17 OCT 1991

Revised

June 20, 1991

The Next 40 Years

TRANSITION STRATEGIES TO THE VIRTUOUS GREEN PATH: NORTH/SOUTH/EAST/GLOBAL

- Paper prepared by Professor Ignacy Sachs (Ecole des Hautes Etudes en Sciences Sociales, Paris) at the request of the UNCED 92 Secretariat -

CONTENTS

1 - THE CONCEPTUAL FRAMEWORK

2 - THE FIVE DIMENSIONS OF ECODEVELOPMENT

3 - TRANSITION STRATEGIES: FUNDAMENTAL PREMISES

4 - COPING WITH THE URBAN EXPLOSION

5 - CONVERGENT GOALS, DIVERSE RESPONSIBILITIES

6 - GLOBAL ACTION

The two main causes of environmental disruption are: material overconsumption on part of the affluent minority and overtaxing of life-supporting systems by the disherited majority. The latter lives in conditions of socially created scarcity and is deprived from access to natural resources necessary to produce the bare subsistence of their families.

Thus, rapid social and cultural development, meaning by this both a restructuration of the life patterns and consumption styles of the affluent and providing a decent livelihood for the hitherto disherited majority, represents a necessary condition to achieve a better balance and a symbiosis between nature and the humankind. Their present adversary relationship will not be transformed into a positive-sum game without a social contract based on the ethical principle of synchronic solidarity, complemented by a 'natural contract' (Michel Serres) based on the ethical principle of diachronic solidarity with the future generations. In a sense, a better name for the UNCED 92 would have been the United Nations Conference on Development and Environment.

1 - THE CONCEPTUAL FRAMEWORK

The way out from the double bind of poverty and environmental disruption calls for a fairly long period of more economic growth to sustain the transition strategies towards the virtuous green path of what has been called in Stockholm ecodevelopment and has since changed its name in Anglo-Saxon countries to sustainable development. The ambiguity of the latter concept stems from lack of a clear divide between genuine sustainability and pseudosustainability based on growing material costs of keeping up with de desirable environmental standards. Agronomers have seen this difficulty by introducing the term 'regenerative agriculture' in opposition to pseudosustainable agriculture requiring growing inputs of energy per unit of yield and skyrocketing costs of environmental cleanup.

Obviously, it should not be growth as a goal per se that we have known for decades, freely externalizing social and environmental costs, resulting in further environmental disruption and widening of economic and social inequality between nations and among nations. Growth through inequality based on an unbriddled market economy can only deepen the divide between North and South as well as the inner duality of each society.

From Founex through Stockholm, up to the Brundtland Report, the emphasis has been put on more economic growth with thoroughly changed forms, contents and social uses of growth . The polemics engaged against the Brundtland Report opposing quantitative growth to qualitative development (see e.g. Herman Daly) rests, at least to some extent, on semantic misunderstandings.

It is true that unlimited quantitative growth of material production

cannot be sustained for ever given the finitness of the Spaceship Earth and the fragility of the biosphere exposed to the emission of greenhouse gases. Throughput of energy and materials must be contained.

However, Daly's interpretation of qualitative development includes material growth based on a more efficient use of energy and natural resources, their recycling as well as the reduction of waste and pollutants. His condemnation concerns in reality extensive growth through the replication of wasteful patterns of resource-use. It is perfectly acceptable to the partisans of <u>another growth.</u>

Already in the sixties, Kalecki pointed out the importance of <u>non-investment sources of growth</u> consisting of a better management of production and distribution as well as of the adequate maintenance of the stock of equipment. Elimination of wastefulness releases resources for development without increasing the material throughput. This is particularly true as far as the conservation of energy is concerned.

Furthermore, waste recycling, energy and water conservation, maintenance of the stock of equipment and infrastructures are labour-intensive. They create jobs self-financed through the savings achieved in the use of material inputs. This is a still unexplored pool of employment where social, economic and environmental considerations go hand in hand. It offers a convenient entrypoint into the designing of strategies of urban ecodevelopment (see below).

Putting aside semantic disputes, a fair degree of agreement seems to exist, therefore, about the ideal development path to be followed so long as we do not manage to stabilize the world population and, at the same time, sharply reduce the inequalities prevailing today.

The bolder the steps taken in the near future, the shorter will be the time span that separates us from a steady state. Radical solutions must address to the roots of the problem and not to its symptoms. Theoretically, the transition could be made shorter by measures of redistribution of assets and income. But historical evidence points to the complexity of such solutions not speaking of their political viability. The pragmatic prospect is one of transition extending itself over several decades.

2 - THE FIVE DIMENSIONS OF ECODEVELOPMENT

Ecodevelopment or sustainable development emphasizes the need to take simultaneously into account the following five dimensions:

a) Social sustainability understood as the setting of a development process sustained by another growth and informed by another vision of the good society.

The aim is to build a civilization of being within greater equity in asset and income distribution, so as to improve substantially the entitlements of the broad masses of population and to reduce the gap in standards of living between the have and the have nots.

Development must be seen in its multidimensionality, covering the whole range of material and immaterial needs, as rightly emphasized in the UNDP Report on Human Development, but unfortunately not reflected in the reductionist index of human development proposed by the same report.

b) Economic sustainability made possible by a more efficient allocation and management of resources and a steady flow of public and private investment. A crucial condition is to improve the present highly negative external configurations due to a combination of several factors:

- the burden of the debt service and of the net outflow of financial resources from the South to the North -a kind of Alice's nightmare land in which the poor finance the rich: in 1983, the debt-burdened countries owed 644 billion dollars. By the end of 1990 they had paid their creditors 673 billion dollars, but their debt had risen to 950 billion dollars;

- the adverse terms of trade;

- the protectionist barriers still existing in the industrialized countries;

- the limited access to science and technology once thought as belonging to the common heritage of the humankind yet increasingly privatized and protected by restrictive laws of intellectual property.

c) Ecological sustainability which could be enhanced by setting into motion the following levers:

- stretching out of the carrying capacity of the Spaceship Earth by intensifying the use of the resource potential of the diverse ecosystems with minimum damage to the life-supporting systems; promoting agroforestry and regenerative agriculture by modernizing the family operated small farms, exploring the potential industrial uses of biomass;

- limiting the consumption of fossile fuels and other easily depletable or environmentally harmful products, substituting them by renewable and/or plentiful and environmentally friendly resources, reducing the volume of pollutants by means of energy and resource conservation and

recycling and, last but not least, promoting self-restraint in material consumption on part of the rich countries and of the privileged social strata all over the world;

- intensifying the search for low-waste and resource efficient technologies for urban, rural and industrial development;

- defining the rules for adequate environmental protection, designing the institutional machinery and choosing the mix of economic, legal and administrative instruments necessary for the implementation of environmental policies.

d) Spatial sustainability directed at achieving a more balanced rural-urban configuration and a better territorial distribution of human settlements and economic activities with emphasis on the following problems:

- excessive concentration in the metropolitan areas;

- destruction of fragile but vitally important ecosystems through uncontrolled colonization processes;

- the potential for decentralized industrialization linked with the new generation of technologies (flexible specialization) pointing special reference to biomass transforming industries and their role in creating rural non-agricultural employment;

- establishing a network of natural and biosphere reserves to protect the biodiversity.

e) Cultural sustainability looking for the endogenous roots of the modernization processes, seeking change within cultural continuity, translating the normative concept of ecodevelopment into a plurality of local, ecosystem-specific, culture-specific and site-specific solutions.

3 - TRANSITION STRATEGIES: FUNDAMENTAL PREMISES

Even if we know where we want to get, the operational question is how do we proceed to put humankind on the virtuous green path of genuine development, socially responsible and in harmony with nature. It is submitted that UNCED 92 should give considerable attention to the formulation of transition strategies that could become the central piece of the Agenda 21. These strategies should be designed taking into account four premises that are spelled out below.

a) To be meaningful, the strategies should cover the time-span of several decades . Thirty-five to forty years seems a good compromise between the need to give enough time to the postulated transformations and the uncertainties brought about by the lengthening of the time-span.

The retooling of industries, even in periods of rapid growth, requires ten to twenty years. The restructuration and the expansion of the infrastructures requires several decades and this is a crucially

important sector from the point of view of environment.

Cultural and behavioural changes are still slower to come. The production and dissemination of a new generation of environmentally sound and efficient agricultural techniques adapted to the diversified needs of small farmers all over the world will call for a major and time consuming effort.

However, the single most important reason to consider the transition strategies over a minimum of thirty-five to forty years stems from the non-linearity of these strategies; they should be devised as a succession of changing priorities over time. A good illustration is provided by the population transition.

In order to stabilize the populations of the South by means other than wars or epidemics, mere campaigning for birth control and distributing of contraceptives has proved fairly inefficient. Population policies are not a substitute of a development policy but a part of a development package which starts by improving the social and economic conditions in the countryside. To be really efficient, while keeping with democratic methods of enforcement, population policies require a set of interrelated measures whose effects are slow to come:

- increased food security;

- better health conditions and lower infant mortality;

- much higher rates of scolarisation, in particular of girls;

- some sort of safety net for the old age;

- access to credit, markets and technology for the small farmers, so as to reduce their propensity to have many sons as a seemingly zero cost additional labour on the farm and/or more hands to put on the labour-market.

That is why an accelerated programme of social and economic development of the rural areas should be the outmost priority in the first phase of a realistic population stabilization scheme. Even on most optimistic assumptions, the effects of such a crash programme cannot be felt before many years.

b) <u>The industrialized countries should assume a more than proportional share of the transition costs.</u>

The estimation of the cost-benefit of measures leading to the simultaneous improvement of social and environmental conditions is a controversial matter.

The natural propensity of governments and enterprises is to emphasize the considerable amount of financial outlays and high technologies required, while underestimating the income derived from energy and resource conservation and recycling.

Furthermore, the results of the cost-benefit depend on how the consideration of the entire life-cycle of the equipment and infrastructures is brought into the picture. This cycle can be extended, as already mentioned, through adequate maintenance, an extremely cost-effective source of additional employment and of foregoing future capital outlays. The same is true of energy, water and soil conservation policies, as well as of massive reforestation schemes in tropical countries. A good example is the Brazilian FLORAM Project. It calls for reforesting (mostly in form of productive forests) twenty millions hectares outside the Amazon region at a cost of one thousand dollars per hectare.

Even though comprehensive cost-benefit analyses lead to considerably lower estimates of the economic costs of environmental policies, the problem of initial financial outlays and of access to environmentally friendly technologies must be solved. Hence the importance of redesigning the system of taxation and fiscal incentives.

The more a country is economically developed, the greater is its flexibility in terms of fiscal and financial adjustment as well as of production of the required technologies. Considerations of efficiency of transition strategies on a worldwide scale impose on Northern countries the obligation of coping with the major share of the globally required funding.

This means that they should, first of all, adopt a concrete set of measures setting the industrialized countries on the transition path. At the same time, they must be prepared for a massive net transfer of resources to the South and to the East, in sharp contradiction with the present situation analyzed above.

Ethical considerations point to the same direction. The North should assist the South and the East in speeding up their social and economic progress while avoiding exorbitant environmental costs. In this respect, South Korea and Taiwan, often quoted as an example for the developing countries, represent in reality anti-models of sustainable development.

The solutions can vary in terms of their boldness and take the form of global, multilateral or bilateral arrangements. Their detailed examination goes beyond the scope of this paper. They should pursue the following goals:

- ensuring at least partially the automacity of financial transfers by some form of fiscal mechanisms, be it a small income tax or an array of indirect taxes on goods and services whose production and consumption has significant environmental impacts;

- reducing in this way the burden of project by project negociations, the variations over time of the funds made available and the imposed conditionalities;

- facilitating the access to science and technology by means other than the commercial negociation with private firms;

- contributing to the strengthening of the local capability for research and technology development by setting endowment funds for the new research outfits to be created on a national, regional or international basis, the preference going to networks of national institutions better fit to produce environment-specific, culture-specific and site-specific solutions.

It is submitted that the discussion of these problems could take as a starting point the bold proposal presented by the late Prime Minister of India, Rajiv Gandhi, at the Summit of Non-aligned Countries in Belgrade in 1989. It called for setting up of a one per thousand tax on the Gross World Product for a Fund of Sustainable Development that would finance the research, development and production of environmentally friendly technologies to be supplied free of cost to all those who need them.

This proposal combines the principle of automatic financing with the treatment of science and technology as part of the common heritage of mankind, a concept which is being more and more forgotten while the products of R and D get increasingly privatized.

In 1989, the one per thousand tax -a dime on a dime on a dime- would yield 18 billion dollars, several times more than the total budget of the United Nations and their agencies.

Starting the operation with a one per ten thousand tax and increasing it so as to reach one per thousand in ten to twenty years seems a fairly realistic proposal, the more so that the scheme creates an interesting market for the private enterprises involved in R and D.

A variation of this theme might take the form of a voluntary tax or user fee of one per thousand, arrived at progressively, on the value added by the travel and tourism, the world's largest industry particularly concerned with environment; in 1992, the gross income of travel and tourism will exceed 3 billion dollars generating 5.5% of GNP and 7% of employment worldwide.

One more remark is in order here. The recent discussion on the global threats to the human survival of our planet generated the concept of 'world welfare' taken globally. This is a misleading notion insofar as it is being interpreted as the equal sharing of responsibilities between North, South and East. As pointed out by Anil Agarwal, pollutions of survival and pollutions of affluence cannot be put on the same foot.

Whatever the verdict of the scientists about the relative contributions of carbon dioxide and of the methane to the greenhouse effect, the transition strategy must start by curbing the oil consumption of 500 million cars almost entirely concentrated in the North and not by suppressing methane producing paddy fields and poorly nourished cows belonging to the small farmers!

In the same order of ideas, trading in emission rights across continents is hardly conceivable. It might be cheaper to reduce the greenhouse gases by buying out and lying iddle paddy fields in Asia than fitting filters on a factory in the North, but this would be a totally unacceptable line

of action.

c) Efficient transition strategies will depend on the degree of boldness of institutional changes, on the ability of designing multidimensional policy packages and the capacity to redirect technical progress.

Rather than concentrating on remedial actions aimed at suppressing ex post the 'bads' co-produced with the economic 'goods', it is necessary to find new approaches to development preventing environmental disruption and excessive social costs by an array of contextual policies improving the living conditions of the disherited majority. 'Growth first and distribution after' as well as reliance on the 'trickle down effects of growth through inequality' should be emphatically rejected.

At the institutional level, the task is to evolve methods of democratic regulation of 'mixed economies', refusing the simplistic idea that the collapse of centrally planned 'command economies' constitutes a proof a contrario of the excellence of pure market economies and the end of planning. A 'civilized market economy' requires a set of rules that will not emerge from the working of market forces; it also calls for a considerable measure of flexible planning. Large corporations are managed through flexible planning; why the States, the regions and even the municipalities should act differently?

The virtuous green path requires a new type of partnership between all the actors concerned: the Prince, the Merchant and the Citizen, to use Marc Nerfin's metaphor, a new distribution of power between the State, the enterprises and the emerging third system of citizens' associations.

None of the three can perform the task by itself. The articulation of the spaces of development (local, regional, national and transnational) and the proper balance between the short term and the long term considerations cannot be ensured through the unrestricted working of the market forces, a top down bureaucratic conduct of affairs by the State or the exclusive management of the complexities of development by initiatives from below.

An enterprise left to itself, be it private or public, will naturally tend to externalize the social and ecological costs in order to maximize the short and medium term profits. Even armed with the most sophisticated information systems, the State is unable to cope with the diversity of local needs and potentialities. Hence the importance of the concept of subsidiarity, as well as of the shift from supply-oriented public policies to enabling and empowerment policies.

Public policies encouraging and supporting local initiatives should take a very important place in the sustainable development policies package. But the globalization of the world economy at the information age makes it impossible to conceive the development strategies in terms of a mere juxtaposition of self-contained and self-centred communities.

Special mention should be made here of the University as a social actor of ecodevelopment. By its intermediate position, the University is well placed to work with all the three main actors. The condition, however, is

to transcend the models of 'ivory tower' and 'diplomas factory' and to inscribe among the functions of the University that of a 'resource for local development'.

This can be achieved by a variety of means.

Teaching curricula should be changed to include a propredeutic notion of ecodevelopment in all the faculties and departments. Training of development-cum-environment specialists is, of course, relevant but by no means sufficient. Unless the future decision-makers, economic managers and sectoral project designers integrate the environmental dimension in their conceptual framework the divide between narrowly conceived economic growth and environmental considerations will continue to depen, leading to 'business as usual' in project designing. Public environmental education calls for something more than occasional campaigns. The Universities should take very seriously the task of redefining school programmes at all the levels.

Beyond these educational tasks, the University has a considerable manpower potential to advise on and implement local development projects and to respond to specific demands of the citizen associations. By acting in this way it will create for its graduate students and younger staff suitable conditions to conduct interdisciplinary field research.

d) To be successful, <u>transition strategies must simultaneously modulate the demand through changes in lifestyles and consumption patterns, change the production functions by incorporating environmentally-friendly techniques and make the right locational choices.</u>

The first variable is by far the most difficult to cope with. Acting upon it implies modifying deeply entrenched habits and the vision of the 'good society' ever more identified with unbridled consumerism, limiting the privileges of the affluent minority and redistributing progressively (within a time span of years or a few decades and not centuries) incomes and assets in favour of the disherited majority. It calls above all for the exercise of 'self-constraint' on part of the affluent minorities.

In this connection, one should bear in mind that the availability of cars per capita is at present 23.6 times higher in the developed countries than in the developing ones. The per capita consumption of liquid fuels is 9.8 times higher in the first group of countries and of electricity 13.4 times higher. The respective ratios for milk and meat are 8.1 and 5.7, for metals 20.6, for iron and steel 90.1, for chemical products 20.3.

Technological change is easier to achieve. Alas, 'technological fix' by itself does not offer a solution, notwithstanding the excessive hopes harboured with respect to it. At least, four obstacles must be taken into account:

- the need to adapt technologies to diverse ecological, cultural and socio-economic contexts instead of forcing the transfer of technologies just because they happen to be available in the industrialized countries;

- the difficulty of access to and the high cost of the subset of technologies that could be meaningfully transferred;

- the contradiction between the priorities of research suggested by the market and those arising of a more comprehensive analysis of the needs of the society;

- the growing gap between the might of the modern techniques and the outdated systems of political control over them (in Giorgio Ruffolo's terms the gap between 'potenza' and 'potere').

As for the spatial variable, its role has been somewhat underestimated to the extent to which physical planning has seldom been integrated with economic and social planning. Yet, the same activities may have different environmental impacts depending on their location.

We are not speaking here only of case by case decisions about siting of single industrial projects, but of the need to reconsider the whole pattern of human settlements and the urbanization processes.

Single projects must be cast in a regional development strategy in order to assess their cumulative and often irreversible effects. The man-made ecological catastrophies are often the result of irresponsible accumulation on the same territory, or within the same river catchment, of projects that, taken one by one, presented a favourable cost-benefit ratio. The overall regional strategy framework must precede the choice of projects, while excessive reliance on market criteria leads to the opposite procedure: the sum of individual projects becomes a regional pseudostrategy.

While population growth has attracted much attention in the literature on environment and development, the population distribution on the planet has not been given enough attention. Given its importance, it will be treated below in greater detail.

4 - COPING WITH THE URBAN EXPLOSION

The second half of the twentieth century will remain in history as a period of urban explosion. According to UN projections, this trend is likely to continue well over the turn of century. From 1980 to the year 2000, urban population in the South will double from one to two billion and, on a worldwide scale, more people will be then living in the cities than in the countryside. A second doubling of Third World urban population is expected between the year 2000 and the year 2025, from two to four billion. This means an addition of three billion people in less than half a century, or, in other words, a new Region Parisienne every two months for forty-five years! Each of the three continents of the South is affected in a different way by the urbanization processes. In many parts of Latin America, the degree of urbanization is already almost the same as in the North. Africa, though less urbanized, must cope with very high rates of urbanization. As for Asia, the absolute numbers of people involved are staggering.

Several conclusions follow from these figures.

The magnitudes involved make totally inviable the reproduction of the Northern urban models in the South, unless one accepts to aggravate the dual structure of Third World cities, with the risk of pushing them into an 'apartheid society', not speaking of the probability of man-induced urban disasters taking the form of uncontrollable epidemics in the shantytowns and/or of social upheaval.

In addition, it is necessary to bear in mind that the Northern model can by no means be considered as successful. Proliferation of intra-urban ghettos and depressed suburbs, the increasing social exclusion and segregation coupled with chronic unemployment, racial and ethnic tensions, urban violence, drug consumption and near bankruptcy of some of the richest cities, unable to ensure a modicum of social services for the marginalized populations, do not speak highly of the experience of the industrialized countries in managing their cities.

Insofar as urban environment is a concept that encompasses physical as well as socio-psychological variables and is perceived differently by different groups of urban dwellers, depending on where and how they live in the city, prevention of man-made social urban disruption should be equally put at the top of the priority list of Northern countries.

The situation may be even worse in the Eastern Europe where significant portions of territory, including densely urbanized areas, have been declared as affected by environmental catastrophy: about fifteen percent of the territory of the USSR -more than the whole European Community- according to a report of the Soviet Academy of Sciences, a slightly lesser proportion of Poland's territory inhabited by about thirty percent of its total population.

Without denying that urbanization accompanies and, to a considerable extent, fuels economic, social and cultural progress of predominantly agrarian countries, its impacts are far from being only positive. One may recall here the debates on 'generative and parasitic cities' (Hoselitz) -both these features being present at the same time in most cities- and, also, the 'urban bias' of development policies, magnified by the unprecedent rates of urban growth due to the influx of 'refugees from the countryside'.

The present trend towards the transformation of our planet into an urban archipelago in the rural desert should not be considered, however, as a fatality. The concepts of economies of scale and of agglomeration ought to be revised in the light of opportunities, created by new techniques, for flexible specialization and decentralized industrialization.

Conveniently used, modern biotechnologies open to the developing tropical countries the possibility of enhancing the yields of the biomass and to diversify the spectrum of industrial products derived from it. A new, original and sustainable biomass based industrial civilization may be in the offing. Bio-energy is likely to play in it an important role contributing to the decrease in the consumption of fossil fuels and improving the environmental conditions. Several highly industrialized

countries began to move along the same path in order to convert to new uses their agricultural land rendered idle by the need to cut down surplus food production.

Yet, even under the most positive assumptions about the ability to slow down the inflow of migrants to the large cities and to promote more balanced rural-urban configurations, the backlog of unattended urban needs -the accumulated social and environmental debts- is of such a nature as to convey outmost urgency to programmes of urban ecodevelopment.

Cities can be viewed as ecosystems with a considerable potential of latent, idle, underutilized or misused resources such as land (both constructible and cultivable), wastes that can be turned into wealth and, above all, an enormous possibility to save energy, water and capital resources through proper servicing and maintenance of equipments, infrastructures, service networks and the stock of buildings. Most of these activities may generate self-financing jobs paid out of the resource saving. Their positive impact on the environmental condition is obvious.

It is submitted that a large scope for ecodevelopment urban strategies exists not only in the South but also in the East and North. To be successful, they must take into account that cities, like people, belong to a species but have highly individualized personalities. Applying standarized solutions may do more harm than good. By contrast, exchange of actual experiences through decentralized intercity cooperation could be of much help.

5 - CONVERGENT GOALS, DIVERSE RESPONSIBILITIES

It should be clear by now that the strategies in the North, in the South and in the East should have different sets of priorities, each one changing over time.

The North should set the example of questioning its consumption patterns and bring to UNCED 92 a firm commitment, translated into quantitive targets, about the reduction of its consumption of fossil fuels. At the same time, it should change in deeds, not simply in words, its attitude towards the development of the South and of the East, materialized in the readiness to create a suitable global economic configuration, to promote the transfer of real resources to the South and East and to grant better access to science and technology.

The South should get rid of the illusion that a mimetic transposition of the Northern models may succeed and look instead for original and pluralistic solutions adapted to the natural, cultural and socio-political contexts.

A central preoccupation should be to define sustainable resource-use patterns for each ecosystem and to design for this purpose, whenever possible, man-made systems taking as a paradigm the working of natural ecosystems. In this connection, horizontal South-South cooperation among

countries having similar natural environments should be fostered.

The situation of the East is particularly difficult. Eastern European countries must cope simultaneously with three tasks:

- the stabilization of their economies;

- a thorough institutional transformation which cannot be achieved before many years, in spite of the current fad, in some university and bank circles, for the promotion of 'instant capitalism';

- a dramatic environmental disruption.

In the short term, the reconciling of social, environmental and economic objectives seems very difficult to achieve there. The crucial question is the pace and desired outcome of the institutional reforms. Much will depend on whether these countries attempt to instaure free market economies, based on savage private accumulation, or more civilized brands of predominantly market-oriented, democratically regulated mixed economies.

6 - GLOBAL ACTION

While the progress along the transition paths will depend to a great extent on the ability and commitment of different countries to design and implement their national strategies, tailored to their configuration of natural, cultural and socio-political factors, global action will be necessary in many respects.

First of all, the global community can influence and delimit national strategies by a set of international treaties, conventions and binding codes of conduct, negociated in such a way as to respect the asymetry of obligations on part of different groups of countries.

It should endeavour to establish on a worldwide basis an automatic mechanism for collecting and redistributing the financial resources needed to carry out the transition strategies in the South and parts of the East, while dissuading through taxation the overconsumption of fossil fuels.

In order to generate maximum synergies between the national strategies and global action, the United Nations should create a forum for the periodical discussion and evaluation of these strategies and a research, monitoring and flexible planning facility to put them in a global perspective. Special attention should be given to the urban problematique for reasons already mentioned in this paper.

The forum should have a fair representation of all the main actors involved: governments, parliaments, citizen movements and the business world. Given its importance, it should be lifted from specialized agencies to a central place in the UN system.

The same applies to the research monitoring and planning facility that

should work in close cooperation with a network of regional and national institutes entrusted with monitoring, actioning the warning system whenever necessary and providing the regional perspective on global problems.

Another institutional change at the UN level could take the form of creating a high level moral authority to give to all the actors concerned a possibility to appeal whenever their fundamental rights are disrespected. An exclusively intergovernmental machinery cannot play this role.

Last but not least, the UN system has the difficult charge of managing in an ecologically responsible manner the global commons for the benefit of the entire humankind.

This means keeping the balance between conservation measures and development needs, establishing natural reserves, biosphere reserves and ecodevelopment zones, enforcing legal measures to protect the endangered species but also using the international commons to generate resources for sustainable development. In this connection, setting of tolls on oceans, in particular for oil tankers, as well as on the airs, for the aircrafts, might constitute the first step towards the establishment of an automatic international financing system.