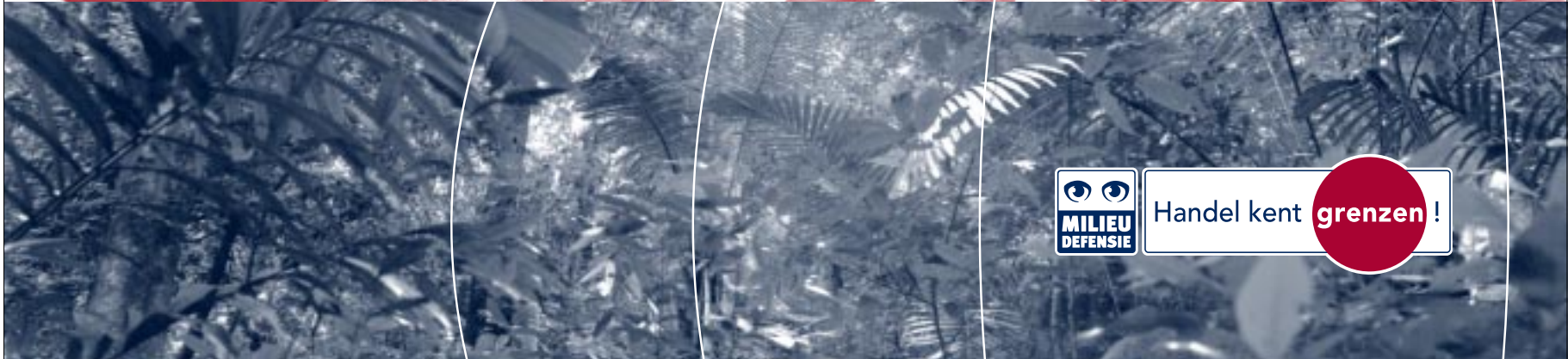




www.milieudefensie.nl/globalisering

Sustainable Production and Consumption

A Global Challenge



Handel kent **grenzen!**

Table of Contents

Foreword - <i>by Martin Khor</i>	2
Introduction - <i>by Bertram Zagema and Willemijn Nagel</i>	3
Sustainable Production and Consumption - <i>by Manus van Brakel</i>	5
An agenda for Ghana - <i>by Theo Anderson</i>	19
An agenda for India - <i>by Arjun Dutta</i>	28
An agenda for Chile - <i>by Sara Larrain</i>	37
An agenda for Brazil - <i>by Sergio Schlesinger</i>	44
Conclusions - <i>by Willemijn Nagel</i>	51
Annex 1 – Country overview	54
Footnotes	58
Colophon	60

Foreword

Just before this publication came out the very tragic news reached me that Manus van Brakel, one of the authors and central figure in this book, died on 24 June 2002 at the age of 53.

This news was not completely unexpected, as Van Brakel had been seriously ill for some time.

This, however, did not soften the blow. Van Brakel, associated with Friends of the Earth Netherlands since 1977, was one of the most inspirational figures in the international environmental movement. He built bridges between environmental organisations in the North and in the South. He was an original thinker and man of action, who ignored conventionality and fashion, but above all he was a charming and warm person with a sharp sense of humour.

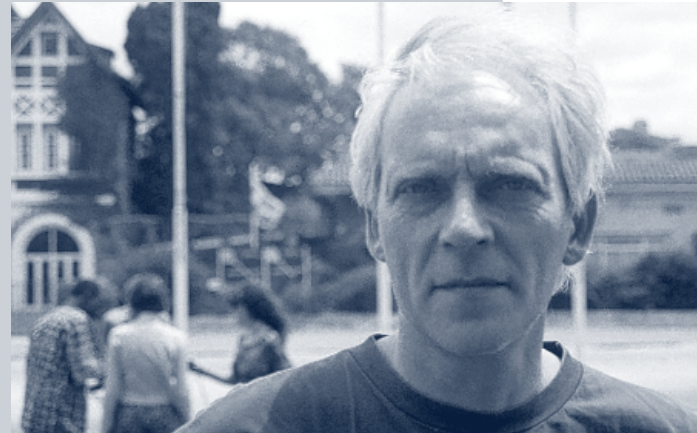


PHOTO: B. ZAGEMA / FOE NETHERLANDS

Manus van Brakel

His activities on numerous international environmental themes often aimed at organisations like, OECD, UNEP en WTO, meant that I came him across at all kinds of occasions world-wide. I remember well his great contributions in our many fights for the forest, and his leading role in the whole campaign to change consumption and production patterns. Truly, he was the pioneer of the principle, 'fair shares in environmental space'. He made this concrete through the Sustainable Netherlands project, a model that then spread to many countries in Europe and the Third World. During many of the forums and meetings in Bali recently, I mentioned this contribution of Van Brakel and urged everyone to go back and refer to Sustainable Netherlands, Sustainable Europe and to the Friends of the Earth-campaign on fair shares. His contributions were appreciated everywhere in the world, especially among his friends and comrades in the South, throughout the Friends of the Earth network, and beyond!

Just weeks before his death, he received a prestigious Dutch Knighthood (Ridder in de Orde van Oranje-Nassau) from the Dutch minister for the environment, Jan Pronk. This highly acclaimed national award is all the more fitting for rewarding Van Brakel for being a knight, a man of action! It is a great shame that his fighting spirit will not be there at the UN top in Johannesburg. Yet, with this publication, in a way, it will still be with us. I hope this book will spread his word across the world, inspire countless NGOs, and contribute to a fruitful discussion on global sustainability.

*Martin Khor
Director Third World Network
July 2002*

Introduction

Rio de Janeiro

In 1992 a conference took place in Rio de Janeiro (Brazil) that was historic and full of hope; it was the UN conference on the Environment and Development (UNCED). At this conference, there was a broad acceptance of the connection between environmental and developmental problems and two new international environmental agreements came into being: on climate protection and on biodiversity. Rio was to be the start of a period of sustainable development in which the world would work together on economic development for all countries and all world citizens, for the benefit of all, and without exceeding environmental limits.

Ten years on, during the UN Summit on Sustainable development (WSSD), there will be a review in Johannesburg (South Africa) of the successes and failures of the various initiatives that began at Rio. Friends of the Earth Netherlands (FOE Netherlands) is disappointed by the first ten years of 'sustainable development'. The good intentions of Rio have not been followed up effectively, but have turned out to be hollow promises. The past ten years have not been a period of sustainable development but above all, of economic globalisation at any cost. The most important challenge for Johannesburg and beyond, is, according to FOE Netherlands, to agree on measures that can ensure that economic globalisation is readjusted so that social and environmental limits are not exceeded.

Sustainable Netherlands

At the time of Rio, in 1992, FOE Netherlands published the 'Action Plan Sustainable Netherlands'. This set out what sustainable development would mean in concrete terms for the economy, the environment and daily life in Netherlands.

It was based on two premises. Just like the Brundtland report on sustainability, FOE Netherlands claimed that ecological limits should not be exceeded. FOE Netherlands calculated the amount of energy, agricultural land and water available for every world citizen. This amount was called the environmental space. FOE Netherlands then translated this into concrete aims for environmental policy, for example, halving the world-wide emission of greenhouse gasses. Secondly, FOE Netherlands stated that each world citizen has equal right to the 'environmental space' that was defined in that manner, but that use of this space is very unevenly distributed. Sustainable development therefore means a fairer distribution of environmental space. For the emission of greenhouse gasses, for example, this means that reduction in the Netherlands should be by 85%, not 50%, while African countries would be allowed to increase their emissions.

The Action Plan Sustainable Netherlands showed that it is possible to meet both these far-reaching prerequisites in order to attain sustainable development, without a drastic reduction of prosperity in the Netherlands. Though greenhouse gas emissions, for example, would have to be significantly reduced, radical investment in energy saving and sustainable forms of energy would mean that this reduction need not be very noticeable in daily life. The same would be the case for the use of raw materials, though the consumption of most metals would need to be reduced by 80 to 90 percent and wood by 60 percent. A more efficient use of materials (lighter products, multifunctional products, longer life expectancy and designs for recycling), clever use (hiring products instead of buying them) and more recycling could reduce the need for new materials to a minimum. The biggest change in lifestyle that FOE Netherlands put to

consumers was a reduction in the number of flights by plane and in meat consumption: energy intensive forms of consumption which are hard to make more efficient.

Many environmental organisations in developing countries reacted enthusiastically to the Action Plan Sustainable Netherlands. They often have to fight environmentally destructive projects in their own countries which are aimed at exporting raw materials and fossil fuels to rich countries: logging, mining, export crops and the extraction of oil, gas and coal. The Action Plan enabled them to prove their governments that such exports do not contribute to sustainable development and it highlighted the over-consumption of developed countries in the North. Moreover, the Action Plan inspired a number of environmental organisations to develop sustainable development strategies for their own countries, in search of the best possible use of the natural resources they have.

Sustainable Production and Consumption – A Global Challenge

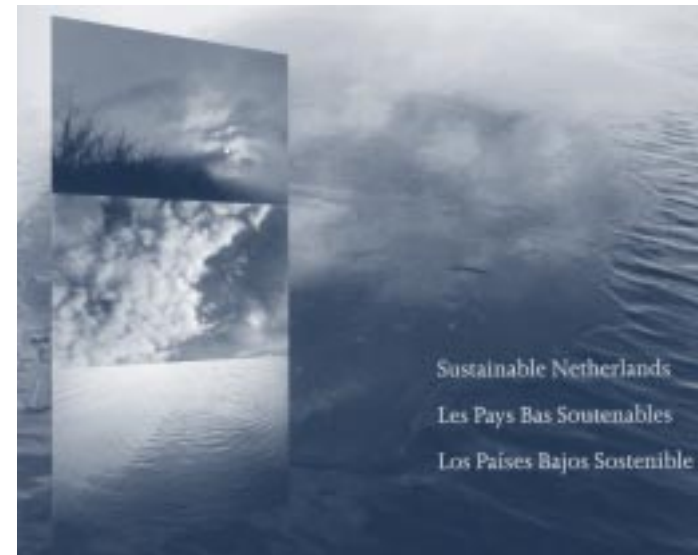
This book contains four contributions from Southern NGOs in Brazil, Chile, Ghana en India who are in the process of writing Action plans in their own countries. They have researched the various possibilities for sustainable production and consumption policy in their country. FOE Netherlands has acted as an advisor during this research. During the project each country came to develop their own specific Action Plan appropriate to the culture and qualities of that country. This book looks back over the years following Rio. Have developments over the past years made the desired change more or less attainable? What challenges are necessary for transition in each country and in each sector? There is also a look to the future, and to what changes are needed on (inter)national agendas in order to attain sustainable production and consumption. The background to this book, and included in it, is an article by Manus van Brakel, the initiator of the project who sadly passed away recently.

Manus makes the case that you can save perfectly well on the production and use of goods, without having to forego prosperity, or the pursuit of prosperity.

The aim of this book is to collate information on how sustainable production and consumption could be put into practice in developing countries. Moreover, it makes the practical experiences of these countries available for others around the world. It offers the reader the opportunity to see what the ideas are in various countries on introducing better policy on sustainable production and consumption. In the annex an overview with practical data about the four discussed countries can be seen. This information will allow NGOs to exchange their experiences. This is especially important, as each country needs individually tailored policy.

Enjoy your reading.

*Bertram Zagema and Willemijn Nagel
Friends of the Earth Netherlands*



Publication Sustainable Netherlands 1994

PHOTO: FRIENDS OF THE EARTH NETHERLANDS

Sustainable Production and Consumption

by Manus van Brakel

PHOTO: R. BURGLER



Consumption

I. Introduction

The Earth Summit in Rio de Janeiro in 1992 marked the beginning of a systematic plan to develop a policy on sustainable production and consumption. At the time, it was generally viewed as an important step forward. Ultimately, it is of course essential from the viewpoint of sustainability that global production and consumption remains within the limits of the earth.

An important aspect of striving towards sustainable production and consumption is the question of distribution. The disproportionately high per capita use of natural resources by rich industrial countries is an obstacle to developing countries, keeping them from raising their level of prosperity – within ecological limits – to a standard of living comparable to that of rich industrial countries. It was precisely for this reason that during the Earth Summit, in Agenda 21, Chapter 4, the special responsibility of rich countries was emphasised, 'Rich industrialised countries should take the lead'.

We are now nearly a decade further. During this period a degree of progress has been made and many innovative ideas have been developed. Nonetheless, we must conclude that there has been no real breakthrough in sustainable production and consumption. In reality rich industrial countries have made very little progress in reducing their per capita use of natural resources and thus, little progress towards the equitable global sharing of natural resource use. Such a breakthrough, however, must take place. During this century the world's population is likely to grow to 10 billion, presenting an immense challenge: meeting the needs of these 10 billion people who will want to maintain a reasonable standard of living, while taking into account the ecological limits of the earth and the finiteness of natural resources.

This position paper examines the reasons why there has yet been no breakthrough, what problems exist in developing a sustainable production and consumption policy, and what opportunities and challenges present themselves for global production and consumption policy in the 21st century.

II. Problems of sustainable production and consumption

Until now sustainable production and consumption policy has been mostly limited to efforts towards realising environmental objectives in rich industrial countries. This restriction leads to a number of problems. Below are four dilemmas that well illustrate the shortcomings of the present policy.

a) There is no balance between goals and means

During the Ministerial Roundtable on Sustainable Production and Consumption in Oslo, 1995, a definition of sustainable production and consumption was formed, adopted by the Commission for Sustainable Development (CSD), 'The use of services and related products which respond to basic needs and bring a better quality of life while minimising the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life-cycle so as not to jeopardise the needs of future generations.' The basic idea behind this definition is that a policy should be developed to meet basic human needs while using fewer natural resources and generating less environmental pollution. It is essential that the most suitable policy instruments be engaged to bring us closer to this goal.

The prevailing viewpoint is that eco-efficiency is the most logical instrument to attain this aim. One advantage is that eco-efficiency is an instrument that is not controversial; it is popular with both business and consumers. We should realise, however, that this popularity comes from the fact that until now eco-efficiency has served other objectives. For the business sector eco-efficiency (more products or services supplied with fewer natural resources) is an instrument used to improve competitiveness. The advantage to consumers is that the promotion of eco-efficiency (more production and

consumption per unit of natural resources) contributes to increased consumption. The question is whether eco-efficiency can also serve the need to reduce the use of natural resources.

This is doubtful if we look at how eco-efficiency is defined. The definition of eco-efficiency, introduced by the World Business Council of Sustainable Development and adopted by the OECD and CSD, states, 'Eco-efficiency is reached by the delivery of competitively priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life cycle, to a level at least in line with the earth's estimated carrying capacity.' This definition deals with a reduction of ecological impact and a reduction of resource intensity (instead of what is needed to attain the objective of sustainability: a reduction of resource use). The difference is striking, but also understandable. The most widely accepted opinion within the business sector is that it is possible to de-link environmental problems from the growth of production and consumption in absolute terms – but this becomes much more difficult, if not impossible, if it has to do with a reduction in natural resource use. Then only a relative de-linking is possible: there can only be a drop in resource use per unit of goods or services, or (from a macro-economic view) resource use per Gross Domestic Product (GDP). However, this decrease can easily be neutralised if the quantity of goods and services rises, as well as the GDP. In practice it appears that this is indeed happening. Although both production and consumption take place in an increasingly efficient manner, the quantity of both is continuing to increase as well, and thus little or no reduction in the use of natural resources is achieved. Therefore, the kinds of reductions that are really needed, due to equity considerations, are definitely not taking place.

This means a discrepancy exists between objective and means. The reality is that eco-efficiency policy has so far only led to a much more efficient but still disproportionately high use of natural resources in rich industrial countries. In fact this means that the disparity between North and South is only increasing, not so much in terms of natural resource use, but in terms of prosperity. Such a result can hardly be called a step in the direction of global sustainability.

b) There is no balance between social and environmental objectives

It is generally believed that an eco-efficiency policy can really only work if natural resource prices rise sharply. This conclusion can also be seen in the programme for the further implementation of Agenda 21, adopted by the 19th Special Session of the General Assembly, 23-27 June 1997, which illustrates this very well by, 'emphasising in particular the necessity of eco-efficiency, combined with promoting measures to internalise environmental costs and benefits in the price of goods and services and economic measures like shifting the burden of taxation onto unsustainable patterns of production and consumption. In this regard, attention should be given to studies that propose to improve the efficiency of resource use, including consideration of a tenfold improvement of resource productivity in industrialised countries in the long term and a possible factor four increase in industrialised countries in the next two or three decades.'

The OECD's working programme on sustainable development concerns itself almost exclusively with how a reduction in natural resource use can be achieved through economic instruments.

What is worth noting about both the CSD and OECD policy is that sustainability is defined as the translation of environmental objectives into economic decision-making. Little or no attention is placed on the social aspects of sustainable production and consumption policy. There is a hidden danger here. How sweeping sustainable production and consumption policy really is, is underestimated. From the viewpoint of global equity, reduction targets of factor four or even more are required in the industrialised world in the coming decades. If such a reduction indeed is to be achieved through market mechanisms, enormous price increases are likely to be necessary. It is questionable whether consensus on these price increases can be reached in industrialised countries. There is a huge risk that, because of social constraints, policies that are ecologically necessary will not be politically feasible. A policy that is translated into the combined message, 'we must use far fewer natural resources and must pay more' is simply not a message

people are ready to hear. This can easily cause enormous tensions between ecological aims (a far-reaching reduction in natural resource use) and social aims (maintaining or increasing prosperity).

An additional problem is that consumers react differently to market based price incentives than the business sector. It is estimated that in Europe 50% of household energy use could be saved in a cost-effective manner (compared to 10% in the business sector). This saving is not yet being made because consumers are ill aware of the efficiency measures and their application. In many cases households cannot react to price incentives, partly because other actors play a far more important role in maintaining unsustainable consumption patterns. (For example, it is only useful to raise petrol prices if this increase is accompanied by policies aimed at reducing mobility dependency – if current trends continue and people continue to become more dependent on mobility and at the same time petrol prices increase, the result will not be a reduction of CO₂-emissions but a increase of consumption). Another aspect is that middle class people are more able to react to price increases than poor people are. The average cost of insulating a house is at least \$ 3000 per household. Poor people simply do not have that much money. Price increases then may lead to 'energy poverty' (poor people will be unable to pay their bills) rather than to a reduction in fossil fuel use, and this may lead to growing inequalities between middle class and poor within industrialised countries as well.

Two conclusions can be drawn from this. The first is that while market based economic instruments can play a role in making the business sector more efficient, they are insufficient to introduce more energy efficiency into households. The second conclusion is that economic instruments alone will fail if our aim is to drastically reduce natural resources. Even worse, there is a risk that (particularly poor) citizens will resist these economic instruments. The consequence could be that ambitious sustainability policies are indeed no longer politically feasible.

c) There is no balance in North-South relations

Until now developing a sustainable production and consumption policy has only been a consideration in rich industrial countries. It is generally accepted that such policy will also have consequences for developing countries. The Programme for the Further Implementation of Agenda 21, adopted in 1997, five years after Rio, states that, 'In promoting measures favouring eco-efficiency, developed countries should pay special attention to the needs of developing countries, in particular by encouraging positive impacts, and the need to avoid negative impacts on export opportunities and market access for developing countries and, where appropriate, for countries with economies in transition.'

Apart from the fact that such efforts are of course desirable, there is also a risk of an inherent contradiction. Reducing natural resource use in rich industrial countries (in the middle to long term by a factor of four) has, by definition, consequences for those countries with intensive natural resource exports. It is, however, difficult for developing countries to grasp these potential negative impacts, since they come as the result of a policy in rich industrial countries that is primarily domestic. This considerably weakens the position of developing countries.

The problem is that international policy has more or less been reversed in recent years. Originally a reduction in the disproportionately high use of natural resources in rich countries was considered a prerequisite to, and extension of, the realisation of global sustainability, so that space would also be created for sustainable growth in poor countries. But in practice, now only the opposite is usually discussed: global sustainable production and consumption policy has become an extension of the policy in rich countries. Because global sustainability is no longer the focus of discussions, developing countries are placed in a difficult position. The danger exists that the ecological necessity (accepted by all) of sustainable production and consumption policy in industrialised countries becomes translated into a global policy that negatively impacts on developing countries in social and economic terms. The result is that governments in developing countries hesitate to press for effective policy in rich industrial countries. This then, in part, impedes the

progress of such policy in rich industrial countries. The hesitations of developing countries to insist on greater efforts in rich industrial countries serves to slow down both NGOs and decision-makers in those rich industrial countries.

d) Sustainable production and consumption policy has a negative image

When, during the Earth Summit in 1992 then-US President Bush Senior stated, 'I have not come to Rio de Janeiro to place the American Dream under discussion', the comment was seen as inflammatory and politically incorrect, and above all, out of touch with reality. Ultimately, one cannot deny the fact that the disproportionately high use of natural resources in rich industrial countries, with the USA taking the lead, is indeed perhaps the greatest barrier to global sustainability. But it is too easy to consider Bush's remark as contemptuous of the necessity for sustainability because his words are a reflection of the feelings of the majority. Not just in the USA, but in Europe too, the image of sustainable production and consumption is unappealing, and may be seen as a major attack on the standard of living in rich countries.

PHOTO: M. WIJNBERGH



Tires

The psychological effects of this are far-reaching. Because, on the one hand, people in rich industrial societies are aware that continuing their inflated use of natural resources will sooner or later lead to an ecological dead-end. On the other hand they also believe that the alternative is equally unappealing: they will have to give up all the advantages associated with their far too high natural resource use – this in turn represents a social dead-end. The dilemma is that when such choices need to be made, most people tend to choose what is best for them in the short term. Rational arguments such as, 'An alternative is inevitable for the sake of the environment and people in the Third World' then carry little weight and may only make matters worse. Political correctness then becomes counter-productive: people become tired of hearing about 'the environment' and 'developing countries'. As long as sustainable production and consumption policy continues to have a negative image, a political breakthrough will not be easy to achieve. Politicians are simply too dependent on how the majority of people think and feel.

The same negative image that exists in rich industrial countries also dominates the norm in developing countries. The fact that developing countries rejected the necessity of sustainable production and consumption policy during the Rio+5 Summit in New York, is not only due to the argument (in fact partly correct) that, 'over-consumption simply does not exist in developing countries', but is also due, to an important degree, to the attitude, 'if such policy is unattractive in rich countries, then such a policy can certainly not be good for poor countries'.

III. Redefining the problem

a) A breakthrough is needed

Through a combination of the factors named above, a situation now emerges in which the necessity of sustainable production and consumption policy is on the agenda, but does not have high priority. The inevitable result is that little progress is being made. The agenda of most countries is largely consumed by euphoria concerning

the 'new economy' and the challenge of how to best profit from the opportunities created by the continuing globalisation of the world's economy. Such a challenge is of course also much more attractive (especially for the potential winners).

Nonetheless, somehow a way must be found to work towards sustainable production and consumption. The necessity of such policy may now occupy a lower place on the agenda, but the problems have not become less serious. The question now is how to achieve a breakthrough? It is too easy and perhaps even arrogant to say that current policy is good in principle, but that it has not yet been developed far enough. If there is no social cohesion in sustainable consumption policy, if the policy in developed countries does not match the needs of developing countries, if there is a discrepancy between the aims of sustainable consumption and the means to reach that objective, and if the policy has a negative image, then it may be useful – even essential – to redefine the policy.

The following considerations may be applied here:

1. In principle the aims of current policy, especially striving towards the equitable sharing of natural resources and the necessity of a factor ten reduction in natural resource use in rich industrial countries does not need to be revised. The problem is mainly how the aims should be translated into policy.
2. The global challenge should be the central concern in sustainability policy. The most obvious challenge is to answer the question, 'Which policy is necessary to meet the needs of the world's population – which is likely to increase to 10 billion this century – while remaining within the earth's ecological limits, and also taking into account the needs of future generations?'
3. In order to meet this challenge sustainability policy is required in both developed and developing countries. An international policy should be linked to the question of how sustainability policies in both developed and developing countries can be made mutually supportive.

4. Policy in both developed and developing countries should be developed in such a way that the majority of people in those countries can support it. Unless this happens such policy will not be politically achievable. The most decisive factor is that ecological and social objectives must be integrated.

The exploration below can be viewed as an initial impetus for how – on the basis of the points above – a sustainable consumption policy could be constructed.

b) The need for socially desirable sustainable production and consumption policy

In considering any policy that would be acceptable to the majority of the population, the greatest difficulties are likely to be found in rich industrial countries. How can a sustainable consumption policy based on the necessity of a global equitable redistribution of natural resources be made appealing to the majority of people in developed countries? This would seem to be a contradiction in terms.

What is clear is that a policy oriented towards translating the scarcity of natural resources into economic instruments (i.e. higher prices) will not work. Such a policy is considered too grim and will create tensions between environmental and social objectives. Even worse, when price increases are explained as inevitable (due to environmental objectives), the tension between ecological and social objectives will intensify. Such a sustainability policy is unlikely to be seen as acceptable to the majority, with the consequence that it is also unlikely to be considered politically feasible. In this way the concept 'sustainable development' accomplishes exactly the opposite of what it was actually developed for – namely, to work towards the integration of ecological and social objectives with the aim of preventing short-term social objectives being chosen over ecological objectives.

One could draw the conclusion that a policy in which far-reaching objectives are the focus will, sooner or later, fall short. However, from the viewpoint of the necessity of intergenerational as well as intergenerational equity, far-reaching reduction objectives are inescapable. The question is then whether it is possible to attain these far-reaching

reduction objectives without making those objectives the central issue. Or, put more simply: is it possible to meet the ecological necessity of achieving drastic reduction objectives if social objectives are made the focus? From the viewpoint of 'sustainable development' (the integration of social and ecological objectives) this is desirable and perhaps even essential. Furthermore, history shows that political breakthroughs can generally only be achieved if they start from the social interests of people, and when they have the support of the majority. The success of social movements, including the environmental movement, which has played a large role in social reform in recent decades, can be attributed to these factors.

Fortunately there are opportunities to develop a sustainability policy that takes people's consumption rather than reduction objectives as its departure point. In the first place, it is quite simply in the direct interest of people to maintain or increase their own level of prosperity. However, it is not in their direct interest to use large quantities of natural resources. Many people do realise that in the present situation, disproportionately high use of natural resources in rich countries cannot be sustained over the long term. If production and consumption remain dependent on high natural resource dependence, the level of prosperity will come under pressure. In order to prevent that, a transition must take place in rich countries, from high input (in terms of natural resources)-high output (in terms of prosperity) consumption to low input-high output consumption.

Moreover, a policy aimed at drastic reductions in natural resource use, while preserving as much prosperity as possible, is good social policy too. Such a policy in fact offers a greater guarantee that a relatively high level of consumption could also be maintained over the long term. Without such policy, there is a greater danger that too much dependence on natural resources will threaten consumption levels. This is even more relevant for poor people, who are trying to attain or maintain a reasonable standard of living, but cannot afford such high natural resource use, certainly not if the ecological scarcity of those resources is translated into higher prices. For a growing number of people that

future is nearer than is often thought. In some European countries a form of 'energy poverty' is already a reality.

The question is how such efforts relate to policy in developing countries. Of course, the starting point is very different there. Per capita use of natural resources in the poorest countries is simply so low that no reductions are necessary. It is more likely that natural resource use should be increased.

But despite this difference there is also a similarity. The primary interest of the poor is to attain a higher degree of prosperity. However, it is not necessarily in the best interests of poor people to aim towards a much higher use of natural resources. In fact the reverse is true because prosperity which is too dependent on a high input of natural resources is vulnerable (certainly over a period of time) and not economically feasible. Poor people in particular cannot afford a high input of natural resources. Thus it is desirable from both an ecological and social viewpoint that the highest possible growth of prosperity be realised with the lowest possible growth of natural resource use. It is in the interest of poor people (and poor countries) that a transition occurs from low input-low output consumption to low input-high output consumption.

Furthermore, there is really no alternative. It is impossible for developing countries to aim towards a production and consumption pattern comparable to that, which now exists in rich industrial countries, because of a too-high dependence on natural resources and the associated ecological obstacles. It is also counter-productive because such prosperity would very likely only be achievable for a limited number of people in developing countries. Just as the disproportionately high use of natural resources in developed countries is an impediment to developing sustainable prosperity in those countries, so Western-style prosperity development benefiting a small part of the population in developing countries will have the same effect on the remaining, much larger portion of the population. Marginalisation and exclusion of a large portion of the population in poor countries would be the result. Ultimately this would cause

problems for the society as a whole. Aspiring to a much higher level of prosperity, without repeating the mistakes of Western consumption patterns – with their inflated level of natural resource dependency – is therefore of vital importance for developing countries.

IV. Contours of an alternative policy

a) Examples of sustainable consumption policy

How can an alternative policy be formed? If we decide we want to take steps towards low input-high output consumption in developed as well as developing countries, and want to translate those steps into policy, the challenge of such policy can be summarised in the question, 'How can we (re)organise production and consumption in such a way to achieve the highest possible output of prosperity with the lowest possible input of natural resources?' Translating such a general question into policy is likely to be impractical and unclear. It makes much more sense to look directly at each consumption cluster (such as housing, food, personal transport, recreation, clothing, communication, etc.) and to consider which specific changes are necessary and most desirable for each cluster. In this context, an important factor is that three 'consumption clusters', namely housing, food supply and passenger transport (including travel for recreation and holidays), are by far the most important in terms of natural resource use. Together, these consumption clusters account for approximately 80-90% of all natural resource use in rich industrialised countries. It is assumed that in developing countries these sectors play an important role as well. In other words, sustainable consumption strategies should focus primarily on these 'consumption clusters'.

To get an idea of the nature of these changes, a few examples are given.

Housing

In general the housing sector is an important one, because of the use of fossil fuels and construction materials. In rich countries, largely because of climates that make it necessary to heat homes, the consumption cluster 'housing' is the largest user of both fossil fuels and materials. In other words, any policy directed at a factor ten reduction must take this sector into account. A primary question here is, 'How can we supply a high degree of living comfort while using 90% fewer fossil fuels and materials?' The long-term prognosis is very optimistic. A study by a Dutch research institute, for example, calculated which costs would be involved in achieving a factor 20 reduction in the use of energy, water and materials on an estate. The time horizon is 2040. To calculate this, a model neighbourhood was created and divided up into various types of housing and energy use. Various measures for saving and recycling water and energy in the home and reducing the use of raw materials in the building were modelled for single home use and estate use. From these the investment costs were then estimated. In estimating prices for the year 2040, a factor 20 reduction seems feasible, with no net increase in expenses, but it did require however, considerable investments (approximately \$ 25,000 per home). It then further appears that it is easier to save energy in a spread-out

neighbourhood (one disadvantage is that, due to use of space, such an option is not always sustainable, in part because mobility dependency increases). In the short term too there are many opportunities for savings, mostly because it is cost effective to save an average of 40% on energy costs. In the Netherlands ideas have been developed to stimulate energy providers to offer services such as insulation, installation and solar panels, in addition to fossil fuels. Since these services are cost effective they can be pre-financed, and the consumer need pay nothing extra. The amount on the energy bill remains the same, only its composition changes. Now 100% of the charge is for fossil fuels; offering energy services means that 60% of charges would be for fossil fuels and 40% for energy services. In this way the consumer achieves a much lower use of fossil fuels for 'free' and becomes less vulnerable to energy rate increases.

In developing countries, although the departure point is usually different, roughly the same policy is feasible. The Indira Gandhi Institute in India has examined how the least scarce and the least energy-intensive materials could be used in the Indian housing construction sector. The construction sector accounts for the highest share (17%) of CO₂ emissions of end-use, due to the use of highly energy-intensive

materials and the high need for shelter. Several construction techniques have been analysed and it has been shown that construction of a room (length 3.5m, breadth 3.5m and height 3.14m) would result in approximately six tonnes of CO₂ emissions. However, the replacement of conventional techniques by low cost techniques reduces the costs by 3.4% without compromising on technical standards or functional utility of the house. The CO₂ emissions are then reduced to 2.42 tonnes compared to 6 tonnes. There is further a possibility of reducing CO₂ emissions by 23% without much increase in the cost of construction by substituting cement by lime, brickwork in the foundation by stonework, and brick masonry by mud blocks.

Mobility

In Denmark an extensive study was carried out on how to achieve a factor four reduction in the use of fossil fuels for personal transport by the year 2030 and a factor ten reduction by the year 2050. The primary question here is, 'How can we meet people's transport needs, while using 10 times fewer fossil fuels and materials?' An important point is that mobility is not the real objective – accessibility is. To achieve a factor ten reduction, technical measures are first necessary, for example, more efficient use of fuel in motorcars, more efficient energy chains, more effective motorcar production, etc. But according to the Danish study the only way to really attain a breakthrough – and to approach a factor ten reduction – is probably with the development of an electric motorcar, powered by solar energy.

Even such a technological breakthrough, however, would not be enough in itself to achieve the above objectives. If traffic policies do not change as well, the increase in mobility will neutralise part of the gain achieved. For these reasons it is essential to change consumption patterns. According to the Danish study, a combined approach of technical and organisational measures could reduce personal transport by motorcar by 70% by the year 2050. Furthermore, more than 80% of the total number of motorcars would need to be electric.

Road construction must be reduced by a factor four and the number of motorcars by 50%. This will only be possible if a large number of people give up their daily dependence on the motorcar. This can only be done if people's day-to-day access (from home to work, school, shops) is so improved (teleworking, facilities close by), that the daily use of a motorcar simply becomes unnecessary, and a shift to public transport and/or bicycle becomes a logical choice. Under these conditions the next step – namely a shift away from car ownership to car use – also becomes more attractive. Arrangements such as car sharing can ensure that a car is still available for special circumstances such as family outings and visits, etc.

In most developing countries mobility dependency of large groups of people is still hardly an issue. But especially in urban areas, this is changing fast. If urban areas are not carefully planned, mobility dependency may increase rapidly. If adequate public transport is also lacking, a situation may quickly develop where people become dependent on the motorcar to meet their accessibility needs. The result will be that governments, in order to deal with growing dependence on the motorcar, will spend enormous sums on building roads. Better city planning and a good public transport system can prevent much of this mobility dependency, and thereby save the high costs of road construction.



PHOTO: D. VAN BEEK

Transport – India

Food supply

Food is one of the most important basic supplies. Supplying the needs of 10 billion people in the future, will require the maximum yield from the least amount of energy, water and land. It is logical that policy aimed at this goal will differ from country to country. In many Western industrialised countries, the energy intensity of the food supply is extremely high. This is evident from studies in Germany, for example, where the energy content of various forms of end-use were compared. After housing, food supply came in at an impressive second place. The average German consumer uses 2.4 tonnes of CO₂ emissions annually to provide nutritional needs. This is far from sustainable, certainly when we realise that in the long run total per capita CO₂ emissions need to be reduced to 1.7 tonnes. From the viewpoint of sustainable development, the energy intensity of the German food supply must therefore be dramatically decreased. From the consumer viewpoint it is therefore desirable to de-link food provision from energy use as far as possible. If we look at the major causes of high energy costs in supplying food, we see that one possibility is to reduce the distance between producer and consumer, by creating a more regional food supply. In a study on a dairy plant in Stuttgart, research was done on the supply of materials needed to produce one product, strawberry yoghurt. It was

found that the strawberries came from Poland, more than 1000 kilometres away. If raw materials such as milk and strawberries could be obtained from a 100-kilometre radius around Stuttgart, and the end-product could be sold in the same region, transport costs could be reduced by a factor of four. These methods make it possible to drastically de-link food supply from the use of fossil fuels. A factor four reduction can be achieved without any effect on the quality of the food supply. Thus, the consumer's needs are met, namely an ecologically essential reduction in the use of fossil fuel that does not compromise the quality and quantity of the food supply.

Another possibility is to reduce the use of pesticides and fertilisers. Some agricultural scientists claim that in the Netherlands the most efficient input-output ratio could be achieved by reducing fertiliser use by 80% and pesticide use by more than 90%: aiming for the maximum output from the minimum input. Reductions on this scale are desirable for other reasons as well. Most fertilisers and pesticides run off into soil and surface water, resulting in serious environmental damage.

In developing countries a completely different approach is often needed. Ghana, for example, presently produces 70% of its own food. But due to a

combination of overpopulation and non-sustainable agricultural practices, 70% of agricultural land is threatened by erosion and desertification. At the same time, over the next 20 years the population is expected to increase from 18 million to 30 million. There is therefore the threat of a downward spiral: a combination of over-exploitation of agricultural lands and increased poverty. From the viewpoint of sustainability, the challenge is to find a way to manage agricultural lands in the next 20 years in such a way that, with a limited use of natural resources (apart from land, water is scarce and fossil fuels expensive) a far greater output can be achieved. Ghanaian agricultural researchers suggest that it is possible to increase yields per hectare and per unit of fresh water by a factor of three, and at the same time greatly improve soil structure (with the help of organic nutrients supplemented with fertilisers). To achieve this, training and education – especially of small farmers – is essential. In this way the needs of 20 million Ghanaians could be met, and the downward spiral of poverty and natural resource depletion halted. An added advantage is that staple foods would also become cheaper. Such policy is also workable in the production of export crops. The production, per hectare and per unit of water, of cocoa (by far the major export crop) could also be increased by factor 3.

There are many advantages to this. In the first place such an increase in resource productivity would raise the competitiveness of farmers, while at the same time providing better management of land resources. In addition, it would be possible to increase exports while using fewer natural resources, leaving more land available for other uses.



Teak plantation – Ghana

PHOTO: R. BURGLER

b) A closer look at sustainable consumption policy

Although the instances above concern measures aimed at de-linking consumption from the use of natural resources and efforts towards low input-high output consumption, it is above all interesting to see how such efforts lead to an enormous diversity of solutions. Furthermore, it can be assumed that per country or even per region, there will be great differences in the solutions per cluster, certainly in those for food supply and housing, due to cultural and ecological differences. In other words: there are no global and universal solutions for sustainable consumption policy.

Exceptions might perhaps be those consumption clusters where production is internationally organised – in the field of new communication and information technology.

The diversity mentioned above shows that the development of general concepts may be useful and desirable but only really make sense when these concepts are translated into specific policy per consumption cluster. Indeed, it seems that a sector-by-sector approach is the most obvious one. At least it would clarify which technical and other measures are needed to achieve a dramatic de-linking of consumption and natural resource use, and help form an idea of how production and consumption patterns should be changed. This is important because it would make sustainability policy more transparent. This is a key point because such policy will simply have an enormous effect on nearly every actor (both consumers and producers) in society and only can succeed if all actors support such policy.

In theory sustainability policy will be advantageous for the business sector as well as consumers. Business is interested in the idea that sustainability policy can achieve enormous increases in economic activity per unit of natural resources. Over the long run this offers the only opportunity for continuous economic growth which will inevitably run up against ecological limits and then no longer be economically sustainable. This is not the case for growth based on increasing natural resource productivity. The same is true for consumers. Sustainability policy offers a guarantee for creating a high level of prosperity, without overreaching the ecological limits of the earth, and thus maintainable over the long term.

The fact that in theory sustainable consumption policy is advantageous for both business and consumers does not mean that, in practice all society's actors would embrace it. After all, a shift towards sustainable production patterns requires an ecological industrial revolution. In such a revolution, there will be winners and losers. Within the business sector, the losers -usually companies that are dependent on high natural resource use- will, in general, not view a sustainable consumption agenda as in their best interest. The same is true for consumers (mostly in rich countries) who will consider such a policy as an attack on their 'unlimited freedom to consume'. In other words, although sustainable consumption is in the general best interest of all actors; resistance from special interest groups may neutralise or sabotage it.

In addition, although sustainable consumption policy is advantageous for both business and consumers, they do not necessarily share a common agenda. Businesses – by definition – want to earn profits. This is just as true in the case of helping consumers become more independent from natural resource use – they intend to create the highest possible added value to making people less dependent of natural resources. This may result in over-dependence on natural resources being replaced by over-dependence on financial resources. Naturally this is not in the interests of consumers, especially not poor consumers: they not only want the highest possible level of consumption with the least amount of natural resources, but also with the least amount of financial resources. The technical choices that have to be made should therefore include a choice in values. For this reason, the shaping of sustainable consumption should not ultimately be determined so much by what is technically possible, but by choices that are desirable for both business, consumers and their interest organizations. The examples of a sustainable consumption scenario (as worked out above) should therefore not be considered as a scenario that is objectively necessary, but only as an indication of possible policy. The contribution of consumer interest organizations is essential because they can ensure that ecological and social objectives are integrated, which will greatly increase the political feasibility of sustainable consumption.

A sustainable consumption policy that aims at a factor ten de-linking of consumption from natural resources is a long-term policy. Changes in production and consumption patterns are often so far-reaching that they cannot be put into place from one day to the next, but neither can they be achieved if we do not begin now with a policy directed toward this goal. Such policy can only succeed if there is a good infrastructure to support it. This means that, per sector, all actors must be involved in the development of such policy, so that the objectives will indeed be feasible. Included must be the producers, who stand to gain from such policy and have the technical expertise to carry it out, and consumer interest organizations, who can influence measures which are socially desirable and necessary. It makes sense that government has the task of providing infrastructure.

It is logical that a transition to low input-high output consumption only can succeed if real investments are made in that direction. Naturally it is in the interests of all actors that measures are chosen which can achieve the highest possible de-linking of consumption and natural resource use with the lowest possible transition costs. However, this will still require quite large financial resources. The most suitable economic instruments must be chosen to ensure that sufficient means are available to finance the transition and the economic instruments are socially responsible. It is extremely likely that a sustainable consumption policy aimed at reorganising production and consumption with the least amount of resources and the highest possible prosperity, will require less drastic price increases than those required by the current policy.

When we compare the sustainable consumption policies of developed and developing countries we find both similarities and differences. The similarities concern both the goal (efforts toward low input-high output consumption) and the means (to reorganise production and consumption so that the greatest amount of prosperity can be achieved with the fewest natural resources). This may give the impression that there are many similarities in the choices the two groups must make in their move towards sustainable consumption.

But in practice, they share few similarities. In developing countries sustainable consumption is often aimed at achieving food security, energy security, fresh water security, etc. Completely different means should be employed toward this aim, than those used to combat over-consumption. It is therefore also questionable as to whether a North-South technology transfer is desirable. A South-South technology transfer would seem more fitting. Many developing countries in fact are facing the same challenge: how can we attain the highest level of prosperity improvement per unit of natural resources with the lowest possible financial investment. Expensive solutions from developed countries cannot provide the answer to this question.

c) The international agenda

Finally, we pose the question: can sustainable consumption policy in both developed and developing countries also answer the challenge of continuing to meet the needs of an increasing world population while keeping within ecological limits? At the very least, one can say this will not be possible without such policy. The present production and consumption patterns, such as those that exist in rich industrial countries and in increasing measure are being held up as the model for development in poor countries, are so inefficient in terms of prosperity produced per unit of natural resources that they cannot possibly offer a reasonable standard of living to the 10 billion people who will be living on the earth during this century. The earth is simply too small – from an ecological viewpoint – to cope with the accompanying growth of natural resource use.

A logical question is then whether it is possible to make efforts toward sustainable consumption and globalisation in general, and the policies of the International Monetary Fund (IMF), World Bank and World Trade Organisation (WTO) consistent with each other? At a first glance this would not seem likely. Efforts towards making production and consumption as independent as possible from natural resource use necessarily leads to a replacement of non-sustainable production and consumption patterns with sustainable ones, through a shift from production to repair, shorter distances between producers and consumers, etc. This can lead to friction with policy directed toward free trade.

Another factor is that a dematerialisation of production and consumption will also inevitably lead to the dematerialization of trade. Although this does not necessarily mean that trade will be reduced, it can be said that not every country will automatically benefit from such qualitative change. Countries – including many developing countries – which depend on the export of natural resource-intensive products and services may be among the losers.

The tension between globalisation and sustainability mentioned above may therefore have the effect of impeding sustainable consumption policy. Is it possible to ease these tensions? To answer this question one must first examine some of the underlying causes for these tensions. The promotion of free trade has as its objective the creation of more trade, which thereby creates more economic growth and thus more prosperity. In theory this can also eradicate poverty world-wide. In practice, however, it is not quite as simple as that. The present globalisation does indeed lead to more economic growth and more prosperity, but that growth and prosperity are unevenly distributed: the gap between rich and poor continues to increase. In other words, free trade and globalisation magnify current global inequities.

There is another aspect involved: poverty is not just a lack of money (monetary poverty), but is often also the lack of access to natural resources (ecological poverty). The present thinking behind globalisation in fact only addresses the eradication of monetary poverty, and generally ignores ecological poverty.

The 'trickle down' theory is that poor countries integrate their natural resources into the world market, which offers more opportunities for export. They are then able to profit from the growth of prosperity and high natural resource use in rich industrial countries. This theory can perhaps be defended when applied to the eradication of monetary poverty. When examined from the viewpoint of eradicating ecological poverty it becomes difficult to maintain. The concept that if the rich use more natural resources, the poor will benefit from that growing use and can therefore develop themselves, falls apart when one accepts the undeniable

reality of the ecological limits of the earth and thus the limits of natural resource use. The fact is that, although 'monetary poverty' may be eased, 'ecological poverty' will increase, due to the globally inequitable distribution of natural resources. This will mean that many poor countries (even when they are faced with more economic growth) will be incapable of developing a reasonable standard of living for every citizen within the ecological limitations.

We can conclude that the advancement of world trade, without incorporating sustainable consumption policy in both developed and developing countries, can never create a situation in which a respectable standard of living for 10 billion people can be guaranteed and the aspirations of future generations taken into account. This, unfortunately, is the situation that threatens us, if efforts towards free trade limit the strive toward sustainable consumption.

A reversal of values is needed. A prerequisite is that policy aimed at sustainable consumption must be developed multilaterally to prevent unilateral measures (and those based on protectionist considerations) being taken, and to ensure that sustainable consumption policies in both developed and developing countries will be mutually supportive.

In order for this to happen, other policies (economic instruments, monetary policy, technological policy, etc.) should be redesigned in such a way that they become consistent with policies to ensure that production and consumption are organised so that human needs are optimally met, while using a minimum amount of natural resources, in both developed and developing countries.

An agenda for Ghana

By Theo Anderson

Friends of the Earth Ghana
Private mailbag
General post office Accra
Ghana
Tel: + 233 21 225 963
Email: foeghana@africalonline.com.gh

The views expressed in this article are those of the author and do not necessarily represent the view of the organisation.



Erosion – Ghana

PHOTO: R. BURGLER

I. Why a sustainable Ghana?

In 1994, the Government of Ghana launched the Ghana Vision 2020 process. It sets out a long-term strategy for Ghana to become a middle-income country by the year 2020. Briefly, Vision 2020 envisages a country in which:

- A long, healthy and productive life for all individuals is the norm with access to an enlarged range of choices for employment, shelter and leisure;
- The benefits of development are equitably distributed and gross deprivation and hard-core poverty have been eliminated;
- National income growth is at least 8% per annum, compared to the 1994 average of 4 – 5%;
- Population growth has been reduced from its 1994 level of about 3% to 2% per annum, thereby allowing real income per head to rise to more than four times the 1994 level.

The National Development Planning Commission (NDPC) co-ordinates the Vision 2020. In effect, it is a de facto the national sustainable development strategy, setting out Ghana's own path to sustainable development.

The challenge is now one of implementation, capacity building (particularly at the district level), putting in place effective monitoring and evaluation mechanisms, and refining the analysis.

An interesting question (to be answered by FOE Ghana) is how to react to the Ghanaian government's goal of becoming a middle-income country by the year 2020 by means of stimulating economic growth. Actually, from a people's perspective, becoming a middle income country it is not that important, as it does not offer any guarantee that all the basic needs of people will indeed be met (there is a whole variety of middle income countries that still face structural poverty problems). From a people's perspective it

is much more important to take meeting basic needs of people as a starting point. We are not against economic growth. We do support policies aimed at meeting the needs of people through added (including economic) value per unit of natural resources, while taking into account that these resources should be kept for future generations. This would result in economic growth that is based on a optimal use of natural resources and on policies aimed at meeting the needs of people. This type of growth can be maintained long-term, as it is not based on the overexploitation of natural resources.

The scope of a 'Sustainable Ghana', will look at the year 2020. The question is, 'How should we reorganise production and consumption in such a way that needs of all Ghanaians in the year 2020 are met, taking into account that natural resources should be available for use to future generations as well?'

a) The Challenge

The population of Ghana is growing at a rate whereby food production needs to double or more, and industrial output and energy needs probably need to triple in order to provide a decent living for all income brackets. In terms of income and output, Ghana will be a much richer place in this century but the question that comes to mind is whether increases in the scale of economic activity can be sustainable in the face of this increasing pressure on natural resources.

Though development is necessary for improving standards of living, it must take place within a secure environment. By environmental security we are referring to how the needs and aspirations of a growing Ghanaian population can be met without compromising the ability of future generations to meet their own needs.

The population will more than double from about 15 million in the year 1990 to more than 20 million in the year 2000, and more than 32 million in the year 2020, despite the fact that fertility of women will decrease drastically (from the present 6.0 to 2.8 in the period 2015-2020). In the year 2020, about 53% of the Ghanaians will live in urban areas (in cities with more than 5,000 inhabitants), compared with the present 38%.



PHOTO: R. BURGLER

Open sewerage – Ghana

It will be crucial to develop policies aimed at fulfilling the needs of this growing population that will largely remain dependent on a limited amount of natural resources. If Ghana is not able to meet this challenge it will risk serious environmental degradation, as poverty-driven deterioration of natural resources will continue, possibly at an increased rate. Even with a large migration of Ghanaians to urban areas, there will still be a growth in the rural population (from the current 12.5 million to 16.5 million in the year 2020), almost all of it dependent on the use of land resources.

It is obvious that in the coming decades, the pressure on land resources will grow enormously because of the growing needs and aspirations of a still fast growing population. There is a risk that this pressure will result in reaching a critical point at which the negative aspects (land resources will lose its functions because of forest destruction, erosion, desertification etc.) will be larger than the positive aspects. The loss of land resources will then ultimately lead to a loss

of economic activities, and social problems as well. Most of the rural population in Ghana is depended on the forest for their survival. The forest resources have played a significant role in the provision of food, clothing, shelter, furniture, potable water supply sources, bush meat and traditional medicine. The forests are highly valued as sources of natural medicines, which are essential components of health treatments. They are the main medicines used by the vast majority of the people and despite many different healing practices and beliefs, they are still commonly used in conjunction with mystical and ritual practices and beliefs.

The fast depletion of the forest as a result of excessive logging is therefore of much concern. The degradation of the forest has resulted in field productivity losses ranging between 0.5 – 1.5% of Gross National Product (GNP), loss of sustainable logging potential and erosion prevention. There is also a loss of watershed stability and carbon sequestration provided by the forest and loss of the potential new drugs due to loss of genetic resources. The most commonly affected people are those who live below the poverty line in rural areas that are environmentally fragile.

Then there is the 'energy' crisis. Due to growth in energy demand over the past decade, the growth of wood fuel increased by 31% between 1990 and 2000. In the same period electricity demand grew by 32% and petrol use even by 70%. If these trends continue, wood fuel use in the year 2020 will be about 72% higher than it is now, electricity 74% higher and petrol use even 190% higher. The increase of wood fuel will significantly exacerbate the current overexploitation of land resources. The enormous increase of vehicles and petrol use will cause other social and economic problems. Currently, petrol imports account for 20% of all imports. This percentage might increase dramatically. The combination of all these trends would cause environmental, economic and social problems.

Similar problems occur in the field of 'fresh water' use. It is obvious that fresh water demand will increase due to, population growth, a higher water-use per capita because of increased wealth, agricultural growth, and industrial growth.

However, because of climate change, there is a risk that water reserves will decline as a result of declining rainfall.

This 'Sustainable Ghana' study explores ways of preventing these problems. Therefore, it looks at options for genuine sustainability: increasing wealth and at the same time promoting production and consumption patterns that are in harmony with the need to maintain the rich natural resources, which the country depends on, in environmental, social and economic terms. The aim of 'Sustainable Ghana' is to explore new policies aimed at creating more wealth for all Ghanaians, while paying particular attention to the poor within Ghana, and managing natural resources in a way that future generations will benefit from these resources. It almost looks like a contradiction in terms: to create more wealth while reducing the pressure on natural resources.

This challenge is the starting point of 'Sustainable Ghana'. In this challenge we want to integrate environmental, social and economic objectives and explore options that will result in the creation of economic growth based on a better use of natural resources and on policies aimed at meeting the needs of people. This type of growth can be maintained long-term, as it is not based on over-exploitation of natural resources.

II. What implications would this strategy have for Ghana?

This section will look at the implication for agriculture, forestry, fresh water resources and energy use. It is obvious that in each situation there will be the need for policy re-orientation, import and export needs, as well as technological and institutional needs.



PHOTO: R. BURGLER

Slash and burn agriculture – Ghana

Agriculture

The question is whether it is possible to increase the production of food e.g. cereals (by 90% or more), starchy crops (60%), beef (60%), sheep, goats (60%) and at the same time prevent environmental degradation and stop overexploitation of natural resources. Actually, there is no other choice than to look for alternative production patterns.

These alternative production patterns should be based on:

1. An increase in productivity and in the total production amounts of food crops and livestock.
2. Making agriculture economically attractive for (particular young) farmers.
3. A production that results in food products that are relatively cheap.
4. The need to maintain (or even increase) the production of export crops at competitive prices.
5. The need to reverse the trend in the environmental degradation of land resources.

Let's take cereal production as a starting point. With improved agronomic practices for cereals, the projected land area required to produce cereals for national self-sufficiency by the year 2020 would be 1.2 million hectares, compared with the 3 million needed with current practices.

Sustainable agronomic practices for increasing the yield of cereals are possible. The average yield of cereals using the 1997 data would be 1.31million ton/ha (mt/ha). Using the results of the agronomic practices listed in the table, the average yield of cereals would be 3.37mt/ha. With the improved agronomic practices for cereals, the projected land area required to produce enough cereals for self-sufficiency by the year 2020 would be 1.2 million hectares instead of 3 million hectares. Thus, an intensive rather than extensive approach to cereal production should be adopted along with effective practices that would maintain soil fertility whilst reducing soil erosion.

In the cocoa sector for example, there is also the option of increasing land

productivity while preventing further degradation. Ghanaian traditional farmers are not used to work with soil fertility aspects. Their system is based on shifting cultivation; abandoning the area after the first rotation to clear the forest. When the soil is not fertile enough, expanding the area then compensates the loss in productivity.

This leads to enormous clearings and infertile grounds. It is therefore, prudent to encourage the practice of identifying suitable soils, soil fertility maintenance and planting at the optimum spacing to increase the yield per unit area instead of area expansion. Work done at the Cocoa Research Institute of Ghana (CSIG) shows that the new hybrid cocoa produced by CRIG responds significantly to a limited application of mineral fertiliser. These hybrid seeds have not been genetically manipulated, but are locally treated against pest destruction and damage by insects before they germinate. Therefore, the government of Ghana should intensify her extension programme in the cocoa sector to encourage farmers to boost their production per unit area by applying these methods.

Forestry

When looking at the forest sector, the challenge is:

1. To maintain forest reserves and their functions, such as maintenance of biodiversity and the fulfilment of non-timber needs.
2. To bring timber production within ecological limitations.
3. To make the timber industry economically healthy and maintain employment
4. To meet the domestic timber needs and increasing aspirations of a growing population.
5. To serve the export sector.

The starting point of any policy is recognising that the total timber production should stay within the ecological limitations. In other words, there is a limited Annual Allowable Cut (AAC) and there are limitations on lumbering specific species (the scarlet, red and pink list).

At present the AAC is 1.0 million m³. The total log input for both export and domestic needs is 1.32 million m³, thus exceeding the AAC by about 32%. When looking at the total volume of sawmill lumber available for domestic

use, we see it is only 152,660 m³, yet the demand is of domestic end use is about 384,730 m³. The difference has to be supplied from other sources, particularly illegal timber harvesting. The analysis clearly shows that any policy for maintaining forest resources and bringing timber production within ecological limits should ensure that local demands are met first before considering the export market. Maintaining trends of concentrating on exports and neglecting the local market, will sooner or later result in a loss of export opportunities due to illegal harvesting that undermines the future timber capacity of forest reserves.

The challenge here is how we can meet the current deficit in wood demand and ensure that there are enough resources to meet expected growth demand in the future. Achieving this requires an integrated system of production that reduces waste and improves efficiency. There is also the option of increasing the efficiency of timber production. A shift is needed towards low volume input-high output production. This option includes a more efficient use of capacity and value added wood products. This would encourage the use and processing of Lesser-Used Species, further industrial processing of wood (like furniture etc.) and certification schemes.



Reforestation – Ghana

PHOTO: R. BURGLER

Fresh water resources

In order for water to perform all its functions without undermining other functions, such as the maintenance of biodiversity, agriculture, livestock, drinking water and industrial activities, there is a need for measures towards an efficient water management. These measures include the following:

There is the need to achieve water-use efficiency by adopting technologies and procedures that are designed to reduce water-use in irrigation. Water-efficient equipment such as portable sprinklers, centre pivots, moving lines and drip systems have proved effective at reducing water-use. Careful scheduling of irrigation, matching crops to local conditions and modest improvements to inefficient systems could result in large savings. Overall,

water-use efficiency would ensure that the maximum yield is obtained with the minimum use of water.

In the domestic sector, consumption could be saved through the installation and use of water-efficient flush – toilets (which uses less water per flush); improved showerheads and taps; and improved efficiency in public facilities.

Through education and outreach programmes, support should be built among city residents for the installation of water efficient equipment, and detecting, reporting and repairing leaks in water equipment as soon as they occur.

For industry, there is a need to combine strategies: recycling water in manufacturing and power plants; and wastewater re-use. This could provide industry with a cost-effective source of

water, and reduce industrial dependence on fresh water. In addition, use of efficient technologies should be encouraged for industrial water consumption. Other measures are demand-side oriented like, restrictions of water-use, water re-use by industry and the overall need to increase industrial water productivity.

Institutional co-ordination is important. It is crucial that there is a body (like the Water Resource Commission) to co-ordinate programmes and monitor progress within these programmes. Such a body should not only include those agencies and companies that need to invest in better water management, but also NGOs who can play a role in asking whether the programmes are indeed, in the most constructive way, serving the needs of people/communities.



PHOTO: B. ZAGEMA

Water well – Ghana

Energy use

The following objectives are needed in the energy sector:

1. People should have sufficient access to energy resources in order to meet their daily needs
2. Energy resources should be available at reasonable prices
3. Wood fuel consumption should remain within ecological limits
4. Fossil fuel use should be as low as possible

When looking at solutions, it is obvious we need to take the wood fuel crisis as a starting point. After all, about 80% of total national energy use is wood fuel. There is an urgent need to reduce wood fuel use to a sustainable level. The current unsustainable situation is not only

related to the amount of wood fuel, but also to the way wood fuel is harvested—the production of charcoal has become a commercial activity in urban areas.

There is the need to produce, promote, introduce, and encourage the use of wood-conserving cooking stoves, designed to have increased combustion efficiency, high heat retention and reduced heat losses. These stoves need to be introduced among rural households, the urban poor, micro-enterprises and institutional kitchens in order to ensure efficiency of fuel wood consumption for cooking and heating, and subsequent reduction in the ever-increasing growth in wood fuel demand and pressure on forest resources.

A change to more energy-saving and environmentally aware habits and

attitudes could help reverse the trends, and improve the situation of women by reducing the time they spend collecting firewood.

Substitutes are needed as well, probably in particular, in the urban areas. The initial costs of LPG are high which discourages people from shifting from wood fuel to LPG. One type of technology for cooking, not very common in Ghana, is biogas. High efficiency bulbs are available, which require about 5 times less electricity while producing the same amount of light. Again, the problem is that the initial costs of these high efficiency bulbs are higher, but the overall costs are lower due to lower electricity costs. The solution is the same: make these bulbs available at low costs and compensate this through a slight increase in electricity tariffs.

Conclusion

Even though, this sustainable consumption scenario might be attractive for Ghana, government policies not automatically will go in that direction.

Therefore, there is an obvious need for institutional change in Ghana in order to guarantee that policies are consistent with each other and to prevent some groups of Ghanaians benefiting from policies at the expense of others. Such institutional reform is needed in the case of agricultural policies, forest policies, fresh water policies and energy policies. In all cases, there seems to be a need for co-ordinating the integration of social, ecological and economic policies, involving all stakeholders. In this context, three observations can be made.

The first is about the need for democratic structures. If the aim of institutional changes in general is to develop policies for creating more wealth through an optimal use of natural

resources, while keeping these resources for future generations, then this is only possible if these changes are based on participation of people and people's organisations. The second is about technological changes. Institutional changes will probably fail in the absence of innovative ideas on how to achieve low input-high output patterns of production and consumption, in harmony with the need to preserve natural resources for future generations. Technological innovations are essential in this process. The fact is that in Ghana lacks a culture of developing innovative, technological breakthroughs. As a result, many current patterns of production and consumption are still natural resource intensive, non-efficient and result in waste and over-exploitation of natural resources.

In the last place, we observe that there is a need for an national institute (such as the Council for Scientific and Industrial Research) that feeds policies with all kinds of low

input-high output mechanisms and helps people, small enterprises, farmers, etc. in producing and consuming more and more efficiently.

III. Impacts of international development policies

So far, the need for sustainable production and consumption policies has concentrated on changes in rich industrialised countries. The need for these policies in rich countries was originally seen as a precondition to a more global equitable natural resource use in general, and as a precondition to international policies towards the redistribution of natural resource use.

However, things have changed since the Earth Summit in Rio de Janeiro in 1992. Since then, there is a process going on (although slowly and without much results) in rich countries which aims towards sustainable production and consumption policies and the drastic reduction of natural resource use, because they have the means and the technologies to do so. This has drastically changed the character of the international challenge. As mentioned above, policies in rich countries were originally seen as part of international policies towards redistribution of natural resource use. However, these international policies are now part of the sustainable production and consumption policies in rich countries. This situation has significantly weakened the position of governments of developing countries, as they have to react to international policies that are the result of internal discussions in rich countries. Consequently, changes in rich countries could have a negative impact on developing countries, as they may affect export opportunities. Like in most Southern countries, local communities are living already sustainable lifestyles but the governments are more interested in promoting western lifestyles. The drive for economic growth is not consistent with sustainable development. Projects like big dams, highway constructions, timber and gold exports are executed to reach the same standards as the North does. This kind of projects does not serve the interests of developing countries on the long-term. What is actually needed are international policies that are not based on the challenge in rich countries to drastically



PHOTO: R. BURGIER

Open goldmine of Billiton – Ghana

reduce natural resource use, but policies that are based on the international challenge on, 'How to meet the needs of an increasing world population while preserving natural resources for future generations?' This requires changes in both rich and poor countries. While in rich countries, there is a need for a transition from high input-high output consumption to low input-high output consumption; the challenge in poor countries is a transition from low input-low output consumption into low input-high output consumption.

International policies should be centred round the challenge on how to make policies in rich and poor countries mutually supportive. Such international policies would serve better the interests of developing countries.

The Sustainable Ghana project should be seen as a contribution to discussions about how to re-shape and re-balance international discussions on sustainable production and consumption.

One of the main challenges of these international policies will be to balance the relationship between economic globalisation processes and sustainable development, including important issues like:

- The debt problem (that forces developing countries to export natural resource intensive products, primarily to rich countries where the natural resource use per capita is disproportionately high, contributing to even more inequitable global natural resource use) and related policies such as structural adjustment policies.
- WTO regulations (although within the WTO the need for sustainable development is recognised in the preamble, it pays virtually no attention to this need. Recently, a UN report on the relationship between 'human rights and globalisation' received wide publicity as this report stated that globalisation is a nightmare for people in developing countries).
- There is a need to award food security, energy security, fresh water security, etc. a higher value than the promotion of trade liberalisation.
- International discussions on climate change, agriculture, the service sector, etc. all impact sustainable consumption policies in both developed and developing countries.

IV. Agenda for change at the international level

One observation we can draw is that the most efficient allocation of natural resources might be of interest to business (leading to the highest possible output per invested dollar) and even, in the short term, of interest to consumers (that benefit from the low prices).

At least, one can say that the private sector can only be made sustainable, if market forces are integrated into sustainable development policies. It seems impossible that the private sector might organise this by itself. Maybe some companies can change their practices into sustainable ones, but there will always be a danger of free riders that undermine the efforts made by other companies. Market forces offer imperfect solutions to these problems. It seems inevitable, and from an economic and environmental point of view very desirable, that the government should develop policies in order to guarantee that production and consumption stay within ecological limits.

For that reason, we need a better balance between supply and demand. It is unlikely that market forces alone will create such a balance, as the private sector is, by definition, supply oriented. From the point of view of the private sector, high input (both in terms of natural and financial resources) -high output consumption is much more attractive than low input-high output consumption. This is in fact what is happening: production and consumption patterns are being promoted that are moving towards western lifestyles.

It is the Ghanaian society that should decide what future it desires. However, Ghana is not able to make a Sustainable Ghana possible on its own. Developments, particularly during the last decade, have drawn economies closer to each other. That has both advantages and disadvantages. One of the disadvantages is that a promotion of new policies (including policies towards sustainability) only can be accepted by the international community, if these measures are consistent with the rules of a free market. There are good reasons to believe that many measures needed to guarantee that production and consumption should stay within ecological limits are not consistent with WTO rules.

The problem is that sustainability policies, even when they are necessary for a country to guarantee that natural resources will not be depleted, and will remain available for the benefit of the Ghanaian population, can be declared as a policy that undermines free trade and is therefore illegal under the international (WTO) regulations, or inconsistent with current Structural Adjustment Programmes. Therefore, WTO agreements on Agriculture and the Trade Related Intellectual Property Rights (TRIPs), have a great influence on farming around the world. These agreements have strengthened a global system of trade in food and agriculture that supports large-scale industrial production at the expenses of small scale sustainable farming. For Ghana it is the example of rice farming which has almost collapsed through all this. Such a situation means that the promotion of free market has a higher value than policies aimed at meeting the needs of people and sustainable managing natural resources in the interest of the future generations.

An Agenda for India

By Arjun Dutta

CUTS

Centre for Sustainable Production and
Consumption (SPAC)

3 Suren Tagore Road

Calcutta 700019

India

Tel: + 91 334601424

Email: cspac@cuts.org

*The views expressed in this article are those
of the author and do not necessarily repre-
sent the view of the organisation.*

PHOTO: PAUL VAN RIEL/HOLLANDE HOOGTE



I. Introduction

Out of the debate on the growth paradigm there emerged a sobering controversy, which revolved around the following questions:

1. Whether continuing growth is possible?
2. Whether growth was a wholesome concept or had to be replaced by some other idea broad enough for humans as well as the environment?
3. The role of value judgement in equity and sustainability, including the political-economic framework.

The answer to the second question became evident when the concept of development was patronised by the international financial and social bodies. But the answer to the first question sent shock waves across the world. The Club of Rome concluded that continued growth is impossible due to the catastrophic collision of population, output and pollution growth paths by the year 2100 AD.

The answer to the third question regarding the role of value judgement with respect to notions of equity was given in an Agenda 21 statement as follows, 'Measures to be undertaken at the international level for the protection and enhancement of environment must fully take into account the current imbalances in the global patterns of consumption and production, thereby throwing light on the existing consumption- inequity nexus'.

India has a rich tradition of environmental conservation and the Indian culture promotes the re-use and recycling of products. Further, India has ratified the Vienna Convention for the Protection of the Ozone Layer, the Montreal Protocol on Substances that Deplete the Ozone Layer, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, the Convention on

Temple used as information conductor – India

Biological Diversity and The United Nations Convention on Climate Change. India is yet to ratify the Kyoto Protocol.

This paper tries to highlight the challenges facing India in attaining sustainable production and consumption, and the road ahead.

II. The challenges facing India in attaining sustainable production and consumption

a) Economic and ecological problems of India

The greatest challenge for India in attaining sustainable production and consumption is the dual problem of under-consumption (poverty) and over-consumption (affluence). Furthermore, literacy levels remain low, institutional regulatory mechanisms are still not in order, there is a lack of social safety nets, the common man's voice is weak in asking for information let alone protection, consumer consciousness on sustainable production and consumption is generally poor, digital divide exists and green consumerism is limited to a small fraction of the population.

Economic development and poverty reduction has been a critical policy concern for policy makers in India but this is increasingly being constrained by the loss of biodiversity, degradation of fisheries and forests, scarcity of freshwater and other environmental concerns.

The Indian Union Budget of 2002/2003 aims at consolidating ongoing economic reforms and extending the reform process to other sectors notably agriculture. This will have positive spin-offs on the efficiency of resource use in the country and will release public resources for development projects. However, the budget does not explicitly attempt to integrate the sector wise environmental imperatives.

India is rich in environmental legislation dealing with various environmental problems. India has been one of the few countries where judicial activism has reinforced environmental campaigning against some dirty industries. However, one of the obstacles has been the inappropriate implementation of such legislation. Although these

regulations give national bodies and their state-level counterparts broad powers to control the problem of water pollution, until recently, enforcement has been rather weak, and there is still ample room for improvement.

India is currently the largest contributor (21 percent) to world population growth, adding about 17 million people every year to an already huge population of over one billion. Only a few Indian states, like Kerala, Manipur and Meghalaya have achieved a negative growth rate in population control and this is not enough. Large-scale environment degradation has resulted from population pressure, industrialisation and the indiscriminate use of forest areas for fuel, power generation and irrigation purposes.

India has attained food sufficiency in spite of its growing population. The spread of input-intensive green technology has given India a certain measure of food security, but it has come at the cost of falling water tables, degrading soils, poor management of irrigation systems and the harmful side-effects of increased pesticide and inorganic fertiliser use.

Inadequate access to clean drinking water and sanitation facilities is another serious problem. Groundwater is the major source of drinking water in rural India. However, uncontrolled extraction without commensurate recharge and leaching of pollutants from pesticides and fertilisers has resulted in the pollution of groundwater supplies and the loss of aquaculture in rural areas. In addition to leachates from agriculture, over the last decade industrial waste and the municipal solid waste have emerged as the leading causes of the pollution of surface and groundwater in urban areas. Water has been declared a 'limiting resource' by the Ministry of Environment and Forests. According to water demand projections, water required for use in the agricultural sector is expected to rise from 46 Mham (million hectares per metre) in 1990 to about 85.5 Mham in 2025 (Shah, 1987). In order to meet these requirements, the sub-national government in India is looking into pricing water, water regulating policies and legislation other than institutional support for water resource development, tax recovery, etc.

Similarly, rapid economic growth led to changing lifestyles and the increase use of automobiles and plastics are also putting immense pressure on resources (energy) and the environment. Most advertisements in India have been found to promote unsustainable consumption patterns, contrary to what was mentioned in Chapter 4 of Agenda 21. A new trend is the vanishing rural-urban divide. Among other things it has been found that rural share in the consumption of high-value items is on the increase.

Voluntary codes of conduct have not yet been a success in India. Since 1991, India has a voluntary environmental labelling scheme called the Ecomark scheme. At present, the Indian Ecomark is awarded to 16 product categories. Interestingly there has been a rise in the misleading environmental claims made by various corporates. One problem facing India today is the lack of balance between the social and environmental objectives in some dirty industrial sectors. One example can be cited here. As a signatory to the Basel Convention, India formulated a draft Battery (Management and Handling) Rules in 2000. Thereafter, CUTS was involved in a training and awareness generation initiative in the lead acid battery sector. It was found that due to this legislation the informal sector, responsible for supplying around 70 percent of the batteries, would be badly hit as they were using environmental unfriendly technology due to scarcity of capital. The new legislation meant that if they did not revert to more environmentally friendly options, they would have to close down which in turn would lead to job losses in this sector. This would lead to social problems while environment would have been protected.

In India, non-agricultural employment opportunities in rural areas remain low. In addition, rural literacy lags significantly behind that of the urban population. This constrains people from shifting to better paid jobs. This is a big challenge for social sustainability and is at the top of the Indian policy agenda. As food and nutrition are determined by income, hence income generation in rural areas has to be the centrepiece of any development strategy. There needs to be considerable emphasis on investment in social sector

activities, like housing, health, education, etc. Promoting sustainable consumption and production through government action, including 'green' national accounts, tax reform favouring resource conservation and 'green' procurement measures need to be integrated into the fiscal system.

b) Trade problems between North and South

The structural adjustment programme along with the liberalisation of the Indian economy was started in 1991. This liberalisation led to the entrance of several multinational corporations into India. Some of these multinational corporations have been found indulging in double standards in their policy and operations in India. In the refrigeration and air-condition sector alone it was found that as many as four multinationals were withholding their environmentally friendly technology in order to recover capital outlay on obsolete technology. They took advantage of the varying timeframes under the 'common but differential' responsibility of developed and developing countries as defined in the Montreal protocol. Further, they have been also obtaining grants from the multilateral funds for Indian organisations to change over from ODS to non-ODS technology, while the head office located in other countries have dictated policy.

In the past, attempts have been made to link trade and labour standards. However, these social clauses can only be meaningful when there is an equal distribution of wealth and resources. In reality there are pockets of such poverty in different parts of the world that inclusion of social clauses will only worsen the situation by denying the necessary avenues for jobs. This has further divided the rich North and the poor South. The tragedy is compounded by the fact that it is a one-way street i.e. the rich North is the demander and the poor South the defender. It is inherently inequitable because the South cannot invoke any such ground to propose or justify trade measures, simply because it cannot afford to.

Finally, market access has been a major problem for Indian exporters. The efforts to link trade and environment are

likely to serve as a barrier to trade. Further price competition in domestic market from products of other South Asian and South East Asian countries has been on a sharp increase. Most of these foreign products are low-priced and it is highly questionable whether environmental costs have been considered in the pricing mechanism. Therefore, there is a mismatch between domestic and international agenda.

c) Finances related to sustainable production and consumption policy

As a sustainable production and consumption policy has been a priority of rich industrial countries in the past, there is a misconception that sustainable consumption means only a reduction in consumption levels. It is often not realised that another aspect of sustainable consumption is the alleviation of poverty.

At the Earth Summit held at Rio de Janeiro in June 1992 rich countries committed additional resources in the form of Overseas Development Assistance (ODA) of over \$480 billion to developing countries. Out of this only \$2 billion has actually been mobilised proving that developed countries have failed to meet their commitment. At the fourth preparatory committee meeting of the World Summit on Sustainable Development efforts were made by the European Union (EU) to link financial commitments related to sustainable development to the negotiated financial assistance decisions at Doha and Monterrey. This has led to a negative feeling among G77/China about the sustainable development process.

III. Looking at the problems

a) The areas where breakthrough is needed for transition to LIHO model

Although India has created a large base of skilled scientific and technical human resources, there is still over-dependence on western technology in some sectors. This means that India caters to a high input-high output (HIHO) or high input-low output (HILO) model. To ensure that the 'quality of life' of future generations is not affected we need to change the way we use resources. To do this it is however, necessary to find out how we use our resources and if such use is sustainable. In this context, the ideal scenario would be to identify a low input-high output (LIHO) model, particularly in key areas like food, housing and mobility.

Employment level is an influential factor in developing sustainable consumption patterns for developing economies. High rates of unemployment have always been an obstacle in the development process of India. The first step towards transition to a LIHO model calls for high level of process efficiency. This calls for education and training particularly for the economically weaker sections of the society. Further, India needs to rethink its current social sector budgetary allocations.

In order to propagate a LIHO model the basic criteria would be to identify either indigenous technology or technology which would cater to local requirements in various sectors in

PHOTO: HENK BRAAM/HOLLANDE HOOGTE



the Indian economy. Instances of availability of such technology in India can be found. According to the Central Leather Research Industry, they have developed a low cost technology for leather processing that makes it environmentally benign. The first government step would be to identify and patent such indigenous technology.

Social instruments aim to persuade actors in society to change, or encourage each other to change. The suitability of specific policy relations depends on the type of instruments involved. For many consumers the important factors in purchase decisions are quality, price, status, convenience, health and choice. Any policy devoted to internalising sustainable consumption must relate to these factors. Hence, any LIHO model should try to use these social instruments. These social instruments are:

- Public awareness raising with the aim of changing the knowledge base and influencing the attitude (e.g. information campaign on a specific issue, etc.)
- Hardware with the aim of providing products, services tools and infrastructure to implement change (e.g. improving public transportation system, recycling of batteries, etc.)
- Empowerment with the aim of creating new organisations, relationships, links to facilitate information or hardware (e.g. developing Ecoteams, etc.)

PHOTO: D. VAN BEEK



Family farm – India

b) Public awareness

In India, more than three-quarters of the poor reside in rural areas. Rural poverty is driven by inequities in resource endowments including low mobility options, and a lack of access to safe drinking water, energy, education and skills. Around 59 percent of farms have less than 1 hectare of land and more than 26 percent of the rural workforce is landless. This underscores the importance of improved future agricultural performance if the massive problem of poverty is to be solved. However, it is highly debatable as to whether this is achievable with a LIHO model. Hypothetically, this is possible.

The majority of consumers in India is not prepared to pay extra price/premium for environmentally friendlier goods. A study carried out by CUTS in 1998, showed that only a small percentage of the high income group of Indian consumers were willing to pay a little more (10 percent) for more environmentally friendly products. Therefore, there is a need to increase environmental consciousness of consumers so that the transition from LILO/HIHO to LIHO needs less resistance to change.

The primary interest of the poor is to attain a higher degree of prosperity or a better quality of life. However, it is not necessarily true that the poor would be happy to adopt the Western style with a much higher use of natural resources as it will conflict with the traditional lifestyle. They will feel much more comfortable if they are allowed to continue with improvements in their existing lifestyle. For them, the transition from HIHO/HILO/LILO model to LIHO model is much more desirable.

III. Contours of an alternative policy

Sustainable consumption policy needs to be consistent in economic (trade), monetary (investment) and technological policy. However, this is easier said than done because of the lack of cohesion in policy making among various ministries in India. We now take the example of three key areas to see how a LIHO model could work in the Indian context.

Housing

In India, housing inadequacy is largely felt by low-income groups, and is made worse by the continuing rise in the price of construction. This necessitates the use of appropriate and cost-effective technologies. Though technologies have been developed, they have not yet been applied.

Housing needs can be separated into two different clusters, namely housing for urban population and housing for rural population. Each cluster has its own specific problems that require its own specific solutions. The housing needs of the urban population call for a high degree of resource efficiency and resource conservation in water and energy. Housing for a rural population has to deal with problems such as a lack of water within the home, sanitation and energy for general use and cooking. Although many attempts for evolving appropriate and cost-effective technologies have been made at the laboratory level by various scientific agencies, these initiatives did not supply practical solutions.

Before the 1990s, the awareness of alternative and sustainable options was minimal among users as well as professionals (architects and engineers), let alone construction workers and

artisans, who are the main link in utilising these options in housing programmes. Conventional construction practices lead to ostentatious housing and misuse of scarce and costly materials. However, at present, the scenario has improved with the Building Centre Movement (an example of LIHO model) undertaken by the government. This movement aims to utilise human resources within the community, providing appropriate empowerment to evolve and contribute to shelter solutions using appropriate technology in the local context. It has also helped in housing construction programmes with people's participation by upgrading the levels of skills of local construction workers. Over 45,000 construction workers have been given practical, hands-on training using various

innovative technologies. Over 385 building centres were set up all over India. About 15 to 40 percent savings were achieved compared to conventional costs (e.g. see picture of Bamboo house).

The use of these cost-effective options has changed the negative perception of 'low cost housing' (e.g., low quality, non-durable, ugly and only for the low-income families) for the first time. Such models need to be replicated, particularly at the rural level.



Use of cost effective techniques built by Habitat Technology Group, Kerala (left) and Ntu, Nagaland – India

PHOTO: HUDCO

Mobility

Sustainable mobility, the improvement of air quality, and the reduction of greenhouse gases (GHG) are needed to sustain economic growth. In most developing countries, the mobility of large groups of people is still hardly an issue. But in urban areas this is changing fast. In India, traffic congestion in urban areas has become a common sight and a problem for commuters every day. Reduction of urban congestion and environmental pollution can be achieved through traffic management, the augmentation of public transport, the role of non-motorised transport systems and the promotion of cleaner fuel and renewable energy using engine technologies. However, India is perhaps one of those few places where it is possible to see a Mercedes Benz next to a bullock cart on the same road. Therefore, there is a mix of traditional and well as modern transport.

At present, several groups and institutes are trying to develop motorcar models that use cleaner fuels and renewable energy. Some models in India show it is possible to develop electric motorcars powered by solar energy. Fuel cell cars are also available for sale on the Indian market.

There is a strong need to alter current traffic policies otherwise the increase in mobility will neutralise part of the gain achieved. At present, efforts are being

made to increase public transport. Following the success in Calcutta, underground rail is now being constructed in Delhi. Even circular rails are being started in various cities of India. However, underground railway is an expensive proposition. A more environmentally friendly form of public transport would be a tram. Efforts should be directed at making trams faster and ensuring they run on which will minimise energy use.

India has been trying to develop some indigenous LIHO models to increase mobility. Two examples are given below. Last year The Institute of Transport Development in New York, the Asian Institute of Transport Development in Delhi and the instrument design department of IIT in Delhi developed an eco-friendly cycle rickshaw that weighs only 55 kg. The new rickshaw is 40 kg less than the conventional one. It has a gear system, is easy to pedal, comfortable to ride and will reduce the strain on the rickshaw-puller to almost half, allowing him to carry more passengers.

The first battery driven motorboat in India was also inaugurated last year. The boat was manufactured using indigenous technology and has room for 36 passengers. The manufacturing company claims that they can also manufacture boats with a capacity for

200 passengers. Once the battery is recharged, the boat can sail for two and a half hour at a cruising speed of 4 nautical miles. They are also considering adding sails to this boat in order to use wind energy and thereby increasing the cruising speed.

In rural areas, the infrastructure for mobility remains poor. A good proposition for infrastructural development would be to initiate programmes like 'Food for Work' utilising the surplus food grain lying in government warehouse. According to statistics, India has sufficient grain stored in the government granaries. The main problem now is that of distribution, particularly in rural areas. The process of distribution has been dampened owing to poor infrastructure for mobility in rural area. Instead of waiting for investment to arrive for such infrastructural development a good way out would be to utilise the surplus food grain lying in government granaries as remuneration in exchange of labour. Such programme would help to create social capital and alleviate poverty in rural areas.

Food supply

The most critical aspect of the Indian agricultural structure is food security. Although the share of agriculture in the gross domestic product (GDP) has been sharply declining, two-thirds of the population remain dependent on agriculture. Therefore, food production continues to receive a very high priority in terms of direct state support. The government has recently announced a doubling of food grain output in the next ten years, and significant increases in expenditure outlays for agriculture over the next five years.

According to a recent analysis carried out by ICAR, if the historical growth trend in TFP of around 1.2 to 1.4 percent per annum is maintained, the country will be able to provide food for the whole population. However, if we change the assumptions on demand fluctuations and take account of the rapid growth in the livestock sector, new projections suggest a completely different picture that includes large cereal deficits. In any case, both studies underscore supply-side management and the need to accelerate total factor productivity growth.

Productivity levels for most food grain crops in India are way below world averages. In general, there is consensus that for a number of crops there are large yield gaps. These yield gaps could be closed through proper policies and investments. Resource efficiency is very



PHOTO: D. VAN BEEK

Snackbar – India

low for most input (fertilisers, water, agro-chemicals) and this arises from a lack of information, infrastructural or institutional bottlenecks. Post-harvest losses account for a fair proportion of the produce. Better post-harvest technologies including processing can retrieve these losses and augment supplies. Addressing these issues will boost factor productivity and production.

The Indian government feels that frontier technologies offer immense potential for breaking productivity barriers. These are now receiving greater attention in the Research and Development programmes. However, Indian farmers feel that the promotion of hybrid seeds have been instrumental in changing their consumption patterns. The husk produced from hybrid seeds cannot be fed to livestock, and farmers often face problems maintaining such domestic animals. This leads to two

problems. Firstly, the farmers are losing access to milk and second, the excreta (dung) of such animals cannot be used as organic manure.

In the context of food, stress should be laid on self-sustainability at village level and not on export level. Indian farmers are neither well versed in working with the complicated detail of export documents, nor have adequate information to make use of the opportunities facing them. Furthermore, Indian farm exports are often more expensive than the other countries because of subsidies, and this means that Indian farm exports face the risk of losing their market position.

Having talked about self-sustainability, we may consider a test model under taken by Vidysagar University, West Bengal, India. If a farmer has 10 acres of farming land in a rain-fed region, and if he converts 10 percent into a pond and

another 5 percent into a cowshed. This means he is left with 85 percent of the land for farming purposes. Initially, one gets the feeling that the farmer is losing out. However, such a model has the following advantages.

First, the pond, filled with rainwater would serve as a source of drinking water and owing to the sense of ownership the farmer will prevent the pond from getting polluted. Secondly, the pond could be used for fishing.

The fish serves then as additional food/nutrients for a substantial portion of the year and also can be exchanged for money or other products. Thirdly, the pond would also serve as a source of water for harvesting in the dry season. In this way, he would be able to go in for multiple cropping leading to high output. Fourth, multiplicity of ponds in villages (assuming other farmers will adopt the same model) will facilitate recharge of groundwater in that region.

Further, the land used for cowshed will help store cows that would provide milk and cow dung. While the milk would serve as an additional nutrient, the cow dung would serve as rich organic manure. The cow will feed on the rice husk from the farm. The farmer will also earn some extra money by selling milk apart from grains.

Therefore, the above model will lead to more output (summing monetary and environmental gains) if one compares it to input.

IV. Conclusion

Sustainable consumption policy in developing countries can support population growth while keeping within ecological limits, provided it meets the basic needs of people (food, water, shelter, medicines), provides adequate energy for all, more employment and greater prosperity. On the other hand, a sustainable production policy needs to incorporate concepts like corporate accountability. This could be done through initiatives such as the Global Compact and the Global Reporting Initiative, with environmental management accounting and environmental reporting.

Finally, achieving a 'factor four' objective as currently advocated by EU is not a feasible proposition in India simply because the economic, political and social set up is quite different to that of the EU. At the World Summit on Sustainable Development in 2002 it would be more appropriate for the implementation of Agenda 21 to evolve a common international action plan based on global requirements. Then each country, whether developed or developing could be asked to publish their own sustainability plan within the framework of a global action plan. Each national plan would contain clearly defined time-frames linked to each economic, political and social situation.

An agenda for Chile

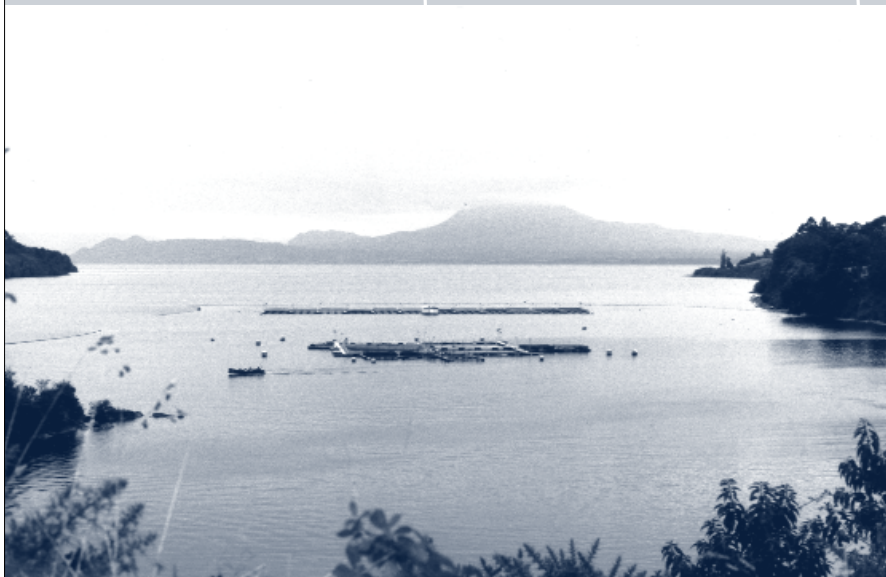
By Sara Larrain

Programa Chile Sustentable
Seminario 774
Santiago
Chile

Tel: + 562 209 7028
Email: chilesus@rdc.cl

The views expressed in this article are those of the author and do not necessarily represent the view of the organisation.

PHOTO: M. DE LEDE



Employees of salmon farm Domeyko of Marine Harvest, lake Llanquihue – Chile

I. Introduction

Chile is a country whose economy is highly dependent on the export of its natural resources, which it offers on the world market with little to no manufacturing. Chilean exports have multiplied 18 times in the last 20 years (Central Bank of Chile) and currently, close to 90% of exports correspond to raw or little processed natural resources. This process has been accompanied by a process of de-industrialisation: the contributions of the manufacturing sector to the economy have fallen from 30% of the GDP in 1974 to only 15.7% of the GDP in 2001.

Currently, Chile is the principle supplier of copper to the global market, and together with Peru is the number one exporter of fishmeal and fishery resources. The mining sector constitutes 47.4% of exports, followed by the forestry sector with 11.6%, the fishing sector with 11.4% and livestock and agriculture with 18.8%.

The level of specialisation within these four sectors generates significant pressure on ecosystems, as some of the main products, such as copper, fishmeal and cellulose, make up a large percentage of exports. For example, in 1998 only ten primary products constituted 60% of exports from Chile: copper, iron, gold, cellulose, wood chips and sawn wood, fish meal and fresh fish, grapes and apples.

The destination of Chilean exports is as follows: 26.6% to Europe; 13.9% to Japan and 17% to the rest of Asia; 16.8% to the United States and 23.3% to the rest of the Americas; with only 2.4% going to other regions of the world.

In social terms, due to the raw state of its products, the export sector does not generate a significant amount of employment. Indeed, employment has been falling in the mining, fishing and agricultural sectors (with the exception of seasonal employment generated during harvest in the agricultural sector).

II. The principle implications and challenges for moving towards sustainability in Chile

a) The use of natural resources

The principal challenge that Chile faces, in order to change away from the over-exploitation of its natural resources and the unsustainability of its economic export model, is to reduce natural resource extraction.

This challenge requires several initiatives:

- *Eliminate subsidies for the over-exploitation of natural resources*

There are currently many subsidies, both direct and indirect, which encourage the overexploitation of minerals, forests, and marine resources. The first ones are associated with Decree Law 600. This deals with foreign investment and consists in national deals for investors, the freedom to repatriate utilities, the freedom to operate in the currency market and favourable tax conditions.

The second ones are tied to legislation and regulations connected to the promotion of economic activity in certain regions of the country, such as the Navarino Law and the Plan Austral . This type of judicial instrument subsidises investments in infrastructure, labour, the import of technology and machinery, as well as exemptions from taxes. Said instruments also imply that the state uses the incomes of all Chileans in order to subsidise all the activities that an enterprise carries out in order to extract and export natural resources. That is to say, enterprises are paid to extract resources, whose exports are then subsidised by exempting them from taxes.

There are also direct subsidies that stimulate the over-exploitation of resources in diverse sectors: in the forestry sector the most important of these has been the Decree Law 701, subsidising 75% of exotic tree plantations. In the mining sector, the right to use hydraulic resources for free, the lack of regulations and a tax system that exempts enterprises from paying taxes or allows them to pay less than in any other industrial sector, means that enterprises are given guarantees for the extraction of this non-renewable resource without generating resources that compensate the country

for the extraction of the mineral. Thus, the country loses natural resources, receives no payment for the loss, and loses resources that could be invested in social policies, the development of infrastructure, and other policies directed towards the redistribution of benefits.

- *Change the focus of the tax system from employment to resource extraction with the objective of promoting added value to raw materials*

This instrument would stimulate the change to a second export phase based on less extraction of raw materials, given the disincentive that a tax would imply. This change would also generate the employment needed for manufacturing with extracted resources. More manufactured products would allow the country to obtain the capital needed from exports, as well as get direct social benefits from exports through the generation of employment in the manufacturing sector.

- *End the overproduction of commodities*

That increases the fall in prices of raw materials in the global market, and obliges countries to intensify the extraction and export of natural resources in order to obtain capital. In Chile's case, the copper sector lost an equivalent of between US \$12 and \$24 million dollars between 1996 and 2000 due to the drop in the prices, generated by world overproduction. This in turn led to increased extraction.

This policy requires the formation of an organisation of raw material producing countries that, as in the case of OPEC, would agree upon production policies and price controls in the global market. Chile, as one of the largest producers of copper and fish meal, needs, not only to develop policies focused on adding value to natural resources, but must also shape policies together with other nations in order to prevent the fall of prices and to stop the greater exploitation of resources.

- *Generate 'replacement capital' for the development of the regions stripped of their natural resources*

This measure is especially urgent in the northern mining regions of the country, which due to their desert-like

characteristics do not have other resources on which to base their future development.

The excessive extraction of non-renewable resources, as in mining, means mortgaging the future subsistence and development of the region's inhabitants. Additionally, the use of hydraulic resources and the pollution from mining operations often creates difficulties in the development of other options, such as agriculture based on modernised irrigation techniques in desert areas, or tourism. This situation implies the need to establish a return of resources to the regions and communities negatively affected so that they can count on funds for environmental reparations and for future economic activities.

In addition to adequate taxes in the mining sector of at least 25% of sales, which corresponds to average global mining taxes, there should also exist a 1% tax on sales in order to create a 'Sustainability Fund': replacement capital that would allow mining regions to invest in other development projects.

Both taxes, especially the second, could be structured as 'eco-taxes', tied to environmental reparations, the replacement of resources, improvement of watersheds, improvement in the quality of life for local populations, etc.

- *Protection of local economies and resources, especially agriculture, small-scale fishing, and food security*

The over-exploitation of natural resources by national and transitional enterprises in all corners of the world, in order to serve global consumers, has resulted in the destruction of natural resources and local economies. This generates poverty and the dependence of peasants on the economy, as well as massive migrations towards urban centres where governments lack the resources to respond to their needs.

An adequate tax policy that benefits local populations; the elimination of subsidies for the extraction of resources, and the pre-eminence of local communities on the use of their resources are key measures needed to maintain food sovereignty, rural populations and agricultural development.

Solid local economies would allow for reductions in transport and in the use of fossil fuels at a global level, while at the same time allowing for the maintenance of rural cultures and communities, fundamental for maintaining ecosystems and for providing the environmental services required by urban populations.

- *Technological Co-operation and Innovation for local sustainable development*

The transition towards ways of life that are 'low input but with adequate levels of well-being', requires both rescuing traditional solutions as well as the transference of new technological innovations. This is especially important in the area of efficient water and energy use, and in the generation of energy based on renewable sources. There is currently sufficient research and materials for energy and water efficiency, for the use of biomass and biological wastes, and for the generation of energy based on renewable sources. What is needed is the removal of legal and institutional barriers, so that these technologies can be made widespread, as well as initial support from the state for their diffusion and promotion.

In the agricultural sector alone, an adequate investment in efficient water-use could save enough water for the permanent irrigation of 27% of the agricultural land, which today is only occasionally irrigated.

- *Energy security, diversification, efficiency, and the reduction of imports*

In spite of having great potential renewable sources, the Chilean energy matrix is excessively dependent on fossil fuels (72%): petroleum (40%), natural gas (16%), coal (16%); the remaining being hydroelectricity (13%), firewood and other fuels. The diversification of the energy matrix towards renewables is a pending challenge, but needed to confront energy vulnerability and to work towards a sustainable energy policy, as fossil fuels not only generate elevated volumes of contaminants, but are also almost all imported. Non-conventional renewable energy in Chile was only 2% of the total electricity generated in 1992. These figures have not changed significantly since as renewable energy



Renewable energy – Chile

continues to be used only in small rural electrification plans in isolated areas. The potential that exists in the country for both wind and solar energy is practically unutilised due to barriers in the energy policy and to economic and institutional obstacles.

Simultaneously, the increase in energy consumption in Chile has been greater than economic growth, signifying high energy input per product unit; a rate of CO₂ emissions of 2,400 kilos per inhabitant per year ; and a highly inefficient energy use. This should be confronted by means of efficiency policies in the mining, transportation, commercial and residential sectors. Estimates by the Energy Research Program in the University of Chile signal that with an efficiency program Chile could, by the year 2010, achieve savings up to half of the 25,000 GW/year that the country consumed in 1994.

The social challenge related to the energy policy is serious, given that energy deficiencies affect the health and quality of life of the poorest sectors as well as create difficulties for accessing new technologies. This situation is the worst in rural sectors where more than 70% of the population lacks electricity. In Chile, the poorest families spend an important percentage of their budgets on energy: between 10% in the Central region and 20% in the southern region. However, lighting and heating are highly deficient, a fact worsened by the poor insulation of the houses.

b) Social equity and overcoming poverty

In spite of the high levels of economic growth achieved in the 90's, currently 21.7% of the population in Chile is considered poor . That is to say, one in four or five Chileans. There is no doubt that this represents a great challenge in the advance towards sustainability. However, this will not be an easy task as the economic model in this country is based on market mechanisms that concentrate wealth, both in salary policies where increases in productivity are not translated into salaries; and in fiscal policies of incentives and tax collection. The proof of this is Chile's unequal income distribution.

According to official figures, in the year 2000, the richest 10% of the population received 42.3% of the incomes, while the poorest 10% only received 1.1% . The average per capita income of the richest sector was 37 times that of the poorest. In spite of the democratic transition the country is experiencing, there is little democracy reflected in the mechanisms of distribution of development benefits. Consequently, tendencies of social unsustainability are added to those of environmental unsustainability.

In addition to poverty and inequity, there are currently situations of significant social and environmental vulnerability. These result from insecure urban settlements where the poorest families are situated. These families must deal with basic sanitation and flooding problems as well as the loss of food security. In addition to serious conflicts related to the territorial rights of indigenous populations, there has been a reduction in the production of basic

foodstuffs, the production of which has been replaced by fruit and vegetable crops for luxury product exports to the international consumer. Between 1976 and 1997, there was a reduction of 320 thousand hectares of annual crops and of 117 thousand hectares of permanent crops .

The political-ethical challenges on this matter require profound changes aimed at the redistribution of wealth and the access to services. This change requires policies whose objective is to secure the social, economic, cultural and political rights of the population.

There are also recommendations for the sustainable use of natural resources, such as taxes on the use of raw materials, the reduction of labour taxes in policy for the creation of employment, and distribution of the economic benefits resulting from the country's natural resources. The reduction of investment subsidies in mining, forestry and fishing and the internalisation of environmental costs would simultaneously discourage over-exploitation while better distributing the benefits of natural resource use.

III. The development model in force has blocked progress towards sustainability

The principle obstacle in the progress towards sustainability in Chile is the development option oriented towards economic growth based on exports, in a context of minimum social and environmental regulations. In this context, the benefits accrued from the growth of the GDP have been concentrated in a social elite that has accumulated more than half of the economic benefits, and maintains consumption levels similar to Northern societies. The productivity of the Chilean economy has not been translated into workers salaries (a fact that explains the inequity in income distribution), and has externalised the costs of environmental degradation and contamination towards the majority of the population. Currently, various mining centres and large urban centres, such as Santiago (capital), are employing contingency plans for air pollution, and suffering sanitation crises due to a lack of policies for waste management.

When it comes to natural resources, the most serious problems are erosion and deforestation, as well as the degradation of water resources. Erosion in Chile affects 47.3 million hectares, the equivalent of 62% of the national territory , with a desertification rate of six thousand hectares per year , affecting more than 50% of agricultural land. In the fishing sector, eight of the nine fisheries, representing more than 90% of fishing exports, are suffering from extraction levels greater than their reproduction capacity . This has generated a permanent drop in capture since the mid 90's. The degradation of the forestry reserves and the contamination of water resources, including subterranean water tables in some regions of the country, are further proof that the current development model cannot maintain itself.



PHOTO: AURORA/TRANSWORLD

Atacama desert - Chile

The narrow institutional political framework, in sectorial laws as well as in the political constitution, established during the military government and maintained by the recent transitional governments, have made it difficult for Chileans to change this situation either through the normal election process or through referendums.

IV. The need for changes at the international level

Citizen evaluations on the implementation of sustainability, in Rio+5 (1997) as well as in Rio+10 (2002), are evidence of a contradiction between the Rio Agenda and the Agenda of the international financial and commercial institutions, including the WTO. This citizen evaluation also proves that changing this tendency requires making the environmental, social, labour and human rights already consecrated within the system and agreements of the United Nations regulatory conditions of trade. These rights should also be placed within the framework of development objectives for international financial institutions such as the World Bank and the IMF. Under this same regime, an international system of corporate responsibility should be created to frame and control private economic activity.

Additionally, it is fundamental to work towards a system of Natural Resources Accounts at national and international levels; this would allow countries to design a long-term system for the management and use of natural resources. This could include sustainability indicators, similar to the Index of Human Development carried out by UNDP, allowing for the visualisation of challenges and the establishment of plans for sustainability policies on biodiversity, natural resources, access, consumption, maintenance and carrying capacity.

International policy should also work towards an economic policy that establishes a price system for the internalisation of environmental costs, eliminates subsidies for the over-exploitation of resources, and that works towards a valuation of the planet's natural resources based on its conservation and replacement.

Without basic economic criteria for environmental sustainability, any political effort or regulatory framework that seeks to advance towards sustainability will be impossible to implement. For example, product durability and quality requirements, or the conditions for recycling and re-use, cannot be made a reality if economic signals go in the opposite direction. As such, perhaps the greatest

challenge at the start of the 21st century is not to continue creating Sustainability Agendas such as Rio 92, but rather to work towards economic instruments and policies that make the existing agendas possible. If not, marketing and markets oriented towards promoting short-term consumption will continue to dismantle progress towards sustainable development.



PHOTO: F. HOOGERVORST

Forest

The case of the agreements for climate protection is crystal clear in this regard; all countries know what the objective is: the reduction of emissions. However, there is still no coherent and structured economic proposal for the substantial progress towards this objective. Cosmetic reforms, ambivalent regulations and marginal economic mechanisms will not achieve the necessary changes. In this context, it is demonstrative that 10 years after Rio 92 and the Convention on Climate Change there is still no International Agenda for Renewable Energy Sources and Energy Efficiency. Neither is the objective of an energy transition at the centre of international financial mechanisms or in the regulation of investment regimes.

Economic policies at international level continue to be implemented on a basis that does not respond to the reality of a limited planet, nor to the imperative that the economy should redirect its signals and mechanisms towards reducing the intensity of resource use. Also, in the movement towards the global integration of economic systems under a single regulatory framework, are economic distributive requisites incorporated which respond to economic interactions among all sectors of the world population. On the contrary, a system of global rules has been established which allow for the integration of a small group of elite located in diverse nations of the planet, who benefit from the management and use up of the resources from the entire planet.

The reduction of imports of natural resources by Northern countries will certainly affect the Southern economies, but neither is the North disposed to buying a lesser quantity of resources with greater added value; the tariff system in world commerce is very clear on this. Thus, it is not possible to respond to a common planetary objective of incorporating greater human activity (manufacturing, reparation, recycling, restoration etc.) per product unit, and reducing energy inputs (transportation etc.) per product unit. Without reducing the pressure placed on ecosystems and without finding a concrete definition of greater human activity per product unit, the Southern societies will not be able to aspire to improved well-being.

The political vulnerability of a social and economic system with such high levels of inequity and environmental destruction, places doubt on its democratic sustainability in the short-term. This fact, together with the environmental vulnerability that has begun to be expressed in global changes, constitutes a call for translating the plans from ten years ago into real action. Financial and human capabilities should be put towards that goal. The destiny of Northern and Southern societies is fundamentally tied to these challenges. Equity and ecology are the two sides of the same challenge, the sustainability of the planet and of planetary societies.

An agenda for Brazil

By Sergio Schlesinger

FASE
Rua das Palmeiras 90, Botafogo
Rio de Janeiro – RJ
22270-070
Brazil

Tel: + 5521 2286 1441
Email: brsust@fase.org.br

The views expressed in this article are those of the author and do not necessarily represent the view of the organisation.

PHOTO: ARCHIVE FOE NETHERLANDS



Forest

I. Introduction

The first major challenge to be faced by Brazil in its move towards sustainability involves its development model, in many ways similar to those adopted by the majority of the world's countries. The model promises that, by opening markets to free competition, the economy will be able to grow and to allow all – or at least the winners – to achieve the same patterns of consumption practised by the richest sectors of the population.

This model ignores the fact that the poverty of some and the wealth of others have deep cause-and-effect relations. The rich do not simply exist alongside the poor, since the wealth of the few actually causes the poverty of the majority of the population. Since natural resources are limited, it is even more impossible for everyone at the same time to enjoy the consumption patterns practised by the elite.

Given these facts and considering that a large share of the Brazilian population has no access to the minimal material resources needed for a dignified standard of living, we will discuss the need for new patterns of development.

These patterns would meet all the above needs in a sustainable manner.

The first major hurdle to be overcome, domestically, is the tremendous concentration of wealth and of income so characteristic of Brazilian society. Alongside a minority that reproduces unsustainable First World consumption patterns, lives the majority deprived of its social and environmental rights.

The second major hurdle arises from Brazil's international subordination. Given Brazil's – and many other countries' – increasing foreign debt, the consumption needs of the population represents a low priority for public policies. The opening to foreign trade, along with this balance of payments crisis, has pushed indebted countries into greater specialisation in the production of primary or intermediate export products, whose prices are constantly depreciated.

At the same time, the deterioration of terms of trade means a greater need to increase the volume of exports. Since this behaviour is common to all underdeveloped countries—and since foreign debt intensifies this tendency—predatory competition is the rule of the day, forcing export prices even lower. A vicious cycle sets in whereby lower raw material export prices drops leading to a higher export of goods that are environmentally destructive.

This specialisation in export production and the resulting decrease in international market prices also work to transfer more income to developed countries. Financially, this means the acquisition of companies and other assets by the First World. Materially, it means over-consumption of natural resources and energy from developing countries. In both North and South, therefore, inequities are increased and the goals of sustainability become even more distant: under-consumption by the majority shares the same roots as over-consumption by the few. Here we present a number of cases to exemplify this analysis.

PHOTO: H. PRINSEN



Forest extraction

a) Social and environmental impacts of the concentrating, export-oriented model

Brazil's recent response to the declining purchasing power of its exports – combined with the growth of imports – has been to increase export volumes. More and more land is occupied with monocultures and greater industrial pollution is caused by the manufacture of low-value products that consume high amounts of natural resources and energy. In recent years, exports of soybeans and other monoculture crops have taken over many areas previously settled by family farms producing for domestic markets. Environmental impacts of the new technologies have been dramatic as well: soil degradation, lower quality and quantity of water, devastation of forests and natural ecosystems, erosion of the genetic diversity of plants and animals, and food contamination.

In industry, the sector that produces intermediate goods – mostly for export, such as steel, aluminium, chemicals, paper and pulp – causes more significant environmental impacts than the industry average. The unlimited consumption of local raw material, energy and water, in addition to water and air pollution, helps explain the on-going transfer of industries in this segment to less developed countries. Here, less demanding standards for environmental protection, along with subsidised power and other factors, make production more profitable by cutting costs. From 1975-98, Brazil's intermediate goods industry grew by 88%, compared to 60% all for industry (excluding mining).

A recent study by ECLAC – the UN Economic Commission for Latin America and the Caribbean – confirms that a small share of industrial production is responsible for most water and air pollution. Most 'dirty' industries are directly or indirectly linked to exports, such as metallurgy (automobiles and car-parts exports), paper and pulp and footwear (leather goods) and the chemical industries.

The generation and distribution of energy has major social and environmental impacts. Heavy industry includes segments with the highest rate of energy consumption per unit of production. Altogether, in 1997 they consumed 20.4% of the country's total energy consumption. Steel (7.6%),

aluminium (4.5%) and paper and pulp (3.2%) consumed more (15.3%) than all household consumption that year (12.1%). Inside the country, the impoverishment of the domestic market attracted a flourishing industry for deliberately degraded products, such as black-market car parts, building material whose quality is far below minimum standards and appliances made with no durability. From an environmental standpoint, this runs counter to European proposals to prolong the life cycle of consumption goods, in order to reduce the consumption of natural resources and energy.

II. Pathways to sustainability in the South

The analysis of our development model reveals the need for many changes in Brazil's dominant production and consumption patterns. This can only be achieved through change on a national and international level. To think of sustainability in one country thus implies the need to contain the overseas drain of financial and material resources. It demands new social and environmental relations that are far removed from the profound inequities inherent in the model of today.

To make such changes, our goals must be built on new priorities:

- The production of goods and services need to promote the quality of life of the Brazilian population as a whole, by redirecting public resources and policies as well as incentives for national and international investments. For example, the automobile industry receives a variety of official incentives and subsidies, which could be redirected to meet the need for high-quality public transportation.
- Health, education and housing are basic necessities and depend on public resources. Governments, in dialogue with society, must implement public policies able to provide the entire population with these essential prerequisites to sustainability. These essential sectors cannot be left to market-oriented decision-making.
- In the generation of jobs and income, production sectors must be prioritised that can both generate enough jobs to reach full employment and produce enough goods and



PHOTO: PIET DEN BLANKEV/ HH

Agricultural cooperation

services to meet the basic needs of the population, with minimal environmental impact. These criteria should take priority over today's favourites: competition, profitability and overseas marketability.

- Reducing energy consumption must be the target of policies for public and individual transport, civil construction and production sector. Subsidies, fiscal incentives and other fiscal and credit mechanisms should be used to stimulate sustainable production and energy consumption.
- In farming, family farms should be emphasised, to overcome 'modern' priorities on export-oriented monoculture and cattle grazing. Family farming is the best alternative and will generate the largest number of jobs, reduce environmental impacts of farming and produce the food needed to feed the Brazilian population. Land reform is another essential – and still unfulfilled – prerequisite for rural sustainability.
- Investment in science and technology, in education for workers and other measures key to the adoption of sustainable industrial and agricultural production patterns

must be high on the list of objectives for public and private policies.

A major portion of the financial and material resources needed to attain these objectives can be obtained by redirecting public spending away from activities that run counter to sustainability, such as:

- Incentives, subsidies and facilitated credit for export-oriented farming;
- Stimuli for the production of export-oriented agricultural and industrial commodities that are heavy users of energy and natural resources, including coffee, soybeans, sugar, orange juice, poultry, paper, pulp, iron ore, aluminium and steel products;
- The production of individual passenger cars and the construction of the infrastructure demanded for them to circulate, to the detriment of public transport and alternative modes of transport, such as rail and waterways.

Nor can we ignore the current political and financial situation in our country. An overload of public spending is promoting the concentration of wealth and income. This public spending is dealing with the financing of public internal deficits, with very high interest rates for many years. The public budget is highly compromised with payments related to debt financing, and has its origin in policies driven to a growing attraction of foreign investments.

a) The public sector and the challenge of sustainability

As Brazil's foreign accounts go from bad to worse, the consumption needs of the consumption become lower and lower priorities for official policies. The growth of production is aimed above all at reducing the imbalance in the balance of payments. Paradoxically, exports yield less and less income to redress those imbalances. Interest and principal payments on the foreign debt profit remittances and other financial items in the country's foreign accounts cost much more than any trade surplus could ever cover.

Meanwhile, the commercial opening that began in the 1980s and expanded in the 1990s has given imports a weight they had lost in the economy after the country began to industrialise. Brazil's foreign debt was US\$241 billion at the end of 2000, equal to half of the GDP of 2000. Over the past

decade, Brazil has paid US\$294 billion in debt and interest payments. At the same time, the balance of trade has shown growing deficits, mainly due to the explosion of imports. While it is obviously impossible to pay off the foreign debt with exports, the drive to produce goods for overseas markets continues unabated, with more imbalances than ever. Two factors contributing to this are:

- The growing presence of foreign capital in Brazilian industry, making import and export decisions a function of these companies' own trade and financial interests.
- The denationalisation of Brazil's industry, along with the recent privatisation of companies bought by foreign capital, mean an acceleration of profit remittances to the new overseas owners.

b) International negotiations

Possible obstacles to free trade arising from the different environmental laws in each country are among dominant issues in international negotiations. In other words, each government negotiates to achieve international environmental standards favourable to the economic and financial interests of companies located in their country. The goal is to avoid having environmental legislation hinder free trade, rather than the other way around.

For these reasons, discussions on relations between trade and the environment never touch on the issue of democratic sustainability. Yet the issue must be faced, since international trade exists and requires regulations that defend the legitimate interests of peoples, in social, economic, environmental and cultural terms.

In negotiations on trade and the environment, developed countries normally implement laws, standards and regulations that assure high levels of environmental protection, vis-à-vis the products themselves or the technology for their production. Their objective is to fight so-called spurious advantages, such as lower production costs due to environmentally aggressive technologies and production systems that amount to 'environmental dumping'. Such lower environmental costs are seen to attract productive investments in countries with less control over their production methods.

The concern also covers a range of other productive practices such as: child labour, inadequate labour legislation, low wages, etc., which are termed 'social dumping.' Most less-developed countries tend to resist the inclusion of environmental clauses in negotiation processes. Their main reason for doing so, is the fear that such instruments might be used by developed countries as barriers to their exports. These countries also lack access to the financial and technological resources needed to implement less polluting production systems.

Comparative analyses between developed and underdeveloped countries, however, can at times cause a misleading oversimplification, if we ignore the real interests at stake as related to international capital. There are also clear differences between the practices of different developed countries.

Some dispute panels opened by the WTO illustrate such positions:

- The US and Canada demand that the European Union suspend its embargo against their beef exports, an embargo justified by the high concentration of hormones in beef and beef products.
- More recently, US pharmaceutical companies who export essential drugs at exorbitant prices, including components of the anti-AIDS cocktail have pressured Brazil. The agreement on intellectual property signed by the Brazilian government states that patents granted to those companies must be respected. However, the same agreement also states that measures must be taken to protect public health and to avoid abuses of intellectual property rights. This is not possible if the pharmaceutical companies are not prepared to sell their drugs at affordable prices.
- Countries like Brazil and South Africa have conquered this problem through local production and imports from alternative sources. The US reacted by requesting a WTO panel to rule on this dispute. Several international agencies, led by Oxfam, Third World Network and Médicins Sans Frontières have launched campaigns to change this intellectual property regime, which puts the

financial interests of multinationals before the survival of millions of people in less developed countries.

These examples show how the WTO, created with the explicit objective of promoting greater liberalisation of world trade, is not an appropriate forum to regulate issues that affect the right to life, to development, to health, to the environment, etc.



PHOTO: P. CHATTERJEE EN A. SOLTANI

Macuxi children traditionally dressed at the 20th birthday of the removal of gold winners on their land

c) A few proposals

The creation of favourable conditions for sustainability in Brazil will demand profound changes both in international relations and in Brazil's own position in this scenario. International trade is not an end in itself. It must be handled as a tool that is subordinate to the priority tasks of fighting poverty, inequality, unemployment and the unfair and irrational appropriation of natural resources. There follow some relevant points gleaned from the above analysis.

• Free trade and finance

Trade liberalisation is incompatible with the objectives of democratic sustainability. It has become a powerful force in the aggravation of inequities, both domestically and internationally. The power of financial flows to concentrate wealth is so great that mere regulatory measures to restrict international trade would be insufficient. Sustainability therefore requires broad-ranging national and international regulations in order to impose rules on these activities that take social and environmental objectives into consideration. In the specific case of Brazil, under the current economic model it will be impossible to turn back the process of permanent debt and dependency. This model is advancing towards even greater debt for the country and the state, thus demanding ever-greater transfers of income and assets, blocking national development and perpetuating our social debt.

• Foreign debt and multilateral agencies

The foreign debt of Brazil perpetuates the country's subordination to its creditors. It must be urgently renegotiated, with payment conditioned to the interests of the Brazilian population. Debt is responsible for the on-going imbalance of our foreign accounts and, historically, has driven the 'need' to export at any cost. Meanwhile, agencies like the World Bank, the IMF and the WTO must assume merely technical roles, regulating their respective subject matters internationally. These matters must be subordinate to policy decisions regarding issues of interest to all of humanity, such as treaties and conventions developed under the United Nations. This is not an apology for the UN's performance. It does

however appear to be the most appropriate international agency for this purpose and could help keep major issues such as trade, environment, employment, human rights and others from being treated separately from each other. We also assume that civil society access to effective participation and the democratisation of decision-making will be essential ingredients. In the quest for sustainability, the multilateral funding agencies and the WTO must target programs and projects that help promote social justice, quality of life and environmental preservation.

• Free Trade Area for the Americas (FTAA)

A particularly firm stance must be taken against the implementation of the FTAA. This has been done by civil society through the Continental Social Alliance, a network of organizations throughout the Americas seeking to intervene in trade integration processes, and proposing the true integration of peoples as an alternative. The FTAA would make sustainable and democratic development—capable of dealing with the real needs of our societies—an even more distant project.

• Domestic markets, as a starting point

International trade must be used as an instrument for development. The mass of the Brazilian population lives below the poverty line, and this fact demands the creation of a solid and stable domestic market. Activities must be identified that can generate dynamism and induce domestic development, while maintaining the capacity to export surpluses. Only when Brazil has a solid domestic market will it achieve a strong and sovereign position in international markets.

The ability to generate enough high quality jobs and income is a fundamental factor. Policies must focus on sectors and production methods that are profitable, environmentally sound and capable of generating a maximum of jobs per unit of capital invested.

For the state to recover its capacity to generate real development there must be less pressure from the financial commitments of the domestic and foreign debts. In addition,

the state must free up public resources that currently subsidise and promote activities totally unrelated to sustainable development.

Nor can we forget that the uncontrolled long-distance transport of goods only creates more problems. These too demand regulation and the limiting of the consumption of fossil fuels that feed global warming.

- *Taxes and subsidies*

The government must stop granting subsidies and tax incentives to export-oriented activities involving products whose manufacture makes intensive use of natural resources and energy, such as the aluminium and other industries. Fiscal incentives and subsidies for production are valuable tools for guiding investments in the right direction. To target activities that will allow development to meet the populations essential needs, Brazil must reverse commitments to the WTO and other multilateral agencies that surrender our sovereignty and make the adoption of such policies impossible.

We also favour the use of mechanisms to stop the export of raw materials at humiliating prices, as well as the global circulation of speculative capital. In the latter case, we support the adoption of the Tobin Tax, to create a fund to fight inequalities and preserve the environment. The campaign for the Tobin Tax led by ATTAC (Association to Tax Financial Transactions to Support Citizens) is now supported by countless civil-society organizations around the world.

- *New production and consumption patterns*

If we are ever to achieve acceptable levels of wealth distribution on a global scale, science and technology can no longer be treated as mere commodities. Knowledge accumulated by people over centuries, which is the cornerstone of patterns for the creation of wealth, must be a tool for co-operation. The import of such science and technology has now simply become yet another means to transfer wealth to the developed world.

We must remember that the composition and volume of exports from the Third to the First World – as well as our imports – make up a complementary system. Our exports

meet the demands of a specific consumption pattern in the First World, whose present 'needs' must be significantly reduced.

A cutback in consumption in the Northern Hemisphere is a key element in allowing access to consumption for segments of the world population whose income levels are now well below what is needed for a dignified standard of living. The hypothesis of meeting all the basic needs of the people of Brazil, China and India reveals just how unsustainable present consumption patterns of the world's 'better off' actually are. Finally, lest we forget: the unsustainable consumption patterns prevailing in developed countries, copied by the wealthy in our own population, cannot and must not be imitated. The globalisation of customs has already moved us far from our traditional patterns, which are more compatible with our real needs and more adapted to our local possibilities and cultures. The re-encounter with our own cultural identity may well yet be the greatest challenge we face.

Conclusions

PHOTO: M. WIJNBERGH



Windmill

The crucial merit of the article of Mr van Brakel (Friends of the Earth Netherlands) is the distinction he makes between the challenge faced by industrialised countries and that faced by developing countries when striving for sustainable production and consumption.

A typical industrialised country needs to move from a high input (in terms of natural resources)-high output (in terms of prosperity) (HIHO) economy to a low input-high output (LIHO) economy. A typical developing country needs to move from a low input-low output (LILO) to a low input-high output (LIHO) economy.

All institutions (donors, governments, IMF and World Bank) seem to think that the way to go for developing countries is via HIHO. However, Van Brakel suggests there must be a shortcut. To be able to identify that shortcut, he looks at the end-use rather than the supply-side of the economy, and focuses on three end-uses (where most resource consumption takes place): food, housing and personal transport. Focusing on end-use means meeting needs without wasting natural resources.

Such a scenario would have implications for the needs of developing countries in terms of technology, trade and investment. Policies of national governments, IMF, World Bank, WTO etc. would need serious revision. According to Van Brakel these policies need to integrate social targets (short-term) and ecological targets (long-term). Therefore, public support is necessary.

When we asked the four NGOs in Brazil, Chile, Ghana and India working on this topic to write an article which discusses the subjects Van Brakel mentioned above, it was always our intention to make the results known. The following conclusions will not exhaustively treat every difference between the countries, but highlight the interesting

similarities and contradictions described in the five articles. It is impossible to describe all the world problems the authors writing about in two pages. After reading the articles it is clear that they are meant to provide practical tips and insights into local experience as well as each person's view on how the international agenda should be reset. Please feel free to contact the authors when trying to set up a similar project and ask them personally about their experiences.

The challenges faced by each developing country are unique, yet comparable. For years now, the agendas of these four countries have been determined by international institutions. This has led to various problems. The development model is completely export-orientated. By extracting natural resources to pay their loans, developing countries enter into a vicious circle that leads to erosion, deforestation, water pollution, shortage of water etc. More extraction to pay back interest, and compensate for the low prices of raw materials only makes the situation worse. The gap between rich and poor is a very serious barrier to sustainable development, whether at a national level (between groups of citizens) or at an international level (between countries). The development model now used maintains this unfair distribution of wealth. The articles elucidate these problems combined with high population growth. All these problems are not new, but the solutions come from another perspective.

In their search for solutions, the four contributors agree with Van Brakel on the necessity to push their economy into a low input – high output society.

When it comes to technology, he advises to stay close to local experiences. Use what already exists. All four agree, but the authors from Brazil and Chile state that investing in science and technology is also necessary in order to invent new sustainable technologies. Copying technologies from the North will make Southern countries more dependent. Van Brakel is also not fond of a high-tech transfer from North to South and prefers a South to South transfer instead. The example from the author from India of a house made entirely out of bamboo is a perfect example of a combination of local experience and materials, and modern construction techniques.



PHOTO: LSME

Biodiversity

The contributors also generally agree on solutions concerning developmental policy. All of them talk about changing the development model from an export-orientated model into a more self-sufficient model, making sure the inhabitants have enough to live on and resources they can rely on. They suggest setting up a system of distributing products in the region and only putting the surplus on the world market. They also advocate keeping or making agriculture sustainable and staying away from monocultures. This ensures that sustainable production methods keep knowledge intact and reduce transport costs and kilometres. This would require a change in awareness of the people that would need to be brought about by education and information. India did research on green consumerism and discovered that only a small percentage want to pay more for their environmentally friendly products. So, this is a recommendation for other NGOs: involve people in the choices that need to be made, especially when it comes to sustainable production and consumption in relation to food, water and energy security. It is not easy to change people's habits, and you have to know where to start. If the

government is willing to change existing policy, there are instruments to make sustainable products more attractive (i.e. cheaper). The author from Ghana writes about water-saving showerheads and toilets. Who is going to pay for these products? The Brazilian and Chilean authors propose to install taxes on heavy industries to generate capital, which could be used for example for water and energy saving. Nevertheless the Indian author writes that India will not achieve the 'factor four objective'. This means that we need even more creativity to get a sustainable policy, even more than now showed by the contributors of this book.

The contributors agree on the need for stable governments to execute sustainable action plans. According to the NGO from India, the Indian government needs to raise its levels of efficiency. The Brazilian NGO faces the additional problem of a government overwhelmed by an enormous foreign debt (of course the other countries also face this problem). The NGOs in Ghana and Brazil both want more power for a government with a democratic basis and, at the same time, more regulations for the private sector. They embrace the principles that 'the polluter pays' and that the environment should always play a part in business costs.

The contributors unanimously agree on the obstacles that they face when it comes to the international arena. Currently, governments are not able to resist pressure from international (financial) institutions like the World Bank, the IMF and the WTO.

Because of this, all NGOs stress the need for environmental and social legislation that is internationally agreed on and valid in all countries. This would make it harder for the WTO for example to prevent developing nations from introducing further environmental and social policies. The proposal from NGOs in Chile and Brazil is to install a UN international framework of rules that would not allow the WTO to have such influences. This kind of regime, an international system of corporate responsibility, could control private economic activity on their environmental and social merits.

Of course, these measures are all necessary to achieve a sustainable production and consumption policy, but all

contributors state that developed countries should first cut back their consumption level, because it triggers and causes a high percentage of the problems in developing countries.

The question I ask myself now when writing these last sentences is, 'What will we do with all this information?' This book shows me that the existing framework of our standard economy model hinders even the process of thinking about solutions for a sustainable policy by NGOs. Will there be governments strong enough to develop sustainable development policies in the coming years? Only in the article on India there are clear examples of initiatives by the government (e.g. the box on housing). When will other governments follow? What openings are there in your country to stimulate your government in the desired direction?

Willemijn Nagel
Friends of the Earth Netherlands

Annex 1

Country overview

Standard sources

Information available from the Dutch Ministry for Foreign Affairs is used where possible for this country overview.

Other sources are used (with the most recent editions/data):

- General data, Regional Surveys of the World, Europe Publications
- Demographic data, Human Development Report
- Economical data, Economic Intelligence Unit
- Development indicators, Human Development Report, UNDP
- Investment statistics, Bank of the Netherlands

Additional sources

- Asian Development Outlook, 2001
- World Development Report, WB 2000
- CIA World Fact book 2000
- Background Notes: US Department of State, 2000

General information

	Ghana	India	Chile	Brazil
Surface	238,537 km ²	3,287,263 km ²	756,626 km ²	8,547,403 km ²
Capital	Accra	New Delhi	Santiago	Brasilia
Population	19.3 million (2001. EIU estimation)	1.027 billion (census 2001)	15 million (1999)	164 million (1999)
Density of population <i>(inhabitants per km²)</i>	81.1	312.4 (2001)	20 (1999)	19.2
Religion	Indigenous religions (38%). Islam (30%). Christianity (24%). Other (8%)	Hinduism 82%. Islam 12.1%. Christianity 2.3%. Other 3.6%	Roman-Catholic (89%). Protestant (11%)	Mostly Roman-Catholic
Language	The official language is English. 75 other languages and dialects	Hindi. English and 16 other official languages	Spanish	Portuguese

Politics

	Ghana	India	Chile	Brazil
Head of state	President John Agyekum Kufuor (since 7 January 2001)	Kocheril Raman Narayanan	President Ricardo Lagos Escobar	President Fernando Henrique Cardoso
Form of government	Constitutional Republic	Federal Republic	Republic	Federal Republic

Demographic data

	Ghana	India	Chile	Brazil
Population growth	2.7% (1975-1999) 2.1% (1999-2015)	2.0% (1975-1998)	1.6 % (1975-1998) 1.1% (1998-2015)	1.3% (1999) 1.9% (1975-1998)
Birth rate (per 1000 inhabitants)	28.9 (estimation 2001)	24.79 (estimation 2000)	17.8 (estimation 1999)	20.4 (estimation 1999)
Mortality rate (per 1000 inhabitants)	10.3 (estimation 2001)	8.88 (estimation 2000)	5.5 (estimation 1999)	8.8 (estimation 1999)
Life expectation (year)	57.9 (f). 55.3 (m) (1999)	63.3 (f). 62.4 (m) (1999)	78.4 (f). 72.4 (m) (1998)	71.2 (f). 63.3 (m) (1998)

Economical data

	Ghana	India	Chile	Brazil
GDP (billion)	US\$ 5 (2000)	US\$ 473.4 (2000)	US\$ 67.4 (1999)	US\$ 557 (1999) US\$ 777 (1998)
Economical growth	3.7% (2000) 4.4% (1999) 4.7% (1998)	6.1% (2000) 6.4% (1999)	-1.2 % (1999)	0.8% (1999) 0.1% (1998)
GDP (per capita)	US\$ 390 (1999. World Trade Bank)	US\$ 441 (1999)	US\$ 4490 (1999)	US\$ 3.354 (1999) US\$ 4.803 (1998)
Inflation	25.2% (2000) 12.4% (1999) 14.6% (1998)	4.0% (2000) 4.7% (1999)	3.4% (1999)	8.5% (1999) 6.9% (first quarter 2000)
Working population per sector	Agriculture and fishery 60%. industry 15%. trade and services 25% (1999)	Agriculture 67%. industry and trade 15%. services and government 18%	Agriculture 16%. industry 15%. services 69%	Agriculture 23.1%. industry and mining 23.7%. services 53.2%
Unemployment	20% (1997)	Unknown	8.9 % (1999)	8.2% (1999)
Export (billion)	US\$ 1,898 (2000)	US\$ 43.1 (2000)	US\$ 15.6 (1999)	US\$ 48 (1999)
Import (billion)	US\$ 2,741 (2000)	US\$ 54.5 (2000)	US\$ 14.0 (1999)	US\$ 49.2 (1999)
Currency	Cedi (C)	Rupee (Rs)	Pesos (Ps)	Real (R)
Foreign debt (billion)	US\$ 6.9 (2000)	US\$ 95.8 (2000)	US\$ 39 (1999)	US\$ 241 (2000)
Debt-service ratio	20.7% (2000)	16.1% (2000)	23.3% (1999)	89.3% (1999)
Trade balance	US\$ 843 million (shortage. 2000)	US\$ 11.4 billion (shortage, 2000)	US\$ 1.4 billion (surplus, 1999)	US\$ 1.2 billion (shortage, 1999)

Development indicators

	India	Ghana	Chile	Brazil
Growth sectors	Agri-business. food production and packing. mining. telecommunication. consumer electronics. renewable energy. transport en tourism	Energy. petrochemistry. food production. sustainable consumption products. electronics. information technology	Transport and communication	Metal and petrochemical industry. automobiles. agriculture
Energy	Hydropower is the most important domestic energy source; import remains necessary	Energy shortages regularly occur	Electricity use was rationed temporarily in Central Chile (this was due to drought)	Oil is the main fossil fuel. Crude oil is partly imported. more than half is self-production. Hydropower supplies 95% of the total electricity needs.
Human development index	0.542 (119th rate,1999)	0.571 (115th rate, 1999)	0.826 (38th rate,1998). 0.844 (34th rate, 1997)	0.747 (74th rate, 1998)
Human poverty index	29.1% (46th rate,1999)	34.3% (55th rate, 1999)	4.7% (4th rate,1998)	21% (1998)
Gender-related development index	0.538 (108th rate,1999)	0.553 (105th rate, 1999)	0.812 (39th rate, 1998). 0.832 (33rd rate, 1997)	0.736 (66th rate,1998)
% of population that dies before age of 40	27% (1995-2000)	16.7% (1995-2000)	4.4% (1998) 4.5% (1997)	11.3% (1998)
Literacy	61.5% (f) 79.4% (m) (1999)	44.5% (f) 67.8% (m) (1999)	95.2 % (f) 95.6% (m) (1998)	84.5% (f) 84.5% (m) (1998)
% of population with access to drinking water	64% (1999)	88% (1999)	91% (1990-1998)	76% (1990-1998)
% of population with access to health care	44% (1999)	35% (1999)	95% (1981-1993)	75% (estimation)
% of children under 5 years with underweight	25% (1995-2000)	53% (1995-2000)	1% (1990-1998)	6% (1990-1998)

Footnotes

- 1 *In many rich industrial countries the fear is already well established that their prosperity may be threatened by the ever increasing population of poor countries, demanding more prosperity. Until now this fear has been translated into very strict immigration laws. The fear may also turn against the necessity of equitably sharing natural resources, perhaps in a populist combination of 'anti-globalisation' and 'nationalistic' attitudes.*
- 2 *The environmental movement has been one of the most successful social movements in recent decades. This success can be largely attributed to the assumption that ecological problems (nuclear energy, pesticides, air pollution, chemical wastes, etc.) are also social problems, because they form a threat to public health. Such a link, however, is less obvious when it concerns sustainability, as it no longer deals with combatting the negative impacts of high natural resource use, but with combatting high resource use itself.*
- 3 *How far the limits of economic growth reach based on increasing natural resource productivity is a more or less philosophical question and is connected to the question of how far the limits of human creativity reach in finding ways to better use natural resources. At the very least, we can say that we have a long way to go before reaching these limits.*
- 4 *A good example is the development of genetically modified seeds, which indeed has –in some, but not all cases- the potential to minimise environmental impact, but would have the effect that a reduction of natural resource use is replaced by a high financial resource use. This is not in the interest of both farmers and consumers, who would prefer alternative solutions to a reduction of an environmental impact, that are more ecologically sound (while avoiding possible non-foreseen risks of genetically modified seeds) and socially responsible as well..*
- 5 1996–2002 UNU/IAS
- 6 *Sustainable food production, income generation and consumer protection in India, Agro-chemicals News in Brief Special Issue, November 1999*
- 7 *Indian Market Demographics Report, 1998, NCAER, New Delhi, India*
- 8 <http://www.envfor.nic.in/cpcb>
- 9 *Green Ads: Are They Telling The Truth?: CUTS, 2001*
- 10 *Greening the Lead Acid Battery Sector: Structure, Problems and Needs: CUTS, 2001*
- 11 *Quest for a Better Environment, CUTS,2001*
- 12 *Ozone Depleting Substances*
- 13 *Labour: Just holding the line is not sufficient, Financial Express, February 8, 2002 , By Pradeep S Mehta et al, CUTS Centre for International Trade, Economics and Environment*
- 14 *National Multi-stakeholders Workshop on the Leather Sector, CUTS-UNEP-CLE, New Delhi June 13, 2002*
- 15 *Concept Testing of Green Consumption, CUTS, 1998*
- 16 *Undertaken by HUDCO*
- 17 *Times of India, April 9, 2001*
- 18 *Agro-chemicals News in Brief Special Issue, November 1999 programmes.*
- 19 *Indian Council of Agricultural Research*
- 20 *The constant Total Factor Productivity (TFP) growth assumption implies continuance of the trend observed since 1970s*
- 21 *'Interactive workshop with Farmers' organised by CUTS on March 23-24, 2002 at Dehradun, India*
- 22 *Most rural areas do not have access to the present co-operative movement in milk in India. While there is abundance of milk in the urban areas, milk is not adequately available in remote villages due to lack of mobility*
- 23 *The model is being experimented by Prof Kalyan Rudra, Vidyasagar University, West Bengal, India at Malda District, West Bengal*
- 24 *Factor four is the concept that resource productivity should be quadrupled so that wealth is doubled, and resource use is halved*
- 25 *Dirección de Relaciones Económicas Internacionales-DIRECON 'Exportaciones pendientes de recursos naturales 2000' Ministry of Foreign Relations, Santiago, Chile, 2001*
- 26 *Natural Resources extracted 26%, lightly processed 62%, industrialised 12%*
- 27 *Central Bank of Chile 2001,Gross Domestic Product by Sector –www.bcentral.cl*
- 28 *DIRECON, 1998 'Exportaciones por sector de origen 1998, en base a datos del Banco Central de Chile*
- 29 *Quiroga Rayen , Comercio , Inversiones y Sustentabilidad.El caso de Chile,Programa Cono Sur Sustentable ,2002*
- 30 *Quiroga Rayen , Comercio , Inversiones y Sustentabilidad.El caso de Chile,Programa Cono Sur Sustentable,2002*

- 30 Sustainable Chile Program 'Por un Chile Sustentable: orientaciones para la sustentabilidad en el sector minero en Chile', Santiago, Chile, April 1999
- 31 National Ecological Action Network-IEP 'Estimación de subsidios directos e indirectos para el Proyecto Río Cóndor de Forestal Trillium' Environment and Trade Program, April 1998
- 32 Sustainable Chile Program 'Por un Chile Sustentable: Orientaciones para la Sustentabilidad del sector Minero en Chile' Santiago, Chile April 1999
- 33 Sustainable Chile Program 'Por un Chile Sustentable: Orientaciones para la Sustentabilidad del sector Minero en Chile' Santiago, Chile April 1999
- 34 Henrich Boll Foundation: Equity in a Fragile World: Memo for Johannesburg, Berlin, April 2002.-Spanish Version – Santiago Chile, June 2002
- 35 Larrain, Sara, 'El marco de la Sustentabilidad: su potencial etico y politico' In Women and Sustainability, exchange and debates among women's movements and ecological movements, ISIS, MEMMCH, Instituto de la intercambio y debates entre el movimiento de mujeres y el movimiento ecologista, Instituto de la Mujer, Instituto de Ecología Política y Programa Chile Sustentable, Santiago, Chile, December 2000
- 36 Celis, Angélica; Letelier Eduardo 'Agricultura y Ruralidad Sustentable:Hacia el fortalecimiento de la Sociedad Civil rural' Sustainable Chile Program, 1998
- 37 Sustainable Chile Program, Energy Research Program- U of Chile-' Eficiencia Energética y fuentes renovables en Chile: Desafíos y perspectivas'.August 2001
- 38 National Commission on Energy, Energy Matrix 1999
- 39 Estimation by the Energy Research Program in the University of Chile, based on energy consumption in 'Balance Nacional de Energía 1994'
- 40 PRIEN/IIEC/NRDC 'Uso eficiente de la electricidad en Chile 1994 -2020' trabajo auspiciado por la CS Mott Foundation, Santiago,Chile, May 1996. Cited in 'Por un Chile Sustentable' Sustainable Chile Program, April 1999
- 41 National Statistics Institute, IV Budget Survey, 1987-1988.
- 42 PRIEN 'Diagnostico de la calidad térmica de las viviendas y artefactos de los niveles CAS 1,2 y 3 en las comunas de Punta Arenas, Puerto Natales y Porvenir'. October 1987. Cited in 'Por un Chile Sustentable' Sustainable Chile Program, April 1999
- 43 Ministry of Planning, Surveys CASEN 1998
- 44 Ministry of Planning, 2000
- 45 Ortega, Eugenio, 'Transformación Agraria y campesinado: de la participación a la exclusión' Cieplan, Chile 1997
- 46 Berdegue, J, et al. 'Sector Agrícola' en Ambiente y desarrollo, Cipma, April of 1991; cited in 'Por un Chile Sustentable', Sustainable Chile Program, April 1999
- 47 Brown, L.y Wolf,EC. 'Soil Erosion:Quiet crisis in the World Economy' World Watch Institute, Washington,EEUU, 1984. Cited in 'Por un Chile Sustentable' , Sustainable Chile Program, April 1999
- 48 Claude, M. 'Una vez mas la miseria' LOM, Chile, 1997
- 49 Sustainable Chile Program 'Sustentabilidad Democrática, una tarea pendiente' en Por un Chile Sustentable, Santiago, Chile, April 1999
- 50 Fundación Heinrich Boll Equity in a Fragile World: Memo for Johannesburg, Berlin, April 2002.-Spanish Version – Santiago Chile, June 2002

Colophon

Sustainable Production and Consumption – A Global Challenge
is a publication of Friends of the Earth Netherlands (Milieudefensie)



Handel kent **grenzen!**



**Friends of
the Earth
International**

Address:

P.O. Box 19199
1000 GD Amsterdam
The Netherlands
Phone: + 31 – (0) 20 62 62 620
Fax: + 31 – (0) 20 55 07 310
www.milieudefensie.nl/globalisering
www.foenl.org
service@milieudefensie.nl
service@foenl.org

Text: Manus van Brakel (FOE Netherlands), Theo Anderson (FOE Ghana), Arjun Dutta (CUTS, India), Sara Larrain (IEP, Chile), Sergio Schlesinger (FASE, Brazil), Bertram Zagema (FOE Netherlands), Willemijn Nagel (FOE Netherlands)

Translation: Andrea Parkes (FOE Netherlands)

Editing: Andrea Parkes, Willemijn Nagel

Design: Mels Grafische vormgeving/EK, Hoorn

Print: Uitkijkpost, Heiloo, the Netherlands

© 2002 Milieudefensie, Friends of the Earth Netherlands

This publication was made possible by a financial contribution of HIVOS and the NCDO, the Netherlands.

The views in these articles are strictly personal and do not necessarily represent the view of Friends of the Earth Netherlands.

Keywords: Sustainable consumption, Sustainable production, World Summit

Price: € 5,90