainability* along with other fellow academic friends in Ireland. It has also been a very rewarding experience to read the works of many thoughtful and caring people who have highlighted the environmental and human rights crisis that exists across the world today and the historical background to this situation. Many have helped with sections of this book. I especially wish to thank Brian Davey, James Bruges and Laurence Matthews who I have worked with on the Cap and Share campaign, David Fleming, David MacKay, Ted Trainer, the Power of Community team who have highlighted the events of Cuba's *special period*, Jon Cooksey, William Blum, Michel Chossudovsky, Polly Higgins, David Wasdell and to friends and relations for their encouragement and support. I also acknowledge the help of Will Howard (deceased).

I have been very privileged to meet dedicated people working for non-government organizations abroad. I particularly wish to acknowledge the support and help of Eliazar Rose and Brother Paul of the New Hope Rural Leprosy Trust (India) who have generously shared with me their vast experience of development work and useful information relevant to my research. The work of those involved with Future in Our Hands groups and other NGOs working with the poor in developing countries has also been an inspiration, including that of Edward Kargbo (FIOH Sierra Leone), Rom Wandera (FIOH Kenya), Segar Krishnan (Malaysia), Ndzerem Stephen (Strategic Humanitarian Services, Cameroon), Dominic Stephen (Pakistan), Mohan Rao (India), Momodu Bangura (Freetown Kroobay Development Association, Sierra Leone), Abigail

White(UK), Anne Muwonge (Uganda Womens Welfare Association, Uganda), Joanna Heaven (UK), Edward Thomas (Christian Engineers in Development, UK), Alan and Teresa Stewart (UK), Jill Ghanouni (New Hope Rural Community Trust), Marios Cleovoulou (AidCamps International), Senesi Fawundu (FIOH Sierra Leone), Graham Prescott (UK), Michele Sprada (USA), Linda Glaeser (USA), Eileen Thorp and Bernard Davey (UK), and many more my wife and I have met from many parts of the world over the past 25 years.

THE FUTURE IN OUR HANDS MOVEMENT

FIOH is a secular movement started in 1974 following publication of the best selling book of the same name by its founder, Erik Dammann¹. The inaugural meeting in Oslo, Norway was attended by nearly 3,000 people. The movement in Norway now has over 20,000 members and small FIOH groups have been established in a few countries around the world. Its central message is primarily directed towards the affluent in world society but its value based philosophy, which encourages cooperation, sharing, fellowship, truth and compassion, has relevance for all sections of society everywhere .

However, people living in the rich world in particular have the responsibility to help put right what the European powers made wrong when they built their development on slavery and the resources of their former colonies. Today's economic world order perpetuates this injustice. Increasingly, the affluent minority is experiencing the problems caused by over-consumption whilst the majority continue to suffer from poverty and hunger.

FIOH challenges the current system of development based on economic growth and advocates an appropriately simple way of life for those in the affluent society, a sharing of wealth and solidarity with the poor and marginalized people by campaigning for changes in political policies that are perpetuating injustice and a dangerous erosion of human life support systems.

Anyone interested in finding out more about the movement or wishing to start an FIOH group, can contact:

For Norway:

Framtiden i vare Hender
Fredensborgveien 24G
NO-0177 Oslo,
Norway
www.fivh.no

International:

Future in Our Hands International Network

48 Churchward Avenue

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East Africa

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Future In Our Hands Sri Lanka

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Sri Lanka

Cameroon:

Future in Our Hands Womens Cooperative Network

C/O Strategic Humanitarian Services
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Malawi:

Future in Our Hands in Blantyre, Malawi

P.O. Box E 257
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www.tonsberg.fivh.org

Sweden

Future in Our Hands Sweden

Helenborgsgatan 2E
117 32 Stockholm
Sweden

The following registered charities are affiliated to FIOH UK:



Future in Our Hands Education and Development Fund

48 Churchward Avenue

Swindon SN2 1NH

UK

Registered Charity No. 1047953

www.fiohnetwork.org/fiohfund



Plant a Tree in Africa

48 Churchward Avenue

Swindon SN2 1NH

UK

Registered Charity No. 295731

www.fiohnetwork.org/patia



APPENDIX A

Top down measures

The following recommendations would in the first instance probably require pressure from and acceptance by, civil society:

- A new science, philonomics, gains widespread government acceptance as the framework for developing detailed and realistic proposals to steer humanity away from its present road to catastrophe.
- The multilateral institutions of the World Bank, International Monetary Fund and World Trade Organization are replaced by new institutions charged with the task of ensuring that wealth is distributed fairly to all people and that extreme poverty is ended. These institutions would also drive investment in renewables and issue the currency used for trade between countries (initially in respect of the allocation of carbon permits). Other multilateral institutions will need radical reform and United Nations may require greater intervention powers in regions of conflict.
- Multinational companies, especially those involved with the fossil fuel industry, will disband voluntarily (or be forced to do so) and invest their profits into the development of smaller, more localized businesses. Many large companies may need to focus on renewable forms of energy, especially solar power and organic farming methods. Both are likely to prove to be the most significant industries needed to reduce greenhouse gas emissions and sequester carbon dioxide from the atmosphere.
- Governments direct all banks to stop charging interest on loans. The existing process of creating money by private banks when giving loans, will be stopped.

- Planning laws and other directives are brought in to stop the construction of large multinational supermarkets and local food for local consumption is encouraged.
- Governments encourage cycling as the main means of traveling short distances and provides efficient and adequate public transport systems.
- Governments bring to an end the construction of nuclear power plants and undertake not to build any in the future.
- By international agreement, governments will stop the destruction of old growth forests including those in the Amazon, the Congo and other African countries, Siberia, North America Northern Europe and SE Asia. The valuation of these forests as important carbon sinks could be one of the strategies adopted.
- Cap and Share is adopted as the international carbon trading scheme for reducing greenhouse gas emissions.
- Governments, over a short time period, stop all genetically modified crop production and phase out fossil fuel based agriculture.

Bottom-up measures

Initially these will be far more important than top-down approaches, chiefly because governments and companies would find the above measures virtually impossible to force through in the face of public hostility:

- In recognition of the inherent injustices embodied in the current international system of trade and finance and the threat posed to the future of humanity, the affluent in world society will aim to live an appropriately simple lifestyle and campaign for a fairer distribution of the world's wealth and resources.
- Individuals will, as far as possible, boycott large supermarkets like Tesco and Asda-Walmart and the products of major

multinational companies like McDonalds and Coca Cola, for example.

- Individuals will avoid investments in the main High Street banks, including HSBC, Barclays, Royal Bank of Scotland, Citibank and other major American banks, etc and instead place their money in banks with advanced ethical policies.
- Individuals will support their local shops, post offices and farmers markets and grow as much of their own food as possible.
- Most individuals will scrap their cars/choose not to own them and will instead rely mainly on the use of the bicycle and public transport.
- Most individuals will adopt a diet that involves little or no meat.

Intermediate measures - local democracy

The power and status of local government and other local institutions should be enhanced by central government:

- Governments will allow local councils and post offices to create an appreciable proportion of national wealth by issuing local currencies into circulation.. Each currency system will be unique to each locality and can only be spent locally. This will allow schemes like LETS, with limited potential, to disband.
- Housing development will be planned in a way that encourages community activity and sharing and ensures that there is enough agricultural land allocated in each region to enable most food to be provided within a short distance of where it is consumed.
- *Transition Communities* (towns, cities, parishes, villages, etc,) are established to encourage all sections of civil society, business, commerce and local government to engage in activities which reduce the use of fossil fuels and encourage carbon sequestration (like biochar for example).

APPENDIX B

Three Economies

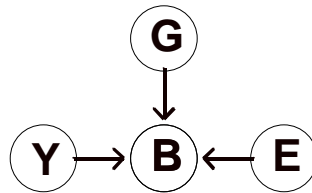
Here are three types of economy. We use the worst that could possibly be devised since it is based on everyone going into debt and being charged interest.

If you advance money to any poor man amongst my people, you are not to act like a moneylender; you must not extract interest from him.

Exodus 22.25

CB = central bank. B = banks. G = government. Y = you. E = enterprise

Debt economy



FLOW OF INTEREST

1. No money exists
2. The bank lends you money (!)
3. You pay the money back plus interest
4. Bank calls your debt a 'Financial Asset'
5. Bank gambles with your interest and FAs
6. Bank 'money' = 3 times real enterprise
7. The economy falters or collapses

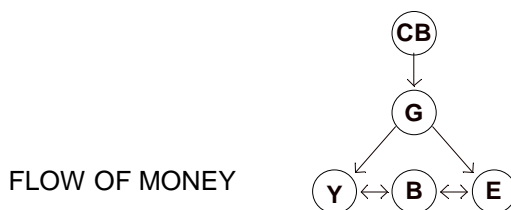
“The modern banking system manufactures money out of nothing,” said Lord Josiah Stamp, former director of the Bank of England, in 1937, “the process is perhaps the most astounding piece of sleight of hand that was ever invented.”

Go into a bank or building society and agree a mortgage. Buy a flat. You are in debt. The vendor spends some herself and puts most in another bank. Her bank lends the money and charges interest. The money goes round banks and debts increase to over ten times your mortgage. Banks charge interest on it all. Wow! This is a profitable business. Astonishingly, even the money the government borrows (Public Sector Net Cash Requirement) is created in this way!

In recent years, many banks called your mortgage debt a ‘financial asset’ and sold it. Two advantages: they did not suffer if you failed to repay, and it gave them even more money to lend or speculate on company shares and national currencies. Their paper profits grew to over three times the ‘real’ economy. They awarded themselves ludicrous salaries and bonuses. The financial sector was living in a parallel universe until people demanded their money. But the banks couldn’t pay because their assets were largely debt. The banks were saved from collapse by being bailed out by the government. Sometimes the position is corrected by war or revolution.

The government refuses to acknowledge the need for monetary reform; it is desperate to get back to the *status quo ante*.

Debt-free economy



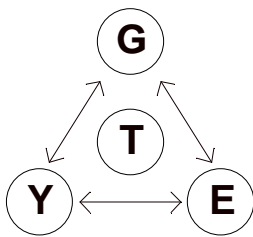
- 1 Central Bank creates enough money
- 2 CB gives money to government

- 3 Government puts money into circulation
 - builds schools and hospitals
 - start-up funds for mutual banks
 - citizen's income
 - money circulates through banks
- 4 Banks lend money they have on deposit
- 5 Borrowers pay the bank a fee.

Banks would not be able to make money by piling debt on debt. They would match savers with borrowers and charge a fee for their services. At present the Central Bank tries to regulate the money supply by adjusting the interest rate so that borrowing is more or less attractive. Thus more or less money is created. This is a crude tool, so the bank rate has to be hastily changed. It would be better for the Central Bank to create the necessary amount of money itself and to give it to the government to spend into circulation. (If the government were to create the money itself, it might issue too much to 'buy' an election and cause excessive inflation.). Government would have about an extra £50 billion to spend.

(See Creating New Money by James Robertson and Joseph Huber, New Economics Foundation, 2000)

Emergency economy



PATTERNS OF EXCHANGE

1. Quid (Q) is a unit of exchange
2. Q only exist on computer records - there are no notes and coins
3. A Trust issues everyone with 1,000Q

4. People and companies use Q to buy and sell
5. Accounts cannot go into the red
6. Payments are made using swipe cards, mobile phones or computers
7. The Trust's computer keeps a record of exchange
8. If your 'velocity of exchange' is high you get extra Q
9. If it is low some Q are removed

The Irish economy is in crisis. Companies cannot borrow and can't pay their bills on time. Hundreds of thousands of people have lost their jobs and have very little income. The government has to borrow one-third of everything it spends and is cutting its services back. But vegetables and crops grow, building materials exist and people are available for work.

Feasta, the Foundation for the Economics of Sustainability, has devised a system called the 'Liquidity Network' to supplement the increasingly-scarce supply of Euros and allow people to do more trade with each other. Its unit, Q, starts off roughly equal in value to a Euro. All adults would be given a special Q bank account with 1,000Q in it. They spend some and earn some. If the Q in their account move quickly they will be issued with more Q, free. However, if their turnover is slow some of their Q will be taken away. You never own a Q; it exists purely to allow you to trade.

Businesses would also have accounts. They buy raw materials with Q. You would pay them Q, using your mobile phone (with a pin number), with a swipe card, or by internet on a computer. Small purchases, like a newspaper, would still be done using Euro.

Government would have an account. It would receive Q from taxes on Q exchanges, and use its income to pay a portion of its wages and social welfare in Q. It is likely that the system will be tried out first by a major local authority. It costs nothing other than administration-costs to set up.

James Bruges, 10 May 2009

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