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Developing in harmony with nature: basic principles for future development planning

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Developing in Harmony with Nature –

Basic Principles for

Future Development Planning

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Foreword

Environmental hazards have increased rapidly in Pakistan and other developing countries. The state of the environment is alarming and appalling. The adverse impacts of environmental degradation on human well-being and economic development, however, have not been adequately perceived so far. Appropriate policy measures for environmental protection are still widely lacking. Ecological objectives are considered to be only of secondary importance and environmental administration is not vested with political power to actually implement an environmental policy. Yet there can be no doubt that a satisfactory and successful development process cannot take place on the basis of deteriorating environmental resources.

With this booklet the Islamabad Office of the Friedrich-Ebert-Stiftung starts a new series on environmental issues. This series aims at stimulating a debate on environmental pollution and problems of environmental protection in Pakistan, particularly on their economic, political and social aspects. It also is to provide a discussion forum for Pakistani, German and international authors, where they can express their views on the subject and advance their ideas for possible solutions.

Friedrich-Ebert-Stiftung is an autonomous research and training institution with its head office in Bonn, West Germany. FES started its programmes in Pakistan in 1986. The activities of FES in Pakistan focus on manpower and labour related issues, environmental policy and social aspects of the development process.

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Islamabad, March 1989

1. Introduction

The carrying capacity of numerous ecosystems all over the world is being overburdened, leading to sometimes irreversible environmental disruption. Even with lower economic growth rates, pollution is likely to increase. To resolve this conflict between development and the environment, society must learn to eliminate wastefulness and shift to lower resource profiles and pollution levels.

The aim would be to reach a new symbiosis, to make a more efficient use of renewable resources and halt the continued depletion of finite natural resources. The task, then, is to identify those processes and products which are compatible with the natural environment and enhance development at the same time. Readjusting consumption patterns, promoting better use of resources, and making more careful technological choices--these are the basic ways to achieve a better balance between development and environment.

The search for environmentally sound development strategies and the implementation of respective planning methods are long overdue, in industrialized as well as in developing countries, and must be looked at in global perspective. In this paper, questions are asked and some answers given regarding a better harmony between development and environment, the new "harmonization game" (I. Sachs).

2. Wither Development?

Since several years the development issue stands at the crossroads. There is no longer a consensus among development planners that quantitative economic growth should be the paramount development objective. In the industrialized countries the social and environmental costs of "joyless affluence" (T. Scitovsky) have been questioned as much as the ability to revert to the rapid economic growth of the past. In the developing countries efforts towards industrialization have relied too much on foreign financial resources, a practice that

aggravated the debt problem, overstressed natural resources and underutilized human resources.

Putting it simply, one could say that the process of economic growth was accompanied by three major problems: the externalization of costs to *society* (social cost problem), to *future generations* (generational cost problem), and to *nature* (environmental cost problem). When the accumulation of such externalities exceeds certain thresholds, it leads to severe consequences: social upheaval, intergenerational conflict, and environmental degradation.

Thus, we are let to distinguish between *development and maldevelopment* (I. Sachs). Both these outcomes can result from the same rate of economic growth, but there is a great difference in the structural composition of their final product, the rates of exploitation of nature, and the kind and distribution of costs, i.e., the externalization of costs to society, future generations, and nature.

Unfortunately, it is still not easy to measure the rate at which nature is being exploited, and the extent to which the stock of depletable resources is being decreased in the process of economic growth. We also lack suitable indicators with which to describe the costs of environmental pollution accurately, although some methodological and statistical headway was made in recent years. Still, the challenge is to grasp the existing economic and environmental crisis as an opportunity to initiate a transition from maldevelopment to development, including the attempt to establish a new national as well as international consensus, or charta, regarding a better harmony between human beings and nature, between economy and ecology.

2.1 Development Redefined

Development processes taking place at the expense of others, today or in the future, through inequity and/or dependency, or through environmental degradation, and through destroying the life support-

ing systems for future generations should not be referred to as "development" but as "exploitation" (J. Galtung). Such processes have to be counteracted in solidarity with and in the interest of sustaining present and future generations, i.e., "synchronic and diachronic solidarity" (I. Sachs).

Concepts such as these try to tackle the negative aspects of economic growth and to prevent a repetition of historic failures by focussing on two key factors: *solidarity* and *sustainability*, and by stressing the dynamics between human and social development, and between development and environment.

Human and social development then are seen as incompatible with growth achieved at the expense of other humans and other societies. Or, to put it more positively: a person humanly developed will also help to build human development in others; a society socially developed will help to build social development in others (J. Galtung).

With the addition of the *solidarity* aspect, the theory of development would become less atomistic and egotistic, more systemic and socially oriented.

The *sustainability* aspect touches upon the problem of shielding a system against damage inflicted upon it from within or without. The problem lies in identifying where unsustainability starts and how sustainability can be achieved. This is certainly a controversial question. Johan Galtung therefore stresses the need to present sufficiently precise definitions: "Eco-development is the exploration of the interfaces between environment and development. The task ... is to identify those processes that enhance the environment and at the same time strengthen development, not merely to explore the constraints the environment puts on development and the demands development makes on environment."

Is it possible to find processes that enable development and the environment to enhance each other? We have been used to thinking only

in terms of the opposite; of how development patterns make increasingly exorbitant demands on the environment, with destabilization and further deterioration of the ecosystems as the consequence. But, positive linkages can be envisaged (cf. J. Galtung):

At the *individual* level, one can link human development to a greater degree of identification with nature, with empathy to the point where one feels part of nature. Accordingly, environmental degradation would be felt with compassion, as "nature suffering."

At the *local* level, one can link social development to more local control by organizing integrated production-consumption-recycling systems that people can understand and control; people would experience the consequences of resource depletion and environmental pollution in terms of their own irrational behavior.

At the *national* level, and even more so at the *regional* and *world* levels, establishing such eco-development concepts becomes more complicated and yet necessary, as will be explained later on.

2.2 Need for a New Symbiosis Between Man and Nature

As was said, sustainability is an important aspect of development, along with social and intergenerational solidarity. But is sustainable development in harmony with nature at all possible? Can one achieve further growth in industrialized and developing countries and still avoid the depletion of resources and pollution of the environment?

First of all, the postulate to sustain development processes must not lead to a rigid standpoint, like "keep hands off nature." Instead, it stresses the need to continuously seek new forms of a symbiosis between society and nature. As René Dubois has pointed out "... human interventions into nature can be creative and indeed improve on nature, provided they are based on an ecological understanding of the natural systems and their potentialities for evolution." Successes or

failures in achieving this necessary symbiosis may account for the rise or fall of civilizations in history.

The key concern with ecological systems in this connection is the problem of *recovery* after the system has been disturbed. A distinction should be made between unassisted and assisted recovery.

Unassisted recovery refers to the natural healing power of the system, its ability to renew and regenerate itself. An ecological system's ability to renew itself is expressed in terms of compensatory production of and by the system itself, and its ability to absorb and digest pollutants.

Assisted recovery refers to the way humans and society can best assist the process, by not depleting non-renewable resources, by consuming renewable resources with care, and/or by recycling non-renewable resources. Society also can help nature to recover by producing only such waste that is digestible and non-toxic and which can re-enter the eco-cycle, and by banning (among other things) the practice of dispersing the pollutants in diluted form in the atmosphere and hydrosphere, or hiding them in remote areas. In short: depletion and pollution control! Or, as a proverb says: "Dilution is no solution to pollution."

Crucial for the questions of renewal, regeneration and recovery is the potential of active *resilience*, i.e., the robustness or elasticity of ecological systems.

Complementary to the resilience of ecological systems is the *flexibility* of social systems. Flexibility is particularly needed to enable society to limit itself in its transactions with the environment, that is, to reduce the use of depletable resources to a minimum and to rely instead on the use of renewable resources and the recycling of non-renewable resources.

At the various political levels, this means encouraging flexibility as an important value. It means promoting the potential for economic and social change, diversity, preservation of options for the future, and prudence in the use of resources. The underlying ethical principle seems to be universally accepted, i.e., *solidarity* with future generations: "It is the responsibility of the present generation that future life is not endangered by irreversible decisions, by the cumulative negative effects of depletion and pollution." (I. Sachs).

However, diachronic solidarity should not be separated from the principle of solidarity with contemporary generations (synchronic solidarity). Undoubtedly, as J.W. Bennett has rightly pointed out, "man's use of nature is inextricably intertwined with man's use of man." Remedies for the destructive uses of the environment must therefore be found within the economic and social system itself.

2.3 The Case for Qualitative Economic Growth

Following the first studies on the limits to growth in the early 1970s, strong pleas were expressed in favor of "zero growth rates." Today, there are good reasons to forego the questioning of growth as such and to concentrate instead on exploring patterns of growth that minimize the negative environmental effects and the use of depletable resources. The challenge seems not to be to stop growth but to redefine the forms, the structures, and the uses of growth. Two issues shall be mentioned to make this point clear.

2.3.1 The Inequality Issue

Henry C. Wallich once said: "Growth is a substitute for equality. As long as there is growth, there is hope, and this makes inequality tolerable." Even in the most affluent nations poverty still exists, or is even increasing. The given unequal distribution of income and wealth breeds acquisitiveness and emulation for "positional goods"

(F. Hirsch). Aiming at a zero rate of growth therefore appears to be socially and politically unfeasible at the national level and particularly in the North-South context.

Thus, inequality will always stimulate the demand for rapid economic growth. And, to the extent that rapid growth means depletion (and not recycling) of resources and pollution of the environment, inequality will remain a challenge to a more harmonious relationship between development and environment, between economy and ecology. Two basic answers or solutions are possible: the change from depletion and pollution to recycling of resources and clean technology, and/or managing the inequality issue more effectively.

In other words, the transition towards sustainable development will not be reached unless the economic situation of the developing countries and the less-developed regions of the industrialized countries is improved so that a tenable international and interregional balance is established.

2.3.2 The Pollution Issue

It would be a mistake to assume that the rate of pollution of the environment (and the rate of exploitation of nature) is related only to the rate of economic growth, and not to the kinds and uses of growth. It is a fact that there are cases where the environment has had to suffer during times of rapid economic growth; but there are also cases where the environment has suffered while the economy stagnated.

Even a low rate of economic growth will generate an increasing volume of pollutants unless environmental regulations and standards become more stringent. An annual economic growth of 3 percent would mean an increase of approximately 20 percent in the release of pollutants during six years *if* the present environmental standards were not reinforced. A fixed relation between the rate of environmental

pollution and the rate of economic growth would apply *if* the consumption patterns, the uses of resources, and the technological choices were not amendable to purposive change.

Therefore, instead of questioning growth as such, one should actively explore alternative patterns of growth that minimize the negative social and environmental effects and the use of depletable resources. The challenge is to redefine the actual forms of economic growth, i.e., to define *qualitative growth*.

As we know today, the rate of economic growth as measured by the Gross National Product (GNP) is only a poor indicator of society's actual performance. Although development without growth is hardly imaginable, the same rates of growth may lead either to development *or* to maldevelopment, the difference between the two being substantial. It is the extent to which growth is associated with social and environmental costs that makes the topic "development and environment" a political issue, and "qualitative growth" an economic strategy.

In terms of definition, qualitative growth can basicly be looked at from two different points of view. The first would be to account for the social and environmental costs associated with quantitative growth. The second would be to differentiate the composition of the final product, such as by distinguishing between goods corresponding to authentic use-values (or *factual goods*), pseudo use-values (or *positional goods*), and non-values (or *compensatory goods*).

Here, it is not my intention to go into any of these approaches for defining qualitative growth, although I think this to be of utmost importance. Instead, I will first turn to some strategic aspects of the "harmonization game," and second to a possible method for harmonizing economic, social, and environmental objectives.

3. Strategy for Harmonizing Economic, Social, and Environmental Objectives

3.1 Criteria for Environmental Soundness

While many social scientists have voiced considerable concern for the trade-offs between economic growth and environmental quality, the possibilities for harmonizing socioeconomic and environmental objectives are still largely unexplored. The search for an environmentally sustainable, socially responsible, and economically viable growth therefore is still on the agenda. This search calls for a re-assessment of the consumption patterns and lifestyles, of the production functions, including the technological choices, and of the patterns of spatial distribution of economic activities, i.e., an assessment of both the demand side and the supply side of the economy.

A first step towards such an assessment would be to review the existing situations according to certain criteria of environmental soundness, such as, e.g., the energy profile, the resource profile, the space-use profile, and the environmental impacts proper. The second step would be to examine the potential options for purposive change on both sides of the economy. In the following, I will briefly focus on both these steps (or fields of action) of the necessary re-assessment of the development process.

3.2 Changing Consumption Patterns and Lifestyles

Theoretically, a considerable scope for changing consumption patterns and ways of life exists, even though they are deeply rooted in the given socioeconomic conditions and are very much culture-specific. Individuals, social groups, and society at large should be able to modify the structure of their consumption expenditures substantially and, even more so, their patterns of time-use, including the relative importance given to professional activities in the labor market, to activities in the informal sector, and to time used for cultural and social activities.

Hence, the importance of the debate on *"voluntary simplicity,"* or *"frugality"* (Jonas), arising out of environmental considerations and indicating synchronic solidarity among present generations and diachronic solidarity with future generations.

The question "how much is enough" is being increasingly asked as well, to provide for a socially rewarding use of economic productivity. Together with the idea to guarantee a decent minimum standard of living to every human being--"how much is necessary"--such a provision of "ceilings" might prove necessary for the discussion on future development strategies. However, it would certainly be premature to expect a rapid change in consumption patterns and lifestyles towards "voluntary simplicity" or "frugality." Most people still consider the pursuit of material wealth and the piling up of "positional goods" as a good enough goal in life. As Ignacy Sachs put it: "We are all, to a considerable extent, prisoners of the living past--cultural traditions and long-entrechned habits--and of the institutional maze geared to the promotion of *consumption qua consumption*." In practice, the prevailing inequality of income and wealth might continue to support the appeal of "consumerism."

The given structures, especially those like the design of the cities, the transportation system, and the productive apparatus greatly restrict the range of feasible options. The very existence and high cost of these assets act as barriers to changes in the patterns of their use. Reshaping society for less wasteful consumption and yet more rewarding lifestyles therefore cannot and will not happen over night, despite pronounced individual readiness for change. A fairly long period of transition towards more rational consumption patterns is thus to be expected, especially since there may be many powerful vested interests maintaining the structural *status quo* of consumption patterns and lifestyles.

However, less spectacular (and politically less demanding) piece-meal changes that would contribute to harmonizing economic and environ-

mental objectives can, no doubt, be expected, especially at three levels of action:

- o altering behavior to eliminate careless attitudes and wasteful uses of goods;
- o reshaping consumption by means of improving the design and the performance of products (e.g., energy conservation, durability, low emission products);
- o exploring equivalent or quasi-equivalent consumption patterns, thus bringing about similar use-values and gratifications with more efficient uses of resources and less severe environmental effects.

The ecological significance of these substitution processes at the demand level have persistently been underestimated in research and in planning practice--among other reasons, because neoclassical economics adheres to the postulate of consumer sovereignty while marxist economics has overemphasized production theory. Of course, demand and supply are not as independent from each other as these terms and concepts might suggest. It has rightly been observed that changes in consumption patterns and lifestyles depend greatly upon the flexibility that the production systems and their products allow.

3.3 Changing Space-Use

Regional and physical planning can play an important role in harmonizing economic and environmental objectives, provided that suitable location of industrial and other economic activities leads to a better utilization of resources while at the same time reducing negative environmental effects.

Economic and ecological benefits can be derived by systematically exploring the compatibility of the various economic activities and by cutting down unnecessary transport. Although industrial concentration in general provides economies of scale and positive externalities to

individual enterprises, it often proves costly in social and environmental terms. Ultimately this means that the traditional concepts of *scale* and *externality* are becoming increasingly obsolete, although we may be slow in recognizing it. For instance, the locational patterns prevailing in many industrial areas make sense only to the extent to which enterprises are allowed to internalize profits and to externalize social and environmental costs. A strong plea can thus be made in favor of more "coherent production systems," meaning, above all, the departure from redundant exchanges and the rationalization of transportation flows.

Greater flexibility in the *use of time* could also contribute a great deal to alleviating the environmental effects resulting from bottlenecks in the production and transportation process. If *information* is in fact joining labor, capital, and technology as the fourth important production factor of the economy, and if information increasingly becomes a "public good," then technical advances in telecommunication and data-processing open up new options for a more effective distribution of industrial locations, the revival of small towns and city quarters, and even the ruralization of economic activities--and in this way for a gradual shift from the "exchange economy" to the "sharing economy."

Many decisions made regarding the use of space, however, prove more or less irreversible, and the danger of wrong choices is reinforced by insufficient knowledge of how a given space might be used in the future. Still, there is a need to better integrate physical planning and environmental planning in order to provide more flexibility and to keep open or to re-open the option for future sustainable development.

3.4 Improving Products and Technologies

The natural environment is strongly affected by the products a society generates and the technology it uses. The careful choice of

appropriate products, product technologies, and process technologies therefore becomes an important focal point for the harmonization of economic, social, and environmental concerns. Most countries are still experimenting with the institutional set-up and regulatory procedures in this field, and I will present a special chapter on the possibilities and limitations of national and international environmental impact assessments.

It has to be pointed out that criteria of appropriateness, relative to a given economic, social, and environmental context, must first be defined and then be applied to evaluate products as well as technologies. The criteria for environmental soundness proposed above--e.g., *energy profile, resource profile, space-use profile, environmental impacts proper*--could be used for that purpose (together with additional ones such as *employment effects, social acceptability, international effects*).

In general, the search for appropriate products and technologies should focus on substituting abundant and benign resources for those that are potentially scarce and environmentally disruptive. The "new rationality" (I. Sachs) is that of *combining economic efficiency with environmental effectiveness*, of replacing the traditional criterion of GNP growth by broader criteria for success.

It is here that the promotion of *recycling and renewable resources* comes into the picture. The socially still prevalent escalation of "production, pollution, and anti-pollution," which is an *ex-post* orientation *per se*, should in the long run give way to low-emission technologies and the design of production systems with closed or integrated cycles, i.e., to an *ex-ante* orientation in economic and environmental policies. Of course, in the short and immediate term, considerable effort is still required to arrest further degradation of the natural environment, on which our health and well-being ultimately depend.

The three *fields of action* outlined above in development policy practice can be connected, thus creating freedom for exploring the alternatives in the future, provided there is enough political will, international understanding, and institutional capacity for effective innovation.

4. Method for Harmonizing Economic, Social, and Environmental Objectives

The successful implementation of a strategy aiming at harmony between development and environment, economy and ecology, will to a great extent be conditioned by the institutional set-up and the methodological capability to foster social innovation and engage in new forms of planning. In this chapter, I will focus on one of such necessary social innovations, i.e., national approaches to and international needs for *environmental impact assessments*.

In 1970, the U.S. National Environmental Policy Act came into force. This legislation was passed to ensure that environmental concerns received adequate attention at all levels of government planning, decision-making and action. It established for the first time the formal requirements that an "environmental impact assessment" be made and an "environmental impact statement" be filed prior to the implementation of (certain major) development projects. This widely noted and acclaimed legislation came as a challenge to other nations that were at that time responding to citizens' concerns for better protection of the environment, especially where large projects were being proposed by government or industry.

The question of whether or not to institute new mechanisms or to amend existing mechanisms for environmental impact assessments, found different answers. The pattern emerging in the past decade or so is that most industrialized countries and some developing countries have instituted new procedures designed to give more weight to environmental considerations in planning. However, the majority of

countries have preferred to integrate impact assessment procedures into the planning processes that already exist, rather than establishing entirely new processes. These decisions have prompted a great variety in the forms "environmental impact assessments" are being undertaken around the world.

The procedures that have been adopted can be distinguished according to whether they are based on *informal* procedures, which are often modified to the needs of specific situations, or on *formal* procedures, which are embodied in legislation and are designed to ensure an integrated examination of the environmental effects of a given project. Similarly, the procedures can be characterized either as *explicit*, leading to the preparation of detailed environmental impact statements, or as *implicit*, meaning the internalization of environmental considerations into the project proposals.

This is not the place to extensively review the environmental impact assessments used on the national level. Instead, I would like to point to some of the limitations of the method, and to end with some suggestions for its further improvement.

The rapid spread of "environmental impact assessment" as a method is, first of all, proof of the need felt for a harmonization of development and environment. If the violations against nature continue, no doubt more efforts will be required to reverse and prevent them. The great variety of impact assessment approaches illustrates that the respective efforts can take quite different forms. It must be noted, however, that impact assessments are not only or mainly designed, in most countries, to protect the environment. Rather, these assessments may only act as decision-making mechanisms, providing interested actors with information on the probable consequences of a proposed project, including alternatives. Thus, the ultimate decision on whether or not to proceed accordingly, in the end often depends upon specific economic and political considerations. Therefore, it is difficult to determine how successful "environmental impact assessment" as a method has been. Some general comments are justified, however:

First, the mere existence of an impact assessment process in legal or administrative form, or a given number of impact assessments made, is by itself not a reliable indication of effective performance, i.e., of harmony between development and environment.

Second, comparisons between different national approaches are difficult to make. This is true even in countries where legal requirements have made the process an open one. It is more true in cases where a cloak of administrative confidentiality conceals much from view.

Third, the formulation and implementation of environmental impact assessments requires qualified personnel, especially for coordination and review functions. Such resources, in many countries, are still in short supply.

Finally, although the effect of sensitizing decision-makers at all levels to environmental considerations may be visible, it is difficult to form reliable judgments about the extent to which this increased sensitivity has been translated into environmentally sound decisions. And here lies a structural problem: if you cannot easily give proof of your efforts at reconciliation of objectives, you might think of abandoning them. In many instances the promise inherent in the method clearly has not been realized. As a result, "environmental impact assessment" can be seen as an important method, the actual problem of which is its successful implementation.

A recent comparative survey on the environmental impact assessments undertaken noted their shortcomings. In key words, some of these shortcomings were:

(a) Projects not programs
(b) Plants not whole technologies
(c) Identified impacts not risk
(d) Identified impacts not trends
(e) Passive not active response
(f) Biased not neutral recommendations

(g) Documents not environmentally sensitive decisions
(h) Scientifically valid, neutral research not good decisions
(i) Final assessments rather than adaptive impact assessments
(j) Token not effective public participation.

Before closing this chapter on "environmental impact assessment" as a method for reconciling development and environment, one more problem has to be touched upon, and that is the question of the method's *international* application.

Environmental impact assessment is easiest to apply within a single jurisdiction. In such cases there is, nominally at least, a clearly defined way of reaching a decision on whether to proceed with a proposed project or program. However, there is an increasing need to extend the method to environmental problems that are international and sometimes even global in scope.

Examples include climate change, acid rain, stratospheric ozone depletion, the protection of marine resources, and the control of toxic substances. In each of these examples, there have been attempts to undertake intergovernmental assessments, although in same cases the methodology used was not well formulated.

Two kinds of problems can be identified with respect to *international* environmental impact assessments:

(1) The "action" takes place in one or a few adjacent countries but the impacts occur over a much wider area. This is the case, for example, with acid rain.
(2) The "action" takes place in many countries and the impacts may be distributed globally. This is the case, for example, with stratospheric ozone depletion and CO_2-induced climate change.

For the first case, conventional methods of environmental impact assessment can be used. In particular, the assessment should identify the actors involved: Who will gain and who will loose?

For the second case, three problems should be mentioned:

(1) The variability of the natural environment may be so great that it is difficult to determine whether the "action" is already causing an impact. Yet, if one waits until a downward trend can be detected with confidence it may be too late to avoid further disruption.
(2) The "actions" are usually so widely distributed (burning of fossil fuels, for example) that management methods available will produce only incremental changes.
(3) International assessments of global environmental problems may be scientific treatises only and may not be useful in the decision-making process.

There is also the question of *state sovereignty*. This may be an impediment that makes it difficult to design an acceptable procedure for environmental impact assessments at the international level. For example, in the last decade several pollutants, such as SO_2, have been selected for thorough study. However, even though these studies identified substantial environmental damage, internationally they have had little effect so far largely because they were not accompanied by clear administrative procedures. A main challenge in the future, therefore, will be to develop conceptual and institutional frameworks and methodologies for *international* environmental impact assessments. To do so, thorough comparative reviews could be helpful, especially if several countries would undertake joint studies to compare development projects that have been subject to environmental impact assessments and ask how the project design was modified and why; and to examine development projects that were exempted from impact assessment because of insignificant environmental effects, and ask whether this was correct.

Until today, *international* environmental impact assessment was in an embryonic state only. In order to correct this deplorable situation, two forms of action seem desirable: (a) to examine in detail the methods and procedures to be used for international environmental

impact assessment, and (b) to synthesize the experiences with international impact assessment, and to identify the problems of implementing it successfully.

5. Conclusion

As assumed, harmonizing development and environment is a formidable challenge for all future planning. *Sustainability* and *solidarity* were identified as the two key principles for this "harmonization game."

For reasons explained, it cannot be expected that harmony between economy and ecology will be achieved, or regained, by a resolution of complex industrial systems into self-contained entities--individuals, however, may very successfully strive for *simplicity* and *frugality*. Instead of turning its back on the market or the state, society should seek social imagination and innovative solutions for the omnipresent environmental problems.

Economic growth can lead either to maldevelopment *or* to development. The task, therefore, is to *reduce*, and ultimately to *minimize* the social and environmental costs of economic growth.

Readjusting consumption patterns, promoting besser use of resources, and *making more careful technological and product choices* are part and parcel of a strategy for reconciling man and nature. *Environmental impact assessment* is a necessary and promising method, and reflects the increased environmental awareness and the need for harmonizing development and environment all over the world.

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