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"While [President] Truman [who in 1949 defined the poorer countries of the world as 'underdeveloped areas'] could still take for granted that the North was at the head of social evolution, this premise of superiority has today been fully and finally shattered by the ecological predicament. For instance, much of the glorious rise in productivity is fuelled by a gigantic throughput of fossil energy, which requires mining the earth on one side and covering it with waste on the other. By now, however, the global economy has outgrown the earth's capacity to serve as mine and dumping ground... If all countries followed the industrial example, five or six planets would be needed to serve as 'sources' for the inputs and 'sinks' for the waste of economic progress."

- Wolfgang Sachs

This issue of the **Reprint Mailing** consists of an essay by Wolfgang Sachs, entitled "Global Ecology and the Shadow of 'Development'," that constitutes the first chapter of Part I of **Global Ecology**:A New Arena of Political Conflict (Zed Books Ltd., London, 1993), of which Dr. Sachs is editor. He is a fellow at the Wuppertal Institute for Climate, Energy and the Environment, located in Wuppertal, Germany, and is also author of **For Love of the Automobile**: Looking Back into the History of Our Desires (U.C. Press, Berkeley, 1992) and editor of **The Development Dictionary**:A Guide to Knowledge as Power (Zed Books Ltd., London, 1992).

Global Ecology and the Shadow of 'Development'

Wolfgang Sachs

The walls in the Tokyo subway used to be plastered with advertising posters. The authorities, aware of Japan's shortage of wood-pulp, searched for ways to reduce this wastage of paper. They quickly found an 'environmental solution': they mounted video screens on the walls and these now continuously bombard passengers with commercials – paper problem solved.

This anecdote exemplifies an approach to the environmental crisis which was also very much on the minds of the delegates who descended upon Rio de Janeiro for the 'Earth Summit' (UNCED), to reconcile 'environment' and 'development'. To put the outcome of UNCED in a nutshell: the governments at Rio came round to recognizing the declining state of the environment, but insisted on the relaunching of development. Indeed, most controversies arose from some party's heated defence of its 'right to development'; in that respect, Malaysia's resistance to the forest declaration or Saudi Arabia's attempt to sabotage the climate convention trailed not far behind President Bush's cutting remark that the lifestyle of the US would not be up for discussion at Rio. It is probably no exaggeration to say that the rain dance around 'development' kept the conflicting parties together and offered a common ritual which comforted them for the one or other sacrifice made in favour of the environment. At the end, the Rio Declaration ceremoniously emphasized the sacredness of 'development' and invoked its significance throughout the document wherever possible. Only after 'the right to development' has been enshrined, does the document proceed to consider 'the developmental and environmental needs of present and future generations' (Principle 3). In fact, the UN Conference in Rio inaugurated environmentalism as the highest state of developmentalism.

Reaffirming the centrality of 'development' in the international discussion on the environment surely helps to secure the collaboration of the dominating actors in government, economy and science, but it prevents the rupture required to head off the multifaceted dangers for the future of mankind. It locks the perception of the ecological predicament into the very

world-view which stimulates the pernicious dynamics, and hands the action over to those social forces – governments, agencies and corporations – which have largely been responsible for the present state of affairs. This may turn out to be self-defeating. After all, the development discourse is deeply imbued with Western certainties like progress, growth, market integration, consumption, and universal needs, all notions that are part of the problem, not of the solution. They cannot but distract attention from the urgency of public debate on our relationship with nature, for they preclude the search for societies which live graciously within their means, and for social changes which take their inspiration from indigenous ideas of the good and proper life. The incapacity to bid farewell to some of the certainties which have shaped the development era was the major shortcoming of Rio. The great divide between development enthusiasts and development dissenters will be at the root of future conflicts about global ecology.

Truman and what followed

Epochs rise slowly, but the development era opened at a certain date and hour. On 20 January 1949, it was President Harry Truman who, in his inauguration speech before Congress, drawing the attention of his audience to conditions in poorer countries, for the first time defined them as 'underdeveloped areas'.[1] Suddenly, a seemingly indelible concept was established, cramming the immeasurable diversity of the South into one single category – the underdeveloped. That Truman coined a new term was not a matter of accident but the precise expression of a world-view: for him all the peoples of the world were moving along the same track, some faster, some slower, but all in the same direction. The Northern countries, in particular the US, were running ahead, while he saw the rest of the world – with its absurdly low per capita income – lagging far behind. An image that the economic societies of the North had increasingly acquired about themselves was thus projected upon the rest of the world: the degree of civilization in a country is to be indicated by the level of its production. Starting from that premise, Truman conceived of the world as an economic arena where nations compete for a better position on the GNP scale. No matter what ideals inspired Kikuyus, Peruvians or Filipinos, Truman recognized them only as stragglers whose historical task was to participate in the development race and catch up with the lead runners. Consequently, it was the objective of development policy to bring all nations into the arena and enable them to run in the race.

Turning the South's societies into economic competitors not only required the injection of capital and transfer of technology, but a cultural transformation, for many 'old ways' of living turned out to be 'obstacles to

development'. The ideals and mental habits, patterns of work and modes of knowing, webs of loyalties and rules of governance in which the South's people were steeped, were usually at odds with the ethos of an economic society. In the attempt to overcome these barriers to growth, the traditional social fabric was often dissected and reassembled according to the textbook models of macro-economics. To be sure, 'development' had many effects, but one of its most insidious was the dissolution of cultures which were not built around a frenzy of accumulation. The South was thus precipitated into a transformation which had long been going on in the North: the gradual subordination of ever more aspects of social life under the rule of the economy. In fact, whenever development experts set their sights on a country, they fell victim to a particular myopia: they did not see a society which *has* an economy but a society which *is* an economy. As a result, they ended up revamping all kinds of institutions, such as work, schools or the law, in the service of productivity, degrading the indigenous style of doing things in the process. But the shift to a predominantly economic society involves a considerable cost: it undermines a society's capacity to secure well-being without joining unconditionally the economic race. The fact that the unfettered hegemony of Western productivism has made it more and more impossible to take exit roads from the global racetrack dangerously limits the space of manoeuvre for countries in times of uncertainty. Also in that respect, the countries of the North provide an ambiguous example: they have been so highly trained in productivism that they are incapable of doing anything but running the economic race.

After 40 years of development, the state of affairs is dismal. The gap between front-runners and stragglers has not been bridged; on the contrary, it has widened to the extent that it has become inconceivable that it could ever be closed. The aspiration of catching-up has ended in a blunder of planetary proportions. The figures speak for themselves: during the 1980s, the contribution of developing countries (where two-thirds of humanity live) to the world's GNP shrank to 15%, while the share of the industrial countries, with 20% of the world population, rose to 80%. Admittedly, closer examination reveals that the picture is far from homogeneous, but neither the South-East Asian showcases nor the oil-producing countries change the result that the development race has ended in disarray. The truth of this is more sharply highlighted if the destiny of large majorities of people within most Southern countries is considered; they live today in greater hardship and misery than at the time of decolonialization. The best one can say is that development has created a global middle-class of individuals with cars, bank accounts, and career aspirations. It is made up of the majority in the North and small élites in the South and its size roughly equals that eight per cent of the world population which owns a car. The internal rivalries of that class make a lot of noise in world politics, condemning to silence the

overwhelming majority of the people. At the end of development, the question of justice looms larger than ever.

A second result of the development era has come dramatically to the fore in recent years: it has become evident that the race track leads in the wrong direction. While Truman could still take for granted that the North was at the head of social evolution, this premise of superiority has today been fully and finally shattered by the ecological predicament. For instance, much of the glorious rise in productivity is fuelled by a gigantic throughput of fossil energy, which requires mining the earth on the one side and covering it with waste on the other. By now, however, the global economy has outgrown the earth's capacity to serve as mine and dumping ground. After all, the world economy increases every two years by about the size ($60 billion) it had reached by 1900, after centuries of growth. Although only a small part of the world's regions has experienced large-scale economic expansion, the world economy already weighs down nature to an extent that she has in part to give in. If all countries followed the industrial example, five or six planets would be needed to serve as 'sources' for the inputs and 'sinks' for the waste of economic progress. Therefore, a situation has emerged where the certainty which ruled two centuries of growth economy has been exposed as a life-lie: growth is by no means open-ended. Economic expansion has already come up against its bio-physical limits; recognizing the earth's finiteness is a fatal blow to the idea of development as envisaged by Truman.

Ambiguous claims for justice

The UNCED process unfolded against this background of 40 years of post-war history. As implied in the title of the Conference, any consideration of global ecology has to respond to both the crisis of justice and the crisis of nature. While the Northern countries' main concern was about nature, the South, in the run up to the Conference, managed to highlight the question of justice. In fact, during the debates leading up to UNCED, attentive spectators wondered if they had not seen it all before. Slogans, which had animated the 1970s discussions on the 'New International Economic Order', kept creeping back to the forefront. Suddenly, calls for better terms of trade, debt relief, entry to Northern markets, technology transfer and aid, aid, and more aid, drowned the environmentalist discussion. Indeed, it was difficult to overlook the regressive tendencies in the controversy which opened up. The South, deeply hurt by the breakdown of development illusions, launched demands for further rounds of development. Already, in the June 1991 Beijing Declaration of the Group of 77, the point was made clearly and bluntly:

> Environmental problems cannot be dealt with separately; they must be linked to the development process, bringing the environmental concerns in line with the imperatives of economic growth and development. In this context, the right to development for the developing countries must be fully recognized.[2]

After the South's years of uneasiness in dealing with the environmental concerns raised by the North, the plot for Rio had finally thickened. Since the North expects environmentally good behaviour worldwide, the South, grasping this opportunity, discovered environmental concessions as diplomatic weapons. Consequently, the South reiterated the unfulfilled demands of the 1970s and opposed them to the North's ecological impositions.

If matters look bad with respect to the environment, according to Southern countries, they look worse with respect to development. It was along these lines that they succeeded, after the 'lost decade' of the 1980s, in putting back the North–South division squarely on the international agenda. The spotlight was thus largely focused on the North's willingness to come up with $125 billion of yearly assistance, to fulfil its long overdue promise of allocating 0.7% of its GNP to development aid, to provide clean technologies, or access to bio-industrial patents. On the diplomatic level, this was hardly surprising, for most of the Third World, trapped by the failure of the politics of catching-up, fears that the world will eternally be split between the North's super-economy and the South's wretched economies. But on a deeper level, the continuing commitment to run the development race leaves the Southern countries in an untenable position. In fact, the Rio documents make clear that the South has no intention of abandoning the Northern model of living as its implicit utopia. In using the language of development, the South continues to subscribe to the notion that the North shows the way for the rest of the world. As a consequence, however, the South is incapable of escaping the North's cultural hegemony; for development without hegemony is like a race without a direction. Apart from all the economic pressures, adherence to 'development' puts the South, culturally and politically, in a position of structural weakness, leading to the absurd situation in which the North can present itself as the benevolent provider of solutions to the ecological crisis.

Needless to say that this constellation plays into the hands of the Northern countries. With the blessing of 'development', the growth fatalists in the North are implicitly justified in rushing ahead on the economic race-track. The cultural helplessness of the industrial countries in responding adequately to the ecological predicament thus turns into a necessary virtue. After all, the main concern of the Northern élites is to get ahead in the competitive struggle between USA, Europe, and Japan,

achieving an ecological modernization of their economies along the way. They are light-years away from the insight that peace with nature eventually requires peace in economic warfare; consequently, a country such as Germany, for instance, manages to pose as a shining example of environmentalism, while pushing ahead with such ecologically disastrous free-trade policies as the European common market and the reform of GATT. The fact that 'development', that race without a finishing line, remains uncontested, allows the North to continue the relentless pursuit of overdevelopment and economic power, since the idea of societies which settle for their accomplished stage of technical capacity becomes unthinkable. Indeed, such matters as limits to road-building, to high-speed transport, to economic concentration, to the production of chemicals, to large-scale cattle ranching, and so on, were not even pondered in Rio.

The unholy alliance between development enthusiasts in the South and growth fatalists in the North, however, works not only against the environment but also against greater justice in the world. For in most countries, while development has benefited rather small minorities, it has done so at the expense of large parts of the population. During the development era, growth was expected to abolish poverty. Instead, it led to social polarization. In many cases, communities which guaranteed sustenance have been torn apart in the attempt to build a modern economy. Southern élites, however, often justify their unmitigated pursuit of development by ritual reference to the persistence of poverty, cultivating the worn-out dogma that growth is the recipe against poverty. Locked in their interests of power and fixed on the life-style of the affluent, they fend off the insight that securing livelihoods requires a careful handling of growth. Yet the lesson to be drawn from 40 years of development can be stated bluntly: the issue of justice must be delinked from the perspective of 'development'. In fact, both ecology and poverty call for limits to development. Without such a change in perspective, the struggle for redistribution of power and resources between North and South, which is inevitably renewed in facing environmental constraints, can be only what it was in the 1970s: a quarrel within the global middle class on how to divide the cake.

Earth's finiteness as a management problem

'Development' is, above all, a way of thinking. It cannot, therefore, be easily identified with a particular strategy or programme, but ties many different practices and aspirations to a common set of assumptions. Whatever the theme on the agenda in the post-war era, the assumptions of 'development' – like the universal road, the superiority of economics, the mechanical feasibility of change – tacitly shaped the definition of the problem,

highlighted certain solutions and consigned others to oblivion. Moreover, as knowledge is intimately related to power, development thinking inevitably featured certain social actors (for example, international agencies) and certain types of social transformation (for example, technology transfer), while marginalizing other social actors and degrading other kinds of change.[3]

Despite alarming signs of failure throughout its history, the development syndrome has survived until today, but at the price of increasing senility. When it became clear in the 1950s that investments were not enough, 'man-power development' was added to the aid package; as it became obvious in the 1960s that hardship continued, 'social development' was discovered; and in the 1990s, as the impoverishment of peasants could no longer be overlooked, 'rural development' was included in the arsenal of development strategies. And so it went on, with further creations like 'equitable development' and the 'basic needs approach'. Again and again, the same conceptual operation was repeated: degradation in the wake of development was redefined as a lack which called for yet another strategy of development. All along, the efficacy of 'development' remained impervious to any counter evidence, but showed remarkable staying power; the concept was repeatedly stretched until it included both the strategy which inflicted the injury and the strategy designed for therapy. This strength of the concept, however, is also the reason for its galloping exhaustion; it no longer manifests any reactions to changing historical conditions. The tragic greatness of 'development' consists in its monumental emptiness.

'Sustainable development', which UNCED enthroned as the reigning slogan of the 1990s, has inherited the fragility of 'development'. The concept emasculates the environmental challenge by absorbing it into the empty shell of 'development', and insinuates the continuing validity of developmentalist assumptions even when confronted with a drastically different historical situation. In Rachel Carson's *Silent Spring*, the book which gave rise to the environmental movement in 1962, development was understood to inflict injuries on people and nature. Since the 'World Conservation Strategy' in 1980 and later the Brundtland Report, development has come to be seen as the therapy for the injuries caused by development. What accounts for this shift?

Firstly, in the 1970s, under the impact of the oil crisis, governments began to realize that continued growth depended not only on capital formation or skilled manpower, but also on the long-term availability of natural resources. Foods for the insatiable growth machine, such as oil, timber, minerals, soils, genetic material, seemed on the decline; concern grew about the prospects of long-term growth. This was a decisive change in perspective: not the health of nature but the continuous health of development became the centre of concern. In 1992, the World Bank

summed up the new consensus in a laconic phrase: 'What is sustainable? Sustainable development is development that lasts.'[4] Of course, the task of development experts does not remain the same under this imperative, because the horizon of their decisions is now supposed to extend in time, taking into account also the welfare of future generations. But the frame stays the same: 'sustainable development' calls for the conservation of development, not for the conservation of nature.

Even bearing in mind a very loose definition of development, the anthropocentric bias of the statement springs to mind; it is not the preservation of nature's dignity which is on the international agenda, but to extend human-centred utilitarianism to posterity. Needless to say, the naturalist and bio-centric current of present-day environmentalism has been cut out by this conceptual operation. With 'development' back in the saddle, the view on nature changes. The question now becomes: which of nature's 'services' are to what extent indispensable for further development? Or the other way around: which 'services' of nature are dispensable or can be substituted by, for example, new materials or genetic engineering? In other words, nature turns into a variable, albeit a critical one, in sustaining development. It comes as no surprise, therefore, that 'nature capital' has already become a fashionable notion among ecological economists.[5]

Secondly, a new generation of post-industrial technologies suggested that growth was not invariably linked to the squandering of ever more resources, as in the time of smoke-stack economies, but could be pursued through less resource-intensive means. While in the past, innovations were largely aimed at increased productivity of labour, it now appeared possible that technical and organizational intelligence could concentrate on increasing the productivity of nature. In short, growth could be delinked from a rising consumption of energy and materials. In the eyes of developmentalists, the 'limits to growth' did not call for abandoning the race, but for changing the running technique. After 'no development without sustainability' had spread, 'no sustainability without development' also gained recognition.

Thirdly, environmental degradation has been discovered to be a worldwide condition of poverty. While formerly the developmentalist image of the 'poor' was characterized by lack of water, housing, health, and money, they are now seen to be suffering from lack of nature as well. Poverty is now exemplified by people who search desperately for firewood, find themselves trapped by encroaching deserts, are driven from their soils and forests, or are forced to endure dreadful sanitary conditions. Once the lack of nature is identified as a cause of poverty, it follows neatly that development agencies, since they are in the business of 'eliminating poverty', have to diversify into programmes for the environment. But people who are dependent on nature for their survival have no choice other than to pursue the last remaining fragments of its bounty. As the decline of nature is also a

consequence of poverty, the poor of the world suddenly entered the stage as agents of environmental destruction. Whereas in the 1970s, the main threat to nature still appeared to be industrial man, in the 1980s environmentalists turned their eyes to the Third World and pointed to the vanishing forests, soils and animals there. With the shifting focus, environmentalism, in part, took on a different colour; the crisis of the environment is no longer perceived as the result of building affluence for the global middle class in North and South, but as the result of human presence on the globe in general. No matter if nature is consumed for luxury or survival, no matter if the powerful or the marginalized tap nature, it all becomes one for the rising tribe of ecocrats. And so it could be that, among other things, an 'Earth Summit' was called to reach decisions which should primarily have been the concern of the OECD – or even the G7.

The persistence of 'development', the newly-found potentials for less resource-intensive growth paths, and the discovery of humanity in general as the enemy of nature – these notions were the conceptual ingredients for the type of thinking which received its diplomatic blessings at UNCED: the world is to be saved by more and better managerialism. The message, which is ritually repeated by many politicians, industrialists and scientists who have recently decided to slip on a green coat, goes as follows: nothing should be (the dogmatic version) or can be (the fatalist version) done to change the direction the world's economies are taking; problems along the way can be solved, if the challenge for better and more sophisticated management is taken up. As a result, ecology, once a call for new public virtues, has now become a call for new executive skills. In fact, Agenda 21, for example, overflows with such formulas as 'integrated approach', 'rational use', 'sound management', 'internalizing costs', 'better information', 'increased co-ordination', 'long-term prediction', but by and large fails (except for some timid phrases in the hotly debated chapter 'Changing Consumption Patterns') to consider any reduction of material standards of living and any attempts to slow down the accumulation dynamics. In short, alternatives to development are black-balled, alternatives within development are welcome.

Nevertheless, it was an achievement for UNCED to have delivered the call for environmental tools from a global rostrum, an opening which will give a boost to environmental engineering worldwide. But the price for this achievement is the reduction of environmentalism to managerialism. For the task of global ecology can be understood in two ways: it is either a technocratic effort to keep development afloat against the drift of plunder and pollution; or it is a cultural effort to shake off the hegemony of ageing Western values and gradually retire from the development race. These two ways may not be exclusive in detail, but they differ deeply in perspective. In the first case, the paramount task becomes the management of the bio-

physical limits to development. All powers of foresight have to be mustered in order to steer development along the edge of the abyss, continuously surveying, testing, and manoeuvring the bio-physical limits. In the second case, the challenge consists in designing cultural/political limits to development. Each society is called upon to search for indigenous models of prosperity, which allow society's course to stay at a comfortable distance from the edge of the abyss, living graciously within a stable or shrinking volume of production. It is analogous to driving a vehicle at high speed towards a canyon, either you equip it with radar, monitors and highly trained personnel, correct its course and drive it as hard as possible along the rim; or you slow down, turn away from the edge, and drive leisurely here and there without too much attention to precise controls. Too many global ecologists – implicitly or explicitly – favour the first choice.

Bargaining for the rest of nature

Until some decades ago, quite a few tracts of the biosphere still remained untouched by the effects of economic growth. It is basically over the last 30 years that the tentacles of productivism have closed on the last virgin areas, leaving now no part of the biosphere untouched. More often than not, the human impact grows into a full-scale attack, tearing up the intricate webs of life. Since time immemorial humanity defended itself against nature, now nature must be defended against humanity. In particular danger are the 'global commons', the Antarctic, ocean beds, tropical forests, with many species threatened by the voracious growth of demand for new inputs, while earth's atmosphere is overburdened with the residues growth leaves behind. For that reason, the 1980s saw the rise of a global environmental consciousness, expressed by many voices, all deploring the threats to the earth's biosphere and the offence to the generations to come. The collective duty to preserve the 'common heritage of mankind' was invoked, and 'Caring for the Earth'[6] became an imperative which agitated spirits worldwide. Respect for the integrity of nature, independently of its value for humans, as well as a proper regard for the rights of humanity demanded that the global commons be protected.

International environmental diplomacy, however, is about something else. The rhetoric, which ornaments conferences and conventions, ritually calls for a new global ethic but the reality at the negotiating tables suggests a different logic. There, for the most part, one sees diplomats engaged in the familiar game of accumulating advantages for their countries, eager to out-manoeuvre their opponents, shrewdly tailoring environmental concerns to the interests dictated by their nation's economic position. Their parameters of action are bounded by the need to extend their nation's space

for 'development'; therefore in their hands environmental concerns turn into bargaining chips in the struggle of interests. In that respect, the thrust of UNCED's negotiations was no different from the thrust of previous negotiations about the Law of the Sea, the Antarctic, or the Montreal protocol on the reduction of CFCs; and upcoming negotiations on climate, animal protection or biodiversity are also hardly likely to be different.

The novelty of Rio, if there was one, lay not in commitments on the way to a collective stewardship of nature, but rather in international recognition of the scarcity of natural resources for development. The fragility of nature came into focus, because the services she offers as a 'source' and a 'sink' for economic growth have become inadequate; after centuries of availability, nature can no longer be counted upon as a silent collaborator in the process of 'technical civilization'. In other words, environmental diplomacy has recognized that nature is finite as a mine for resources and as a container for waste. Given that 'development' is intrinsically open-ended, the logic underlying international negotiations is pretty straightforward. First, limits are to be identified at a level that permits the maximum use of nature as mine and container, right up to the critical threshold beyond which ecological decline would rapidly accelerate. This is where scientists gain supremacy, since such limits can only be identified on the basis of 'scientific evidence'; endless quarrels about the state of knowledge are therefore part of the game. Once that hurdle has been overcome, the second step in the bargaining process is to define each country's proper share in the utilization of the 'source' or the 'sink' in question. Here diplomacy finds a new arena, and the old means of power, persuasion and bribery come in handy in order to maximize one's own country's share. And finally, mechanisms have to be designed to secure all parties' compliance with the norms stated by the treaty, an effort which calls for international monitoring and enforcement institutions. Far from 'protecting the earth', environmental diplomacy which works within a developmentalist frame cannot but concentrate its efforts on rationing what is left of nature. To normalize, not eliminate global overuse and pollution of nature will be its unintended effect.

Four major lines of conflict cut through the landscape of international environmental diplomacy, involving: rights to further exploitation of nature; rights to pollution; and rights to compensation; and overall, conflict over responsibility. In the UNCED discussions on the biodiversity convention, for example, the rights to further exploitation of nature held centre stage. Who is entitled to have access to the world's dwindling genetic resources? Can nation states exert their sovereignty over them or are they to be regarded as 'global commons'? Who is allowed to profit from the use of genetic diversity? Countries rich in biomass, but poor in industrial power were thus counterposed against countries rich in industrial power, but poor in biomass. Similar issues arise with respect to tropical timber, the mining of

ocean beds, or to wild animals. Regarding the climate convention, on the other hand, diplomatic efforts were aimed at optimizing pollution rights over various periods of time. Oil-producing countries were not happy about any ceilings for CO_2 emissions, while small island states, understandably, hoped for the toughest limits possible. Moreover, the more economies are dependent on a cheap fuel base, the less the respective representatives were inclined to be strong on CO_2: the USA in the forefront, followed by the large newly industrialized countries, while Europe along with Japan could afford to urge stricter limits. In both cases, claims to compensation were voiced by an insistent chorus. How much compensation for retrospective development can the South demand? Who carries the losses incurred by a restrained exploitation of nature? Who should foot the bill for transferring clean technologies? Obviously, here, the South was on the offensive, led by countries with potentially large middle classes, while the North found itself on the defensive. In all these matters, however, the conflict over responsibilities loomed large; and again, the North was under pressure. After all, didn't the industrialized countries fell their own forests to feed development? Haven't they in the past used the entire world as the hinterland for their industrialization? With regard to greenhouse gases, is it appropriate or even justifiable to lump together methane emissions from India's rice fields with the CO_2 emissions from US car exhausts? In sum, a new class of conflicts has thrown into disarray the diplomatic routines: while in the 1970s particularly, multilateral conferences focused on how to achieve a broader participation of the South in the growth of world economy, in the 1990s these conferences are dealing with how to control the pollution produced by this growth. As the bio-physical limits to development become visible, the tide of the post-war era turns: multilateral negotiations no longer centre on the redistribution of riches but on the redistribution of risks.[7]

Efficiency and sufficiency

Twenty years ago, 'limits to growth' was the watchword of the environmental movement worldwide; today the buzzword of international ecology experts is 'global change'. The messages implied are clearly different.[8] 'Limits to growth' calls on *homo industrialis* to reconsider his project and to abide by nature's laws. 'Global change', however, puts mankind in the driver's seat and urges it to master nature's complexities with greater self-control. While the first formula sounds threatening, the second has an optimistic ring: it believes in a rebirth of *homo faber* and, on a more prosaic level, lends itself to the belief that the proven means of modern economy – product innovation, technological progress, market regulation,

science-based planning – will show the way out of the ecological predicament.

The cure for all environmental ills is called 'efficiency revolution'. It focuses on reducing the throughput of energy and materials in the economic system by means of new technology and planning. Be it for the light-bulb or the car, for the design of power plants or transport systems, the aim is to come up with innovations that minimize the use of nature for each unit of output. Under this prescription, the economy will supposedly gain in fitness by keeping to a diet which eliminates the overweight in slag and dross. The efficiency scenario, however, seeks to make the circle square; it proposes a radical change through redirecting conventional means. It confronts modern society with the need to drastically reduce the utilization of nature as a mine for inputs and a deposit for waste, promising to eventually reduce the physical scale of the economy. Conversely, it holds out the prospect of achieving this transformation through the application of economic intelligence, including new products, technologies and management techniques; in fact, this scenario proposes the extension of the modern economic imperative, that is, to optimize the means–ends relationship,[9] from the calculation of money flows to the calculation of physical flows. 'More with less' is the motto for this new round in the old game. Optimizing input, not maximizing output, as in the post-war era, is the order of the day, and one already sees economists and engineers taking a renewed pleasure in their trade by puzzling out the minimum input for each unit of output. The hope which goes along with this strategic turnabout is again concisely stated by the World Bank: 'Efficiency reforms help reduce pollution while raising a country's economic output.'[10]

No doubt an efficiency revolution would have far-reaching effects. Since natural inputs were cheap and the deposition of waste mostly free of charge, economic development has for long been skewed towards squandering nature. Subsidies encouraged waste, technical progress was generally not designed to save on nature, and prices did not reflect environmental damages. There is a lot of space for correcting the course, and Agenda 21, for example, provides a number of signposts which indicate a new route. But the past course of economic history – in the East, West, and South – though with considerable variations – suggests that there is little room for efficiency strategies in earlier phases of growth, whereas they seem to work best – and are affordable – when applied after a certain level of growth has been attained. Since in the South the politics of selective growth would be a much more powerful way to limit the demand for resources, to transfer the 'efficiency revolution' there wholesale makes sense only if the South is expected to follow the North's path of development.

Even for the North scepticism is in order. Those who hail the rising information and service society as environment-friendly, often overlook the

fact that these sectors can only grow on top of the industrial sector and in close symbiosis with it. The size of the service sector in relation to production has its limits, just as its dependence on resources can be considerable, for such sectors as tourism, hospitals, or data-processing.[11] Even commodities without any nature content, for example patents, blueprints, or money, derive their value from the command over a resource base which they provide. More specifically, gains in environmental efficiency often consist in substituting high-tech for energy/materials, a process which presupposes the presence of a resource-intensive economy. In short, the efficiency potential which lies in well-tuned engines, bio-technological processes, recycling technologies or systems thinking, is indigenous to the Northern economies. But the efficiency strategy obviously plays into the North's hands: this way, they can again offer the South a new selection of tools for economic progress, at a price which will be scarcely different from that paid in the decades of technology transfer.

Environmentalists who refer exclusively to efficient resource management concentrate social imagination on the revision of means, rather than on the revision of goals. Their ingenuity lies in advocating a strategy that emphasizes what business has always been best at, and their strength is to propose a perspective which is far from putting the growth imperative into question. But the magic words 'resource efficiency' have a shady side; staring at them for too long leads to blindness in one eye. Many environmentalists have already succumbed to this malady. In praising 'resource efficiency' alone, they obscure the fact that ecological reform must walk on two legs: scrutinizing means as well as moderating goals. This omission, however, backfires; it threatens the ecological project. An increase in resource efficiency alone leads to nothing, unless it goes hand-in-hand with an intelligent restraint of growth. Instead of asking how many supermarkets or how many bathrooms are enough, one focuses on how all these – and more – can be obtained with a lower input of resources. If, however, the dynamics of growth are not slowed down, the achievements of rationalization will soon be eaten up by the next round of growth. Consider the example of the fuel-efficient car. Today's vehicle engines are definitely more efficient than in the past; yet the relentless growth in number of cars and miles driven has cancelled out that gain. And the same logic holds across the board, from energy saving to pollution abatement and recycling; not to mention the fact that continuously staving off the destructive effects of growth in turn requires new growth. In fact, what really matters is the overall physical scale of the economy with respect to nature, not only the efficient allocation of resources. Herman Daly has offered a telling comparison:[12] even if the cargo on a boat is distributed efficiently, the boat will inevitably sink under too much weight – even though it may sink optimally! Efficiency without sufficiency is counterproductive; the latter

must define the boundaries of the former.

However, the rambling development creed impedes any serious public debate on the moderation of growth. Under its shadow, any society which decides, at least in some areas, not to go beyond certain levels of commodity-intensity, technical performance, or speed, appears to be backward. As a result, the consideration of zero-options, that is, choosing not to do something which is technically possible, is treated as a taboo in the official discussion on global ecology, even to the point of exposing some agreements to ridicule. Take, for example, Agenda 21's (chapter 9) section on transport: although the 'population' of cars grows at the present rate four times faster than the population of humans, Agenda 21's authors were incapable of suggesting any strategies for avoiding and reducing traffic, or of course, any option for low-speed transport systems. There are many reasons for this failure, but on a deeper level, it shows that the development syndrome has dangerously narrowed the social imagination in the North as well as in the South. As the North continues to set its sight on an infinite economic future, and the South cannot free itself from its compulsive mimicry of the North, the capacity for self-mobilized and indigenous change has been undermined worldwide. Politics which choose intermediate levels of material demand remain outside the official consensus; the search for indigenous models of prosperity, which de-emphasize the drive for overdevelopment, has become an apostasy. Clearly, such a perspective would in the first place be at the expense of the wealthy, but without a politics of sufficiency there can be neither justice nor peace with nature.

The hegemony of globalism

'Sustainable development', though it can mean many things to many people, nevertheless contains a core message: keep the volume of human extraction/emission in balance with the regenerative capacities of nature. That sounds reasonable enough, but it conceals a conflict that has yet to win public attention, even though such fundamental issues as power, democracy and cultural autonomy are at stake. Sustainability, yes, but at what level? Where is the circle of use and regeneration to be closed? At the level of a village community, a country, or the entire planet? Until the 1980s, environmentalists were usually concerned with the local or the national space; ideas like 'eco-development' and 'self-reliance' had aimed to increase the economic and political independence of a place by reconnecting ecological resource flows.[13] But in subsequent years, they began to look at things from a much more elevated vantage point: they adopted the astronaut's view, taking in the entire globe at one glance. Today's ecology is in the business of saving nothing less than the planet. That suggestive globe,

suspended in the dark universe, delicately furnished with clouds, oceans and continents, has become the object of science, planning and politics.

Modesty hardly seems to be the hallmark of such thinking. The 1989 special issue of the *Scientific American*, with the programmatic title 'Managing Planet Earth', sets the tone:

> It is as a global species that we are transforming the planet. It is only as a global species – pooling our knowledge, coordinating our actions and sharing what the planet has to offer – that we may have any prospect for managing the planet's transformation along the pathways of sustainable development. Self-conscious, intelligent management of the earth is one of the great challenges facing humanity as it approaches the 21st century.[14]

Perceiving the earth as an object of environmental management is, on the cognitive level, certainly an outcome of space travel, which has turned the planet into a visible object, a revolution in the history of human perception.[15] But there is a political, a scientific and a technological reason as well. Politically, it was only in the 1980s that acid rain, the ozone hole and the greenhouse effect drove home the message that industrial pollution affects the entire globe across all borders. The planet revealed itself as the ultimate dumping ground. Scientifically, ecological research, after having for years mainly focused on single and isolated ecosystems like deserts, marshes and rain forests, recently shifted its attention to the study of the biosphere, that envelope of air, vegetation, water and rocks which sustains life globally. Technologically, as often in the history of science, it was a new generation of instruments and equipment which created the possibility of collecting and processing data on a global scale. With satellites, sensors and computers, the technology available in the 1990s permits the biosphere to be surveyed and modelled. As these factors have emerged simultaneously, human arrogance has discovered the ultimate dominion: planet Earth.

Only a few years ago, invoking the wholeness of the globe meant something else. Environmentalists waved around the picture of the earth taken from outer space, in order to remind the public of the majestic finiteness of the earth and to spread the insight that there is in the end no escape from the consequences of human action. While they appealed to the reality of the planet, inviting people to embrace humility, a new tribe of global ecocrats is ready to act upon the newly-emerged reality of the planet, imagining that they can preside over the world. Research on the biosphere is rapidly becoming big science; spurred by a number of international programmes,[16] 'planetary sciences', including satellite observation, deep-sea expeditions, worldwide data processing, are being institutionalized in many countries.

With this trend, sustainability is increasingly conceived as a challenge for global management. The new experts set out to identify the balance between human extractions/emissions on the one side, and the regenerative capacities of nature on the other, on a planetary scale, mapping and monitoring, measuring and calculating resource flows and biogeochemical cycles around the globe. According to Agenda 21:

> This is essential, if a more accurate estimate is to be provided of the carrying capacity of the planet Earth and of its resilience under the many stresses placed upon it by human activities.[17]

It is the implicit agenda of this endeavour to be eventually able to moderate the planetary system, supervising species diversity, fishing grounds, felling rates, energy flows, and material cycles. It remains a matter of speculation which of these expectations will ever be realized, but there is no doubt that the linkage of space travel, sensor technology and computer simulation has vastly increased the power to monitor nature, to recognize human impact, and to make predictions. The management of resource budgets thus becomes a matter of world politics.

Satellite pictures scanning the globe's vegetative cover, computer graphs running interacting curves through time, threshold levels held up as worldwide norms are the language of global ecology. It constructs a reality that contains mountains of data, but no people. The data do not explain why Tuaregs are driven to exhaust their water-holes, or what makes Germans so obsessed with high speed on freeways; they do not point out who owns the timber shipped from the Amazon or which industry flourishes because of a polluted Mediterranean sea; and they are mute about the significance of forest trees for Indian tribals or what water means in an Arab country. In short, they provide a knowledge which is faceless and placeless; an abstraction that carries a considerable cost: it consigns the realities of culture, power and virtue to oblivion. It offers data, but no context; it shows diagrams, but no actors; it gives calculations, but no notions of morality; it seeks stability, but disregards beauty. Indeed, the global vantage point requires ironing out all the differences and disregarding all circumstances; rarely has the gulf between observers and the observed been greater than between satellite-based forestry and the *seringueiro* in the Brazilian jungle. It is inevitable that the claims of global management are in conflict with the aspirations for cultural rights, democracy and self-determination. Indeed, it is easy for an ecocracy which acts in the name of 'one earth' to become a threat to local communities and their life-styles. After all, has there ever, in the history of colonialism, been a more powerful motive for streamlining the world than the call to save the planet?

Yet the North faces a problem. For the bid for global management has

been triggered by a new historical constellation. Ever since Columbus arrived in Santo Domingo the North has by and large remained unaffected by the tragic consequences which followed his expansion overseas; others had borne the burden of sickness, exploitation and ecological destruction. Now, this historical tide seems about to turn; for the first time the Northern countries themselves are exposed to the bitter results of Westernizing the world. Immigration, popuation pressure, tribalism with mega-arms, and above all, the environmental consequences of worldwide industrialization threaten to destabilize the Northern way of life. It is as if the cycle which had been opened by Columbus is about to be closed at the end of this century. As a result, the North devises ways and means for protection and risk management worldwide. The rational planning of the planet becomes a matter of Northern security.

The celebrated control of (Western) man over nature leaves much to be desired. Science and technology successfully transform nature on a vast scale, but so far, with unpleasant as well as unpredictable consequences. In fact only if these consequences were under control would it be possible to speak of having accomplished domination over nature. It is here that technocratic environmentalism comes in. Seen from this angle, the purpose of global environmental management is nothing less than control of a second order; a higher level of observation and intervention has to be installed, in order to control the consequences of the control over nature. Such a step becomes the more imperative as the drive towards turning the world into a closely interrelated and expanding economic society continues unabated. Given that the continuing force of the development syndrome is an impediment to restraining the dynamics of worldwide industrialization, the obvious task is to prepare for regulating the transformation of nature globally in an optimal fashion. It is in that light that the *Scientific American* can elevate the following questions to key-issues for future decision-making:

> Two central questions must be addressed: What kind of planet do we want? What kind of planet can we get? . . . How much species diversity should be maintained in the world? Should the size or the growth rate of the human population be curtailed . . . ? How much climate change is acceptable?[18]

If there are no limits to growth, there surely seem to be no limits to hubris.

Notes

1. See the entry for 'underdeveloped' in the *Oxford English Dictionary* (1989), vol. XVIII, p. 960. Extensive inquiries into the history of the development discourse can be found in Wolfgang Sachs (ed.) (1992) *The Development Dictionary: a guide to knowledge as power*, London, Zed Books.

2. Beijing Ministerial Declaration on Environment and Development, 19 June 1991.

3. For these reasons, I do not follow proposals to make a distinction between growth and development. It seems to me that 'development' cannot be purified of its historical context. For a distinction, see Herman E. Daly (1990) 'Toward Some Operational Principles of Sustainable Development', in *Ecological Economics*, Vol. 2, 1990, p..1.

4. *World Development Report 1992* (1992), Oxford University Press (for the World Bank), New York, p. 34.

5. See for instance Salah El Serafy, 'The Environment as Capital', in R. Costanza (ed.) (1991) *Ecological Economics: the science and management of sustainability*, New York, Columbia University Press, pp. 168–75.

6. The title of a major document, published jointly by IUCN, UNEP, and WWF in Gland, Switzerland, in 1991.

7. This change has been observed for the domestic scene by Ulrich Beck (1987) *Risikogesellschaft*, Frankfurt: Suhrkamp.

8. Frederick Buttels et al. (1990) 'From Limits to Growth to Global Change: constraints and contradictions in the evolution of environmental science and ideology', in *Global Environmental Change*, Vol. 1, No. 1, December, pp. 57–66.

9. Karl Polanyi, in 'The Two Meanings of Economic', in his *The Livelihood of Man*, New York, Academic Press, 1977, has identified the optimization imperative as the core of modern economic thinking.

10. World Development Report 1992, op. cit., p. 114.

11. Robert Goodland et al., *Environmentally Sustainable Economic Development. Building on Brundtland*, The World Bank, Environment Working Paper No. 46, July 1991, p. 14.

12. Herman E. Daly, 'Elements of Environmental Macroeconomics', in R. Costanza (ed.), op. cit., p. 35.

13. For instance Ignacy Sachs (1980) *Stratégies de l'écodéveloppement*, Paris, Les Editions Ouvrières, 1980; or *What Now?* (1975), the report of the Dag Hammarskjöld Foundation.

14. William C. Clark, 'Managing Planet Earth', *Scientific American*, Vol. 261, September 1989, p. 47.

15. For an elaborate analysis of this aspect, see Wolfgang Sachs (1992) *Satellitenblick. Die Visualisierung der Erde im Zuge der Weltraumfahrt*, Berlin, Science Centre for Social Research.

16. For an overview see Thomas F. Malone (1986) 'Mission to Planet Earth: integrating studies of global change', in *Environment*, Vol. 28, No. 8, pp. 6–11, 39–41.

17. Chapter 35.1 in the section 'Science for Sustainable Development'.

18. Clark, op. cit., p. 48.

"'Sustainable development' calls for the conservation of development, not for the conservation of nature... The tragic greatness of 'development' consists in its monumental emptiness."

- Wolfgang Sachs

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