Policy Matters

Newsletter of the IUCN Commission on Environmental, Economic and Social Policy (CEESP)

Sustainable development and climate change

Tariq Banuri

Depending on one's point of view, climate change is a serious global threat, a multi-billion dollar research industry, the subject of endless negotiations and lobbying, a potential source of North-South conflict, or a new basis for North-South co-operation. The last two are especially relevant to the Inter-governmental Panel on Climate Change (IPCC), as it begins to focus on development, sustainability, and equity. The IPCC is an international scientific body charged with assessing the scientific literature on the existence, impact, and potential policy responses to climate change. Although initially the IPCC focused on climate alone, it has increasingly come to incorporate economic, social, and political factors into the scope of its work, both for enriching its analysis and guiding policy makers. In particular, there is considerable recog nition that in order for policy options to be both feasible and defensible, they must be germane to North-South co-operation. This will depend largely on how issues of sustainable development and equity are treated.

This raises a fundamental question. Is there a way of approaching and defining sustainable development that would further North-South co-operation? In this essay, I review conceptual issues in sustainable development to explore this possibility. I contrast a mainstream approach, which focuses on valuation issues, with an alternative approach, which is based on the notions of "resilience" and "durability", and argue that the latter is more appropriate for this purpose besides being more useful for understanding and operationalising the idea.

Sustainable development

In an over-used quotation, the Brundtland Report defines sustainable development as development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs. It has been acclaimed as a breakthrough, a balanced definition that integrates social and economic concerns with environmental ones, efficiency with equity, inter-generational with intra-generational equity, and most importantly, Northern interests with Southern ones. However, although the ubiquity of references to this definition suggests a degree of professional consensus, such is not the case. There is considerable professional disagreement, mostly on how to put the idea into operation, but also on questions of definition and on its claims to synthesis.

For example, Qizalbash (1998) criticises the invocation of "inter-generational equity", arguing instead that [at least from a southern perspective] the real goal of sustainable development is inter-generational inequity, namely the assurance that future generations would not suffer from the same deprivations and injustices that exist today. To be fair, as Qizalbash notes, the Brundtland Report does try to finesse this issue by mentioning the future generation's ability to meet its needs - presumably more effectively than the current generation - but this simply transposes the need for inequity from the domain of needs to that of ability.

This is not a simple social science versus natural science debate. Indeed, this would be a way of engendering co-operation between the two camps. As Amalric (1994) remarks, the greater the reliance on a social science

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About IUCN

IUCN - The World Conservation Union, was founded in 1948 and has its headquarters in Gland, Switzerland. IUCN brings together sovereign states, governmental agencies and non-governmental organisations in a global partnership to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.

The Commission on Environmental, Economic and Social Policy (CEESP) is one of six IUCN commissions that draw together a network of expert individuals. CEESPis an inter-disciplinary commission, whose mission is to act as a source of expertise on economic and social factors that affect natural resources and biological diversity; to assist in the formulation of policies for the conservation and sustainable use of natural resources and the equitable sharing of the benefits arising from this use; to contribute to the IUCN programme and mission; and in performing this mission, to establish itself as a central source of guidance, support and expertise on environmental policy.

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Letter from the Chair

Dear Colleagues,

Much has happened since the last newsletter. IUCN celebrated its 50th anniversary with a public event and a symposium on three themes: Conservation, Communities, and Consumption. If you are interested in further details of this event, you may wish to consult recent issues of the IUCN newsletter, The Way Ahead, or wait for the publication of the symposium proceedings. If you seek a critical perspective, one appears under my name later in this newsletter.

On institutional news, IUCN has a new Director General, Dr Maritta Koch-Weser, an anthropologist by training, and until recently a senior staff member of the World Bank. Maritta is the first woman and the first social scientist to be appointed to this position. This is a good omen for CEESP, which has often felt that its social agenda is at best an uninvited guest at the table. Under the new leadership, IUCN has the opportunity to integrate social and natural sciences into a coherent programme and policy.

A new head of the Social Policy Unit has also been appointed. She is Maria Cristina Espinosa, a Peruvian national, who has been working for the past 25 years on issues of community development and environment in Latin America. The head of the Social Policy Unit is one of the three headquarters staff positions of the greatest relevance to the CEESP agenda—the other two being the head of the Economic Services Unit (Frank Vorhies), and the Head of the Global Policy Division (vacant).

There has been a high rate of turnover in the Social Policy Unit, leading to a marked discontinuity in the programme. All previous incumbents faced severe difficulties in achieving their goals. This is probably a reflection of the difficulties of championing the social agenda in the Union. In traditional programmes, there is synergy between the secretariat and the commissions. WCPA interacts with and supports the protected areas programme of the secretariat; CEL and the Environmental Law Centre are virtual extensions of each other; and so forth. These programmes have continuity in their substance as well as personnel, and create positive incentives for the cultivation of expert networks. On the one hand, the experts feel that their advice is useful for the programme, and on the other hand, they select themselves with a clear knowledge of the nature of the programme. In the past, this was not the case in the Social Policy Programme.

Take the case of the Collaborative Management Working Group, a network of top class practitioners and experts in an area of critical importance to the Union. As long as Dr Grazia Borrini-Feyerabend headed the Unit, there was close synergy between this network and the secretariat-led programme. With her departure the network no longer has an anchor in the Union. If personnel changes lead inevitably to changes in programmes, the signal to commissions—namely to link themselves to politically secure individuals—is hardly a basis for optimism.

Given that the incoming DG is a social scientist, and has also managed large programmes and networks, it is possible that the situation will change, and that we will see a greater determination and continuity in the social and economic programmes.

On CEESPmatters, the first joint meeting of the CEESP Steering Committee and the Ring took place at Gland on February 3-5, 1999. The meeting discussed and approved a joint work programme for the year.

In order to assist in the transition in the secretariat, the joint meeting of the CEESP steering committee and the Ring decided to propose to the incoming DG that a conference on the social sciences and conservation be convened in Gland later this year. The conference would have three inter-related goals. First, to review from a social science perspective the lessons learned in traditional conservation programmes. Second, to examine broad social and economic processes that could swamp micro level interventions. Third, to identify the economic and social agenda for the Union.

The DG-designate has shown considerable enthusiasm for this idea, and called a meeting on March 19, with senior secretariat staff and available CEESP members, to brainstorm over the conference plans. We will post these plans as they evolve, and your comments and advice would be more than welcome.

You will also notice that the theme of this newsletter was changed to climate change from sustainable livelihoods (which will now be covered in the next issue). This will both take advantage of and help those from the CEESP-Ring networks that are involved in the Inter-governmental Panel on Climate Change (IPCC). The next meeting of the IPCC Lead Authors is in late April. The IPCC is an international scientific body charged with assessing the scientific literature on the existence, impact, and potential policy responses to climate change. Although the IPCC's initial focus was on climate alone, it has increasingly incorporated economic, social, and political factors into the scope of its work. Given that the feasibility and defensibility of policy options depends critically on legitimacy within North and South, sustainable development and equity have become fundamental to the debate.

A second reason is that IUCN has started a global initiative on climate change. Brett Orlando of IUCN's Washington Office, who is responsible for co-ordinating this initiative, informs me that the secretariat is engaged in specifying its terms of reference and work plan. Again, we felt that the role of the social sciences and especially that of equitable and sustainable development ought to figure centrally in the specification. The articles assembled here will be of help to the secretariat in this exercise.

While the views of the writers in this newsletter are quite diverse, one theme appears to be common, explicitly or implicitly. Sustainability requires the conservation of both the social system (and in particular social justice) and the ecological system. Policies and actions that erode social capital are as likely to create irreversible harm as those that endanger biological diversity.

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Sustainable development and climate change

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framework to address sustainable development, the greater the need for natural science information, and vice versa. If science is viewed as the domain for the production of public knowledge, there is a need to invest in institutions that produce such knowledge at the local as well as national or global levels, and in the South as well as the North.

The welfare optimisation approach

Be that as it may, the most common economic construct for operationalising sustainable development is by visualising it as a maximisation of human welfare, subject to environmental and social constraints. This is a static approach, which interprets sustainability in terms of an "ideal" state - an aggregate level of capital, area under forests, number of species, income distribution, GHG concentration - rather than of the solution of existing problems in the presence of uncertainty, inequality, shocks, and irreversibilities.

The welfare optimisation approach has generally advocated the conservation of a given stock of capital. The argument is that human welfare depends on the level of income, and this in turn depends on the stock of income-producing capital. Besides physical or reproducible capital (durable structures or equipment produced by human beings), this perspective often invokes natural capital (natural resources and biodiversity), human capital (the productive potential of human beings), and a recent addition, social capital (norms and institutions that influence interactions among humans). Simply stated, in this construction, development is sustainable if some aggregate index of capital is non-decreasing. However, there is not much discussion of the desired level of capital. It is left either to chance (the existing level of capital), or to the (unequal) process of international negotiation.

On the precise composition of the desired stock of capital, there are differences. The "strong sustainability" argument of the so-called "London school" (Pearce, Barbier, Turner) holds that different forms of capital are completely non-substitutable, and that therefore ecological sustainability requires the maintenance of a fixed (or minimum) stock of natural capital (Amalric 1995). By the same analogy, one could maintain for example that it requires the conservation of a minimum stock of human and social capital as well. At the other end is the "weak sustainability" argument of the neo-classical school, namely that all forms of capital are perfectly substitutable, and the preservation of an aggregate level of capital is sufficient for sustainability.

To give an example of the application of this perspective, the goals of the three working groups set up by the IPCC for its Third Assessment Report can be re-defined as follows:

Working Group 1 (the atmosphere): an assessment of ongoing dis-investment in one component of natural capital;
Working Group 2 (adaptation): identification of compensatory investment possibilities in other forms of capital; and
Working Group 3 (mitigation): identification of mechanisms for reversing the dis-investment without significant dis-investment in other forms of capital.

Just as biodiversity sustains the ecosystem, cultural diversity, social capital, social institutions, the shared conceptions of justice, mutual trust, and the equity of social choices sustain the social system.

The weak sustainability argument supports adaptation, in other words, compensating for the loss of "climate capital" by the enhancing of other forms of capital (sinks, coastal protection, air conditioners, and so on). The strong sustainability school, on the other hand, provides grist for the mill of mitigation.

Reverting to sustainable development, the sticking point in this formulation is valuation. Indeed, the goal of this approach seems to be to replace ethics (what is valued) with economics (what is valuable), in the hope presumably that the latter would be more conducive to consensus building. At the very outset, this raises the ethical question of whether it is proper to describe the environment (or society) as a form of capital, in other words, whether it is proper to assign (monetary) values to things that are inherently beyond valuation.

Even if this were ignored, there is still the problem of finding the correct shadow price of non-market (or collective) goods or services, say natural capital (e.g., forests, biological diversity). Without this, we cannot determine whether a particular form of capital was decreasing or increasing in the aggregate. There are similar questions about aggregation and indexing, the rate of discount, and the valuation of costs and benefits under uncertainty.

While "social capital" is an elegant heuristic device for integrating such intangible factors as equity, justice and participation into the analysis, it multiplies the underlying measurement problems tenfold. The main argument for invoking social capital is that collective action is based on the existence of a number of contributory factors, the most important being "trust", which like other forms of capital, have to be created over time (see Banuri et al 1994). Absence of trust increases monitoring costs, diminishes incentives for cooperation, exacerbates conflict, and obstructs collective action. Actions that increase natural capital while degrading social capital (undermining trust, destroying collective institutions) would be self-defeating in the long run. Just as biodiversity sustains the ecosystem, cultural diversity, social capital, social institutions, the shared conceptions of justice, mutual trust, and the equity of social choices sustain the social system. Yet, as would be obvious, converting intangible concepts into measurable and quantifiable values would be, if anything, even more intractable than in the case of natural capital.

An alternative approach: Resilience and durability

In order to overcome such a conceptual impasse, it would be useful to enrich the static formulations of economists by borrowing from the arsenal of ecologists. Recall that the debates over the economics of biological diversity too were driven initially by concerns over uses values, intrinsic value, and related measurement issues. In the end, however, it became difficult to have a serious conversation on such issues, since intrinsic value is based on incommensurable and unchallengeable ethical considerations, and use values are subject to serious methodological and measurement difficulties.

A more fruitful line of thinking in the ecological literature is that which focuses on the resilience of the ecosystem. Perrings and Opschoor (1994) in their introduction to a special issue of *Environmental and Resource Economics*, define sustainability as "the maintenance of a level of biological diversity and a scale of economic activity that will guarantee the resilience of the ecosystems which support human consumption and production [emphasis added]" (p.2). They go on to suggest that "[while there is no consensus on this issue], increasingly, ecologists are arguing that the main importance of biological diversity lies in its role in preserving ecosystem resilience, rather than in preserving genetic information as such" (p. 8). Perrings and Opschoor stress the tremendous significance of this switch in emphasis, in effect, making the benefits of biological diversity "both wider than has been thought, and more highly localised" (p.9).

Credit: G.Griffiths – Christian Aid/Still Pictures

Flooding in the Tana River Valley, Kenya, has resulted in villagers'losing their cattle, crops and clean water

Just as biological diversity has come to be recognised as the "spine" of ecological resilience, justice is the "spine", the keystone of social resilience.

Others have remarked upon the relationship between risk, resilience, and governance (see Rayner and Malone 1998), and argued that the purpose of policy should be to develop coping capacity and strengthen resilience of vulnerable communities, instead of the vague ideal of intergenerational equity.

The same switch in emphasis can help in getting the concept of sustainable development out of its theoretical impasse. In order to elaborate on this point, let us label the mainstream approach in the economics literature as "optimisation", and contrast it with an alternative approach, to be termed "capacity building". The conventional approach defines sustainability in terms of simultaneous progress towards three goals—conservation, development, and equity—often as measured by an aggregate level of capital. The alternative approach, on the other hand, defines it in terms of "durability": sustainable development is "development that lasts" (WB 1992: 9). The key question here is to ensure that the direct beneficial impact of a policy or action is not reversed by its adverse ecological or social consequences. This approach emphasises not the tension between ecological and social goals, but that between the short and the long-term (see Amalric 1995). It asks not whether a particular policy is consistent with several different goals, or whether it would turn out to be acceptable to several different groups (including the non-voting future generations), but simply whether it will last.

Durability depends on the resilience of the underlying systems, which in turn is based on three components: the shocks themselves, the vulnerability of the system to such shocks, and its capacity to cope and adapt. This is a dynamic rather than a static approach, in that it looks at uncertainty and response, and at the speed and impact of the process of change. Second, it is pragmatic in political content. It converts the ethical question of "what is valued" not into a measurement question ("what is valuable") but into a practical question, "what will last" or what will work. Actions that undermine the resilience of the system—loss of biodiversity as well as the destruction of social capital—are problematic not only intrinsically but also because they cannot last. Finally, its prescriptive content is oriented towards the creation of capacity (or resilience) rather than the achievement of distant goals through uncertain means.

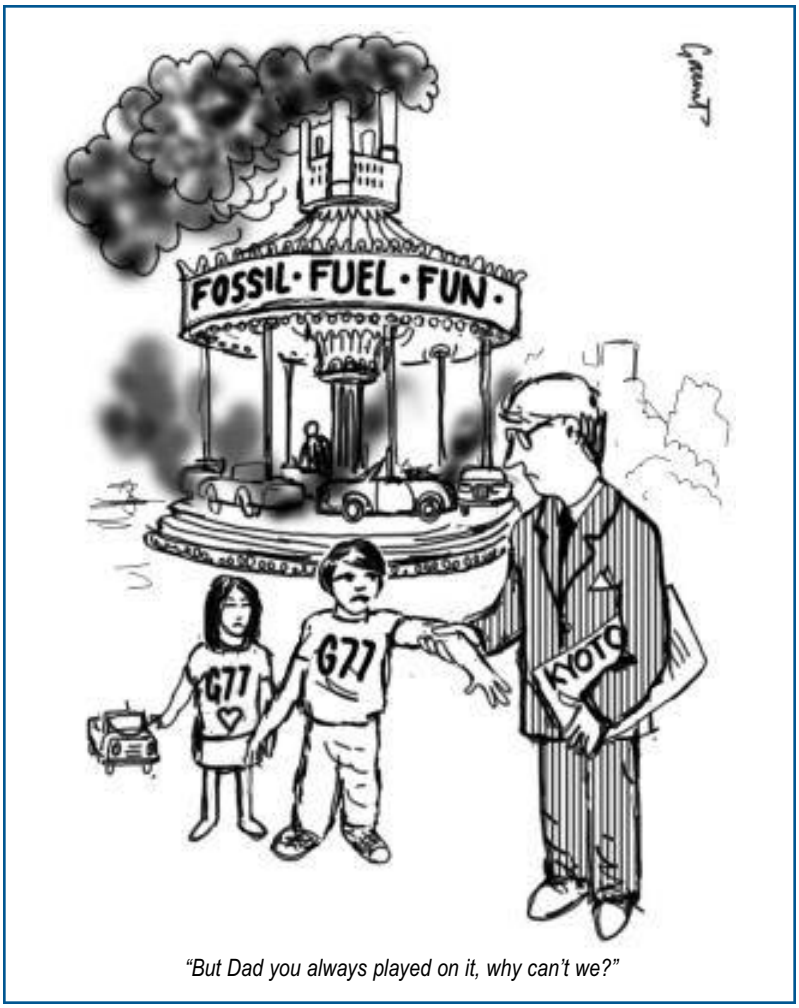
Another analogy is with mainstream economics. The welfare optimisation approach is analogous to general equilibrium theory, while the durability approach is analogous to Keynesian macroeconomics. The latter is dynamic in nature, has pragmatic ethics, and a critical approach to the relationship between knowledge and power. The former advocates either the strengthening of the systems of surveillance, or a reduction of the role of the state and a greater reliance on the market.

The relevance of this argument to sustainable development is that resilience and durability are the property not only of the ecosystem but also of the social system. Just as the indiscriminate destruction of biological diversity can undermine the resilience and hence the life-supporting qualities of ecosystems, so also the destruction of institutions or values, and in particular the abandonment of justice can undermine the life-supporting qualities of social systems. Just as environmental degradation is not sustainable, neither is inequity; it invites conflict, resistance, and violence, all of which undermine the resilience of the social system. Similarly, development that deepens poverty or promotes ignorance is not sustainable. Policies and actions that undermine social capital lead to reactions that reverse any progress that is achieved. Finally, just as biological diversity has come to be recognised as the "spine" of ecological resilience, justice is the "spine", the keystone of social resilience. Justice is to social capital what biodiversity is to natural capital.

This is a redefinition of the term "capital" used above. Instead of seeing capital as a fixed stock of (tangible or intangible) assets, it presents it as a basis for coping with shocks, and avoiding irreversible harm.

There is a "substitutability" question here as well. The question is whether resilience can be analysed purely in the ecological or sociological domain. Non-substitutability would imply that the resilience of an ecosystem depends not only on its natural resource characteristics but also on the social organisation, prosperity, knowledge levels, and values of the human populations that inhabit it. Actions that lead to conflicts or wars are just as damaging to the ecosystem as those that destroy biodiversity. In fact, as argued in the recent literature on environmental security, the two are inter-related.

This gives an additional way of looking at the discussion of north-south equity, intra-national equity, and even inter-generational equity. Instead of asking whether any particular distribution pattern is ideal, this would ask whether some distributions are durable. Many, like myself, would argue that a solution that restricts the South to 0.5 tons of carbon per capita while allowing the north to sustain 5 or even 3 tonnes per capita would not be durable. This is not because of its "ugliness" but because it will not be able to garner the co-operation of southern countries or their populations. It will invoke various forms of resistance and opposition, and even violence. Similarly, a solution that fails to address the problems



"But Dad you always played on it, why can't we?"

of poor populations within countries will also be unsustainable for much the same reasons.

In other words, we have to look at the joint social-ecological trajectories of various options. Some trajectories will be unsustainable for climatic reasons, others for biological reasons, and still others for socio-political reasons—because they lead to conflict, violence, degradation and instability. (Indeed, it is not impossible to speculate that all trajectories might be unsustainable).

Related to this is the speed of change. The flexibility of communities as well as countries depends upon their institutions, systems of governance, and systems of knowledge. Likewise, the feasibility and sustainability of trajectories also depends upon the distribution of burdens not only in a static sense, but also at different points in time. It is possible that many developing countries cannot slow down their rates of growth (let alone reverse them) without severe social dislocation and political instability. However, given time, and given investment in institutions things might become more tractable. Similarly, in northern countries, lowering of energy or materials use might lead to unemployment, which is strongly correlated with social unrest, crime, psychological disorders, and generalised problems. Again, a

properly planned programme might be able to achieve this goal without the associated social breakdown. In other words, it might be possible to protect or conserve natural capital without undermining social capital in either the north or the south, and indeed in the globe as a whole.

What does this imply in terms of an action programme? At the minimum, action must focus at five levels:

Traditional community arrangements : In Southern countries, the degradation of renewable resources has been occasioned by the breakdown of traditional institutional arrangements that often covered use activity in considerable detail. This process has been driven by the imperatives of centralisation, nation building, and development. In many cases, the solution must involve greater reliance upon and the rejuvenation of traditional community arrangements.

Sustainable livelihoods : At the local level (analogous to ecosystems) one can think of the resilience of communities, of their ability to cope and adapt. In the poverty eradication literature, this view is advocated by the sustainable livelihoods school. This school looks at poverty not in terms of income levels, but in terms of (tangible and intangible) assets including in particular the coping and adaptive strategies of the poor.

Governmental capacity : Recent years have also witnessed erosion in the capacity of governmental institutions in the South under the joint onslaught of corruption, overburdening, and debt and financial crises. This erosion pertains in particular to institutions of monitoring and surveillance, without which neither targeted policies nor market-based instruments can be used effectively. However, new institutional forms, based on a partnership between the public and private sector have emerged in the meantime. Policies and solutions would have to examine the possibilities created by these innovations.

Research capacity : Finally, capacity for research and analysis is distributed inequitably around the world. It is also targeted mainly at national governments and not at local governments or alternative institutional arrangements for collective action.

Global governance : At the global level, we need to think of the building of trust to engender co-operation across countries. The various options advocated can be evaluated on this dimension as well.

Summary

To summarise, it is possible to evaluate various options in the climate debate in at least two different forms: how they affect the aggregate capital endowment; and how they affect the resilience of the system to respond and adapt to change. Both assessments require a joint examination of ecological and social systems. We have tried to argue that the latter approach is more practical and more equitable. It completely transforms the question. Instead of weighing the present generation's good against that of the future generation, it asks how to build capacity for protection and resistance.

To use a metaphor from another literature, the entire proposed response to climate change can be viewed as a global programme of structural adjustment. It is likely to suffer from the same problems that plagued traditional structural adjustment programmes in Southern countries. These programmes were criticised for being inequitable, socially regressive, and harmful towards human development. If we can use some of the lessons from the earlier literature, we might be able to avoid its worst excesses.

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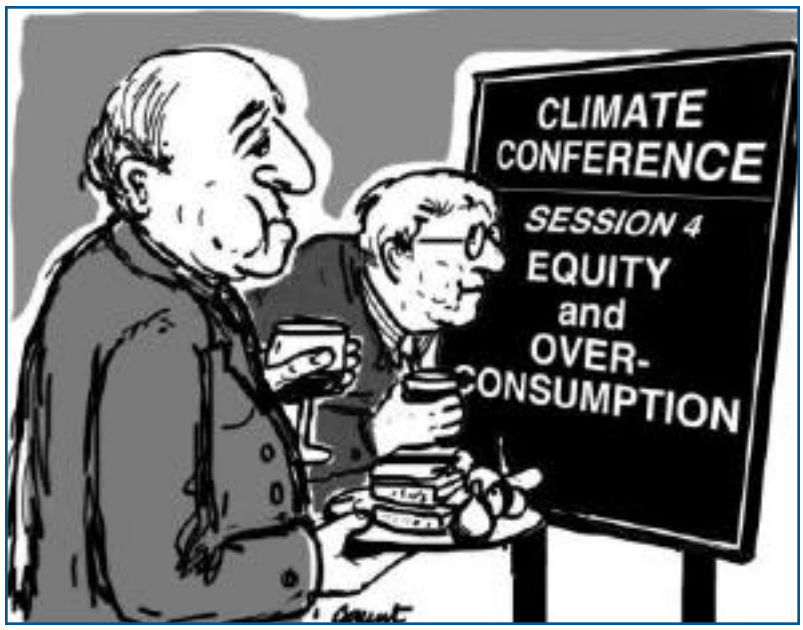

Defining vulnerability to climate change

Mick Kelly and Neil Adger

Dealing with the potential impact of climate change is no less important than efforts to reduce the scale of the climate problem through emission control and sequestration. Even with the greatest political will, climate change is, to some degree, inevitable because of the magnitude of the emissions reduction required to halt global warming completely; a twin-track strategy of mitigation and adaptation is essential. It is fair to say, though, that at the international level far more attention has been paid to emission control than to efforts to ease the impact of climate trends. This is despite the fact that, for the bulk of the world's population, it is the potential impact of climate change that must be of most immediate concern.

One often-cited reason for this neglect is that planning for an uncertain future is extremely difficult, if not impossible. The problem is that we do not have reliable forecasts of world climates in the year 2020, 2050 or 2100 that can be used as a basis for planned adaptation. Moreover, at a time when we cannot define the scale of the threat posed by global warming with precision and action is restricted to precautionary measures, just what does a precautionary approach to reducing climate impacts entail?

In our view, a precautionary approach to reducing climate impacts must begin by identifying "win-win" situations in which action to reduce future risk also reduces present-day vulnerability, not only to climate change but also to other environmental problems and to social and economic pressures. Placing vulnerability at the centre of the analysis is the key, side-stepping the uncertainties that plague any attempt to define more prescriptive adaptive strategies.

In a recent project funded by the UK Economic and Social Research Council, we have studied changing patterns of vulnerability in coastal regions of northern Vietnam in a series of case studies, drawing out the many influences on the ability of local communities to respond to environmental stress through coping, recovery and adaptation. We have been assisted in this work by Dr Nguyen Huu Ninh at the Centre for Environment Research Education and Development in Hanoi and collaborators from the National University of Vietnam (Hanoi).

In our case studies, the primary concern has been with vulnerability to *short-term* hazards, in particular, tropical cyclone impacts. It is, after all, short-term hazards and extreme climate events on the seasonal and interannual timescale that the bulk of any population experiences and reacts to, rather than long-term trends, and it is through the varying character of these events that any long-term change in climate will first be manifest.

We have based our examination of vulnerability to climate variability on an understanding of the human use of resources. Following Sen and others, we consider that the extent to which individuals, groups or communities are "entitled" to make use of resources largely determines the ability of that particular population to cope with and adapt to stress. Social vulnerability to climate change is dependent on the availability and distribution of entitlements, the means by which entitlements are defined, contested and, therefore, change over time, and the wider political economy of the distribution and formation of entitlements. This complex of factors together forms the construction we term the "architecture of entitlements."

The context for these studies has been the process of *doi moi,* underway in Vietnam since the late 1980s. *Doi moi*, literally "new road" or "new change," is interpreted as "economic renovation." The process, resulting in marked economic growth sustained even through the crisis in Asian economies beginning in 1997, has involved privatization of the state owned industries and of major product and marketing organizations, price reform, and major changes in property rights in the agricultural sector. At the same time, political control has been retained by the Communist Party. *Doi moi* is having a profound effect on the capacity of the agrarian communities to respond to environmental stress, particularly with regard to the rapidly changing institutional structure of collective action.

One case study site was located in Xuan Thuy District in Nam Dinh Province, an agricultural district on the fringe of the Red River Delta in northern Vietnam protected by artificial dykes and, in part, mangrove forest.

Estimates of the magnitude of impacts in Nam Dinh Province from floods and typhoons for the twenty years between 1973 and 1992 show that there were more than 990 injured people, including fatalities, and over VND 470 billion damage (1993 constant prices) as a result of severe storms (VND = Vietnam Dong; US$1 = VND 11,000).

The agrarian economy of Vietnam operates through a formal and sophisticated system of social security facilitated, even in the post-collectivisation era, through local government institutions. Analysis of household survey data revealed the complex mesh of factors which shape the vulnerability of a community as social and economic trends reinforce, transform or weaken existing patterns of risk.

- Overall, Xuan Thuy is, in rural Vietnamese terms, a relatively wealthy and productive district with a low incidence of absolute poverty and might be considered, from this isolated perspective, less vulnerable in the context of rural Vietnam as a whole.
- Poorer households are particularly dependent on a narrower range of resources and income sources and are thus more vulnerable, in the context of the local population, as they have reduced access to resources for coping with extreme events, such as credit sources, and are more reliant on activities such as salt-making which could potentially experience a significant impact in the face of coastal flooding (and other climate shifts such as an increase in cloudiness).
- The distribution of resources within the district is relatively even compared to many agrarian societies, but is less even than in other parts of rural Vietnam — underlying inequality is increasing due to the emergence of capital-intensive commercial activities, principally aquaculture, in the period since market liberalisation.
- Finally, the increasing dependence on aquaculture is having complex effects on levels of vulnerability - on the one hand, it should increase the overall wealth of the district with trickle-down effects benefiting the population as a whole but, on the other hand, it is heightening levels of inequality, as noted, and tying up capital in an inherently risky venture (shrimp farms are seriously exposed to storm impacts).

The parallel analysis of institutional issues reveals how access to decision-making is a critical factor. For example, there has been a reduction in the resources available for sea dyke maintenance as monetarisation of the previous labour-based system has permitted the diversion of finances away from dyke maintenance and into, for example, road building in the coastal communes, i.e. the development of infrastructure to support economic growth. The inland communes are not aware of this shift in investment in collective security; they are persuaded by the coastal communes that the maintenance programme is being maintained at former levels and gives sufficient protection. In this way, formal institutions are seeking to maintain their resources, powers, and their authority in a time of rapid change at the expense of collective security.

The research has also shown that informal institutions have offset some of the negative consequences of market liberalisation and the reduction of the role of government by evolving collective security from below, for example, through risk spreading in credit unions, particularly in fishing communities.

What general lessons can be learnt from this research regarding policy measures which might reduce vulnerability and facilitate adaptation? There are a number of strands that are of wider applicability. These concern the promotion of measures which would improve the situation of the poorer members of these and other communities, the people we consider increasingly at risk as a result of recent socio-political trends.

- Poverty reduction clearly must be a priority, though that alone may not be sufficient to ensure the wider access to resources necessary to reduce vulnerability.
- Risk-spreading through income diversification can be promoted in a number of ways and, again, will assist most the poorer members of the community.
- The loss of common property management rights represents a serious erosion of the ability to resist stress and, where it cannot be avoided, compensatory measures should be implemented.
- Finally, the reduced efficiency, or loss, of forms of collective action or investment affects the community as a whole and this process warrants careful monitoring with efforts to promote the development or resuscitation of other, perhaps traditional, forms of community security.

At a deeper level, the underlying causes of vulnerability must be tackled if we are to develop a sustainable response to extreme events and climate change. It will be necessary, for example, to address directly the inequitable distribution of resources — a substantial challenge!

This article is based on a longer account of the conclusions of this research available from the authors.

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The sustainable livelihoods approach -

how does it relate to the debate on climate change?

Franck Amalric

How should we act in the face of potential climate change? And how should we think about this action?

A first line of thought starts with an impact assessment. In logical sequence, it raises such questions as: what climatic variations will be generated by an increase in greenhouse gases in the atmosphere? What impact will these have on various ecological systems around the world? How will these ecological changes affect human activities, and eventually people's well-being? Finally, how can these effects be mitigated through appropriate policies?

An alternative approach starts with a vulnerability analysis, particularly of groups historically affected by climatic perturbations and disasters. This analysis puts the potential effects of climate change within a more comprehensive picture, encompassing the causes and circumstances of vulnerability including the social determinants of vulnerability. This alternative is part of what we call the "sustainable livelihoods approach to social justice".

Before going deeper into conceptual considerations, it may be useful to illustrate the difference between these two approaches with a simple example. The single-issue approach characteristic of the first line of thought may eventually lead to the establishment of international trading permits for the regulation of emissions of CO2 gases, paving the way for large transfers of resources from Northern to Southern countries.

While this measure may reduce the emission of gases and mitigate climate change adequately, it is actually unclear what its effect on people's vulnerability in many countries of the South will actually be. For instance, it has been argued that flows of international aid reduce the accountability of governments to their people. We can easily imagine that the possibility of selling emission rights might create a strong incentive to take control over different states – possibly in very undemocratic ways. Hence, a vulnerability analysis may show that people are vulnerable, not only to climate change, but also to bad politics, particularly as there are considerable benefits to be won by those in control, such as oil fields, and maybe in the future, emission rights. From this perspective, adequate solutions are those which reduce the risks associated directly with climate change, without increasing those of a social, political or economic nature.

The sustainable livelihoods approach

To some extent the expression 'sustainable livelihoods' has become a rallying flag for many thinkers and activists in citizen groups. In response to the failure of mainstream development policies to alleviate poverty and to check the escalation of the environmental crisis, these groups have started to conceptualise and advocate an alternative view of social justice based on popular participation and social mobilisation. This notion emphasises the creativity of the poor and of local communities as the source of well-being, cultural expression, and social improvement.

Let us emphasise three basic features of this approach.

Firstly, while development starts with a "national problem", and takes the existence of the nation for granted, the sustainable livelihoods approach starts from the point of view of men and women living in rural areas of the South, regardless of the country in which they might be living. It is not, however, limited to the local level. It builds on an analysis of people's livelihoods to make recommendations on how to address issues at local and national levels. In other words, strengthening people's livelihoods is not seen as a complementary strategy to maximising economic growth or achieving good governance; rather the analysis of people's livelihoods provides a basis on which to design appropriate economic policies and institutional structures.

A second specific feature of the sustainable livelihoods approach is its focus on agency rather than on well-being. It emphasises the need to create conditions within which people can express their own power. This emphasis draws our attention to the existence of political spaces – i.e. possibilities for people to organise themselves collectively in various ways – and to people's control over productive resources, in particular natural resources. Thus people, rather than the state or unspecified market forces, are the agents of society and of social change.

The third feature, perhaps the most controversial one, is the value given to place. Not only is it important for people to act now – the second feature – but it is also for people to act where they are. Attachment to a place is valued in part because it is intrinsic to one's identity or one's culture - a point strongly made by indigenous people. This attachment is valued for other reasons as well: for instance, societies' need to slow down the process of urbanisation (for social, economic, and environmental reasons), to occupy the territory in an appropriate manner, to nurture nature, etc.

When combined, these three features give rise to a vision of societal transformation based on the strengthening, regeneration, and defence of local economies. This vision comprises:

- a significant degree of economic self-reliance at the local level that can act as a buffer against external economic shocks;
- a reliance on traditional knowledge, and indigenous and appropriate technologies;
- the establishment of innovative democratic forms of local governance;
- the strengthening or regeneration of nature and of ecologically sound forms of production and consumption.

Some differences between sustainable development and the sustainable livelihoods approach

The sustainable livelihoods approach differs in many ways from current theories of sustainable development inspired by economic theory.

First, the sustainable livelihoods approach is based on a theory of collective empowerment, and, unlike the economic approach, is based on an analysis of some promising experiments or "success stories" in rural areas of the South. By contrast, the economic approach, while assigning a crucial role to participation, civil society, and the generation of social capital, lacks a theory of how participation is to come about, how civil society is to be mobilised, and social capital to be generated. Thus one of its key recommendations – that people should participate in decision-making or project implementation – is not grounded in reality. Furthermore, it cannot address the difficult question of the compatibility between macro-economic policies and institutions on the one hand, and bring about participation and the generation of social capital on the other.

Secondly, while the sustainable livelihoods approach gives central importance to location, economic theory completely disregards geographical considerations.

A third difference concerns methodology. The economic approach is theoretical in the sense that it starts from an *a-priori* conception of human behaviour (*homo oeconomicus*). The sustainable livelihoods approach, by contrast, starts from existing innovative forms of governance, and tries to imagine new societal arrangements from such vantage points. For instance, the sustainable livelihoods approach gives importance to the organisational form in which market transactions are carried out. The difference between a co-operative and a middleman system does not simply concern the distribution of surplus – important as this may be – but it also concerns how each organisation relates to other organisations in the locality. Co-operatives may in general be supportive of local democratic institutions, while middleman systems are rather conducive to quasi-feudal political systems.

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These differences lead to a rejection by the sustainable livelihoods approach of the economic definition of sustainable development as the optimal level of economic growth attainable while keeping the stock of capital non-declining. For instance, mobile financial capital and natural resources cannot be considered as two comparable forms of capital, as they relate in very different ways to people's livelihoods.

Sustainable livelihoods and climate change: an example

For many people living in rural areas of the South, the main impact of the oil-based global economy is not the possible consequences of global warming, but the costs associated with the extraction and transport of oil and minerals. It is the loss of livelihood due to oil exploration and digging, to the pollution of land, water and air caused by these operations, to the construction and protection of pipelines and ports, and to the political struggles linked to oil and minerals.

For example the construction of a pipeline between Chad and Cameroon for the transport of Chadian oil to the ocean has already led to more than 100 deaths and a sharp rise in human rights' violations, as local communities have been resisting against the project in order to protect their land and livelihoods. In Africa, 60% of foreign direct investment is linked to oil exploitation and mining. At the same time those countries which rely most heavily on mining and oil are also the ones with the poorest record of human development in the region – largely because of bad politics.

What does this mean? That from a sustainable livelihoods perspective, one way to reduce emissions of CO2 and reduce the vulnerability of people living in rural areas of the South is to reduce extraction of oil, and monitor closely the action of oil companies. There would of course be tremendous opposition to such a policy. But my intention here was not to come up with a magic solution. It was merely to illustrate how the sustainable livelihoods approach opens up new avenues for reflection and debate.

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What the concept of "governance" can do to mitigate climate change

Matthias Finger

"Governance" is the idea that collective problem-solving, at all levels - from the local to the global - must include not only governments but other players, including the private sector and civil society. As such, governance means moving from behind-the-scenes lobbying of politicians to taking responsibility for collaboratively, collectively, and transparently solving public problems. So far, governance mechanisms have been most successful at the local level; it has been difficult to develop similar mechanisms at national and global levels. This difficulty, particularly at the global level, can be explained by the reluctance of governments to give up power, and of the private sector, particularly transnational corporations (TNCs) to take responsibility for the effect of their actions.

I would like to discuss here what "governance" might mean in the area of global climate, first by arguing why the current approach is flawed, secondly why a collective problem-solving approach is required, and thirdly by proposing such an approach, though this will be done at a purely conceptual and theoretical level.

Indeed, climate change is a typical area where governance mechanisms, so far, do not apply. The Climate Convention, like most other international environmental agreements, is considered to be mainly the business of governments. It is the governments who are Parties to the Convention, and it is again the governments who "will seek to achieve its [the Convention's] ultimate objective of stabilizing greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic [human-made] interference with the climate system" (from official leaflet). Consequently, it is the governments who 1) inform about the quantities of greenhouse gases that they (sic!) emit, and about their national sinks, 2) carry out national programmes for mitigating climate change, and 3) will ultimately have to meet the ridiculously low targets set in the Kyoto Protocol. As a result of this government-centric approach, lobbyists from all walks of life, from TNCs to NGOs, seek to convince governments that their interests are identical to the national interest. Toothless accords and flawed protocols with innumerable loopholes profiting various lobbyists (e.g., in the case of climate change clauses such as "emissions trading", "emissions banking", "joint implementation", and inclusion of "carbon sinks") are the direct outcome of this approach. It is an approach which is not likely to get us very far, be it in the areas of climate change, biodiversity, or other global environmental problems.

The problem here is that the Nation-States are treated as sovereign players in addressing climate change, while they have done almost everything in their power to abandon their control over one of the key drivers of greenhouse gas emissions - trade. Indeed, over the past 20 years they have liberalised trade, deregulated industries such as oil production, airlines, transportation, energy, and privatised their public enterprises, all which have significantly contributed to world GDP. As a result, world trade, according to UNCTAD's most recent figures, has increased by 9% in 1995, by 5% in 1996, and again by 9% in 1997. Not surprisingly, greenhouse gas emissions increase in about the same proportions, though figures are harder to come by. As a result, the only players still in some control of trade flows are TNCs, as approximately half of today's world trade is said to be intra-firm trade. Indeed, it would probably be more logical to ask TNCs to have direct control of greenhouse gas emissions, at least the trade-related emissions, rather than ask governments to impose such restrictions upon TNCs. But even if one adopts a more conservative, i.e. GDP-based rather than trade-flow based approach, one comes to the inescapable conclusion that TNCs must play a more active role in mitigating climate change. Indeed, if one considers that GDPis almost totally correlated with fossil fuel consumption, and that among the world's 100 biggest economies approximately half are TNCs, at least half of the Parties to any Convention on Climate Change will have to be TNCs.

The idea of governance as applied to the argument above will mean that TNCs will have to take direct responsibility for reducing greenhouse gas emissions, rather than hiding behind governments. Indeed, in the traditional government-centric approach, states would ideally commit themselves to targets, while trying to get TNCs to agree to share the burden. However, the loopholes mentioned above make it impossible for governments to pin them down. Consequently a governance system would have to be set up whereby TNCs are direct parties to a convention, and this in proportion to their actual contribution to the greenhouse effect. A corresponding governance mechanism, probably of a regulatory nature, would have to be set up so that compliance could be ensured and enforced. If one admits that a significant proportion of greenhouse gas emissions are trade-related, it might be conceivable to put such compliance and enforcement mechanisms into the hands of a trade regulator. This could be the WTO, if it is to move in the direction of trade regulation.

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Thomas Raupach/Still Pictures

Greenhouse gas emissions increase in about the same proportion as the growth of world trade

Towards a global energy transition

Ross Gelbspan

We are facing today the crisis of species loss, the crisis of our increasingly unstable climate and the financial crisis centring on the instability and inequity of the global economy. In addressing those three interrelated crises, the axis of climate and energy policy seems to offer the most direct and tangible opportunity for integrated action.

Last summer, a group of 16 economists, energy company presidents, scientists and policy experts, meeting at the Center for Health and the Global Environment at Harvard Medical School, worked out a set of strategies to begin to reverse the warming-driven destabilisation of our climate. The members of the group are united by their impatience with the pace and reach of the Kyoto process and with what it believes is an unrealistic reliance on flexibility mechanisms – especially "cap-and-trade" and "Joint Implementations" – as an instrument for international emissions reduction, especially in the near-term.

The strategies embodied in the World Energy Modernization Plan, which emerged from those discussions are designed, to begin to restore order to the currently unstable global economy as well as to relieve pressure on natural habitats, especially in the developing world.

The plan is driven by the unambiguous scientific finding of more than 2,000 scientists from 100 countries reporting to the United Nations that to ensure a hospitable climate ultimately requires emissions reductions of from 60 to 80 percent. That means essentially rewiring the globe and replacing our oil-burning furnaces, coal-burning generating plants and gasoline-powered cars with renewable and highly efficient energy technologies.

What nature requires, in short, is ultimately a global energy transition to re-stabilise the climate and allow ecological systems to readjust. That transition requires both the decarbonisation of energy supplies by the major multi-national energy companies in the North as well as the transfer of renewable and high-efficiency energy technologies to the developing nations.

A major premise of the plan involves the impact of a global energy transition on the global economy. Contrary to the economically defensive posture of many nations and industries, we believe a transition to renewable and high-efficiency sources would substantially expand the stability, equity and total wealth in the global economy. It would allow every national economy to develop without regard to atmospheric limits. We believe it would raise living standards in the developing nations without compromising economic achievements in the North.

Insofar as the plan is as much an instrument of development as carbon reduction, it should have a stabilising effect on the reduction of species diversity. By creating clean energy, it should eventually mitigate impacts of climate change on species loss. By creating jobs – especially in the poor areas – it should contribute to a reduction of habitat destruction through destructive land-use patterns. By reducing and ultimately eliminating expenditures for imported fossil fuels, it should relieve the pressure on land resources from cash crop monocultures which is driven, in part, by the need to pay for imported fossil fuels. Hopefully, by enhancing economic security, it would contribute to the stabilisation of population levels.

Nigel Dickinson/Still Pictures

Relief operations following Hurricane Mitch disaster

The impacts of climate change are emerging quickly and intensely. The build-up of atmospheric carbon from our burning of fossil fuels has been accompanied by a relentless succession of extreme weather events whose costs are escalating at a frightening rate.

In 1998 alone, we saw a crippling ice storm in Quebec and New England, uncontrolled fires in Brazil, Mexico and Florida, killer heat waves in the Middle East, Texas and India, Mexico's worst drought in 70 years followed by intense floods, massive flooding in China which left 14 million people homeless, the worst flood in the history of Bangladesh which left 30 million people without homes, extensive drought in Vietnam and the 11,000 hurricane casualties in Central America. The year surpassed 1997 as the hottest year in recorded history - and at least the hottest year in this millennium.

Most alarming is the accelerating rate of climate change. As recently as five years ago, most climate scientists said they expected to see significant signs of climate change in the middle of the next century. Now they are seeing those signs today.

The financial consequences of this accelerating frequency of extreme weather events are highlighted in the escalating losses to the property insurance industry. While insurance losses from extreme weather events averaged $2 billion a year in the 1980s, they are averaging $12 billion in the 1990s. In fact, the insurance losses of 1998 alone exceed all such losses from the previous decade.

Given the inertia and resistance in the UN-sponsored climate negotiations, the challenge of a global energy transition seems at first glance overwhelming. But the crisis facing the world's capital markets makes the project more feasible — since it could well provide a

mechanism for stabilising both the global economy and the global climate.

The "solution" as we see it involves three interactive and self-reinforcing strategies to begin to address the climate crisis.

The first involves a change in subsidy policies. Today the U.S. government spends about $20 billion each year subsidising fossil fuels. Globally, that figure is estimated at $300 billion. If those fossil fuel subsidies were withdrawn, it would result in more accurate fuel prices which would reduce excessive oil and coal consumption. The establishment of equivalent subsidies for renewable energy sources would provide major incentives for the world's energy companies to invest in fuel cells and solar, photovoltaic, biomass and wind power. Those incentives should provide the necessary boost to propel renewable energy into the big league of global industry. (At the same time, a portion of those subsidies should be used to retrain displaced coal miners and other fossil fuel workers.)

The second strategy involves the adoption of progressively more stringent Fossil Fuel Efficiency and Renewable Content standards - together with the elimination of regulations which support inefficient monopoly utilities and wasteful energy use.

While a normal coal-fired generating plant, for example, achieves about 35 percent efficiency, a high-efficiency gas-fired cogeneration facility achieves from 75 to 90 percent efficiency. Improved efficiencies are available in transportation, industry and household and commercial equipment. The institution of progressive efficiency and renewable standards in the developed nations — and the elimination or modernisation of regulatory barriers and protections — would strengthen energy competition based on the criteria of efficiency and price.

We believe these two elements - a change in subsidy policies as well as the institution of efficiency and renewable standards in tandem with the elimination of regulatory barriers to competition - would be enough to initiate an energy transition in the industrial world.

The adoption of similar standards by the developing nations as well would create an immediate worldwide market for renewable energy. If each nation - beginning at its current baseline - were to commit to increasing its fossil fuel efficiency by specified rates at designated intervals, that would also defuse the current North-South impasse over the fundamental equity question which lies at the centre of the dispute over the emissions "cap-and-trade" regime envisioned in the Kyoto Protocol.

Even if the countries of the North were to reduce their emissions dramatically, however, that cut would be overwhelmed by the coming pulse of carbon from China, India, Mexico, Brazil and all the other developing nations who are trying to stay ahead of the undertow of chronic poverty.

For that reason, the third element of the plan involves the transfer of technology and expertise to promote renewable and efficient energy sources in the developing world. Virtually all developing nations would be happy to switch to solar, wind and fuel-cell power. Virtually none is able to afford an energy transition on its own.

One vehicle for financing that transition is a tax on all international currency transactions. Those transactions today total about $1.3 trillion per day. A quarter-of-a-penny tax (per US dollar) on those transactions would yield about $200 billion a year (after other costs) to build windmill factories in India, solar assemblies in El Salvador, cogeneration plants in South Africa and fuel cell factories in Russia.

This tax was initially conceived by Dr. James Tobin, a Nobel Prize-winning economist, as a method of stabilising international capital flows. Of all the various tax systems that have been proposed, a tax on currency transactions seems to be the most equitable, non-discriminatory and broad-based. It could provide sufficient revenues for the energy transition in developing countries without eroding its own financial base.

But other funding sources with comparable revenue-raising potential exist, e.g., taxes on carbon-based fuels, diversion of those portions of defence budgets dedicated to protecting the security of oil commerce, and other revenue-raising mechanisms.

However it is financed, we believe a global public works programme financed by a World Energy Modernization Fund, may hold the same potential benefits for today's global economy that the New Deal policies held for the U.S. economy in the 1930s.

A worldwide energy transition would create millions of jobs all over the world. It would go far toward reversing the widening economic gap between North and South. And, in short order, the renewable energy industry would become the central, driving engine of growth of the global economy.

The resulting global economic order would, we believe, resemble the economy of Western Europe after the implementation of the Marshall Plan. Today, instead of a collection of dependent and impoverished allies, the United States enjoys robust trade with its European partners. We believe a worldwide energy transition would galvanise the global economy in much the same way.

Without such a transition, however, the outlook is frightening and depressing. The accelerating changes to the global climate - with its alteration of El Nino patterns, the die-off of the Alaskan forests, the disintegration of Antarctic ice shelves, the northward migration of infectious diseases and the continuing succession of severe storms, altered drought and rainfall patterns and temperature extremes - will do more than tear holes in the global economic fabric. It may well prove the undoing of our organised civilisation.

A fair share: Demanding entitlements for an equitable and sustainable climate regime

Shaheen Rafi Khan

A week before the COP4 to the Framework Convention on Climate Change took place in Buenos Aires, the Centre for Science and Environment (CSE), India, held a conference entitled "A Fair Share: demanding entitlements for an equitable and sustainable climate regime". Attended by participants from Bangladesh, Sri Lanka, Nepal, India and Pakistan, the conference started with the premise that the covenants of the Kyoto Protocol were not only iniquitous, but contained in-built perverse incentives to pollute.

Shaheen Rafi Khan of SDPI, Pakistan, reports on the alternative position proposed by CSE which, he argues, could become the basis for a unified Southern negotiating stance – 'provided the South can get its act together".

The Annex 1 (developed countries) and transition economies have been apportioned entitlements to pollute the environment. These entitlements are implicit in their national commitments to lower emissions, (which amounts to a global 5.2% below the base year (1990) by the year 2010). In other words, their combined emissions - minus 5.2 percent – would become frozen in perpetuity. In this manner, not only will northern countries have legitimised their dismal historical record in polluting the planet but, in addition, will claim credit for doing their bit for global warming to boot.

Let's look at the national commitments a bit more closely. Australia was a high emitter in the early nineties as a result of uncontrolled deforestation. Since then, it has reduced emissions steadily as a result of better forestry practices, actually lowering such emissions by more than required in the KP. So now it actually ends up with an entitlement to increase its emissions by a whopping 8%. The arbitrary choice of the base year also benefits the transition economies, which have been in a slump ever since the early nineties. Although committing itself to a zero reduction, Russia has, in effect, got itself a 30% emission margin – a gratuitous windfall generated by recession related emission reductions.

The U.S., of course, gets tremendous mileage out of this. It is gearing up to trade away a chunk of its emission reduction requirements with Russia for a relative pittance (estimated at $15 billion on the basis of an established price per tonne of carbon sequestered). Russia just has to twiddle its thumbs to get this nice little windfall. In addition, its margin will not be traded away for some time because of new emission control technologies on the shelf. The global targets of the KP will have been met but the developed countries will have done nothing to actually reduce emissions. They will just have traded 'hot air' – a case of concrete action become hostage to creative accounting.

Why then, might one ask, does the U.S. insist upon 'meaningful participation' by the developing countries (China, India) when the 'hot air' option exists? The answer is caps. The U.S. can only trade away a proportion of its commitments; the rest has to be meaningful reductions. That is where the developing countries come in. By committing them to reduce, the global burden gets distributed more widely and national requirements get reduced commensurately.

Conceivably, the South may not agree. Why should it be deprived of its bit of atmospheric space when the North has been carving huge chunks out of it ever since its factories began to belch out smoke? Just look at existing patterns of emission. The emissions of one American (this is the good part) are equal to those of 25 Indians, 33 Pakistanis, 42 Maldivians, 85 Sri Lankans, 125 Bangladeshis, 250 Bhutanese and 500 Nepalis, with such emissions having a direct correlation with growth/development. Not surprisingly, the South too would want its place in the sun, and if global warming is to be the price, so be it.

The North has an answer to this, in the form of a neat little neo-classical ploy. Starting out as Joint Implementation (JI), this has evolved into Clean Development Mechanisms (CDM) – the latter makes the obligatory nod to sustainable development. Basically it allows developed countries to buy certified emission reduction units (invest in carbon-efficient projects) from low emission countries. CSE refers to these as 'Unclean Development Mechanisms'.

Here's why. An elaborate market-driven mechanism is being proffered to lure developing countries into selling off their emission rights at dirt-cheap prices. At the apex would be a global executive board to oversee such trading. The board, in turn, would authorise numerous certification agencies to assess compliance of the countries selling the emission reduction units. Multilateral institutions and banks are scrambling for a slice of the brokerage. The World Bank wants to corner the market with its Carbon Investment Fund; The Asian Development Bank is developing a portfolio of projects of interest (does anyone remember ALGAS)? UNDP, GEF, UNCTAD – all want a piece of the action. Multinationals too can enter into deals. Ostensibly market-driven, the proposed arrangements are designed to prod developing countries into cut-throat competition for funds. The race has already begun with low cost options being identified and submitted for funding. Projects priced as low as $14 per tonne of carbon reduced are being offered, compared to the average $125 per tonne it costs to reduce in the U.S. Seen this way, there is nothing clean in the mechanisms proposed. They are just a means to ensure that the industrialised countries meet their emission reduction targets without actually lowering their own emissions – and at the lowest possible cost. Worse still, developing countries will have bartered away their low-cost options, leaving future generations with the burden of implementing the most expensive cost options by the time they become subject to mandatory emission reductions – as they surely must, thanks to lack of effective compliance by the North. The KP purports to be a benign environmental agreement. From the South's perspective it is a pernicious trading agreement.

Furthermore, are such mechanisms viable? Not according to CSE. As men-

tioned, the South will be forced into commitments as voluntary and traded compliance measures prove inadequate substitutes for real reductions by the North. The closer it approaches such commitments, the more reluctant will it be to subscribe to voluntary measures. After all, it will want to look good on the global map. And it certainly won't accomplish this by becoming so energy efficient that by the time baselines are set for it, its energy conservation efforts have made high percentage reductions difficult. So much easier to go on polluting and achieve both easy and substantive reductions from a high base. Thus the strategy spelt out in the KP provides non-Annex 1 countries with a perverse incentive to continue with their current rate of emissions.

What is the most equitable and effective strategy?

Interventions premised on market mechanisms without associated property rights or entitlements are clearly iniquitous, mortgage the future interests of the South and are ineffective in controlling emissions. The solution is simple – institute such rights. How can this be done? By distributing budgeted emissions equally. Budgeted emissions are the difference between the optimum required for carbon dioxide stabilisation and current emission levels. This difference should be divided equally on a per capita basis. All countries must commit themselves to reaching the determined per capita level (this is subject to scientific re-evaluation) also known as the principle of convergence. The merit in this is that secure tenure rights (to the atmosphere) would create a level playing field for emissions trading.

Let's see how it works. Say the budgeted (allowable) emissions are 1 tonne of carbon per capita. And say the South presently emits 0.1 tonnes per capita while the North is closer to 2 tonnes per capita. The North has to cut its emissions by 1 tonne per capita while the South has the option of going up by 0.9 tonnes per capita. It will do so up to a point because it must grow. But beyond that it can trade its surplus. However, there is no longer any compulsion to go for its lowest cost options – for instance, planting trees because land and labour are cheap. With inalienable entitlements, each country can determine the price and choice of option. In fact, if the negotiated price is high enough, there could be sufficient incentive to go for a solar transition, with the relatively higher cost over carbon technology being offset by this price subsidy. Furthermore, enough demand can, conceivably, be generated in the South to give an impetus to Northern R&D to invest in solar energy cost reductions. Distributional benefits are implicit in the solar transition, in as much as it would electrify rural communities presently off the grid.

Is this a pipe dream?

Definitely not, but there are constraints, which must be recognised and addressed. First, the North will not give away its emission privileges easily, especially when it has to come down to a budgeted per capita figure from its present high emission levels. Recriminations, to the effect that the North has polluted the planet criminally, will not help. At best, the South can use this to take the moral high ground and settle for phased emission reductions. The North can also argue in reverse that per capita entitlements are unfair because the South is demographically rampant. Easily resolved. The global population level can be frozen in time – a much more credible recourse than the arbitrary choice of the baseline. Ultimately there is a flip side to this, in as much as equity is, potentially, a convincing rallying point for the South.

Second, the South is divided. While there are certain NGOs, such as CSE which have gone to the source of the problem to come up with a common philosophical premise, the majority of Southern institutions – NGOs, governments, the private sector – have either succumbed to Northern blandishments or slotted in for personal gain. At best, Southern governments are ill-informed and barter away concessions unknowingly. It has become a standing joke that briefs are hastily prepared for the government by local think tanks and one, or at most two, favoured individuals go jetting off to the major conferences sit mutely through the discussions and are neither seen nor heard from afterwards. By the same token, some countries subscribe to voluntary compliance. But the worst sell-out is when non-profit and private sector entities get on to the northern wavelength for personal gain.

Third, the existing KP mechanisms could engender misplaced concreteness. What developing countries may be compelled to do because their cities are becoming uninhabitable, may be subverted by climate change imperatives, specifically by the lure of the proverbial pot of gold. A transition to an entitlements-based regime can ensure the convergence of both imperatives.

What needs to be done

A consensus needs to be built up through effective advocacy. The Southern Asian Atmospheric Group set up by CSE, with a core group of members from India, Sri Lanka, Bangladesh, Nepal and Pakistan, is a step in this direction. The Group has formulated a statement of shared concern which it will disseminate among member countries. Other activities planned are:

- Identify groups working on equity and natural resources and link them to climate and equity
- Circulate the shared statement of concern to all members of the South Asian Climate Action Network (CAN).
- Create a website page in the name of the atmospheric group and link with other websites
- Commission work on folk wisdom/oral history on climate regimes in the region
- Work towards organising a conference on impacts
- Prepare fact sheets in other languages.

Any other ideas most welcome.

Capacity building and climate change: A review of some issues

Ambuj Sagar

The notion of capacity building has received significant attention in recent years, mainly in the context of national development and environmental management. It is now well understood that capacity is required to meet a variety of challenges in these domains — for example, Agenda 21 suggests that the "fundamental goal of capacity building is to enhance the ability to evaluate policy choices and modes of implementation of development options, based on an understanding of environmental resources and their limits, and of specific needs as perceived by the people of the country concerned." [United Nations 1992]

Most of the discussion surrounding capacity building focuses on improved management for development and of the environment on the national level through strengthened human resources, improved institutions and inter-institutional linkages, and the creation of an enabling policy environment (see, for example, UNDP1997 and OECD 1995). Less attention has been devoted to issues surrounding capacity building for global environmental issues, i.e., what kind of capacity is needed, towards what goals does it need to be deployed, and how it may be built up. The discussions on this front are still relatively general in nature, and there is not much literature on the topic. Still, there are characteristics of global environmental issues which suggest that the capacity to identify, understand and tackle local or national environmental issues may be different from the capacity to deal with environmental problems that are global in origin, and need global solutions.

Ecological, economic, and social implications of global environmental issues such as climate change are expected to vary substantially among regions and nations. This variation results, on the one hand, from the geographic distribution of the diverse impacts (since the manifestation of the impacts is often dependent on local geography, ecology, and economy), and, on the other hand, from differences in mitigation and adaptation strategies of individual countries, and in how these strategies are carried out under greatly differing socio-economic conditions. While the phenomenon may be global in origin, it is the impacts at the local level that will determine the actual seriousness of the problem; at the same time, the implementation of any strategy to tackle the problem must also take place at the local level.

In the case of climate change, for example, the effect of sea-level rise is likely to affect countries very differently — small island states may suffer serious consequences (some of them may be completely inundated) as might low-lying coastal areas such as in Bangladesh. But within these and other potentially affected countries, the impact that may be suffered will depend greatly on the nature of the local ecology and economy. While computer models may be able to suggest the range of sea-level changes that could occur, only micro-level studies that take into account the specifics of local communities and their dependence on the coastal ecosystems can provide insights into the eventual socio-economic impacts and possible mitigation strategies [Asthana 1997]. As another example, the impacts of global changes in rainfall patterns on agriculture will be determined by the manifestations of these changes at the local level as well as the farming conditions (the nature of the soil, groundwater or surface water availability, etc.) and cropping patterns there. Once again, this requires studies at the appropriate scale. Therefore, a wide range of inputs — data, analysis, and perspectives — at different levels of detail and scale, within and across nations, are key to informing research and shaping coverage of the multitude of issues [Kandlikar and Sagar 1999]. This requires capacity not only to collect data and other information within countries of the South, but also the capacity to use this knowledge to improve the models that form the basis of our understanding about the climate systems and its perturbations.

A better understanding and definition of the nature of the problem, of course, is only the first step towards its resolution. Other steps include the determination and presentation of policy alternatives, selection of an acceptable set of solutions by decisionmakers, and implementation (which may also require agreement on appropriate methods for verification and monitoring of national compliance). Such steps involve, *inter alia*, negotiations among countries of highly complex issues. Such negotiations require the ability to understand and articulate national needs and concerns, to bring these onto the international agenda, and then being able to support and propagate national positions through targeted analysis. The capacity to do this once again must reside within individual nations (or at least among groups of nations with similar interests).

All in all, in a broad cut, one can think of multiple kinds of capacity required for meeting the objectives of the FCCC. These include:

- scientific and analytical capability to understand the bio-geophysical impacts of climate change and their implications for national economies and societies,
- capability to generate possible technological and other policy alternatives, as well as to analyse their applicability in various national contexts and their implications for national economies and societies,
- the utilisation of the above knowledge to assist national decision-makers in articulating and protecting the national interest in the negotiations under the climate convention,
- developing management capacity for implementation of possible climate protection strategies.

This menu of requirements suggests that capacities should perhaps be tailored to the needs of the different countries, in line with their scientific, technical, and economic capabilities. Clearly some kinds of capacity in one country may be able to substitute for capacity in another country — for example, the results of a GCM model from Germany may not be very different from that of a model from the UK (assuming the same availability of information to both modelling groups). The applicability and acceptability of policy models,

however, may vary greatly across countries. Therefore economic analysis in the North that assumes different valuation of life for rich and poor countries may not resonate in the South (as was the case for the IPCC SAR, resulting in a major controversy). Such differences may be, in part, because the identification of, the focus on, and the eventual approaches to issues that are deemed relevant may be determined by analysts' backgrounds. The predominance of Northern economic and policy analysts in the climate debate has led to an overwhelming emphasis on economic efficiency at the expense, many in the South feel, of equity considerations. Similarly, some issues - for example, insurance or liability for future climate impacts that is of great interest to AOSIS countries - barely register in international policy discussions.

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Most of the discussions on capacity building in the climate issue have focused on the South, and on scientific and technical areas, i.e., the first (and to some extent, the second) of the above bullet points. There has been almost no attention paid, in comparison, to policy research and strengthening linkages between science and policy research and decision-making in developing countries. At the same time, what kind of Northern capacity may be needed to assist in a resolution of the climate debate in an equitable manner also remains an open question.

Capacity building in the South

Most countries of the South will need to build substantial capacity to deal with the climate issue. According to Ohiorhenuan and Wunker (1995), this requires three levels of capacity building for developing countries:

- capacity for compiling information regularly and identifying appropriate measures (in line with Article 12);
- capacity to develop and implement strategies and programs (in line with Article 4);
- scientific research and the development and adaptation of appropriate technologi0es.

While the first element is being covered to some extent by current capacity building efforts such as the U.S. and UNEP Country Studies Program as well as Global Environmental Facility, the latter two elements are more difficult to manage since they require more sophisticated forms of capacity and training that cannot be transferred as easily, and can be built up only slowly over a period of time. Still, there is some effort to build up scientific research capacity in the South through programs such as START (System for Analysis, Research and Training) and APN (Asia-Pacific Network)).

Broadly speaking, though, one could say that in most developing countries, most of the capacity on the climate issue derives from the need to fulfil specific obligations under the FCCC. In addition to this, though, some developing countries do have scientific research efforts to better understand the national implications of climate change. Strengthening and upgrading this capacity is an urgent task for developing countries, as is also the capacity to design and manage GHG abatement programs that are likely to result from a climate regime.

At the same time, as suggested earlier, there is a critical need for Southern capacity for strategic policy analysis. Issues of justice and equity have rarely played a sustained role in international relations — bringing these concepts to the table in the context of global environmental problems is a difficult task. The successful integration of such principles into the emerging climate regime in turn is contingent on the ability of vulnerable nations to gain a voice. In fact, for many countries of the South, a central element of the climate debate revolves around the need for a fair resolution of contentious questions such as who should reduce GHG emissions and by how much, and who should pay for these reductions. Even the most rudimentary national policy towards climate change requires an assessment of the national and sub-national implications of the impacts of climate change and of proposed abatement strategies in the context of historical GHG-emitting activities.

Countries therefore need to develop a clear understanding of why the climate issue is important for them, and what implication alternative scenarios would have for their national economies. Since such assessment requires a whole range of skills — data collection, data analysis, emissions scenarios, climate modelling, impact analysis, and technical and economic analysis of abatement strategies — a national assessment capability requires both building such skills in all, or most, of

these areas, and having the ability to co-ordinate and utilise these skills to inform the policymakers who may then use the knowledge generated in domestic policy formulation and international negotiations.[1] As things now stand, most developing countries do not have the capacity to engage in such assessments, and most are unlikely to be able to develop it. Climate programs in developing countries are orders of magnitude smaller than those in industrialised countries. For example, the Indian Climate Research Program has a five-year budget of $2.5 million, while the U.S. Global Change Research Program devotes over two-thirds of its $1.8 billion annual budget on climate-change-related research. Overall, we estimate that the annual climate change research budgets of the U.S., Japan, and E.U. member countries probably add up to more than $ 3 billion.

Creative solutions are called for to overcome such constraints. To some extent these have already been forthcoming — for example, non-governmental organisations (NGOs) in developing countries use their networks with their counterparts and other institutions in the South and the North to stay abreast of the latest developments in the climate issue, to develop analyses that represent Southern positions, and project Southern concerns in the international negotiating arena. And Southern countries also use groups such as the G-77/China to jointly present their views and concerns in the climate negotiations. An area of additional strength that has not been explored as much yet is the role of Southern co-operation in the area of assessment and analysis. Donor agencies have not shown much interest in this area - bilateral donors, as is common with most aid programs, often require the utilisation of their national consultants and institutions which leads to North-South collaborations and linkages rather than South-South exchanges. It may be possible for countries such as India and China to take the lead on this front with support from multilateral agencies. This may also be relevant for areas of technology development and adaptation, as has been pointed out elsewhere [Thomas 1998]

Capacity building in the North

Most discussions of capacity building for the climate issue focus on developing countries that clearly lack capacity on many fronts, but there is often also the implication that the North already has the appropriate capacity to deal with the climate issue (or at least has the capacity to assess what capacity is needed).[2] But certain kinds of capacity, currently in short supply even in the North, may be useful to build up. For example, capacity for information dissemination to the public to improve the public dialog on the climate issue could be strengthened. In fact, mobilising public concern is particularly important since tackling the climate problem will necessarily require significant changes in modes of Northern economic activity and possibly consumption patterns. At the same time, there are media campaigns that downplay the risks from climate change (this is applicable mainly in the US where, for example, an industry coalition spent $13 million on a campaign before COP3 to persuade the public that developing countries should not get a "free ride" at Kyoto, i.e., the US should not sign any Protocol that did not include developing countries). Recognising the need for such capacity, some institutions have launched efforts to address this shortcoming - for example, the Pew Center on Global Climate Change, established by the Pew Charitable Trusts in 1998 focuses on the education of the public on the risks, challenges and solutions to climate change. In fact, it may be important to persuade the public that climate and other global environmental issues should be treated differently from strategic issues such as national security or economic competitiveness. Given the current propensity of politicians to treat climate change as an issue on which national interest should override global concerns (despite the rhetoric to the contrary), an atmosphere of distrust characterises the negotiations. In reality, it is unlikely that the costs of abatement in the North will be as high as some pessimistic scenarios suggest.

In addition, North-South research co-operation may be very useful to understand Southern perspectives and needs. While North-South co-operation often takes the form of developing country researchers going to industrialised countries, there may be an important role for the reverse whereby researchers and analysts from industrialised countries go to developing countries for extended periods to immerse themselves in the context that they purport to study and work with local researchers in local institutions under local conditions. This will surely help them better appreciate the constraints of doing research in the South, and be exposed to the complexities of perspectives, needs, and concerns relating to global environmental issues in relation to the economic and social realities faced by the South.

Northern donor programs are often focused on specific issues driven by donor interests - this can lead, for example, to situations where multiple donors may fund similar projects or, in other cases, some may sponsor studies and workshops that reflect Northern interests rather than a genuine desire to assist the South in developing its own perspectives. Since donors play a critical role in building capacity in the South, it is crucial that they themselves have the capability to assess the capacity gaps in these countries and orient programs accordingly. Towards this end, a broader range of inputs from various participants in developing countries may be desirable to identify local needs, and similarly it may be important to fund an assortment of organisations such that long-term diversity in perspectives is maintained. In addition, in this era of dwindling donor resources, donor co-operation may be desirable.

Capacity building in international science and policy institutions

The complexity and uncertainty associated with most global environmental problems calls for heavy emphasis on scientific assessment, and analysis. But scientists do not illuminate, inform,

and make recommendations in a vacuum — the conduct of science is shaped by politics and culture and the national origin of the analyst matters [Jasanoff 1998].[3] If science and analysis are shaped by societal and cultural variables, as social studies perspective on the creation and use of knowledge suggest, then it seems imperative that a multiplicity of voices from different countries and cultures is essential to illuminating the range of perspectives that shape the science, knowledge, and analysis relevant to the climate debate.

Yet uneven participation in the IPCC, the authoritative intergovernmental panel that seeks to provide a state-of-the-art review of issues in the climate debate to the global community, is well known. Developed country experts far outnumber participants from developing countries, and there seems no objective criteria for selection of participants. In fact, the selection process is arcane for the participants themselves (personal conversation with participants for the TAR suggests that this is still the case - personal connections and networks often seem to determine invitations for participation). While the TAR has made attempts to increase developing country participation, there is not much effort at understanding fundamental reasons for the biased membership and hence of possible ways of redressing the discrimination. This, of course, holds not just for the IPCC but for other international scientific research programs also - for example, the formation and implementation of the major international scientific programs (IGBP, WCRP, and IHDP), has been dominated by scientists from industrialised countries who typically constitute 80% of the participants involved [Fuchs, Virji, and Fleming 1998].

This itself leads to a number of problems - global change science programs do not necessary reflect or address regional needs and may not be appropriately implemented at the national and regional levels. While developing countries remain dependent on scientific findings and policy advice from industrialised countries, they may not always trust such information and /or analysis [Fuchs, Virji, and Fleming 1998].[4]

To address this participation gap, international programs have to focus on understanding some of the structural and other reasons why such a bias exists (some of these may be obvious, such as a difference in resources, and some may be less obvious, such as policy and administrative expectations and requirements assumed by international programs, thus reducing the scope for efficient interaction and administrative compatibility with international programs), and what its implications are likely to be. Two major "gaps" that may result have been pointed out elsewhere [Kandlikar and Sagar 1999]:

- **relevance gap** – an imbalance in the kinds of research performed, and a limited focus on issues of relevance to developing countries. This creates an international research agenda that excludes the needs and concerns specific to these countries, and reduces the motivation for their researchers to participate in international efforts;
- **perception gap** – a variance in the views of Northern and Southern analysts about the role of research, analysis, and assessment in the international discussions surrounding climate change. This variance in the perception of international efforts in terms of "what are we doing," "why are we doing it," and "how are we doing it" may have serious implications for acceptability of international efforts.

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Footnotes

[1] "Assessment" can be defined as a continuing process through which knowledge is collected, organized, interpreted, correlated and integrated, often to inform the process of policy-making [Kandlikar and Sagar 1999].

[2] This is reminiscent of the traditional approach in the development literature where the North is treated as the reference end-point, and the process of development is portrayed as that of moving towards this goal.

[3] While the relation between science and policy is often presented in the simple terms of "speaking truth to power," in reality it is rarely so. [Wildavsky 1979] As Jasanoff (1998) states, one can question the notion of science as an "impartial adjunct to policy" at several levels: the objectivity of science ("science speaks truth"), the nature of the policy making process ("science speaks, and politics accepts, the truth") and the ability of science to define the truth as being independent of the power that turns to it for guidance.

[4] A recognition of these, in fact, has been the impetus behind the START initiative whose mission is to develop a system of regional networks of collaborating scientists and institutions to (a) conduct research on regional aspects of global change, (b) assess the impacts of regional findings, and (c) provide regionally important integrated and evaluated information to policy makers [Fuchs, Virji, and Fleming 1998]. Ironically, currently 8 of the 11 members of the START Scientific Steering Committee are from industrialised countries - old habits die hard.

Climate change and environmental security

Mark Halle

It does not seem very long ago that climate change was an issue for scientific research. The debate revolved around the reliability of scientific data pointing to increases in atmospheric carbon dioxide, and whether such increases would lead inexorably to global warming. The literature was full of graphs plotting atmospheric carbon in parts per million, from measurements taken on the top of Hawaiian volcanoes, and the debate raged back and forth between scientists of different persuasions.

Even the initial attention of governments was devoted to seeing if it was possible to reach anything like a scientific consensus on long-term climatic trends and their impact on human society. For years, attention focused on the scientific panels set up by the World Meteorological Organization and the UN Environment Programme.

These efforts, if slow, have essentially succeeded. By and large the debate is no longer about whether the atmosphere is growing warmer, but more about the pace of change, and about the likely consequences. Of course, there are holdouts – scientists who believe that the case has not been convincingly demonstrated. But then there are medical researchers who do not believe there is a serious connection between smoking and cancer. The fact is that the reality of human-induced climate change is no longer seriously in dispute.

The implications of climate change are serious, and the cost of addressing them will be high. No doubt the decades of effort to reach scientific consensus were a necessary precondition for mustering the political will needed to take action. The Framework Convention on Climate Change, adopted in Rio in 1992, and which came into force rapidly thereafter, sets the stage for the political debate on climate change – not whether it is a reality, and not specifically what to do about it – but who carries the responsibility and how the burden will be shared. Like so many global environmental issues, it finally comes down to equity and burden-sharing.

There is no real debate on sources of atmospheric carbon and other greenhouse gases. Their production is closely tied to consumption – particularly consumption of energy. And that is in turn linked closely to levels of industrialisation and development. Since the rich countries have already triggered much of the global warming, is it fair that they should ask the poor countries to take a different path to development; and if the latter are inclined to, what inducements might they be given?

So the debate on climate change has moved to the centre of the political arena. Nowhere was this clearer than in the discussions leading to the adoption of the Kyoto Protocol. For the first time, the Kyoto Protocol set greenhouse gas reduction targets for the Annex 1 countries to meet. More interesting, it sanctioned (at least in principle) a wide range of instruments for meeting these targets, including using market-based instruments in achieving desired benefits with the greatest efficiency and at the lowest cost. Thus the principle of emissions trading was accepted, along with the establishment of a Clean Development Mechanism to facilitate transfer of environmentally-favourable technology.

But, as we all know, if the market looks after efficiency, it does not necessarily look after equity. There remain strong currents of resistance to the notion that the rich countries might essentially buy their way out of their commitments, often further enriching themselves in the process.

Depending on one's perspective, the Kyoto Protocol either represents a stunning advance, not only in recognition of the issue but in allowing innovation to characterise the response. Or it can represent yet another put-off commitment, leaving the privileged in position and the underprivileged to suffer.

I tend to place myself towards the optimistic end of the spectrum, though not at its extreme. Because acknowledging the reality of global warming will mean dealing with it or suffering the consequences. And dealing with it will inevitably lead to an intense exploration of how to meet the targets in the most appropriate way. And in a consensus-based system, appropriate solutions will be solutions that minimise the price while addressing some of the underlying equity issues.

This is potentially good news to the environmentalist, and this is where the clear link between climate change and environmental security come in.

Persistent global warming – even if the increase in average global atmospheric temperature is only a few degrees – will lead to rising sea levels. With a significant percentage of the world's population living on the coastline, this has obvious security implications. How much greater are those implications in those countries like Bangladesh where not only the majority of the population lives very close to sea level, but where land and resources are in such demand that there is nowhere for them to go. What is true of population is also true of productive capacity. Countries like Egypt and Thailand have a high proportion of their productive capacity located at less than one meter above sea level.

From a security point of view, changing patterns of rainfall, and the increasing variability of temperature and precipitation extremes could be far more significant. And to make matters worse, those most vulnerable to the impacts of extreme weather phenomena are the poor and disenfranchised – precisely those who are least equipped to defend themselves. The security implications of large numbers of people displaced by ever more frequent floods and droughts is sobering.

We know already that the cost of humanitarian assistance has been rising steadily around the world; the cost of peace-keeping has been rising at an even steeper rate. Many of the situations demanding peace-keeping or humanitarian intervention are linked to environmental phenomena, often

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Trade implications of the Kyoto Protocol

Aaron Cosbey and James Cameron

The Kyoto Protocol is the most significant economic agreement since the World Trade Organization (WTO) was created in Marrakech in 1994, and is arguably the most complex international agreement ever adopted. Parties to the Protocol, if it is ratified, may find themselves confronting the principles and rules of the multilateral trading regime administered by the WTO in their attempts to fulfil their Kyoto obligations. This paper sketches out how those conflicts might arise, in an effort to find ways in which they might be avoided.

The Protocol

The United Nations Framework Convention on Climate Change (FCCC) is a framework for action to limit or reduce emissions of greenhouse gases (GHGs), such as carbon dioxide whose concentrations have risen significantly as a result of human activities. It was signed by over 150 states at the June 1992 "Rio" Summit (the United Nations Conference on Environment and Development). It entered into force in March 1994 and has been ratified by 176 countries. Parties included in Annex I to the Convention (developed countries and those in transition to a market economy) undertook a non-binding commitment to reduce their anthropogenic GHG emissions to 1990 levels by the year 2000.

The third Conference of the Parties to the Convention was held in December 1997 in Kyoto, Japan, and resulted in the adoption of the Kyoto Protocol to the FCCC. Annex I Parties committed to legally binding targets to limit or reduce emissions of six major GHGs, with an aggregate goal of a 5 percent reduction from 1990 levels by 2008-2012. As of February 1999, 76 countries have signed the Protocol and three have ratified it.

The fourth Conference of the Parties was held in November 1998 in Buenos Aires. Parties adopted the Buenos Aires Plan of Action, a work plan with firm deadlines to address issues raised in Kyoto and to further the implementation of the Protocol, which will enter into force when a majority of Parties representing 55 percent of total Annex I emissions have ratified it. (Note that this arrangement gives the United States an effective veto.)

The Kyoto Protocol established three "flexibility mechanisms" to assist Parties in meeting their targets: emissions trading (Article 17), joint implementation between Annex I countries (Article 6), and the Clean Development Mechanism (CDM) (Article 12). None of these has yet been precisely described by the negotiations, but most of the basic ideas are clear.

Emissions trading allows Annex I Parties to trade emissions reductions among themselves, buying or selling credit toward their commitments. Joint implementation involves collaborations among developed countries and countries in transition, on projects that will reduce carbon emissions from the baseline scenario. Such projects will earn emissions reduction credits. The CDM will provide incentives to firms investing in emissions-reducing projects in developing countries, with credits being divided between the host country and the investing firm.

The issues

Kyoto raises a number of trade and environment issues, most of which will come to the fore as Parties seek to fulfil their obligations to reduce emissions. It is highly likely that governments with differentiated legal and political commitments will implement these obligations in ways that favour their domestic industries. Policies and measures with potential conflict for the multilateral trading system include:

Carbon tax with border adjustment The idea of a tax on the carbon emitted in the process of producing a good, whether a unit of energy or a tonne of steel, has been around for some time. Both the U.S. and the E.U. have tried in recent years to implement such taxes, and both failed. But countries' obligations under the Kyoto Protocol are bound to give greater impetus to such schemes. The main obstacle to implementation is the penalty that such schemes assess domestic producers, who must face imports that may not have paid such a tax, and who must compete with similarly untaxed goods on the international market.

Both the U.S. and the E.U. responded to this competitiveness asymmetry by considering a "border tax adjustment" scheme. Such a scheme might remit carbon or energy taxes on exports, so that domestic manufacturers would be competitive abroad, and would assess a tax on imports equal to the amount the good would have been taxed had it been manufactured domestically. The former is GATT-legal. The adjustment for imports is controversial (not to mention methodologically challenging), and the spectre of a GATT/WTO challenge visited the debates in both the U.S. and the E.U.

The problem is that while the GATT rules allow for border tax adjustment, the traditional interpretation is that the only taxes eligible for adjustment are those levied directly on products, such as sales or value-added taxes. A GATT Working Party on the subject ruled that "taxes not directly levied on products were not eligible for adjustment, such as social security charges ... and payroll taxes". By this interpretation, the import adjustment described above would be GATT-illegal, since the taxes for which it adjusts are not levied directly on the products being traded, but are levied indirectly, on the energy that was used in the manufacture of those products. In this sense, the carbon/energy tax is much like a social security charge or payroll tax.

Subsidies, tax incentives Governments may offer incentives to firms, such as subsidies and tax incentives, to become more energy efficient, in an effort to reduce national carbon emissions. The temptation for governments will be to craft these such that only domestic firms will qualify, in a desire to foster industrial development at the same time as protecting the environ-

ment. Discriminatory subsidies and tax incentives are potentially GATT-illegal.

A number of criteria collaborate to qualify a subsidy as GATT-illegal. The subsidy must first be granted specifically to a particular industry or sector within a country (any conceivable subsidy aimed at reducing GHGs would be specific in this sense). It must then be either linked to exports of the subsidised good, contingent on the use of domestic inputs, or found to cause "adverse effects" to foreign competitors. Defining adverse effects is rather complex, but it boils down to calculating whether the subsidy impairs the market share of a competing producer.

There is a particular type of environmental subsidy that is GATT-legal, and which will probably be used to help domestic industry adjust to the shock of Kyoto compliance. It covers a one-time cost of firms adjusting to new environmental regulations, up to 20% of costs incurred.

Government procurement Another way to foster greater energy efficiency is to decree that the purchases by government departments, which in OECD countries typically amount to 10 - 25% of GDP, will have to meet certain green standards. The greening of government procurement is proceeding apace in OECD countries, in pursuit of a range of environmental goals. In the context of climate change the criteria might apply not only to the GHG emissions in the use and disposal of the purchased products, but also in their manufacture.

Such schemes would enter grey legal territory under the GATT. Under GATT rules, it has traditionally been seen as illegal to discriminate at the border on the basis of how a good is produced. (From an environmental perspective this is madness, but the trade community fears that the criteria could too easily be set up in such a way as to unfairly advantage domestic producers.) However government procurement does not fall under the GATT, but under the WTO's Agreement on Government Procurement (AGP). Unlike the GATT, this agreement seems to allow discrimination based on process and production methods (PPMs).

The more serious obstacle in the AGPis the requirement that no procurement criteria be set up in a way so as to create unnecessary barriers to trade. The key here is in the untested definition of "necessary". If the history of the GATTis anything to go by, it will be defined as "least-trade-restrictive", meaning governments will have to justify their procurement schemes as the least-trade-restrictive way to achieve the environmental goal in question. This would be a high hurdle to clear.

The AGPat this point has only been signed by a dozen or so countries, but they include the EC, Japan and the United States.

Ecolabels Governments might also want to develop ecolabels to certify that particular goods involve exceptionally low GHG emissions, using consumer preference as a weapon in the battle to meet Kyoto obligations. Again, these standards might refer not just to GHGs emitted in use or disposal, but also in the production process.

One possible conflict with WTO rules is in using such PPM-based distinctions, which are suspect in the multilateral trade community. Ecolabels, as voluntary standards, are covered under the WTO's Code of Good Practice, which spells out the proper ways to create and implement such standards. But there is an ongoing controversy in the WTO as to whether the Code covers PPM-based systems or not, and therefore as to their ultimate legality. The more immediate potential problem is in the construction of the ecolabel. It is easy to set up categories and criteria such that they unfairly favour domestic producers. For this reason the Code of Good Practice mandates procedures such as consultation with interested foreign producers.

No ecolabel has ever been challenged by the WTO nor, because of their voluntary nature, is one likely to be. But if a programme of government procurement used an ecolabel as the criterion for purchase – a future possibility – then the situation might change. The label in that case would in some sense cease to be voluntary, meaning stricter rules would apply.

Product efficiency standards Another way to increase energy efficiency is to set high product standards. Governments may, for example, decree that all refrigerators or automobiles sold in or imported into their countries must operate at a certain level of energy efficiency.

This is perfectly GATT-legal, but problems might arise if these regulations were designed in such a way as to effectively penalise certain foreign firms in favour of domestic ones. In December 1998, E.U. officials said they would challenge Japan in the WTO if it implements new emission standards proposed by the Ministry of Transport to control carbon dioxide (CO_2) emissions. Because they are based on the weight of vehicles, the planned Japanese rules would affect imports of medium and luxury range cars, a E.u.ropean speciality. By contrast, Japanese cars – even those with higher fuel consumption rates – would escape lightly.

Covenants, voluntary agreements Governments may enter into agreements with firms who "voluntarily" improve their performance in terms of greenhouse gas (GHG) emissions. Typically such agreements involve some incentive for the firms involved, whether a tax break or, more frequently, a promise of less onerous regulatory treatment. This incentive is the problem, from a trade perspective, if it constitutes an illegal subsidy according to the definition elaborated above.

The Kyoto mechanisms The flexible instruments under the Kyoto Protocol – the Clean Development Mechanism, Tradeable Emission Permits and Joint Implementation – all create trading

relationships in goods and services which are exclusive to FCCC signatories. For example, a party to the Protocol would not be allowed to trade FCCC emission permits with a non-Party. If both countries are WTO Members, this exclusivity may violate the WTO's Most Favoured Nation principle. This principle, expressed in GATTArticle I, states that any trading privilege a Member extends to another Member must be extended to all Members. That is, all Members are most-favoured.

Conclusions

The potential conflicts sketched out here are not so grave or intractable as to threaten the integrity of either the FCCC or the WTO. Even the simple analysis presented above, in discussing the relevant WTO rules, suggests some solutions. The aim of this paper is to highlight the potential for conflict, in the hope that changes in the existing trade law, or wisely administered environmental law, or both, will prevent it from materialising.

Aaron Cosbey is Programme Manager and Interim Director of IISD's Trade and Sustainable Development Programme. James Cameron, Barrister, is Director at the Foundation for International Environmental Law and Development, London.
This paper benefits from the comments of Chad Carpenter and Victoria Kellet of IISD.

Climate change and environmental security

(continued from page 21)

aggravated by destabilised weather patterns and climate systems. With continuing climate change, the situation is likely to grow considerably worse. In the end, would it not be better to invest in environmental management and mitigation of climate change – both positive actions that have multiple benefits – rather than paying a hefty bill later on in disaster relief and peacekeeping?

So the interesting link between climate change and environmental security is not the technical one but the political one. The security argument could help strengthen the political resolve necessary to advance on climate change, to implement some of the creative ideas that are floating around and – finally – to address the equity issues underlying climate change politics.

New resources on climate change

Climate, Biodiversity and Forests: Issues and Opportunities emerging from the Kyoto Protocol

WRI and IUCN; 1998, 40 pages, ISBN: 1-56973-285-X, $20.00

Over the past 150 years, deforestation has contributed an estimated 30 percent of the atmospheric build-up of CO2. It is also a significant driving force behind the loss of genes, species and critical ecosystem services. However, in the international policy arena, biodiversity loss and climate change have often moved in wholly unconnected domains.

While the 1997 Kyoto Protocol is a key step towards the mitigation of climate change, it leaves many questions unanswered, including the role of forests and land-use change in meeting obligations to slow global warming.

Climate, Biodiversity and Forests examines why, with so much at stake, the role of forests and land-use change under the Kyoto Protocol remains controversial. The report focuses on the need for strong international commitments and concerted action.

Safe Climate, Sound Business: An action agenda

WRI; ISBN 1-56973-286-8; $15.00
1998 Building a Safe Climate, Sound Business Future (full report); 60 pages; ISBN: 1-56973-287-6; $20
http://www.wri.org/wri/cpi/scsb

A project undertaken by WRI, Monsanto and British Petroleum explored a variety of aspects of climate change to help understand the nature of the challenge and possible policy responses. They looked at scenarios to meet future world energy demand that showed increasing and stabilising greenhouse gas concentrations, explored new technologies and potential business opportunities and discussed government policies and how they could encourage businesses and consumers to respond. Three principle conclusions emerged from the discussions:

- Climate change is a cause for concern and precautionary action is justified now;
- Business can contribute to climate protection efforts in substantial, positive ways by helping to develop sound climate policies, by providing the research and technologies needed to address the challenge, and by taking actions to reduce and offset their own emissions;
- Flexible and market-orientated climate policies that implement national commitments can address the long-term need to stabilise the concentration of greenhouse gases. Such policies can facilitate a Safe Climate, Sound Business outcome by stimulating innovation, early action, and cost-effective reductions. These policies can produce multiple co-benefits and reduce the risk of climate change caused by human activities.

Taking a Byte out of Carbon: Electronics Innovation for Climate Protection

WRI, the Electronics Industries Alliance (EIA) and the International Cooperative for Environmental Leadership (ICEL)
1998, 60 pages, ISBN: 1-56973-265-5; $20

While the U.S. struggles to forge a climate change policy, largely unnoticed are those companies that see new business opportunities in products that reduce greenhouse gas emissions and increase energy efficiency. Taking a Byte out of Carbon profiles technology initiatives of electronics and communications companies to reduce greenhouse gas emissions while at the same time promoting economic growth and improved living standards. The report illustrates how "smart" technologies place the electronics industry in a prime position to provide practical solutions to climate change.

Shades of Equity

Article by Anju Sharma in Centre for Science and Environment (CSE) 'Down to Earth" Magazine, Vol 7, No 19, February 28 1999

Negotiators from developing countries lack the strategy to put equity on the global climate change agenda. But the U.S. has already begun to define it for them. And that could easily become equity as defined by the world if developing countries do not watch out...

Centre for Science and Environment (CSE), 41 Tughlakabad Institutional Area, New Delhi 110 062; http://www.cseindia.org

Joint CEESP/Ring Meeting held in Gland

3-5 February 1999

The first "back-to-back" CEESP/Ring meeting was held in early February at IUCN HQ in Gland. As well as providing an opportunity for the CEESP Steering Committee to discuss mutual areas of interest and explore collaborative research opportunities with Ring members, the meeting also encouraged input from a number of IUCN staff based in Gland.

CEESP Steering Committee meeting

In-depth discussions were held on the difficulties IUCN has had in integrating social and economic issues into its programme, and the role of CEESPin helping to address this. The meeting explored ways of strengthening links between the commission and the IUCN Secretariat, hitherto hampered by a lack of financial resources – and the vacuum in the Social Policy Group since the sudden departure of Grazia Borrini-Feyerabend more than a year ago. Since then the Social Policy Group has been going through a transition to a more regionally-based Social Policy Global Team, and Maria Christina Espinosa, has recently been appointed as its Global Facilitator. The Secretariat support to the commission will be shared by her and Frank Vorhies of the Economic Services Unit. The CEESP Steering Committee expressed the hope that this support would be reinforced by the arrival of the new Director General, Maritta Koch-Weser, herself a social scientist.

The CEESP Steering Committee were joined by Ring members for the second day of the meeting. In what proved to be a very positive exchange, a number of areas of mutual interest were identified. In particular, the Ring priority theme on MEAs will directly inform one of the activities of the Economic Policy Working Group; the Governance Working Group project exploring ways to link governance issues at local, national and global levels, and the Ethics Working Group will both be drawing on case study material from the Ring.

Both the CEESPSteering Committee and the Ring members fully supported the proposal to hold an IUCN conference on Economic and Social Policy. Members of the Secretariat pointed out that though a great deal of work was already being done in the areas of economic and social policy in IUCN, especially in the regions, it was not always communicated sufficiently to the members and those outside the Union. A conference would provide a vehicle not only for showcasing such work, but for exploring in greater depth global policy areas – not traditionally the domain of IUCN – such as climate change, trade and sustainable development, and desertification, and emerging issues hitherto unexplored by the Union, such as consumption, the ethics of economics and the process of globalisation.

Following the meeting, Maritta Koch-Weser expressed support for the proposal, and a further meeting was held in March between members of the CEESP Steering Committee and interested IUCN staff. It was agreed that a conference held back-to-back with the Council Meeting in January 2000 might be the first of a series of events leading up to the next WCC in Amman, and that a scoping exercise should initially be carried out to gather material and select themes.

Further information in the next issue of Policy Matters.

Ethics proposal endorsed

CEESPSteering Committee members endorsed the Ethics Working Group proposal circulated by Stephen Marglin. Prepared by a number of authors including Stephen Marglin, Adil Najim, Tariq Banuri and Franck Amalric, the proposal sets out a framework of activity which aims to legitimise, encourage and initiate a debate about alternative ethical approaches to ecology. The debate in Kyoto 1997 over global trading in "permits to pollute" illustrates the relevance of this research. Whether or not acknowledged by its supporters, an elaborate ethical system lies behind the idea that a market in pollution abatement is the best way to address the problem. While "economistic ethics" represent an important point of view, these ethical principles become problematic when their advocates insist that this is the only legitimate viewpoint.

The Working Group proposes to challenge the dominance of market thinking, and to articulate at least one alternative to economistic ethics, based on the rights of nature (as against the economic view which begins and ends with human beings) and even more importantly on the relationships between people and between people and nature.

The Ethics WG will work closely with other IUCN commissions and CEESP working groups, in particular the Governance WG; the Collaborative Management WG, and the Commission on Environmental Law, with the aim of tying the working group's investigation into the continuing work of IUCN in such areas as biodiversity, sustainable use and the World Conservation Strategy.

It is envisaged that the work will take shape in a conference to take place six to nine months after funding is secured.

For a copy of the proposal, contact Catherine McCloskey, CEESP Secretariat

Ring meeting

Reported by Viv Davies, IIED

Held in Gland, the 4th Meeting of the Ring gathered representatives from each of the Ring institutions. It began with a roundtable report from members on regional networking developments and new alliances, and the degree to which the Ring has helped facilitate these initiatives. Ring members will continue to develop regional networks and alliances, and more broadly seek to expand the international Ring network by (a) identifying new potential collaborative partners, and (b) through continued and closer co-operation with the CEESP network. Tariq Banuri highlighted this connection by pointing out that the Ring provides substance to the work of CEESP, while CEESP provides structure to the work of the Ring. At the close of the session, the Ring group reinforced its identity as a 'global'rather than a 'southern'voice that is striving to create, develop and enhance local to global linkages.

Members also reinforced a common commitment to strengthening existing bi-lateral exchanges and research activity around the four identified priority themes of:

- sustainable livelihoods;
- MEAs (multi-lateral environmental agreements);
- water issues; and
- policy impacts.

Priority research themes

Following a lively discussion on sustainable livelihoods led by Ashok Khosla from DA, Ring members recognised the importance of continuing

to develop collaborative thinking around this theme. An existing DA paper will be re-articulated with views and polemic from Ring members that will incorporate perspectives on 'mini credit'initiatives, the 'non-monetised'economy, support systems and social capital, and access to natural resources and land issues. By exploiting its comparative strengths is this area, the Ring considered how, as a group, it might better inform the general debate on sustainable livelihoods in a more practical way, rather than a purely conceptual one. A strategic framework was discussed as a means of guiding government and NGO's in planning and implementing sustainable livelihoods policies and strategies.

A recent paper on MEAs written by Adil Najim was discussed in light of the Ring's current focus and position on this theme. Plans have been made to develop papers around issues of climate change, equity and biodiversity, trade and sustainable development. The group considered ways of synthesising current thinking and expertise so as to inform the global debate more effectively. Joint briefs; policy guides and workshops were proposed and are currently being discussed and planned by the group.

Atiq Rahman presented BCAS's latest work on water issues. It was agreed that there was a rich source of material and current initiatives upon which to draw and collaborate from amongst the Ring partners. Issues of linkages, privatisation and equity were discussed and a paper is currently being developed by BCAS which will incorporate contributions from the group.

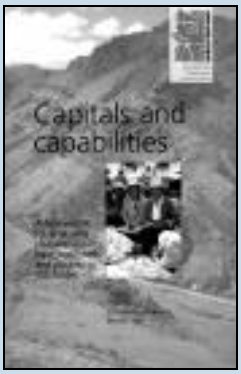
Koy Thomson received comments from the group on a collaborative draft paper currently being developed on policy impacts - "Working on Policy and Institutions: Why it Matters". The paper aims to capture something of the benefits and impacts of the Ring institutions in their research and policy work, and as such addresses the crux of who and what the Ring is. Following further review and restructuring the paper will serve as a valuable insight and guide into how organisations like those in the Ring make decisions and can work collaboratively to influence international and regional sustainable development policy making and institutions.

External relations and CEESPcollaboration

Plans were made at the meeting to extend and develop the Ring's external relations through various channels, including a new Ring publication series, web-site development and other promotional activities. On the research side, the Ring will shortly be appointing a new co-ordinator based in the South whose role will be to help integrate and develop the Ring's collaborative research and policy work.

Coming soon from IIED...

Capitals & Capabilities: A framework for analysing peasant viability, rural livelihoods and poverty in the Andes.



Contemporary debates on the rural sector in Latin America have led many to question the future viability of peasant livelihoods in the Andes. Current discussion is often limited because it confuses agrarian with rural livelihoods, implies that rural people assess livelihood options according to income criteria, and suggests an impermeable barrier dividing viable and non-viable units. The framework developed here challenges these assumptions and moves the debate forward, reviewing recent livelihood transitions in the region, which suggest there is no impermeable barrier that prevents rural people moving in and out if the agrarian economy. It draws on ethnographic and sociological evidence that suggests that rural people make choices on livelihoods based on a multitude of criteria, of which income is only one. Livelihoods do more than just support life, they also make it meaningful, and so the maintenance of cultural and social practices that accompany rural residence are also important. The framework argues that our analyses of rural livelihoods need to take account of: people's access to five types of capital asset; how they combine and transform those assets to build livelihoods; how they are able to expand their asset bases through engaging with the state, market and civil society; and the ways in which they are able to deploy and enhance their capabilities both to make living more meaningful and to change the dominant rules and relationships governing the ways in which resources are controlled, distributed and transformed into income streams. Particular attention is paid to the importance of social capital as an asset through which people are able to widen their access to resources and other actors.

Policies that Work for Sustainable Agriculture & Regenerating Rural Economies series.

There are enough examples world-wide to suggest that agriculture which is pro-sustainability and pro-people is working. We now understand the concept of 'sustainable'agriculture is not confined within the farm boundary, but has strong links (and a potential to be a dynamic force within) a wider rural economy. So, 'sustainable agriculture'not only contributes to greater agricultural production, but also environmental regeneration and local economic development.

IIED's Sustainable Agriculture & Rural Livelihoods Programme has undertaken collaborative research to look at, 'Policies that Work for Sustainable Agriculture and Regenerating Rural Economies'. The overall objective of this research is to understand the policy contexts and instruments that can promote sustainable agriculture and social change. This has been done in high, medium and low income countries in both South and North. 'Success stories'have been identified and the policy environment that has permitted these to emerge has been investigated. Are there lessons we can learn from these 'islands of success'that will help us turn islands into continents?

Capitals & Capabilities is one of several papers which provide the contextual and conceptual background to the *Policies that Work* programme. A review will appear in the next issue of *Policy Matters*.

Symposium on Global Accords for Sustainable Development: Innovative Mechanisms and Enabling Technologies

MIT, September 16-18 1998

From a report by Nazli Choucri

International deliberations at Earth Summit + 5 (evaluating Agenda 21 and the Conventions) and UNFCCC/COP3 (framing the Kyoto Protocol) reflected diverse perspectives and colliding priorities in many aspects of the global agenda.

Global policy priorities appear segmented along two identifiable lines: one focuses on climate change – emphasised mainly by industrial countries; the other one concentrates on sustainable development – supported largely by developing countries. In order to move strategically to future assessments of progress on the Rio accords, it is essential to address potential sources of contention, highlight the commonalities that cut across policy in the international community, find ways to address both sustainability and climate change, and reinforce effective collaboration between industrial and developing countries.

These were the aims of a high level symposium held at MITin September 1998. The third international Symposium on Global Accords for Sustainable Development, brought together an august group of leading experts from international organisations, non-profit organisations, research foundations, business groups and centres of excellence in science and technology.

Earth Summit + 5 held in June 1997 to assess the post-Rio process, served as a 'baseline'for the Symposium. A panel led off by a keynote speech by Ian Johnson of the World Bank, included Gerhard Wahlers, director of the Konrad Adenauer Foundation and Ashok Khosla of Development Alternatives and was divided as to the gains and losses, and the overall implications of the post-Rio process. A session on emergent North-South Responses which followed, crystallised core contentions in specific terms, by articulating views from different national perspectives and at different levels. The session also identified new opportunities and potential points of effective conciliation. Emergent initiatives appear to be contingent on collaborative action involving key stakeholders (mostly the public and private sectors).

Addressing innovations at the global level, a session followed on ongoing institutional developments – both governmental and non-governmental, and highlighted the range of novelty as well as the extent of participation from both the state system and civil society worldwide. The focus was on the class of initiatives called the 'Clean Development Mechanism', formally presented in Article XII of the Kyoto Protocol. A further session highlighted collaborative approaches to the challenge of climate change, focusing on the urban environmental and development problems in industrialising countries, which stem from continued and explosive urban growth, absence of adequate energy and infrastructure services, and the lack of mechanisms for accelerating uses of relevant technological interventions. Initiatives were discussed that seek to introduce effective product and process technologies to transform operations towards greater efficiency and environmental soundness, consistent with socio-economic conditions. Other approaches seek to provide venues through which the participating institutions can contribute with expertise, technology and financial resources to the goals of technology advances, adaptation and development in industrialising countries.

Clearly little can be achieved towards sustainability without financial resources and the active involvement of the business community. New initiatives which have been formulated and 'tested'provide a basis for more robust strategies. Reducing barriers for effective participation of the private sector is important. If there is one consensus in the international community it is that alternatives to 'business as usual'are evolving, possibly accompanied by mechanisms for facilitating sustainability. A session focused on creating enabling market conditions buttressed by supportive public interventions. The final session looked at long term technological innovations, alternative energy technology strategies and imperatives of knowledge networking on a global scale.

Conclusions

Specific conclusions emerged as participants reviewed the overall discussion and debate.

Converging on priorities:

- The International Community must reinforce the emergent partnerships across economic sectors, national boundaries and issue areas – in the private and public domains;
- We must facilitate stakeholder participation (both private and public) in decisions and processes related to sustainability in the private and public domain;
- It is now essential to establish formal institutional requirements for governance and administration in the context of sustainable ventures, strategies and initiatives. This is especially important in relation to financing mechanisms and new investment strategies;
- We must establish operational mechanisms of accountability for the clean development mechanism (CDM) and clarify the underlying and basic principles that drive accountability;
- Efforts should be made to improve our understanding of the unintended consequences of technology change, and to accelerate implementation of the intended consequences;
- The 'population factor' should be included in all global deliberations on environment and development;
- It is essential to close the technology-policy gap, namely, the gap between available technology and knowledge about this availability on the one hand, and the policy and decision-making contexts nationally and internationally, on the other.

Defining a new initiative

Emerging from the Symposium was the formation of the Consortium on Global Accords for Sustainable Development. This initiative consists of two major thrusts: one is the internet global partnerships anchored in GSSD; and the second is the companion effort referred to as the Policy Dialogues. The Consortium was inaugurated at UNFCCC-COP4 in Buenos Aires in November 1998. Founding members include the Global Environment Facility, the World Bank, the Xerox Corporation, the MISTRAFoundation, and AT&T. In the next issue of Policy Matters we will present the Consortium's mission and goal, its work statement and the targeted outcomes, as well as a report on next steps.

Workshop on Biodiversity, Climate Change and Finance

11th Session of the Global Biodiversity Forum, 6-8 November 1998

On 6-8 November 1998, some 140 participants from 40 countries participated in the 11th session of the Global Biodiversity Forum in Buenos Aires, Argentina. The Forum, entitled Exploring Synergy Between the UN Framework Convention on Climate Change and the Convention on Biological Diversity, was intended to investigate ways in

which global and national actions to combat climate change and halt biodiversity loss could be co-ordinated and integrated. One of the four workshops held examined the role of finance in furthering these two goals.

The workshop, organised by IUCN Economics Service Unit, Trexler and Associates, and the IUCN Commission on Environmental, Economic and Social Policy, was attended by about 25 experts, representing multilateral organisations, NGOs, private sector utilities, financial services, academic and research institutions. Existing financial instruments include: the Global Environment Facility (GEF) and the three market mechanisms established by the Kyoto Protocol to the UNFCCC — (1) international emissions trading; (2) joint implementation between industrialised (Annex I) countries; and (3) the Clean Development Mechanism (CDM), an instrument for developed and developing country co-operation. The workshop set out to address whether these mechanisms were sufficient and whether it was necessary to develop financial mechanisms and tools that support the objectives of both conventions.

The session, initially co-chaired by Atiq Rahman, Vice Chair of CEESP, and Mark Trexler, discussed three topics: (1) Energy and Conservation Linkages; (2) Issues related to the Clean Development Mechanism; and (3) Implications for the private sector. The main points from the discussion are summarised below.

1. Energy and Conservation Linkages: Discussion centred on refining the linkage between climate change and biodiversity in regards to institutional, financial, economic and legal issues. It was agreed that the most critical linkages to ensure co-ordination and synergy between the biodiversity and climate change agendas were the provision of appropriate legal frameworks, institutional capacity, and economic incentives. Moreover, the adequacy of the Kyoto Protocol's current emission reduction targets was debated. Specifically, doubts were raised about the ability of the Kyoto Protocol's flexible mechanisms to generate sufficient funds to ensure government compliance and technology transfer. Two alternative modalities were presented to meet these concerns:

An international currency transactions tax of .25% might be levied in order to generate capital of approximately $100-200 billion per year, which could be accessed by developing country economies. The funds generated would be used for projects measured against an energy efficiency standard, renewable energy projects, and stimulation of markets. It was suggested that initial research indicated an openness on the part of some members of the financial markets sector to such a move. Mechanisms for disbursement were left open for further discussion.

A second suggestion was that consideration be given to equitable participation by developing countries by the allocation of entitlements within the framework of the Kyoto Protocol. These entitlements would be available to all countries according to current per-capita carbon utilisation, with the clear objective of convergence and the switch from carbon based to environmentally friendly non-carbon based energy sectors.

The potential for existing institutional structures to facilitate linkages between climate change and biodiversity in policy development and financing was presented. It was recognised that the Global Environments Facility (GEF), as the interim financial mechanism for both the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC), had a comparative advantage in furthering the policy debate on this topic by helping to identify: (1) effective governance mechanisms; (2) benefits from current projects: and (3) lessons for future financing.

2. Issues Relating to the Clean Development Mechanism (CDM): Several presentations addressed the CDM, the instrument for developed and developing country co-operation under the Kyoto Protocol. Many talks illustrated the weakness of the CDM with respect to equity, technology transfers and biodiversity conservation, with particular relevance to developing countries. The potential for certain developing countries to be marginalised in the CDM, and hence in the implementation of the Kyoto Protocol, was pointed out. In general, it was felt that the CDM could be used by developed countries as a way of avoiding the responsibility of cutting emissions at home. It was suggested that the two modalities presented above may represent ways of dealing with this problem.

3. Implications for the Private Sector: First, the private sector's role in implementing the Kyoto Protocol was recognised. Presentations by the private sector demonstrated their willingness to participate in flexible mechanisms if given the opportunity for early action. However, it was suggested that the current incentive system was inadequate to provide sufficient encouragement for broad private sector participation, and that those that do take early action could be penalised for doing so.

Second, it was accepted that risk mitigation measures (e.g. insurance) might provide a way of increasing financial flows, generate equity and provide a mechanism for linking inter-sector policy implementation and compliance. The use of risk management tools could help implement the objectives of the CBD and UNFCCC, and national sustainable development plans. Critical areas that risk management strategies could address included political and institutional risk, project performance risk and trading risk.

IUCN launches initiative on climate change

The Workshop on Biodiversity, Climate Change and Finance was one of a number organised by IUCN as part of its climate change initiative. Aimed at furthering understanding of climate change and its relationship to conservation of natural resources and biodiversity, this initiative is an outgrowth of a recommendation at the 1996 World Conservation Congress which called on IUCN to develop an international strategy on climate change. One of the first activities was to co-convene the ninth Global Biodiversity Forum during the negotiations of the Kyoto Protocol in December 1997. In the following May, IUCN organised a briefing and facilitated discussions at the COP4 of the Convention on Biodiversity on the implications of the Kyoto Protocol for the objectives of the CBD. At the 12th GBF in Dakar in December 1998, Brett Orlando, Climate Change Programme Officer of IUCN, chaired a workshop on climate change and desertification which examined the inputs the desertification community could have into the UNFCCC process on issues such as adaptation and mitigation.

IUCN has also participated in a number of international forums on how to design and implement the Clean Development Mechanism. The climate change initiative has published a number of briefing documents, including "Climate, Biodiversity and Forests" jointly published with WRI, examining the issues and opportunities for forests and other biodiversity in the Kyoto Protocol.

For further information, contact Brett Orlando, Climate Change Programme Officer, IUCN/Washington Office, 1630 Connecticut Avenue NW, 3rd Floor, Washington DC 20009, USA; Tel:+1 202 387 4826 Fax:+1 202 387 4823 Email: borlando@iucnus.org

IUCN celebrates 50th anniversary

3-5 November 1998

In November last year, some 300 government leaders, scientists and conservation experts gathered in Fontainebleau – the town where IUCN was founded fifty years ago. The theme "Imagine tomorrow's world" set the stage for a series of events including a three-day symposium focusing on the three Cs: Conservation, Communities and Consumption. The four high-level workshops held under each of these themes, provided an opportunity for delegates to take stock of the Union's achievements in the past 50 years, but more importantly, to address the challenges facing IUCN now and into the next millennium, and the ways in which IUCN will need to adapt if it is to fulfil its mission.

As chair of the first Consumption workshop, "Living within our Limits", Tariq Banuri reflects on the changing focus of IUCN' s work. In his opening comments, he argues that while IUCN initially started with conservation proper, it has gradually moved on to practices involving communities, and will need in future to focus increasingly on behavioural issues that cause degradation, embedded as they are in the dominant culture of consumption.

Opening comments: Living within our limits

Tariq Banuri

It is my great pleasure to welcome you to the first session of Atelier 3 of the Fontainebleau Symposium, "Imagine Tomorrow's World". Before I invite the keynote speaker, Mr Anil Agarwal, I would like to make two brief comments, one on the relationship of this panel with the rest of the symposium, and the other on the issue that lies before us.

As you are aware, the symposium has been structured along three streams: conservation, community and consumption. While this is not the only way in which it could have been structured, the beauty of this arrangement is that on the one hand it overlaps with and evokes some of the other possible structures, and on the other hand goes beyond them. Take a few obvious possibilities:

Time: past, present and future.
Level: global, national and local.
Type of action: research, advice and advocacy.
Disciplinary base: natural sciences, social sciences and humanities.
Medium of communication: Academic, policy/popular journals, electronic

It could be argued that IUCN (and the conservation community more generally) started initially with conservation proper, moved on to practices that involved communities more directly into their work, and might have increasingly to focus on behavioural issues that cause degradation. In other words, the past was conservation; the present is communities; and the future, consumption.

Similarly, it could be argued that conservation efforts were oriented towards national policy makers; their analytical framework was provided by the natural sciences; they were led by scientists; and relied mainly on academic journals for communication. Community participation on the other hand is oriented towards the local level; its analytical framework comes increasingly from the social sciences; it places NGOs and policy oriented forums and popular print media for communication. Finally, concerns about consumption are global in nature; these concerns need the intellectual structures provided by ethicists and philosophers; they will rely increasingly on advocacy and publicity; and are tailored to the electronic age.

This is a fairly simple, even simplistic description of a process of change in the manner in which the heartland of conservation has been defined. But the point is deeper than this. The point is that all of the categories I have mentioned have also been transformed over time. Conservation has become oriented towards community participation, and community-building efforts have increasingly begun to use conservation as an entry point as well as a goal of collective action. In other words, the papers presented in the streams on conservation and communities are as much about the future as this one. They too combine natural and social sciences and ethics in innovative ways to help us understand the human predicament today. And all of them are oriented towards practical people engaged in finding concrete and practical solutions to our collective problems.

Having said this, I now wish to turn to the subject of the present stream, consumption, and make a brief comment on the salience of this issue of tomorrow's world.

The former President of IUCN, Sir Shridath Ramphal, in his valedictory address to the IUCN General Assembly in Buenos Aires, called consumption one of the forgotten issues of UNCED. Indeed it is a forgotten issue of the environmental movement. The greatest danger to the environment comes not from its consequences in selected areas but the enormous and relentless pressure that the insatiable desire for consumption places upon it. Today we need an approach to conservation that focuses as much on the causes as on the consequences of degradation.

Why is consumption a forgotten issue in the environmental debate? One reason is that the environmental movement traditionally focused on a different agenda - "building a new Ark", as one of the founders of IUCN put it - which sought protection rather than prevention. There are other problems as well. I have argued elsewhere (Banuri 1994) that the implicit associations of the metaphor of the Ark - technological optimism, screening and exclusion, and the creation of "controlled" environments through isolation and segregation - led many in the South to view UNCED (and by implication the environmental movement) quite differently from its architects. It is more appropriate to say that they saw the architects "building a new Cross" - on which the South would be asked to sacrifice itself for the sins of "humanity". The point here is not to evaluate the validity of different metaphors, but to emphasise the distance between them. Despite a decade of intense engagement, we have been unable to bridge or reduce this divide, and the battle lines at Kyoto (1997) or Buenos Aires (1998) are virtually the same as those in Rio de Janeiro in 1992.

A second reason has to do with the nature of the dominant cultural values today. With a little help from the media, the advertising industry, and the corporate world, accelerated and intensified by the process of globalisation, we have become a society of consumers. This means not simply that people consume, but rather that they have to consume ever-increasing amounts of an endless array of newer and newer goods. (It does not matter very much whether this is because of the need for markets to function or for consumers to find meaning in their lives).

The problem was underlined almost 70 years ago by John Maynard Keynes in a relatively little known essay, "The Economic Possibilities of Our Grandchildren". This was published in the fall of 1930 in *The Nation and Athenaeum* weekly (republished in Keynes 1933). Keynes argued

that "[T]*he economic problem* [italics in original] may be solved, or be at least within sight of solution, within a hundred years" (ibid. p. 366). In other words, the human race would, for the first time in recorded history, have the ability to produce enough to meet everyone's needs. Keynes's goal in this essay was two-fold. On the one hand he wanted to counter the spirit of doom and gloom that then prevailed. On the other hand, he wished to point to a different danger, namely that our value system, oriented as it is towards accumulation, is totally unequipped to deal with an age where scarcity is no longer the driving force.

It is not 100 years since he wrote that essay, but the generation that would have been his grandchildren's is here and his predictions have been more than vindicated. Given the dominant value system, geared towards acquisition, accumulation and avarice, Keynes's economic problem has been transformed from the problem of production (presumably for everyone's needs) to the more virulent form of consumption - for everyone's greed. In other words, a problem that did (or could) have a solution has been transformed into one that does not have a solution and cannot have a solution.

Stephen Marglin (1995) points out in a review of the half-century following the publication of Keynes's essay, while the statistical trend is precisely as Keynes had predicted. "It hardly seems that we are solving the economic problem, even if we confine ourselves to the United States". The real problem, Marglin suggests, is that Keynes has grossly underestimated the power of what he called "relative needs", namely those that make us feel superior to our fellows. By focusing on the lesser needs, which he termed "absolute needs" (and later economists called "basic needs"), Keynes seemed to discount the insatiability of human desire for consumption. As Marglin notes, "If the market is dedicated to fulfilling (insatiable) relative needs, ... then far from being a solution to the problem, growth is its cause. The possibility of growth lets the genie of scarcity out of the bottle, but no amount of growth can ever give everybody more than its neighbour".

The centrality of consumption is now so ingrained that no viable political or environmental movement in the north or the south dares to place its reduction at the centre of its agenda. There is no point in blaming the corporate world for this. Unlike production, for which corporations must take central responsibility, it is the global elite that must take primary responsibility for sustaining the ideology of endless consumption.

One cannot escape the impression that the neglect of consumption in the environmental debate is in part due to values shared by those who influence decisions and lead opinions. In recognising this point, one has to move beyond the simple North-South divide that has dominated the issue in the past. Contrary to what many of us had believed and even argued a few years ago, the fundamental divide today is no longer between the North and the South (although these terms continue to provide shorthand handles to discuss such issues). It is rather between a globalised, almost infinitely mobile, centrally hybridised elite and a localised, involuntarily mobile, and culturally disempowered non-elite. It is between the *tourists* and the *vagabonds* (Bauman 1998), between the *omnivores,* and the *ecological refugees* (Gadgil and Guha 1995), between the affluent society and the *castaways* (Latouche 1993).

Now the global consumer ethic and the global threat to the environment is sustained and driven by the *tourists.* It is important to recall that IUCN's 50th anniversary symposium, this meeting is a meeting of tourists, of the omnivores, regardless of whether they are from the north or the south, the east or the west. The tourists are not the solution; they are part of the problem.

These are the same persons who - irrespective of their national or hemispherical origin - shape the global agenda including the agenda for the environment. With their high mobility, their laptops, and their membership in a global community, they provide the most compelling and yet the most inappropriate role models for the 21st century. They shape an ideology whose purpose is largely to protect their own lifestyles. Even the defensiveness of the "development set" is missing here, not least evidenced in the march that UNDP has stolen on the issue by publishing its Human Development Report 1998 on consumption. I am reminded of a keynote speaker at a world conference on hunger. Referring to the cornucopian feast that preceded her after-dinner address, she said, "If this is any indication of how these things work, I *must* cancel my next speaking engagement - at the global conference on population!"

Neither consumption nor the environment is a technical relationship between ends and means. These are at their heart political problems involving conflicts over resources as well as conflicts over meanings. The process of degradation is driven by the very systems of thought and meaning that sustain the global economy. The conflicts over degradation, are just as important in protecting nature as are the conflict over rights. We may be on the right side on one issue but that is no ground for comfort if that places us on the wrong side of the more lethal divide.

By not addressing the central problem of our times, by refusing to acknowledge our own complicity in it, by acting in an unreflective, uncritical and complacent manner, we are rapidly becoming marginalised and socially irrelevant. If the best we can do is to organise self-congratulatory meetings such as this one, our work will at best become a form of therapy for the collective guilt of tourists addicted to consumption.

There is a way out though. It has to start with the injection of a note of self-criticism into the debate, the re-opening of the discussion of consumption and its impacts, and the explicit recognition of our own role in the problem. And it has to lead towards the identification of alternative utopias. Bauman, reflecting perhaps a sympathetic Northern perspective, laments that vagabonds have no other images of the good life, no alternative utopias, no political agenda of their own. Others (see e.g. Nanny 1987, Agarwal and Narration 1991, Guha 1993) have argued differently by articulating the alternative agendas that shape the resistance to modernity. The environmental movement needs to engage with such perspectives in a more meaningful manner.

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Paul Wagaba

On 1 March the tragic news broke that in a brutal bid for international publicity Rwandan rebels had stormed the Bwindi Impenetrable National Park headquarters in Uganda and killed eight tourists and one Ugandan. A great deal was reported at the time about the tourists who died but there was barely a mention of Paul Wagaba, a park warden, who was murdered during the assault.

Wagaba deserves to be remembered not just for his heroic actions defending the tourists, but also for the outstanding contribution he made to the conservation of Bwindi Park, famous as home to over half of the world's 650 remaining mountain gorillas.

Born in the Mpigi District of Uganda in 1966, Paul Wagaba became a talented student and graduated at the top of his class at the Katwe Wildlife College. Dennis Babasa, his professor there, remembers him as one of the brightest students he ever taught and an especially skilled communicator. He was ideally suited for his role as Community Conservation Warden at Bwindi Park which he took up in 1995, and where he was given the task of bringing the local people on board to help protect the forest.

Set up as a National Park in 1991, Bwindi faced an uncertain future. It had become a forest island, surrounded by agricultural land in one of the most densely populated regions of central Africa. It also bordered Rwanda and the Democratic Republic of Congo, a region wracked by civil war.

When the park was founded, relations with local communities were at a very low point. People were accustomed to taking what they needed from the park and they resented the loss of access to a forest, which they depended upon, for essential resources such as medicines and agricultural products. The park was threatened by encroachment and the gorilla population was in decline.

Wagaba played a critical role in helping to forge unprecedented agreements between local people and the park to give the communities controlled access to non-timber resources in Bwindi. By doing so he was helping to secure the future not only of the park but also of the local people.

In addition he worked closely with many of the non-governmental organisations (NGOs) that had community-based projects in the park, including those run by WWF, Care-DTC and the Institute of Tropical Forest Conservation.

By last year, encroachment into the park has ceased and the gorilla population had at last stabilised. This was a major achievement in such a poverty-stricken and unstable region and stands as a classic case study of how conservation can be achieved by the development needs of the local people.

Wagaba firmly believed in passing these conservation values on to future generations and invested considerable time presenting conservation education programs to children living in the area and to school groups visiting Bwindi. He was known as an excellent communicator and people of all ages and all parts of society liked and trusted him.

A long-time friend and colleague, Benon Mugyerwas, described how Wagaba served as a role model to the junior wardens and rangers working with him, always willing to offer guidance and help them overcome problems. A colleague from the Uganda Wildlife Authority said, "He was the kind of man who would try to mediate in any conflict. The rebels would not have welcomed that."

Although the tragic incident at Bwindi is likely to lead to a serious decline in eco-tourism and a consequent reduction in the capacity of the Uganda Wildlife Authority to conduct conservation work all over the country, Wagaba has left behind a legacy of strong community relations which provide some hope for Bwindi Park.

Paul Wagaba was the last surviving child of 12 brothers and sisters and leaves behind a wife and five children, the youngest of whom is 18 months old. He was buried on 5 March near his mother's home in Kasero-Buloba near Kampala.

Wagaba had planned to further his knowledge of park management by taking a diploma at the Mweka College of Wildlife Management in Tanzania. Considering his strong interest in education and the crucial need for training local people of his calibre, a scholarship scheme is being set up in his name at Mweka College so that other young Ugandans can carry on his work. Contributions can be made to WWF-UK Panda House, Weyside Park, Godalming GU7 1XR.

Edward Matthew

Paul Wagaba, conservationist: born Mpigi District, Uganda 1966; married (five children); died Bwindi, Uganda 1 March 1999.
This obituary was first published in the Independent, London, March 1999.

Comments from members of the Collaborative Management Working Group

"Having had the pleasure and good fortune to have taken part in one of the early stirrings towards this effort in Uganda, courtesy Grazia [Borrini-Feyerabend] and IUCN, I am all the more saddened by Wagaba's untimely and tragic demise.

Is there some way in which we can collectively (as the CMWG, or some other grouping) issue some sort of tribute, and a message to the Ugandan wildlife authorities that this should hopefully not be a setback, in any way, to their efforts towards moving the management of Uganda's Park Authorities towards collaboration?"
Ashish Kothari

"Bwindi offers the first examples of written Collaborative Management agreements developed for Uganda's National Parks. The Memoranda of Understanding developed between local parishes and the Uganda Wildlife Authority have been inspiring for other parks in Uganda and elsewhere.

It would be important to follow the consequences of this violent act in the CM approach. In the Congo Basin, the GTZ-IUCN project on CM is – among other matters – looking into the effects of unstable socio-political conditions. Preliminary results seem to show both problems and opportunities for CM in difficult socio-political circumstances"
Grazia Borrini-Feyerabend

"As we are seeing around the world, all kinds of innocent and wonderful people, irrespective of whether they are working on CM or not, are getting killed ruthlessly by senseless fanatics (including powerful governments).

Those of us who can, should do anything possible to fight against the growing trends towards fundamentalism, ethnic hatred and general suppression of human rights".
Madhu Sarin

WTO High-Level Symposium on Trade and Environment
Geneva, Switzerland, 15-16 March 1999
Full report to follow in next issue.

WTO High-Level Symposium on Trade and Development
Geneva, Switzerland, 17-18 March 1999

Trade and Sustainable Development Workshops
Hanoi, Vietnam, 9-10 April 1999
Islamabad, Pakistan, 12-14 April 1999
Two of a series of five seminars, being held under the IISD - IDRC project on Capacity Building for Trade and Sustainable Development

IUCN Council Meeting
IUCN HQ, Gland, Switzerland, 16-18 April 1999

IPCC Expert Meeting on Development, Sustainability and Equity
Colombo, Sri Lanka, 27-29 April 1999

IPCC Working Group 3 Lead Authors Meeting
Colombo, Sri Lanka, 30 April – 1 May 1999

13th Session of the Global Biodiversity Forum
Supporting the Ramsar/CBD work programme
San Jose, Costa Rica, 7-9 May 1999

The 13th CBD will focus on designing appropriate mechanisms to ensure effective implementation of the Joint Work Plan between the Convention on Wetlands and the Convention on Biological Diversity, which was endorsed at the 4th meeting of the COP to the CBD (May 1998). GBF13 will also focus on synergies between the Ramsar Convention and the other biodiversity-related conventions such as the UN Framework Convention on Climate Change and the Convention to Combat Desertification, on matters related to the conservation of biodiversity in inland water ecosystems and marine and coastal zones.
For further information: http://www.iucn.org/themes/gbf/13/announce.html

International Conference on Integrated Conservation and Development
Quito, Ecuador, 12-14 May 1999
Integrated conservation and development projects (ICDPs) aim to achieve the dual goals of improving management of natural resources while uplifting the quality of life of local people. This conference will bring together practitioners and theorists from around the world to discuss and debate how the ICDPphilosophy can be most effectively implemented. While the focus is on Tropical America, the lessons learned are globally relevant.

The following topics will be addressed:
- building capacity for integrated conservation and development;
- resolving conservation and development dilemmas;
- using advocacy to promote integrated conservation and development;
- creating economic incentives for the conservation of biodiversity;
- creating cultural and social incentives for conservation and development;
- rethinking sustainable harvests of non-timber forest products;
- linking vertically and laterally in project execution;
- combining scientific and local research knowledge.

Contact: Jody Stallings, Co-ordinator, Agriculture and Natural Resources Sector; CARE Ecuador; email:jstallin@care.org.ec; or Robert Rhoades, Programme manager, professor of anthropology, University of Georgia; email: rrhoades@arches.uga.edu

4th Meeting of the Subsidiary body on Scientific, Technical and Technological Advice of the Convention on Biological Diversity
Montreal, Canada, 24-28 May 1999

ECOSUD 99 - Second International Conference on Ecosystems and Sustainable Development
Lemnos, Greece, 31 May - 2 June 1999
Contact: Clare Duggan, ECOSUD 99, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton SO40 7AA, UK; email: cduggan@wessex.ac.uk.

Intersessional Meeting on the Operations of the Convention on Biological Diversity
Montreal, Canada, 1-3 June 1999

1999 Open Meeting of the Human Dimensions of the Global Environmental Change Research Community
Kangawa, Japan: 24-26 June 1999
Aims to bring together researchers interested in the human causes and impacts of global environmental change, to exchange information on current research and teaching and promote networking and community building. Topics include: conflict and the environment; lifestyles, attitudes and behaviour; valuation of ecosystem services; and, decision-making processes in response to global change.
For more information contact: HDGEC Secretariat, IGES, Shonan Village 1560-39, Kamiyamaguchi, Hayama, Kanagawa 240-0198, Japan; Fax: +81 468 553709; Email: hdgec.iges.or.jp; Website: http://www.iges.or.jp

Global Changes and Protected Areas
International Symposium - L'Aquila, Italy, 8-16 September 1999
Global change has made it urgent to find early warning signs of the effect on the environment. The Abruzzo Region in Central Italy which has devoted one third of its territory to nature reserves, is organising this symposium to assess the present status of research in this field. The meeting will deal with climatic and environmental changes and their impact on the biosphere and hydrology. A section will be devoted to the socio-economic implications for the protected areas, and a case study will be proposed for the Abruzzi Natural parks.
For more information contact: Guido Visconti, Dipartimento di Fisica, Universita degli Studi di L'Aquila Via Vetoio, Coppito, 67010 L'Aquila, Italy; email: guido.visconti@aquila.infn.it; website: http://www.aquila.infn.it/gblch

Next Issue
The next issue of Policy Matters will feature Sustainable Livelihoods (as previously advertised). If you would like to contribute an article on this theme, or have news or comments you would like to flag up, please contact the Editor, Catherine McCloskey, IIED, 3 Endsleigh Street, London WC1H ODD; fax: +44 171 388 2117;
email: catherine.mccloskey@iied.org
The deadline for contributions is May 31 1999.