FAIRNESS IN A FRAGILE WORLD: A MEMO ON SUSTAINABLE DEVELOPMENT

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Introduction to the Memo

WHY DID WE DO A MEMORANDUM ON "Fairness in a Fragile World?" Because it is a memorandum in the literal sense of the word, meaning "speaking about what should be kept in mind, what should not be forgotten." The need for a memo implies that the official process we are going through is a process of forgetfulness. So a memorandum is needed to reflect on what tends to be forgotten, tends to get eroded, tends to fade away in the negotiations in this overall process towards Johannesburg.

Johannesburg does not promise much. I have never seen a UN conference so badly prepared as this Johannesburg Summit. I guess it is not exaggerating to say that so far nobody really knows what the agenda will be.

Why is there a Johannesburg Summit? There is only one reason. We had one in 1992—the UN Conference on Environment and Development—and now we have to have one ten years later because people ask "What is happening. What has resulted?" So there is no other choice than to have another Summit. There is no project or set of projects, which are supposed to be pursued, pushed, and brought to fruition by the time of Johannesburg.

But Johannesburg is not going to be an environment summit; it is going to be a development summit. The summit is not called "Environment and Development;" it is called "Earth Summit of Sustainable Development." In the code of international language, "sustainable development" basically means "chances of development" and of growth for Southern countries.

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It is true that, in particular, the desires for justice and recognition of the South have been frustrated over the last ten years, so we can ask if it is justified to convene a summit on development? However, if that means that this summit forgets the new historic circumstances—that we have to learn to live within the finiteness of the biosphere—then it would be a sliding back before Rio.

It would be regression if things went in this way. We might see a summit which seems to be an environment summit, but which, on closer examination, does not show much awareness about the finiteness of the biosphere. It will be conducted as if this historic 1992 experience had not occurred! Therefore the need for a memo.

Livelihood Rights vs. Export-Led Growth

It is the challenge of Johannesburg to move beyond Rio, yet it is the danger of Johannesburg to regress behind Rio. The Rio Conference on Environment and Development strove to address two major crises: the crisis of nature and that of justice. Environmentalists—often from the North—were expected to take into account the desire of the majority of the world's citizens for a life beyond poverty and distress. By contrast, developmentalists—often from the South—were called upon to recognize the disastrous repercussions of a deteriorated nature base. Typically, environmentalists were seen to be opposing deforestation, chemical agriculture or expansion of power plants, while developmentalists were pushing for marketing timber, expanding food supplies or electrifying villages. Therefore, the Earth Summit aimed at integrating the environment and development agendas to liberate policy makers from the dilemma of either aggravating the crisis of nature by pushing for development or aggravating the crisis of justice by insisting on the protection of nature.

As it turned out, the Rio process fell short of fulfilling this ambition. How to respond to the desire for justice without upsetting the biosphere is still a puzzle for the 21st century. Of course, the fact that helping people and helping nature can go hand in hand has been demonstrated in many instances: in organic agriculture, in sustainable forestry and in resource-efficient industries as well. But on a macro-scale, the reconciliation of environment and development agendas remains light years away. Furthermore, if things are not brilliant with regard to the environment, they are worse when it comes to development. Despite the prominence of "development" in all the Rio documents, the demand of the South for recognition and equity has largely been frustrated during the past decade, reinforcing the fear of many Southern countries of falling further behind and remaining forever excluded from the blessings of the modern world.

Against this background, the South—and in particular South Africa—intend to transform Johannesburg into a development summit rather than an environment summit. While Rio was considered to be dominated by the North, it is hoped that Johannesburg will be the Summit for the South. Indeed, the conference title "World Summit for Sustainable Development" clearly reflects the intention to elevate "development" on the political agenda.

Yet, we believe that focusing on a development agenda as if the worldwide crisis of nature did not exist would signify sliding back behind Rio. It would be a regression of sorts, a rollback in the growing sensibility toward the finiteness of the natural world. And it would be a disservice to the South, since equity can no longer be separated from ecology. Instead, fulfilling the ambition of Rio requires the effective response to the demand for equity arising from the South, but in a manner which takes full account of the bio-physical limits of the Earth.

Some claim that humanity faces a choice between human misery and natural catastrophe. This choice is false. We are convinced that human misery can be eliminated without catalyzing natural catastrophes. Conversely, natural catastrophes can indeed be avoided without condemning people to a life of misery. Getting ready to meet this challenge, however, requires revisiting the technologies, the institutions and the world views that dominate the globe today.

Shrug Off Copycat Development

Partly through imposition, partly through attraction, the Northern development model has shaped Southern desires, offering tangible examples not only of a different, but of a supposedly better life. After decolonization, the newly gained political independence notwithstanding, the South set its sights on the industrial style of life and moved to catch up with the richer countries. And after the fall of communism, countries in Eastern Europe and Central Asia jumped to embrace capitalism and the glittery products of the free market. The winner takes all—including imagination. Where countries want to go, what they thrive to become, has most often not emerged naturally from their respective history and traditions, but has been forged by emulation of the Northern model. In this way, dignity has been identified with becoming modern, and international equity has been conceived as catching up with the developed countries.

The times of copycat development are over. Not because emulation of the North has not produced the desired results, but because the development model of the North is historically obsolete. Until the environmental crisis broke out, one could still attribute a certain degree of superiority to techno-

logical civilization. But it has become obvious that many of its glorious achievements are actually optical illusions. They essentially consist in transferring power from nature to man, leaving nature degraded and depleted in the process. As a consequence, natural systems, which serve as sources (water, timber, oil, minerals), sites (land for mines, settlements, infrastructure), and sinks (soils, oceans, atmosphere) for economic development are disrupted or seriously degraded.

Consider the environmental trends of the last 50 years: greenhouse-gas concentrations have surpassed tolerable levels, one-third of arable land has been degraded worldwide, just as one-third of tropical forests, one-fourth of the available freshwater, and one-fourth of the fish reserves have disappeared, not to mention the extinction of plant and animal species. Although it was just a minority of the world population which fed off nature for just a couple of generations, the feast is quickly coming to an end.

A dramatic situation has now emerged. At present, the world consumes more resources than nature can regenerate. Indeed, human activities have exceeded the biosphere's capacity since the mid-1970s. Since then, ecological overshoot has become the distinguishing mark of human history. In 1997, the overshoot amounted to 30 percent of the Earth's carrying capacity, or even to 40-50 percent if the needs of other living beings are taken into account. A large part of this overshoot is due to the extravagant use of fossil fuels, whose carbon waste would require a vast bio-productive surface area as a natural sink. Indeed, the global fossil fuel bonanza is mainly responsible for the quandary of conventional development. If, for instance, the present average carbon emissions per capita in the industrial world were extrapolated to all countries, the atmosphere would have to absorb five times more emissions than it can take—without even counting the expected increase in population. In other words, if all the countries of the globe followed the industrial model, five planets would be required to provide the carbon sinks needed by economic development. As humanity is left with just one, such an equity approach would become the mother of all disasters.

Consequently, there is no escape from the conclusion that the world's growing population cannot attain a Western standard of living by following conventional paths to development. The resources required are too vast, too expensive and too damaging to local and global ecosystems. Indeed, UNDP's 1998 Human Development Report emphasizes that "poor countries have to accelerate their consumption growth, but they must not follow the road taken by the rich and rapidly growing economies in the past half a century." While this is definitely good advice, it fails to highlight the window of opportunity which lies wide open for many countries of the Southern hemisphere.

As never before in history, there is an opportunity to transform "underdevelopment" into a blessing. At the historical juncture where fossil-fuel dependency drives industrial societies into an impasse, economies that once were seen as lagging behind, suddenly find themselves in a favorable position. Not yet fully locked into an old-style model of industrialization, they have the prospect of leapfrogging into a post-fossil age, skipping the resource-intensive styles of production and consumption so dear to the industrial world. Thus the challenge they face is to choose a path that is both pro-environment and pro-poor. De-linking economic growth from an increase in resource use, and social progress from economic growth, can take them a long way into a sustainable future. In case of success, they could even reverse the usual master-student relationship, showing the North the way out of a self-defeating economic system. This window of opportunity, however, will close rather fast if the South continues to stick to copycat development. It will only remain open if the South musters the courage to envisage models of wealth that are different from those in the North.

Reduce the Footprint of the Rich

Without ecology there will be no equity in the world. Otherwise, the biosphere will be thrown into turbulence. The insight that the globally available environmental space is finite, albeit within flexible boundaries, has added a new dimension to justice. The quest for greater justice has always required containing the use of power in society, but now it also requires containing the use of nature. The powerful have to yield both political and environmental space to the powerless if justice is to have a chance. It is for this reason that, after the age of environmental innocence, the question of nature is inherent in the question of power, just as the question of power is inherent in the question of nature.

Power determines who occupies how much of the environmental space. Neither all nations nor all citizens use equal shares. On the contrary, the environmental space is divided in a highly unfair manner. It still holds true that about 20 percent of the world population consume 70-80 percent of the world's resources. It is those 20 percent who eat 45 percent of all the meat and fish, consume 68 percent of all electricity, 84 percent of all the paper and own 87 percent of all the automobiles. Above all, it is the industrialized countries which tap into the heritage of nature to an excessive extent; they draw on the environment far beyond their national boundaries. Their ecological footprint is larger than their own territories. In fact, the OECD countries surpass (in terms of ecology and equity) the admissible average size of such a footprint by a magnitude of about 75-85 percent. The wealthy 25 per-

cent of humanity occupy a footprint as large as the entire biologically productive surface area of the Earth.

Zombie Concepts

Especially when it comes to resource consumption, the conventional distinction between North and South is misleading. "North" and "South" are "zombie categories"—concepts which clumsily survive in everyday speech despite the fact they do not reflect political realities. The classical juxtaposition of the G7 (plus Russia) and the G77 (plus China) still exists in international fora, but it fails to represent the political dynamics of the real world. The collective "South" comprises the most heterogeneous situation, ranging from the financial capital Singapore or oil-rich Saudi Arabia to poverty-stricken Mali. As such, a common unifying interest is difficult to discern. The same is true for the North, though to a lesser degree. "North" and "South" are therefore mainly diplomatic artifacts.

Most importantly, though, the conventional North-South distinction obscures the fact that the dividing line in today's world does not primarily run between Northern and Southern societies, but right across all of these societies. The major rift appears to be between the globalized rich and the localized poor. It separates the global consumer class on the one side, from the social majority outside the global circuits on the other. This global middle class is made up of the majority of citizens in the North, along with a varying number of elites in the South, with about 80 percent of it found in North America, Western as well as Eastern Europe, and Japan. Twenty percent of it can be found dispersed throughout the South. Its overall size equals roughly that 20 percent of the world population which has direct access to an automobile.

In the last decade, globalization has accelerated and intensified the integration of this class into the worldwide circuit of goods, communication and travel, most clearly so in newly industrializing countries and Eastern Europe/Russia. Transnational corporations largely cater to this class, just as they provide its symbolic means of expression, such as films, fashion, music and brand names. But entire categories of people in the North, like the unemployed, the elderly and the competitively weak find themselves excluded, along with entire regions in the South, from the circuits of the world economy. In all countries, an invisible border separates the fast from the slow, the connected from the unconnected, the rich from the poor. There is a global North as there is a global South, encompassing even the area of the former Eastern Bloc.

The consumer classes, in the North as well as in the South, have the power to bring the bulk of the world's marketed natural resources into their

service. Due to their purchasing power, they are able to command the resource flows which fuel their commodity-intensive patterns of production and consumption. In attracting resources, their geographical reach is both global and national. On the global level, a network of resource flows, generally organized by transnational corporations, extends like a spider web across the planet, pulling energy and materials towards the high-consumption zones. On the national level, the urban-based middle classes succeed equally in capturing resources to their benefit, thanks to patterns of ownership, subsidies and superior demand. Particularly in Southern countries, market demand for resource-intensive goods and services stems mainly from that relatively small part of the population which commands purchasing power and is therefore capable of imitating the consumption patterns of the North. As a consequence, the more affluent groups in countries such as Brazil, Mexico, India, China or Russia use about as much energy and materials as their counterparts in the industrialized world—a level five to 10 times higher than the average consumption in these countries.

Reduction of the ecological footprint of the consumer classes around the world is not just a matter of ecology but also a matter of equity. Though trade in resources may help economically, it is deleterious ecologically since the excessive use of environmental space withdraws resources from the social majority in the world. Moreover, wealth on the one side is at times co-responsible for poverty on the other. Time and again, the consumer classes shield themselves against environmental harm by leaving noise, dirt and the ugliness of the industrial hinterland in front of the doorsteps of less advantaged groups. Resources are not simply out there waiting to be extracted; they often are where people reside and they are used by people to sustain their livelihoods. As the consumer class corners resources through the global reach of corporations, they contribute to the marginalization of that third of the world population which derives their livelihood directly from free access to land, water and forests. Certainly, such exports may increase a country's income, but it is not at all certain that the marginalized share in these benefits. In any case, building large dams and extracting ore, cutting trees and capitalizing agriculture for the benefit of distant consumers, often degrade the ecosystems upon which many people live. In fact, such expressions of development often do no more than deprive the poor of their resources in order for the rich to live beyond their means.

Ensure Livelihood Rights

In contrast to Rio, the Johannesburg Summit will concentrate on poverty eradication. The South may pin up the badge of poverty, demanding a

greater share in the world economy. However, while the task is a noble one, its politics are ambivalent. There is certainly no doubt that the elimination of poverty calls for enormous efforts on the part of the international community. But it is questionable whether these efforts should primarily consist of higher development assistance, increased grants or increased world market integration. For what is good for government is not necessarily good for the poor. Much too often, and for quite some time now, the Southern governments, supported by their elites, have indulged in the expansion of their own consumer classes and have secured their own power base under the banner of poverty eradication. Against this background, it is clear that the struggle for poverty reduction will not be decided in controversies between Southern and Northern governments, but in conflicts between the marginalized majority and the global middle class—which includes domestic governments, corporations and multilateral institutions. After all, it has happened more than once that Southern and Northern governments have achieved consensus at the expense of the poor. While everybody agrees that poverty elimination has to have its due priority, opinions are sharply divided as soon as the key question is asked: poverty eradication, yes, but by whom?

The first answer highlights the role of investors, transnational companies and economic planners, emphasizing that the reduction of poverty will be the result of higher and broader economic growth. Since growth, in this view, is triggered by export to urban or, better, foreign markets, the most important ingredients of a poverty-reduction strategy are capital investments, factories, irrigation systems, transportation networks and marketing outlets. Moreover, greater purchasing power cannot be mobilized unless free access to Northern consumer markets is secured. In this perspective, only the integration of the most productive agricultural sectors into the world market can provide a steady flow of income and investment, which in turn may stimulate further growth. In brief, poverty would be overcome through more globalization.

Environmental issues play only a minor role in export-led poverty reduction strategies. Export-led poverty reduction is broadly the approach favored by South Africa and the recently formed New Partnership for Africa's Development (NEPAD). On the contrary, over-emphasis regarding pesticides, pollution, clear cutting, or genetically modified crops is portrayed as an obstacle to development. However, sustainable trade may rise in importance as soon as there is sufficient demand from consumers for commodities like certified timber or organic produce.

The second response—which we favor—looks to the poor themselves and recognizes them as actors who shape their lives even under conditions of hardship and destitution. In this view, poverty derives from a deficit of power

rather than a lack of money. Far from being needy persons awaiting provisions, the poor must be seen as citizens who are constrained by a lack of rights, entitlements, salaries and political leverage. Any attempt, therefore, to mitigate poverty will have to be centered on a reinforcement of rights and opportunities. This is in particular true for women who are often legally marginalized. In many places, they have no access to tenure, income and influence, despite the fact that they carry most of the burden of everyday life and often have to sustain families by themselves. For women or men, a basic rights strategy, rather than a basic needs strategy, may help to overcome the constraints to self-organization. In the countryside, conflicts will often turn around rights to land, access to water, forests and undestroyed habitats, confronting land owners and state administrations. In the city, conflicts will focus on rights to housing, to unpolluted water, to running a business or to self-administration, confronting city officials, health departments, police or power cliques. Unless there are shifts in power patterns, subtle ones or sweeping ones, the poor will almost always lack the security and the resources needed for a decent existence.

Boosting economic growth is less important than securing livelihoods for the impoverished. Since economic growth often fails to trickle down, there is no point in sacrificing people's lives in the present for speculative gains in the future. Instead, it is crucial to empower them for a dignified life here and now.

However, such a livelihood-centered perspective is at odds with the export-led poverty-reduction strategies. There is convincing evidence that export-led poverty reduction may help investors, agricultural companies and wealthy farmers improve their own prosperity, yet large parts of the rural population are likely to suffer massive displacement from small farms, loss of livelihoods and forced migration to cities. Furthermore, a strategy of creating industrial jobs, which under the condition of a borderless economy would have to be competitive on the world market, is soon likely to run out of breath. Such jobs require considerable capital investment, which makes them expand at a much slower pace than the number of unemployed. Under a free trade regime, agriculture and industry in most countries of the South cannot be simultaneously competitive and job-intensive. The politics of world market integration is therefore anything but hospitable to a quickly expanding number of citizens. It renders many people redundant with respect to the official economy.

To avoid this impasse, it is important to promote sustainable livelihoods. Sustainable in both senses of the word: firstly, an activity that provides a decent income or sustenance and provides some status in society

along with a meaningful life; and secondly, an activity which conserves and, if possible, regenerates the environment. Productive ecosystems are core assets for sustainable livelihoods, since grasslands, forests, fields and rivers can be valuable sources of sustenance. This is the main reason why livelihood-centered strategies of poverty removal coincide with the interest in environmental protection.

Ecology is thus essential for ensuring decent livelihoods in society. Securing community rights to natural resources is therefore a hallmark of livelihood politics. However, strengthening the rights of local communities means weakening the claims of distant income earners and consumers. Thus the direct or indirect demand of the global consumer for easily available and cheap resources will have to be checked since the interest of middle classes in expanding consumption and of corporations in profit expansion often collides with the interest of communities in securing their livelihoods. These resource conflicts will not be eased unless the economically well-off on the globe make the transition towards resource-light patterns of production and consumption.

Leapfrog into the Solar Age

At the time of Rio, sustainable development was mainly about protecting nature, but now, it is first and foremost about protecting people. For nobody can close his or her eyes in front of what can be called the 21st century challenge: how best to extend hospitality to twice the number of people on the globe in light of a rapidly deteriorating biosphere. Indeed, the historical pattern of scarcity is outdated. While in the old days the world appeared full of nature, but void of people, today the world is void of nature, but full of people. The satisfaction of needs and wants is not constrained so much by the paucity of hands and brains, but by the scarcity of resources and living systems. Nature is now more of a limiting factor than money, given that development is more and more restricted not by the number of fishing boats, but by the decreasing numbers of fish; not by the power of pumps, but by the depletion of aquifers; not by the number of chainsaws but by the disappearance of primary forests. In particular for Southern countries, the relevant question will be: How many problems can be simultaneously solved or avoided? How can both the abundance of people and the scarcity of nature be addressed by making the right initial choices?

The answer, we suggest, is to quickly move out of an industrial economy wasteful of both nature and population and head for a regenerative economy mindful of resources and in need of people. An economy that is based on the assumption that there are "free goods" in the world—pure water, clean air, hydrocarbon combustion, virgin forests—will favor large-scale, energy- and

material-intensive production methods, and labor will remain marginalized. In contrast, if an economy discourages profligate resource use and privileges non-fossil resources, a decentralized and smaller-scale production pattern requiring more labor and intelligence is likely to prosper. In both North and South, the potential for higher resource productivity presents business and governments with an alternative scenario: making radical reductions in resource use, while at the same time raising rates of employment. Rather than laying off people, greater gains can come from laying off wasted kilowatt-hours, barrels of oil, and pulp from old-growth forests. People will in part have to substitute for natural resources; such an economy, evolving with a minimum input of nature, will have to rely much more on the strength, the skill and the knowledge of people. Indeed, it will be post-industrial in the true sense of the word: finding new balances among hardware, biological productivity and human intelligence.

This is even more true when it comes to changing the resource base altogether, from fossil-based to solar-based energies and materials. Apart from the obvious environmental benefits, the point here is that fossil resources usually imply long supply chains, which in turn imply long chains of value creation. Because there is usually so much geographical distance between the extraction of the resource and its final use, including a variety of intermediate steps of processing and refining, opportunities for profit and employment are spread out as well. Most countries and localities, finding themselves at the downstream end of the chain, are strangled by the high cost of fuel and resources imported from abroad. They pay, but most gains and jobs arise elsewhere. However, a change in resource base would turn this logic around. Reliance on photo-voltaic, wind, small hydro power and biomass of all sorts implies much shorter supply chains, not just for the resource, but often also for the conversion technology involved. As a result, income and jobs would largely stay at the local/regional level, recycling money in local economies. Furthermore, as sunshine and biomass are geographically diffused, they lend themselves to decentralized structures of production and use, unlike fossil resources which are concentrated in a few places, giving rise to centralized large-scale structures. The industrial pattern of squandering nature instead of cherishing people would be reversed; a solar economy holds the prospect of both including people and saving resources.

Southern countries have the opportunity to leapfrog into a solar economy, much before and much more solidly than Northern economies. In fact, it would be self-defeating for them, in terms of livelihoods and in terms of the environment, to go through the same stages of industrial evolution as the Northern countries did. For instance, Southern countries face important

decisions about infrastructures such as energy, transport, sewage and communication systems, the introduction and maintenance of which, in industrial countries, have caused the Earth's resources to dwindle.

Today, many Southern countries are still in a position to avoid this unsustainable course, opting without further delay for infrastructures which would allow them to embark on a low emission and resource-light trajectory. This is equally the case for "transition" countries, where it is often preferable to build new infrastructure systems rather than upgrading the aging ones. Investment in infrastructure such as light rail systems, decentralized energy production, public transport, gray-water sewage, locally adapted housing, regionalized food systems and transport-light urban settings could set a country on the road toward cleaner, less costly and more equitable development patterns. This perspective holds true in many respects; in addition, it represents a unique chance for achieving greater economic independence decades after political independence has been accomplished.

Livelihood Rights

The politics of poverty eradication is replete with misconceptions. Popular myths include the suggestion that the (A) poor cause environmental destruction, that (B) economic growth removes poverty, and thus (C) economic growth is the recipe for the elimination of both poverty and environmental degradation. We believe that each link in this chain of arguments is flawed, making policies that are based on it counterproductive.

Admittedly, the poor environmental refugees are often pushed to deforesting and overgrazing land, but in general, they have proven to be careful guardians of resources and ecosystems. Since the poor depend on soil fertility, fish from lakes and estuaries, plants for medicine, branches from forests, and animals for subsistence and cash, they have a very down-to-earth incentive for conserving their resource base.

The argument about economic growth requires clarification as well. Only growth which increases the Gross Nature Product (to use a distinction made by the late Anil Agarwal), and not just the Gross National Product, enhances the condition of rural communities. Otherwise, growth will produce the opposite effect—loss of income and livelihood capacity. It is not monetary growth as such that is important, but the structuring of economic activities in a way that fosters the preservation of ecosystems, as well as the cohesion of communities. Economic growth for its own sake is self-defeating, unless it fully takes into account renewable energy, sustainable agriculture, water conservation, biomass-based enterprises, and the prudent use of living systems. Any degradation of the environment increases the plight of the poor, just as any improvement will reduce their vulnerability.

Biodiversity and Livelihood

Agriculture is a way of life. Local communities all over the world strive to live sustainably and meaningfully. They seek survival and livelihood, as well as joy and celebration in their surrounding nature. In fact, the lives of these communities are shaped by the fauna and flora of the specific environment in which they live. Food habits and house designs, clothing and music instruments, work patterns and feasts, all reflect the community of plants and animals that surround them. While conservation of biodiversity has been enshrined as an official objective of international politics in treaties such as the Convention on Biological Diversity (CBD), little attention has been paid to the role that biodiversity plays in the productive and cultural life of rural and coastal communities. Since these communities have been—and still are—dependent on their specific bio-diverse environment, the need for conservation has often become integral to their culture and daily practices. Villagers who are generally aware that the continuing productivity of nature sustains their lives are likely not to take more than nature can regenerate. In particular, the use of common property resources, such as fisheries or forests, is often governed by customary rules, which are designed in a way to preserve carrying capacity.

Livelihood Security and Biodiversity

There is no food security without farmer security, and that in turn is linked to the maintenance of biodiversity. Maintenance of biodiversity and enhancement of genetic resources have been carried out by farming communities, particularly women, all over the world, wherever localized food production prevails. Indeed, women play a pivotal role in both maintaining and strategically using biodiversity. Besides being managers and providers of food in the families, they are also carriers of local knowledge, skills for survival and cultural memory.

Most poor people do not own any land, but rely on common property resources—forests, lakes or even roadside areas, which are owned by the community or the state—as vital means of survival. In a study conducted in India in 1991, it was found that 80 percent of fuel and fodder that the poor use come from common property land. In terms of income, it accounts for 20 percent of their income. In Africa, rural households derive 35 percent of their energy needs from fuel wood—most of it collected from forests and common property lands. Free access to grassland, trees and water-courses is essential for the sustenance of these households. Obviously, any degradation of these ecosystems, be it through pollution, overgrazing or logging, would increase the daily workload and would eventually prove fatal.

It is particularly important in this context that the sustainable livelihoods of many rural families are dependent not just on cultivated crops, but on food harvested from uncultivated sources. For instance, in early morning hours, it is a common sight in the rural parts of Asia and Africa to see people collecting leaves, spinach, small fish or fruits from the area around the homestead. These people go to the roadsides, the paddy fields owned by others, the ponds, near the canals and other common land of the village. They also know that children who have gone for a swim in the pond, the canal or the river will come back with their hands full of uncultivated green vegetables, tubers, edible forest fruits, and most importantly, fish, which will be immediately turned into food for the family. The fish they like and eat most often are uncultivated fish, collected from water bodies. At least 40 percent of the food by weight, and most of the nutritional requirement for the rural population of Bangladesh, is met by terrestrial or aquatic sources of food that are not cultivated.

Furthermore, the livelihood of the poor, especially of women, depends on the integration of farming, livestock, poultry and fisheries. In a way, rural families comprise not only the extended human family, but also include domestic animals, such as cows, goats, sheep, chicken, ducks and pigeons. Mixed-crop fields provide much of the partner plants, which are sources of nutrition for chicken and cows. Roadside plants provide feed for goats. Children gather snails and other aquatic species for feeding the ducks raised by women. A large majority of rural poor women survive on raising cows, goats, sheep, ducks, chicken and pigs, whose feed is not purchased, but taken from surrounding fields and common property. While these animals get their feed from the diverse species available on the land, the animals and birds in turn reciprocate, sustaining the environment and enhancing biodiversity.

A single-crop mentality, which is often reflected in industrial agriculture, fails to appreciate the numerous interconnections among people, plants and animals. Adamant on optimizing the yield of one particular crop, agronomists tend to overlook the importance for people's livelihood of the wide range of subsidiary cultivated or uncultivated crops. This is one of the reasons why increased yields from monocultures do not necessarily translate into more food for peasants. On the contrary, they might have less food, as subsidiary crops are eliminated. Moreover, the side effects of chemical agriculture often affect the diversity of crops and animals. If land and water are polluted, they become like poison for people who gather food, or animals and birds that feed on them. Frequently, chemical residues contaminate freshwater springs, fish and aquatic resources or uncultivated biomass. Therefore, the claim that modern agriculture has produced more food is fallacious since

it is based on the calculation of single plant harvests, for instance rice, systematically ignoring its negative effect on the entire food system.

Women and Seed Preservation

Women are the guardians of biodiversity, as they are often in charge of the selection and preservation of seeds. As they choose, save, sort out, and sow the seeds of vegetables, fruits and many other crops, they play a role, which is crucial to the enhancement of genetic resources and biodiversity. Additionally, the general practice of sharing seeds among neighbors and relatives enhances biodiversity and genetic variety. The varieties of vegetables ensure food security in terms of availability in different areas and in different seasons of the year.

In the Nayakrishi Seed Wealth Center in Bangladesh, farming women deposit their collection of seeds. The center collects local seeds with a view to adopting and improving production techniques suitable for farmers' seed. Thus, hundreds of local varieties of rice, vegetables, fruit and timber crops have been reintroduced within a short period of time. For example, farmers in the Nayakrishi area cultivate at least 1,027 varieties of rice, a number that is steadily increasing. In a country where over 15,000 rice varieties had been reduced in two decades to about 8 or 10, this represents a reversal in the trend of genetic erosion. As farmers exchange seeds among themselves, they help to increase the genetic resource base of their community.

Peasant women in Nayakrishi have started to build their "veez-sampad" or "seed-wealth." This notion is deliberately opposed to concepts like seed-banks or gene-banks. These women claim the right of control over seeds; therefore, they resent any centralization of seed wealth in the form of a "bank." Control over seeds, on the household and community level, is an important underpinning of the economic independence of farmers. It gives security, shields against money expenses and provides a heritage around which social relations are interwoven. Farmers become more vulnerable, when they lose control over seeds. For this reason, the right of farmers to their seeds, including the right to use seeds for breeding new varieties, has to be protected against the attempt of corporations to turn the vital need of sowing into a solvent demand for their products.

Land, Water and Livelihood

Land degradation, just as limited access to land, is a key factor of rural poverty. As the soil fertility declines, so does agricultural productivity, which must in turn be compensated for by costly fertilizers. This decline is often com-

pounded by a lack of water, which then causes soil salinization or soil erosion. For these reasons, the degradation of land and water resources undermines the livelihood of small farmers. Affected farmers are often caught in a downward spiral of declining agricultural productivity, less subsistence and flight from the villages. Indeed, the rising phenomenon of environmental refugees is often closely linked to the deterioration of land. In West Africa, those children who demonstrated growth abnormalities associated with poor nutrition were most frequently found in areas of high soil degradation. It is estimated that up to one billion people are affected by soil erosion and land degradation due to deforestation, over-grazing and agriculture. Any attempt to overcome rural misery and to ensure livelihood rights, will have to focus on the restoration of soil fertility and water resources.

Soil Fertility Through Organic Agriculture

Over thousands of years of history, farming communities have learned various biological and physical methods for coping with decreasing productivity of agro-ecosystems like terracing or fallowing. Perhaps the most significant are those that make conscious use of species to counter the slow natural decline of any agro-ecological system. For example, mixed farming that combines crop and animal production, provides for manure, which makes nutrients optimally available at the start of the growing season. Moreover, it makes it possible to put nutrients exactly where they are most needed.

Deep-rooted crops are planted to bring leached nutrients up to the surface soil, in order to become available for the next generation crop. In Africa, for instance, sorghum and similar crop species are rooted deep in the earth, bringing nutrients up to the surface. They also withstand dry spells in the weather cycle, which are often exacerbated by deforesting the land. These and similar species slow down growth to survive waterlogging, while rice grows plentiful under waterlogged conditions. Such methods keep the humus content of the soil high and provide for stable fertility.

Strategies like mixed cropping, animal raising, terracing, and afforestation are widely employed to halt degradation of soils and to restore the productive power of the land. Various forms of low-input, ecological agriculture are practiced, not only because they require less capital, but because they conserve the soil—along with water, the basis of all livelihood. However, quite a number of these initiatives are not grounded in a "production" paradigm that aims to optimize the production of crop yield for economic gain. They are rather efforts by communities to generate and regenerate their ecological "relations" to plants, water and animals for food, livelihood and also spiritual connection. Such communities are not interested in competing with urban

centers to acquire more cars, refrigerators, or high-rise buildings. They derive their dignity from stable livelihoods and good relations with their fellow beings in community and nature.

Water Through Ecological Restoration

Water is the essential element not only for growing crops and raising animals, but also for people's sustenance. Yet water scarcity is widespread. In many rural areas, water tables are receding, wells are contaminated and ever less runoff is kept available. Competing claims on water resources by irrigation and industry often favor the more powerful, leaving the less powerful thirsty. In addition, time-honored technologies such as village tanks or canals have been abandoned, just as community water regimes have eroded. Expanding water supplies often aggravates the problem. Therefore, water conservation and the restoration of grazing, farming and forestry to increase water collection are today the priority for livelihood politics around the globe. Initiatives for the prudent use of water abound. They range from the revival of water-harvesting techniques, to small storage dams and comprehensive watershed programs. Efforts to increase collection, however, usually imply the long-term regeneration of living systems through which the water cycle can pass. Healthy grasslands, farm lands, wetlands and woodlands are the best insurance against water scarcity. Therefore, ecological restoration for the sake of water security is essential to ensuring one of the most basic livelihood rights—the right to water.

Erosion of Livelihoods Through Industrial Agriculture

Industrial agriculture tries to produce a homogenous environment irrespective of the distinct nature of the pre-existing ecosystem. Therefore, it uses irrigation extensively. It thus creates a captive market for pumping and irrigation equipment. It also creates contracts for building dams and irrigation and drainage canals. In this way, it geographically extends the age-old problems associated with irrigation whereby water is diverted from the weaker to the stronger. Furthermore, it divorces animal production from crop production. It plants single-variety mono-cultures as a continuum over very extensive areas. Ecosystem disruption thus becomes inevitable. Increased vulnerability of crops to diseases and pests ensues. One indicator of such a disruption is the regular and quick collapse of the crop varieties, owing to emerging vulnerabilities to diseases and pests.

During the Green Revolution, for instance, fertile land was flooded with chemicals and poisons, which included insecticides, fungicides and herbicides. As a result, poisonous residues entered the environment, at both the

surface and in groundwaters. Both the breeders and the suppliers of agrochemicals are increasingly the same North-based transnational corporations. Combining both sectors facilitates the breeding of varieties which require agrochemicals. And to enable corporations to dictate how farmers use seed and agrochemicals, they patent both. By so doing, they marginalize community breeders, who maximize diversity and have thus enriched humanity with the various crops and thousands of varieties of each crop, as well as the ecological methods of using diversity to forestall diseases and pests. This is the way globalization affects farming community agriculture. The proven sustainable land use practices by local communities have to be restored and promoted. Local communities and in particular farmers, have to be protected from the privatization of their knowledge, technologies, practices and biodiversity, and in particular seeds, and from the pressures to accept the use of agrochemicals.

Energy and Livehoods

Over the last 50 years, economic policies in many Southern countries have been based on the premise that the rural economy will grow by piggybacking on the growth of the urban/industrial economy. In other words, it will automatically benefit from the "trickling down" effect that results from overall national progress. The main thrust has been to invest primarily in industry—both heavy and light, but always big—and urban infrastructure, i.e. those sectors which are assumed to provide higher returns than investments in small, decentralized initiatives. At every step, more energy is consumed, and more entropy is created.

For creating sustainable livelihoods, massive decentralized private and non-profit sector initiatives are required instead. The objective is to produce goods and services for the local, low-purchasing power market. In small-scale sustainable enterprises, the capital cost of creating one workplace is much lower than in the industrial sector, just as returns on investment can be higher. Such sustainable enterprises will have to be more decentralized, efficient and responsive to social and natural constraints than industry is today. Otherwise, they are not able to do what is necessary, namely to create work places at a fraction of the cost of those created in the globalized economy and to increase the productivity of energy and material resource use by at least 10 times compared to today's level.

Sustainable enterprises are decentralized. They are technology-based mini-businesses that are environmentally sound and produce for the local market. Their primary problem is their need of certain kinds of support tools such as technology, managerial skill, marketing methods and access to credit

and financing to be profitable and sustainable. Availability of these is today highly facilitated by the Internet. An appropriate portal can provide rural consultancy and monitoring, an exchange service, and a range of information sources. This, of course, is not limited to enterprises. Villagers would also be able to get information about commodity prices or land records. They can shop for inputs such as seeds, machinery, spare parts and household items. Such an information network can give a boost to the dissemination of renewable energy technologies by giving a powerful tool to small enterprises and villagers alike.

Jobs and Nature Protection Through Renewables

Energy policies are usually conceptualized and designed by those who control the "modern" sector—the elites for whom commercial fuels are the only acceptable, legitimate source of energy. In their view, it is taken for granted that development means growth, that growth means rising energy use, and that rising energy use means increasing energy supplies. In this view, energy is identified with electricity, electricity with centralized grid systems, and national grids with petroleum- or coal-based energy production. Energy decisions, in the "modern" sector, are made primarily by economists and engineers who rarely take into account the needs of the marginalized majority. The installed capacity for generating electricity usually serves energy-hungry industries and towns, along with large farming interests.

The poor, however, have to be satisfied with what are euphemistically called "non-commercial" energy sources, such as wood, cow-dung, twigs and agricultural wastes. In fact, non-commercial energy in many Southern countries constitutes nearly 50 percent of the total energy used. This is a trend that has continued over the decades and, given the present growth rates of different energy sources, can be expected to continue into the future. Yet, non-commercial energy use puts heavy pressure on bushlands and forests since people who are short of cash take advantage of freely available branches and trees. The lack of commercial or affordable energy often leads to the degradation of the natural heritage. This spells gradual and silent disaster, given the fact that more than two billion people in the world are without access to electricity or basic energy services. For both social reasons—job creation and better living conditions—and environmental reasons—protection of the climate globally, protection of living systems locally—renewable energy will have to be part and parcel of any strategy to ensure long-term livelihoods.

Despite sizable investments made by governments, international agencies and even some corporations, the diffusion of commercial sources of renewable energy has a long way to go. A few isolated successes have been reported with

solar photo-voltaic systems for use in pumping, lighting, community TV and other special applications, primarily in remote locations, which are too expensive to wire up to the national grid. Since many bulk applications of energy (such as cooking, water heating and space warming) need only a low-grade energy source, it makes good sense to make solar thermal devices available to households on a large scale. Some countries have had some success with improved cooking stoves, solar water heaters and similar devices, but the usual experience is that demand dries up the moment that subsidies for popularizing them are withdrawn.

Next to power production and transport, construction is the sector that consumes the highest amount of energy. A great deal of energy is embodied in building materials, such as cement, steel and bricks. Energy is also needed during operating time for lighting, heating and cooling. Since current manufacturing practices in most countries are quite inefficient, there is a lot of room for improving energy efficiency in the manufacture and delivery of building materials. For example, constructing houses in a village with unfired mud blocks instead of bricks can save several hectares of forests that would otherwise be used as fuel. In addition, major energy savings can be achieved through the use of solar passive systems for heating and cooling buildings. Apart from a few isolated architectural experiments, though, not much has been achieved in this area so far.

Biomass is another form of solar energy conversion and the most common in Southern countries. Large quantities of biomass are burnt for cooking and heating, while a small amount is converted to methane gas by an anaerobic digestion or to producer gas by pyrolysis. This area offers great benefits; it constitutes a decentralized, low-cash, but huge market, which could become an arena for small-scale sustainable enterprises. Furthermore, many countries and regions have meteorological conditions that favor the use of wind energy and mini-hydro, two technologies of great promise.

Initiating the Energy Transition

The first step in initiating the energy transition is to introduce technologies and systems that are less wasteful of energy. Many such solutions already exist and are technically and economically quite simple and straightforward to introduce. Measures to conserve energy range from technical interventions to reduce frictional losses, all the way to matching the quality of energy to the types of use to which it is put. Much of the technology needed to achieve this step is already available.

The second step is to reduce our dependence on fossil fuels and nuclear energy. These are major threats to sustainability, both because of limited

resources and limited sinks for waste products. It is fairly obvious that a switch to more accessible, more benign and more sustainable forms of energy must be elevated high on the political agenda. While renewable energy is not without its environmental problems, it does offer numerous advantages over fossil fuels. But there will be no greater use of renewable energy, unless quite fundamental changes in fiscal and technological policies, pricing systems, subsidies and procurement procedures occur. More so, it will also require significant investments in R&D, marketing systems and infrastructure, involving actors in government, corporations and the research community.

The third step is to redesign production systems, transport networks, various infrastructures and houses that optimize energy savings. These measures will invariably present more significant societal impacts and will be more difficult to retrofit into existing production systems. Huge increases in energy efficiency and resource productivity are possible by transforming industrial processes, redesigning cities and transportation systems and by substituting physical movement with electronic transmission.

The fourth step, with the deepest and longest lasting impact, has to do with changes in lifestyles, in the concepts of consumption and production and in the understanding of individual and social purpose. Given the market and other forces at work, such a transition will not be easy to achieve and will involve all actors in society from the individual to the community, through the institutions of learning and faith to the machineries of global governance.

Urban Livelihoods

Nowhere is the wealth gap greater than in the cities of the world. The well-off and the destitute, the mobile jet-setter and the immobile slum dweller, the super-consumer and the zero-consumer, all reside in one and the same urban habitat of a size rarely larger than a hundred square miles. Yet they live worlds apart. Both the affluent and the dispossessed are growing in numbers, but they have little in common. Golf courses stretch out not far from factories, business districts thrive next to street markets, and affluent neighborhoods coexist with slums. Disparity reigns, and more and more urban centers exhibit the traits of a divided city. Invisible barriers separate the rich from the poor; and it is entirely possible for well-to-do residents to spend years without ever coming into visual contact with the less palatable sections of their city.

In many Southern countries, it is primarily the absence of modern agrarian reform that has led to constant migration processes from the countryside to the cities. Concentration of land tenure in rural areas is an important motive for migration to urban centers. However, urban infrastructure and

settlement policies have been incapable of dealing satisfactorily with the requirements for shelter, water supply, appropriate sewage system or environmentally sound transport systems. This has been compounded by the fact that, thanks to the forces of economic globalization, corporations have gained greater freedom to choose where to locate their activities. As local governments compete with industry, socially and environmentally destructive tendencies have been enhanced in many cities, increasing urban poverty, social segregation, political violence and unequal risk distribution. Often facilities producing toxic waste have been located in areas inhabited by concentrations of poor people and ethnic minorities.

Urban poverty, however, is different from rural poverty in one important respect. Non-monetary assets, such as clean air, water, shelter or security are less available in urban than in rural areas. For over and above their poverty in money, the urban poor have to deal with contaminated water, dangerous housing, infected air, criminality and long distances. Their private poverty is thus compounded by the absence of natural (and in part social) capital.

As in rural areas, the marginalized majorities in the cities suffer from environmental deprivation. However, while the rural poor are often deprived of access to natural resources, which could serve as their livelihood means, the urban dispossessed are threatened in their physical integrity by the degradation of their living space. Water may carry pollutants, air may affect the respiratory system, body excrements may lead to infections, or land may be unstable.

Environmental problems in cities of the South derive mainly from shortage of water, from pathogens or pollutants in air, water or food and from housing at unsuitable sites. About 220 million urban dwellers, 13 percent of the world's urban population, do not have access to safe drinking water. About twice this number lack even the simplest of latrines. Sanitation for the removal of waste water is largely absent, as is the disposal of rubbish. Overcrowding in dense settlements facilitates the transmission of diseases. Air pollution is widespread in Southern cities. Water, even if available, may not be potable since contamination from human waste or from industrial sources is a frequent problem. And finally, even the land underneath one's feet is not secure. Informal settlements, often built on steep hills, are exposed to mudslides or floods. By and large, environmental problems in cities pose risks to the physical well-being of citizens. They threaten not only people's livelihoods, but people's health. Mediated through the environment, urban poverty is therefore closely linked to the wide spread of preventable diseases, such as diarrhea or infections. It goes without saying that the disabling effects of illness exacerbate the condition of poverty, most notably for women, children and infants.

To a certain degree, of course, the well-to-do are also affected by pollution. But in most urban areas of Asia, Africa and Latin America, it is low-income groups that bear most of the ill-health, injury or premature death, and other costs of degradation. They stand very little chance of obtaining healthy and legally secure living quarters with sufficient space, security of tenure, reliable services and facilities, and in areas that are not prone to flooding or landslides. More often than not, they are also forced by their tight economic situation into making sacrifices with regard to environmental quality. It is not surprising, therefore, that there is generally a strong correlation between income level and exposure to environmental risks. On the other side, however, the marginalized majority contributes little to environmental degradation. Their per capita use of fossil fuel, water, land, and their production of waste as well as of greenhouse gases is far inferior to the levels maintained by middle- and high-income groups. The causes of pollution and land scarcity are rather to be found in the consumption patterns of the well-off, along with urban-based production and distribution systems that serve them. They win out over the economically weak in the competition over shares of the limited urban environmental space. The urban poor are not only marginalized economically, but also environmentally since they claim little of the resources, but have to bear the bulk of the waste.

Against this backdrop, it is clear that a minimum of environmental health is part and parcel of urban citizenship, since the already precarious situation for citizens' rights in many cities is aggravated by the environmental handicaps they have to live with. Freedom from physical threats and safe living conditions are the foundations of a dignified existence just as much as civic and human rights. For this reason, both dimensions of the environmental struggle, the struggle to bring down the resource use of the affluent and the struggle to protect people against pollution, are essential for improving lives and livelihoods of the urban poor. Environmental policy is thus part of the larger attempt to widen the political and economic space available to marginalized citizen. Essentially, it raises the same question which is at the core of urban conflicts: Whose city is it?

Fair Wealth

Poverty is the Siamese twin of wealth. Both develop jointly and neither can be fully understood without reference to the other. Usually, the poor are conditioned by wealth, and the rich thrive on benefits drawn from the poor. Hence, no calls for poverty eradication are credible unless they are accompanied by calls for the reform of wealth. Conventional development experts implicitly define equity as a problem of the poor. They highlight a lack of

income, technologies or market access and advocate remedies for raising the living standard of the poor. In short, they work at lifting the threshold—rather than lowering or modifying the roof. With the emergence of bio-physical constraints to economic growth, however, this approach turns out to be one-sided. The quest for fairness in a finite world means changing the rich in the first place, not the poor. Poverty alleviation, in other words, cannot be separated from wealth alleviation.

The concept of environmental space can help to illustrate the relationship between ecology and equity. With regard to ecology, human beings, along with other living beings, use the global heritage of nature for extracting resources, dumping wastes and domesticating living systems. This globally available environmental space, however, is not infinite; it has (flexible) boundaries. These boundaries constitute constraints for human activities, crossing beyond may provoke biospherical turbulence. Ecology, therefore, requires keeping the overall level of resource flows within the boundaries of the available environmental space.

With regard to equity, the environmental space concept reveals the enormous inequality in resource use on a global scale. Not every country occupies an equal share of the environmental space; on the contrary, the shares are of very disparate size. In the mid-1990s, for example, the average Japanese required about 45 tons of fuels, minerals, and metals annually, the average German 80 tons, and the average American 82 tons, while the average Chinese settled with 34 tons.

Clearly, the well-off on this globe occupy an excessive part of the environmental space. However, the more the boundaries of this space are put under stress, the more the distribution of the environmental space takes on a dramatic note, because a larger share on the one side implies a smaller share on the other. As a consequence, the well-off, by having cornered a disproportionately large part of the global environmental space to the advantage of just a minority of the world population, deprive the world's majority of the basis for greater prosperity. Bringing down the resource demands of the consumer world in North and South is therefore crucial in advancing both ecology and equity.

In the long run, no other principle holds for sharing the global environmental space among the world's inhabitants than the egalitarian principle. It suggests that every inhabitant of the Earth basically enjoys an equal right to the natural heritage of the Earth. May it be in accordance to the present lifestyles or in accordance to economic achievements, any other way of conceptualizing the distribution of natural resources would only codify an excessive appropriation of sources and sinks by the global North. Indeed, the affirmation of the egalitarian principle is primarily directed against the frivolous inequality which has come to dominate the relations among people with respect to nature. Although it circumscribes the presumption of the rich primarily, it still does not equally imply an entitlement to maximize the use of nature on part of the less consuming world citizens. As with any right, the right to natural resources is also limited by the rights of everybody else. Given that the right to enjoy nature's essential services is everybody else's (including future generations and non-human beings), the boundaries of the available environmental space constrain the use of this right. While the over-consumers are not entitled to excessive appropriation, the under-consumers are not entitled to catch up with the over-consumers. They may only move towards fair and ecologically harmless levels, keeping within the guardrails of bio-physical sustainability. Just as equity is a condition of sustainability, ecology is a condition of equity.

Very rough calculations suggest that the global North will need to bring down its overall use of the environmental space by a factor of 10, that is by 80-90 percent, during the coming 50 years. Otherwise it is difficult to see how global sustainability as well as fairness can be attained. From this angle, the key question of global sustainability can be rephrased: Will the consumer classes be capable and willing to live without the surplus of environmental space they occupy today?

The question also underscores the specific character of transnational environmental justice. Acting in the spirit of justice does not require dealing with the other but with oneself. Sustainability calls for fairness rather than for self-sacrifice. It is a reincarnation of the time-honored golden rule of Kantian ethics that no action and/or institution should be based on principles that cannot be shared universally. Transnational environmental justice requires transforming (post-)industrial production and consumption patterns in a way that could be universalized because overshooting the environmental space cannot be universalized across the globe. At its core, transnational environmental justice is not about redistribution but about restraint.

There will be no equity unless the consumer classes in North and South becomes capable of living well at a drastically reduced level of resource demand. Such a transformation of wealth is the central challenge of sustainability. It means bringing production and consumption patterns up to the age of ecological constraints and equity aspirations. There are several avenues for moving into this direction.

First, the search for radically increased resource productivity, the art of producing wealth with ever less resources, is the cornerstone for sustainable production and consumption patterns. Using resources more effectively has

three significant benefits. It slows resource depletion at one end of the value chain, lowers pollution at the other end and provides a basis to increase worldwide employment with meaningful jobs. A mix of technological and social innovations across all sectors can render even a comfortable style of living. More resource-light solar architecture, regional food markets, hydrogen engines, low-speed cars, recyclable appliances, low-meat gastronomy are, in fact, various other cases in point.

Second, as a change in resource base is central to a transition, the material quality of things will change as well. Bio-mimicry aims at changing the material quality of processes and products by redesigning production systems on biological lines, enabling the constant reuse of materials in continuous closed cycles, and often the elimination of toxicity. Examples like bio-plastic or wind power abound.

Third, living systems can be restored. But it takes deliberate investment in forests, rivers, gardens, hill slopes, soils for restoring, sustaining and expanding the natural capital, so that the biosphere can produce more abundant ecosystem services and natural resources. River restoration, afforestation and low-input agriculture are all attempts in this direction.

Fourth, an emphasis on real wealth can diminish the importance of goods for both the producer and the consumer. By shifting business strategies from the sale of hardware to the sale of services, companies can learn to make money without adding ever more objects to the world; they will sell results rather than things, satisfaction rather than engines, fans or plastic. And last but not least, people can revalue those forms of wealth which cannot be bought with a credit card: the enjoyment of quality, friendship, beauty. In short, to cherish well-being rather than well-having.

Democratic Globalization

There is not just one way to build the world society, as there has not been just one way to build nations. National societies that have once been formed reconfiguring smaller social units, such as cities, counties or tribes, have taken the form of dictatorships, kingdoms and democracies. Likewise, the creation of the global society, which will reconfigure smaller units, such as nation states, civil society organizations and private enterprises will no doubt take different forms. However, the precise shape of the global society, its prevailing ideals, its winners and losers will evolve from innumerable debates, competing imaginations and protracted power struggles. Today, the battle is on. Names of places, such as Seattle, Port Alegre or Davos, have become symbols for the trial of strength between sections of the global society with conflicting interests, visions and backgrounds. What kind of globalization is

desirable? This is the key question which has moved to center stage at th threshold of the 21st century.

The globalization process is driven by two mainsprings. The first is tech nology that has increased the connectivity of people across large distances Airplanes take people to far away places, television brings home distan events, the Internet pulls people into a worldwide but distance-less space satellites convey pictures of the Earth from outer space. For better or fo worse, present generations experience the world in real time and at zero dis tance. This historical shift in both infrastructure and consciousness cannot b reversed. It will remain part of the human condition in the century to come

The second mainspring is the twenty-year wave of deregulation, privati zation, liberalization of capital flows and global trade, and the export-le growth policies that followed the collapse of the Bretton Woods fixed cur rency-exchange regime in the early 1970s. The IMF and WTO are the piv otal drivers of this process. These two phenomena must be dealt with sepa rately. Worldwide connectivity does not necessarily imply the imperative o neo-liberal rule. Quite to the contrary, the unfolding transnational space ha to be shaped by the values of justice and sustainability, which take priorit over the value of economic efficiency.

Broadly speaking, there are presently two concepts of globalization, whic have gained prominence in recent controversies. Corporate globalizatio which aims at transforming the world into a single economic arena, allow corporations to compete freed from constraints in order to increase glob wealth and welfare. This particular concept can be traced to the rise of th free trade idea in 18th century Britain and has come, after many permuta tions, to dominate world politics in the 21st century.

Democratic globalization, on the other hand, envisages a world that i home to a flourishing plurality of cultures and that recognizes the funda mental rights for every world citizen. The roots of this concept extend bac to late ancient Greek philosophy and the European Enlightenment with thei perception of the world in a cosmopolitan spirit. The cause of justice and sus tainability would be caught in quicksand unless it is elaborated in the frame work of democratic globalization.

A Johannesburg Deal

In light of the overall goal of sustainability, the North, the South and so called transition countries certainly have different but not unequal points c departure. The North is most unsustainable in resource consumption, an the South is most unsustainable with regard to poverty and misery. The for mer must reduce its ecological footprint, while the latter must ensure liveli

hood rights for the marginalized majority. The first challenge implies a major restructuring of production and consumption patterns, while the second challenge implies a change in the inequality of power within and between countries. However, the South does not owe anything to the North, while the North owes something to the South. The responsibility of present Southern governments for the fate of their people notwithstanding, during the long history of colonization the North has accumulated a debt toward the South, in both ecological and economic terms. Given this debt, the North should offer reparations in the form of support to the South. This support would facilitate a transition to sustainability in both senses, by improving people's quality of life and by moving toward a resource-light economy.

Finally, the transition to sustainability requires a framework of rights and, to a lesser degree, funds and expertise. Community rights and citizen rights are essential for empowerment, while the common public values of ecology and equity must prevail over the value of individual economic efficiency in trade relations. To put it in a nutshell, restraint (in resource use and the exercise of power), reparation (from North to South) and rights (for citizens, communities and national societies) are the conceptual coordinates for framing a global deal.

SUSTAINABLE DEVELOPMENT IN SIX PARTS

Peter Montague

Sustainable Development, Part 1

THE PHRASE "SUSTAINABLE DEVELOPMENT" was coined by the W Commission on Environment and Development (the "Brundt Commission") in 1987. The Commission defined "sustainable developn as material improvement to meet the needs of the present generation out compromising the ability of future generations to meet their own ne This definition emphasizes an important aspect of our ethical relationsh the unborn, yet it remains too vague to be truly useful as a guide for hu activity because we cannot agree on the meaning of "needs." We can't know what the "needs" of future generations will be, and we can't even on what we ourselves "need" vs. what we merely want.

Fortunately, more useful definitions of "sustainable development" coming into focus. By "more useful" I mean definitions that will allow reach agreement, thus giving us a common basis for action. In his b *Beyond Growth*,[2] economist Herman Daly defines "sustainable developn as "development without growth—without growth in throughput be environmental regenerative and absorptive capacity."[2, p. 69] This is an im tant definition, worth examining.

First, let's look at "throughput." Throughput is the flow of materials energy through the human economy. It includes everything we make an When we speak of "growth" we are talking about growth in throughp people making (and throwing away) more stuff and using more energy it. The totality of the human economy is throughput. It is calculated a total number of people multiplied by their consumption.

The "regenerative and absorptive capacity of the environment" refe the ability of the environment to provide (a) materials for our use, an places where we can throw our wastes. This gets a little more complicat refers to two things, (1) the ability of the environment to provide us wit