(2002) Global Report for Rio +10

ENERGY AND ECODEVELOPMENTAn assessment of the impact of energy policies on Planet Earth

In 1997, five years after the Earth Summit in Rio, the global impacts of energy on the environment were obviously becoming more visible. It was the time when climate took center stage and people who had never before been concerned about the state of the environment started to show an interest in meteorological trends, depletion of the ozone layer and the reports of the Intergovernmental Panel on Climate Change. However, few analysts in governments, nor in the business community, seemed tempted to try and quantify these impacts, nor to link them too closely to energy policies being practiced by national or international institutions.

At Rio+5, HELIO International presented its first assessment of energy policies. The preparation of the report, Is Energy Actually Contributing to Sustainable Development?, had helped to measure the magnitude of the task. It was realised that costs and benefits of energy systems and policies should be analysed by experienced local observers in each country in order to have a realistic and reasonably quantified appraisal. National statistics could be useful, where they existed, but usually the most important data were missing, the human elements: what are energy policies doing to improve the lot of human beings around the world?

Trend indicators needed

To assess the impact of energy on sustainable development, a specific approach was needed. HELIO International therefore created Sustainable Energy Watch. SEW's mandate is to develop series of indicators that highlight and assess energy trends. SEW brings together a network of energy analysts form around the world, people convinced of the need to evaluate the role of energy in development in order to see that energy services provide more people with a better life.

Over the past five years, these researchers have met in various southern and northern countries and developed a methodology and indicators designed to grasp some of the linkages between energy and the environment; energy and health and welfare; energy and long-term security, peace and a safe future. Several of these Observers-Reporters (ORs) have written reports on what has happened in the field of energy and development in their own country since Rio (1992) and they are sharing their findings with us.

A series of reports based on HELIO's indicators are in this CDROM. Given the analysis already done in many industrialised countries, SEW's work focuses on regions such as Africa, Brazil, Taiwan, Bangladesh, Ukraine, New Zealand, Mongolia and South Africa. It looked also at the European Union which, thanks to its commitment to implement the Kyoto Protocol could become a real engine for sustainable development.

HELIO International has chosen to inform policy- and decision-makers, and the public at large, not just to understand better what needs to be changed, but also to raise the awareness of those who can reverse the trends by changing their worldview and their lifestyle.

Sustainable development has been promoted for many years - since the Brundtland Report

was issued in 1987, but the results are so poor that Johannesburg 2002 has already been tagged as being Rio-10. The expression "sustainable development" has been so ill-used that it is now close to being meaningless. This is the reason why SEW decided to return to the original concept of □ecodevelopment□. The term was used in Stockholm (1972) for the first global environment conference. It is a mode of development in harmony with nature and human needs in a given environment. Therefore it can be different in industrialised and land-based countries without inviting judgement.

The reports in this series are factual; they outline how energy analysts see what is happening when a country adopts a particular energy policy and why. These reports are the work of committed individuals working in the public interest. We invite you to read what they have to say and make up your own mind: should we get energy-sober now or run the risk of depriving future generations of the quality of life many of us currently enjoy?

Synthesis of the indicators:

ENERGY AND ECODEVELOPMENT: A QUADRUPLE BOTTOM LINE

□*Energy is essential for development. Yet two billion people currently go without, condemning them to remain in the poverty trap. We need to make clean energy supplies accessible and affordable. We need to increase the use of renewable energy sources and improve energy efficiency. And we must not flinch from addressing the issue of overconsumption...*□ UN Secretary general Kofi Annan, 14 may 2002.

The set of indicators selected by Sustainable Energy Watch (SEW) is well-suited to test whether energy policies are dealing with the issues outlined by Kofi Annan in his famous May 14, 2002 paper on WEHAB (water, energy, health, agriculture and biodiversity).

The SEW indicators assess a quadruple bottom line: environment, society, econonomy and technology. Here is how each of the indicators performed in the decade since Rio:

	Countries**Industrialised**	Countries **Agriculture-based**
ENVIRONMENT		
• Indicator 1 = per capita carbon emissions from the energy sector	D	A
• Indicator 2 = most significant energy related local pollutants	C	C
SOCIETY		
• Indicator 3 = households with access to electricity	A	B

• Indicator 4 = investment in clean energy	C	B
ECONOMY		
• Indicator 5 = energy security/energy trade	F	E
• Indicator 6 = burden of public energy investments	D	C
TECHNOLOGY		
• Indicator 7 = energy productivity	B	D
• Indicator 8 = renewable energy deployment	C	B

TECHNOLOGY
A: very good, B: good, C:passable, D: poor, E: very poor, F: fail

This global assessment is based on best judgment made after analysis of the reports on national energy policies.

ENVIRONMENTAL BOTTOM LINE

The environment bottom line has both a global and a local dimension.

In the reduction of CO2 emissions, SEW observers noticed opposite trends between industrialised countries and less industrialised countries or transitional economies.

By and large, OECD countries have committed to abide by the Kyoto Protocol even though the repudiation by the United States and Australia make ratification and entry into force more problematic. CO2 emissions have been slowly diminishing in most OECD countries -until recently at least- whereas they are progressing in other parts of the world. This increase in CO2 emissions could be a sign of more intense economic activity; but, in most cases, it also indicates that these countries are becoming more dependent on fossil fuels.

In transitional (post-communist) economies who all collapsed by different degrees after 1989, CO2 emissions had dropped considerably, but started creeping up again about three years ago. This trend is likely to continue as countries like Ukraine remain saddled with obsolete heavy-industry equipment. The same is true in less industrialised countries, like China and India. Global conditions for climate stabilisation seem therefore far from favourable unless this increased economic activity can be disconnected from increased fossil fuel use and be made to converge with a drastic diminution of CO2 emissions in OECD countries to stabilise at 30% of

1990 global emissions (339 kg of carbon per capita).

Climate change costs

The costs of climate change damages are perceived as becoming larger with each tornado and flood, but Annex 1, industrialised □Kyoto□ countries are seldom enacting climate action plans with adequate policies and measures. Good results have been achieved in those few countries that have introduced an "eco-tax". For the rest, the free-ride aspect of the fight against climate change will require a drastic increase in the requirements of the Kyoto Protocol for the subsequent budget periods. Otherwise the goals of a 70% diminution from 1990 CO2 levels is unlikely to be achieved any time soon.

On a positive note, many local pollutants, SOx and NOx emissions for instance, generally are diminishing either because of decreased industrial activity in the area or because technical progress keeps on providing cleaner and more efficient technologies. However, in cases where nuclear energy has been selected as the local source of pollution like France, concerns seems to be mounting over the absence of solutions to the problems of disposal of nuclear and toxic wastes, of finding appropriate repositories, of transporting such substances over long distances, of reprocessing them.The risks of accidents or terrorist actions add another dimension to the problem.

SOCIAL BOTTOM LINE

The social bottom line shows stability. There has been some progress in providing reliable access to electricity, but there has been little job creation through investments in clean energy sources (efficiency and renewables).

Rural electrification is progressing mainly when the population can have access to decentralised electric units, such as photovoltaic cells or wind power devices. Lessons are being learnt about insuring that maintenance and replacement parts should be readily available nearby. Since these devices are provided thanks to special aid programmes, there is a danger that populations perceive this equipment as second class. Education and training should be provided simultaneously.

More villages are being connected to a central grid, but sometimes high electricity prices deprive low income users of access. The same phenomenon occurs in both OECD and non-OECD countries as the gap between the rich and the poor increases and unemployment rises. New Zealand is an unexpected example. Cases exist where electrification was introduced at great cost and at the expense of other public needs. Electrification cannot be a goal in itself.

So far, most energy policies remain inadequate in promoting energy efficiency and renewable energy investments that would provide more jobs per unit of investment than central power facilities. This is an area where most efforts should be made since investments in such forms of energy is an all around winning situation. Lack of information and the strength of conventional energy lobbies are major obstacles, however. The danger is that the latter will be able to convince governments to opt for large networks and grids in remote parts of developing countries. This would destroy the efforts of local people and NGOs to use energy more efficiently and to massively install small adaptable units of renewable energy. For, once the idea of large grids is accepted, major hydroelectric or thermal plants will displace the smaller equiment and increase the pressure on the environment only to provide temporary jobs and large surplues of energy that the local economy cannot so readily absorb.

ECONOMIC BOTTOM LINE

The economics of energy choices definitely been having a deteriorating effect.

Dependence on fossil fuels is increasing everywhere, mostly because of cheap transportation, but also because of the expansion of electrical production in industrialising countries.

Oil imports are subject to the vagaries of the oil markets and of the rate of exchange of the American dollar. This creates further imbalance in low income countries which are sometimes already in the grip of structural adjustment programmes. Oil exporting countries also resent the instability of their revenues. Natural gas, being perceived as less damaging to the environment and the climate than oil or coal, has seen its use increase in large proportions, often substituting for coal. Coal might make a come back with the promotion of the idea of clean coal, but it would remain expensive and require subsidies which governments have been asked to phase out in order to achieve a level-playing field.

Investment in non-renewable energy by the public sector is not diminishing. In some countries they have the further disadvantage of being high enough to crowd out investment in more useful or productive assets. Investments by the private sector could liberate these amounts, but there is a danger that these assets be transferred to foreign companies who might, in the absence of regulation, export the revenues, thus increasing the public debt of the country. This is what is happening in New Zealand, but there are similar cases as well.

TECHNOLOGICAL BOTTOM LINE

On the technological front, the scene is changing rapidly even if the volumes involved are still small.

Energy efficiency is making steady progress in OECD countries, thanks to the traditional annual one percent improvement shown by technological progress. But this is also happening because Kyoto commitments have triggered the study of the energy efficiency potential which is important in every country, even in countries which are little industrialised, and because of comprehensive energy efficiency policies and programmes. France is the exception as it uses its electricity from excess nuclear capacity to heat buildings. Energy efficiency is not improving in countries where energy is subsidised or where people do not pay their energy.

Renewable energy deployment is also increasing in most countries. Statistics are very hard to come by, but the experience of SEW Observers made the difference. The initiatives of some countries, like Germany with wind energy, are quite encouraging. Such progress is, however, not yet visible in the transport sector which shows the largest expansion in energy use.

Conclusions

Despite all their differences, when it comes to energy most countries have a lot in common and share the same destiny. The overall Sustainable Energy Watch exercise, the analysis of the indicators and the comments of the Observers have brought the following findings to light.

- Few people have really been aware of what the energy situation really implies for their country, and even less so for the rest of the world. Increasing publicity on the climate issue is now forcing them for the first time to seriously face the global consequences of their energy use. In complying with their Kyoto commitments, countries are for the first time trying to adapt energy policies to environmental impacts. Their efforts are encouraging. But will they succeed in stabilising the climate?

- Many energy specialists, tend to see technology as the plank of salvation. The more complex the energy technology, the better it seems, but people have less access to

information and there is less discussion of the issues. Decisions are therefore taken without the citizens' valuable participation.

- Every country has declared energy efficiency and renewable energy as priorities of their energy policy, but very few are actually implementing those policies very actively.

- The advantages of renewable energy sources have not been fully acknowledged, even by specialists of multilateral banks that still help Southern countries invest in old fashioned energy production. This is partly due to the fact that internalisation of costs and benefits is still not implemented and that competition is still twarted by the non-application of the "polluter pays" principle.

- Renewable energy is not always beneficial or sustainable. This is generally acknowledged in the case of large dams, but not so much when it comes to biomass. Land-based countries have a good performance in the use of wood for energy, but this consumption can be very detrimental even in the short term. Other sources of energy have to be promoted urgently in these countries. Modern renewables are a priority for their ecodevelopment.

- Modernisation of energy systems is still perceived as meaning more infrastructure and more roads, rather than public transport or railways ; more large plants rather than decentralised systems ; more grids and networks rather than access to local resources. Most people are still unaware of the many downsides of this (so-called) progress.

The future

International negotiations have made the differences between poor and rich countries more and more obvious. The Kyoto Protocol describes them as "Annex 1 and non-Annex 1 countries" and stresses that they have □common but differentiated responsibilities□. This is an important and useful concept, but is it taken seriously by northern countries?

Indeed, under the guise of liberalisation, Northern countries, even the more responsible ones, are letting their transnational companies buy and monopolise energy sources and trade all over the world with little or no benefit for local populations. The obvious reasoning still is: the more energy we can get, the more secure we are. This attitude raises the concern of many African observers in particular. Poor countries are fast losing their last means of controling their own development: water, energy and telecommunications networks are being bought by foreign monopolies taking advantage of present globalising trends.

With privatisation without re-regulation, it is understandable that disparities have increased between countries and continents. Even within countries the gap between rich and poor is growing: there is more and more South in the North. As the Enron scandal has demonstrated, energy is often an element in nefarious business practices. The fear of terrorism in sensitive world energy deposits and corridors is even leading some countries to a military buildup (the United States in Afganistan and Georgia in particular) which can lead to major environmental degradation.

In conclusion, we believe that even if globalisation started a long time ago -in the energy field in particular- it still needs to be better understood. And to be humanised. Despite the continuing deterioration of the environment and of the human condition in many parts of the world, people are not reacting as they should. The potential consequences of ill-founded energy policies do not seem to concern them or wake up people like they did ten or thirty years ago when the environmental movement was born. For most people and countries, it is still "business as usual".

What must be done? We must recapture and share our instinct for survival. Those of us who are aware of the world's energy-related problems and their possible solutions have the responsibility to relay this concern and the information that we have to our fellow citizens. That is what SEW observers are doing. As Martin Luther King once said: □We must learn to live together like brothers, otherwise we'll die together like fools□.