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MANAGEMENT PROCEDURES FOR SUSTAINABLE DEVELOPMENT*

(applicable to municipalities, micro-regions and river basins)

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CONTENTS

SUMMARY

The present document provides a conceptual framework which makes it possible to organize the multiple inputs to the environmental issue, with the aim of reaching sustainable development. An outline is given of the procedures that are applicable to clearly defined geographical areas, with the purpose of providing guidance to management processes and that presuppose the participation of all the actors involved.

Similarly, alternative methods for resolving conflicts that arise between economic growth, social equity and environmental sustainability are proposed, in accordance with the principle which states that sustainable development is a function of the simultaneous achievement of these three objectives in a determined space.

Four work sequences are described, based on the aforementioned facts. These sequences are aimed, respectively, at the execution of initiatives, the carrying out of transactions between the actors, the incorporation of the environmental dimension, and the integration of separate disciplines or subject areas. The most important sequence, the first, involves ten stages: identification of those in charge of managing an area (the actors) as well as their values, problems and objectives; baseline assessment; identification of the constraints which impede the attainment of these objectives; formulation of solutions for overcoming these constraints; design of strategies and programmes, and execution of planned activities.

The present paper summarizes the method described in the paper by Axel Dourojeanni, entitled "Procedimientos de gestión para el desarrollo sustentable (aplicados a microrregiones y cuencas)", Ensayos series, Santiago, Chile, Latin American and Caribbean Institute for Economic and Social Planning (ILPES), October 1990.

I. FROM CONCEPTS TO PRACTICE

The leading challenge facing governments —from the municipal or micro-regional level up to the national level— involves knowing how to design and implement management systems that are capable of fostering and reconciling three main objectives which in theory lead to sustainable development: economic growth, equity (in the social, economic and environmental spheres) and environmental sustainability.

The difficulties which arise in designing this system fall into at least three categories: a) conceptual; b) theoretical; and c) practical.

a) As regards conceptual considerations, the greatest difficulties lie in the lack of consensus and, as a consequence, in the various interpretations that are applied to the concepts of "sustainable development", "social equity" and "environmental sustainability". This implies the need for every country or region to determine the meaning of each term for the actors participating in the management process.

The term "sustainability" itself is ambiguous. It has been applied to production, ecology, the economy, the environment, society, and development. Basically, it implies either continuous renovation over time or the possibility for future generations to reuse resources. It is possible to link the attainment of sustainability to the search for the satisfaction of present human wants, without compromise of the wants of future generations.

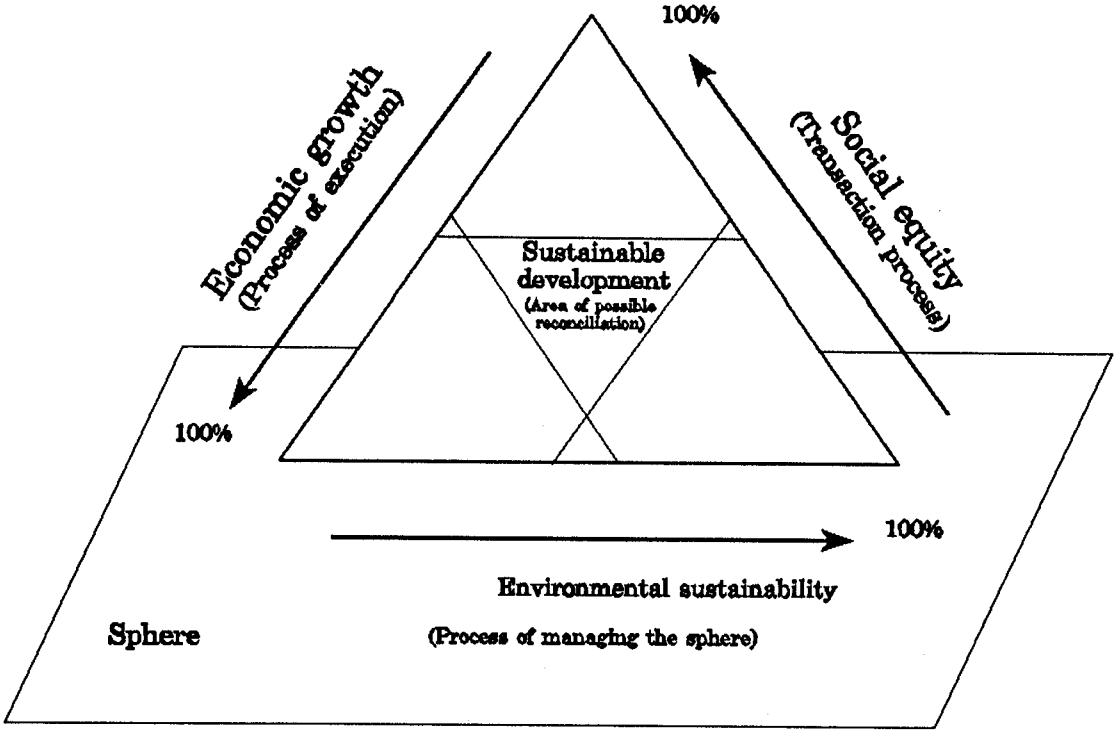
b) As regards theoretical considerations, the greatest difficulties lie in the lack of indicators for measuring sustainable development. In principle, none of the three objectives of sustainable development (economic, environmental and social objectives) is currently measured using compatible parameters. The indicators used to quantify each objective do not have a common denominator nor do universal conversion formulae exist. Economic growth is measured using economic indicators, social equity is determined on the basis of social parameters and environmental sustainability is measured in physical and biological terms. Consequently, each of these objectives is measured according to different criteria.

Sustainable development, for its part, depends in theory on the three objectives mentioned and is therefore impossible to quantify as long as compatible parameters are not available.

This situation can be illustrated by a triangle (figure 1). In Peter Nijkamp's triangle,[1] each side represents an objective, the arrows located to the sides represent the direction of the attainment of each of the objectives, while the central area of the triangle represents the area of possible reconciliation of these objectives. This area amounts to the area of equilibrium for sustainable development. Nijkamp's original triangle has been extended at the base by the sphere or space within which we can aspire to attain sustainable development.

Figure 1

DIAGRAM ILLUSTRATING THE CONFLICTING OBJECTIVES OF ECONOMIC GROWTH, SOCIAL EQUITY AND SUSTAINABILITY



Source: Peter Nijkamp, Regional Sustainable Development and Natural Resource Use, World Bank Annual Conference on Development Economics, 26-27 April 1990, Washington, D.C.

The concepts illustrated in the triangle could be expressed by the following equation:

SUSTAINABLE DEVELOPMENT = F (ECONOMIC GROWTH, SOCIAL EQUITY AND ENVIRONMENTAL SUSTAINABILITY)

In Nijkamp's triangle, it has been decided to discard the limitations which today exist so as to express the three objectives in terms of a common denominator for measurement and evaluation. These objectives are presented in just one plane even though, as has been mentioned previously, this is still not viable. There is still a lack of equivalents or adjustment mechanisms which would make it possible to integrate the various indicators into the same plane. Theoretically, the only plane which in the long run could serve as a unifying plane is that pertaining to economics and it will only be possible to establish this when it becomes possible to quantify the value of a series of elements in nature which are have yet to be accounted for.

Up until now, the economic sciences have not taken into account the true value of nature. In an article published in The Washington Post entitled "No accounting for nature",[2] this situation is illustrated with the case of a swamp area on the Louisiana coast. In the example, it is pointed out that an acre of that swamp land has a market value of US$ 500. However, research into possible users' willingness to pay has indicated that, depending on how future values are calculated, an acre of swamp land yields between US$ 317 and US$ 846, if used for commercial fishing, between US$ 151 and US$ 401, if devoted to the hunting of wild animals, between US$ 46 and US$ 181, if set aside for recreational purposes, between US$ 1,915 and US$ 7,549 if considered as a form of protection against storms, thereby mitigating their effects. It is even added that should the capacity of the swamp area to capture solar energy be quantified, the total value of an acre would fluctuate between US$ 2,500 and US$ 17,000. This is certainly much greater than its market value of US$ 500.

The most dramatic manifestation of the lack of consideration for environmental factors in the economy is the lack of accounts of a countries' natural heritage. These accounts are not incorporated into the national accounts, and this creates serious distortions in the measurement of indicators such as the gross domestic product. According to the aforementioned article, the gross national product would be different if it retained the value of national heritage which had been lost or used. In that case, economic indicators which reflect growth in the gross domestic product would show either losses or stagnation.

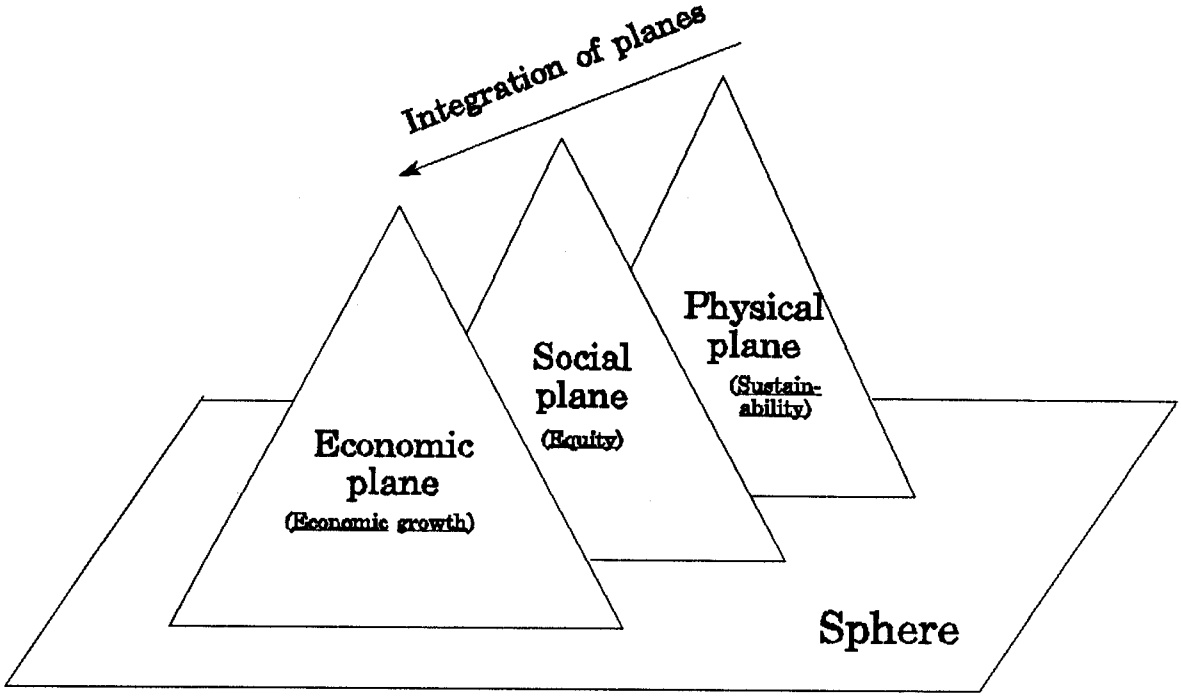
In sum, although it remains clear that the economic sciences are still not well equipped to determine the value of all social and environmental aspects in the process of reaching the optimum of sustainable development, they continue to do so. Therefore it is important that decisions concerning the course of development must be made using other techniques.

In view of the fact that it is impossible, given the absence of suitable indicators, to interlink the three objectives on a single plane, it is considered more appropriate to draw the sides of the triangles on different planes (figure 2). The economic, social and environmental areas are all represented in this manner.

In addition, it should be remembered that the trade-offs between economic growth, social equity and environmental sustainability do not occur solely within the area of the triangle, but also between the different areas, such as countries or regions within a same country. These trade-offs —for example, between technology (economic growth) and natural resources (environmental sustainability)— make it possible to offset the internal weaknesses of some of the spheres so as to achieve the desired objectives in a balanced manner.

Figure 2

DIAGRAM ILLUSTRATING THE DIFFERENT PLANES OF ANALYSIS OF ECONOMIC GROWTH, SOCIAL EQUITY AND ENVIRONMENTAL SUSTAINABILITY



Source: Peter Nijkamp, Regional Sustainable Development and Natural Resource Use, World Bank Annual Conference on Development Economics, 26-27 April 1990, Washington, D.C.

It should be borne in mind that trade-offs between spheres can cause major distortions to the balance between economic growth, social equity and environmental sustainability. This occurs when the transactions between spheres are unjust and a trade-off takes place between a huge quantity of natural resources and modern technology.

The situations depicted in figures 1, 2 and 3 show with reasonable clarity which factors and situations are at work in the interlinkage of economic growth, social equity and environmental sustainability, so as to achieve the balance necessary for sustainable development. However, in no case is there an indication as to how such interlinkage can be achieved in a particular region or territory.

c) In order to resolve the practical problem of interlinkage, there is a need to invent a management process which enables man, "the principal actor", to make decisions, despite the lack of conceptual clarity and the theoretical bases, in order to:

i) successfully manage economic growth, social equity and environmental sustainability, in order to attain sustainable development;

ii) determine which trade-offs should occur among these three objectives in a particular region as well as between regions;

iii) facilitate understanding, on the part of the actors involved, of the types of trade-off that are viable as well as their value;

iv) determine at what point the balance is achieved that is consistent with a level of sustainable development which satisfies the actors of the developing region.

As indicated in i), sustainable development depends on the three objectives and is not achieved if emphasis is placed on only one of the objectives at the expense of the others. Consequently, the actors must contribute simultaneously to economic growth, social equity and environmental sustainability through, for example, changing production patterns, the provision of social services and conservation of natural resources.

The three objectives can both conflict with, and influence, one another, especially in the short term. As a result, in order to attain the general optimum, there is a need to forego partial optima. For example, if the attainment of each objective is measured on a scale from 0 to 100, the "optimum" attainment of the three objectives in a simultaneous manner (thus achieving the desired level of sustainable development) might assume a "value" of 60 in the case of economic growth, 45 in the case of social equity and 70 in the case of environmental sustainability.

The trade-offs between regions which feature different zones of equilibrium (where the three objectives are attained) should be such that, for example, there should be no need for a trade-off of a hectare of native forest converted into millions of wooden chips for a computer chip between a region rich in natural resources and a region with high economic, industrial or technological growth.

The determination of the preceding percentages and, consequently, of **the zone of equilibrium of sustainable development depends in essence on the agreements between the actors and thus does not occur automatically but rather as the result of transactions.** These transactions will be more equitable if there is more understanding of the value of the elements, resources and products of an area, of the

comparative advantages of the different regions and of the natural elements and resources which are affected. Furthermore, this equilibrium is transitory, since ideal models of sustainable development vary constantly in accordance with technological advances, discovery of new resources and the changing aspirations of the actors, to name just a few of the variables involved.

As can be deduced from the facts set out above, management processes aiming at sustainable development are in essence a mixture of art and science, given the fact that there is still a lack of indicators which would enable us to quantify social, environmental and economic factors in accordance with a system of interchangeable values; moreover, the different actors involved in the process have different values.

In order to move beyond the simple enumeration of areas of conflict, as depicted in Nijkamp's triangle, to a sequence of activities designed to resolve such conflict, the triangle has been replaced by a cube (figure 3), thus adding three dimensions and a number of planes to the analysis. In the cube, the attainment of the objectives of economic growth is defined as a process of execution of actions (a process of changing production patterns), which becomes the pivot for the other processes.

The attainment of social equity is based on a process of transactions between actors (democratic, pluralist and participatory processes); this process is supported by information obtained at each step of the process of execution of actions and, in addition, incorporates the different planes of analysis.

Table 1
ANALOGY BETWEEN MANAGEMENT OBJECTIVES AND PROCEDURES DEPICTED IN THE TRIANGLE AND THE CUBE

TRIANGLE (Objectives)		CUBE (Procedures)
Economic growth		Execution of actions
Equity	Social	Transactions between actors
	Environmental	
	Economic	
Environmental Sustainability		Incorporation of the environmental dimension
Planes of analysis		Integration of issues

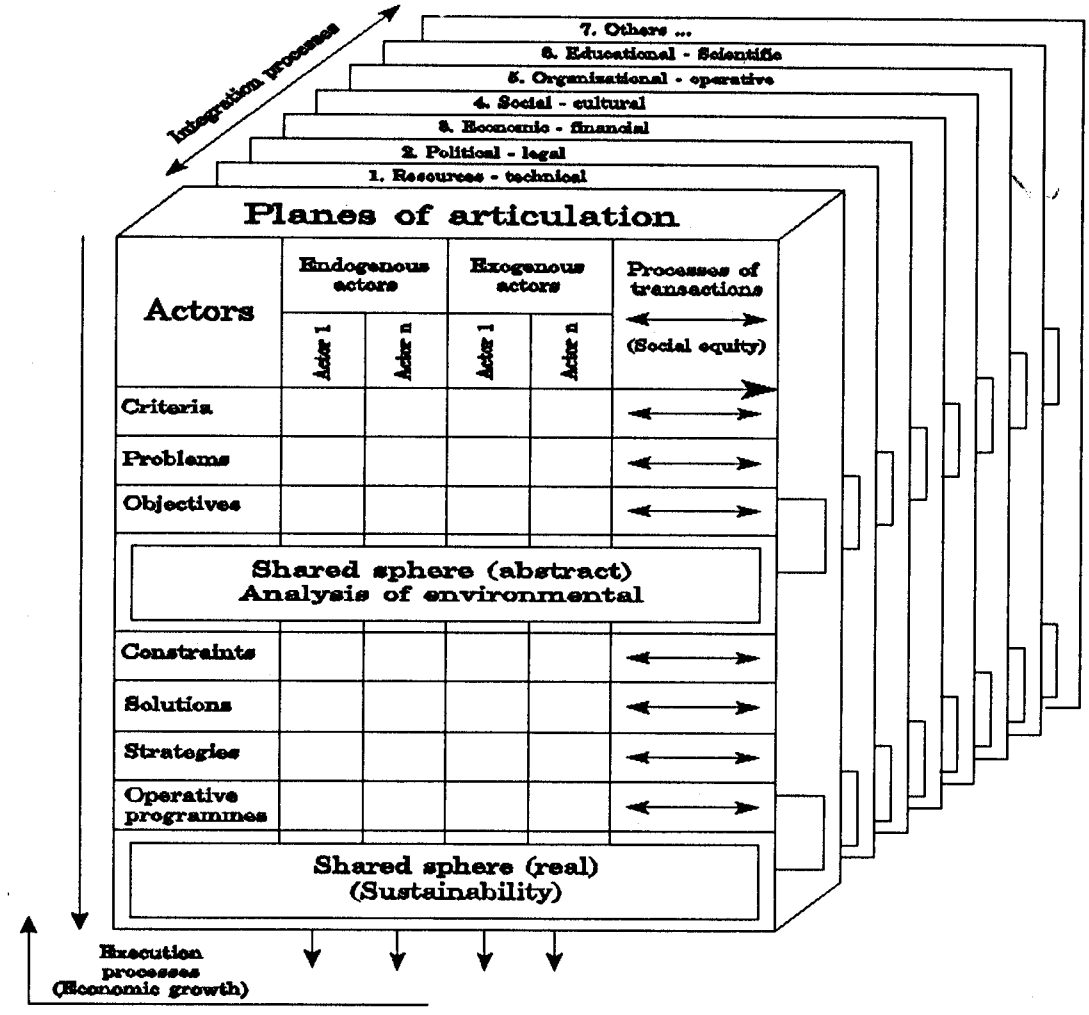
Source: Prepared by the author, 1992.

The attainment of environmental sustainability is an ongoing process involving the incorporation of the environmental dimension in decision-making, which occurs at all stages but especially starting from the fifth stage (evaluation and assessment of the environment). The incorporation of the environmental dimension introduces the time factor into decision-making.

Figure 3

CONCEPTUAL AND OPERATIONAL FRAMEWORK OF INPUTS TO SUSTAINABLE DEVELOPMENT WITH SOCIAL EQUITY

("The Magic Cube")



Source: Axel Dourojeanni, "Procedimientos de gestión para el desarrollo sustentable (aplicados a microrregiones y cuencas" (89/05/Rev.1), Ensayos series, Santiago, Chile, Latin American and Caribbean Institute for Economic and Social Planning (ILPES), October, 1990.

Lastly, there is a belief that the various decision-making planes must be linked into one, on the basis of economic parameters whenever possible. This known as the process of integration of disciplines or issues.

In using the cube instead of the triangle for analysis, the definitions of the objectives located on the three different planes (economic growth, social equity and environmental sustainability) are transformed into management processes geared towards the attainment of those objectives. Those processes are that of execution of actions, that of transactions and that of the incorporation of environmental considerations. Moreover, the need for carrying out a process of integration of disciplines or issues is affirmed.

In order to give substance to the cube (the "magic cube" as it has been labelled in a number of cases), the four processes must be carried out simultaneously. The initial sequence is formulated by the actors and depends on their aspirations for economic growth which lead to the execution of actions, as embodied in the vertical sequence in figure 3. This sequence begins with the identification of the actors; this is followed by the fixing of its criteria, problems and objectives and the assessment of the environment, and concludes with the identification of constraints, the definition of possible solutions, the development of strategies and the implementation and execution of programmes. The execution process acts as the pivot for the management process in the interlinking of the three objectives.

Environmental sustainability analysis should be incorporated in the stage of assessment of the sphere, as well as in the execution of programmes. It is important to note that in figure 3 the environment encompasses disciplines or subject areas which require integration in order for decisions to be made that relate to sustainable development. This sphere is termed "abstract" as it is only a representation of the real sphere, which is outlined at the end of the sequence.

The process of transactions between actors is depicted by horizontal lines in figure 3. This process theoretically provides for the attainment of social equity, provided there are a minimum of requisites. Transactions are carried out at all stages of the sequence, the most concrete being at the level of restrictions and solutions. In order for the transactions to lead to social equity, they must occur within a framework of democratic consensus and with a clear understanding of the effects of each decision in relation to the different objectives of the participating actors. This means that the actors must be informed and must seek information on the effects of their decisions in order for the transactions to be adequate. Ignorance prevents democracy from functioning properly.

The process of integrating disciplines or subject areas is depicted by a diagonal line. As a general rule, technical integration, which involves work by interdisciplinary teams, is performed at the same time as the assessment of the sphere. Systems analysis and the elaboration of models are essential for the integration of disciplines or subject areas; this process, which must be carried out in order for decisions to be taken on a single plane, amounts to applying a common denominator to environmental, social and economic variables. In terms of the environment, integration is achieved through the execution of interdisciplinary activities. In terms of the economy, integration is achieved by calculating the value of environmental resources and social factors. Interdisciplinary activities facilitate the economic calculation, because, to the extent that we are dealing with economic values that include elements of nature, the situation will be more conducive to decision-making designed to achieve sustainable development (calculation of the value of the natural heritage and integration of this value into national accounts).

II. THE PROCESS OF EXECUTION OF ACTIONS

As stated previously, the process of execution of actions is the pivot of the three remaining processes and is made up of 10 stages which range from identification of the actors to execution of the programmes. This sequence is illustrated in table 2.

The process of execution comprises the following stages:

a) Identification of the actors involved in the management process. This is one of the most important stages. The actors are defined as all people who actively or passively take part in management processes or who contribute to the process; i.e. the inhabitants, users (who may or may not be inhabitants of the area), representatives of public or private organizations, consultants or participants in the field or sphere, representatives of groups in authority, businessmen and, generally speaking, all people whose living conditions are affected and who cause or feel the effects of the use and conservation of the resources of the sphere in question, as well as people who perform a role of supporting human development in those spheres.

b) Ascertainment of the criteria which govern the actors' actions. This determination of criteria is vital if we are to understand the position of the actors in the management process and consists in ascertaining the participants' hypotheses, theories, assumptions, beliefs, opinions, ideas, postulates, concepts, premises, conclusions, approaches, interpretations, principles or paradigms. Such criteria can be linked to development, marginality, mankind, society, conservation and management of resources, inhabitants of the area, the projects, etc. This exercise is vital in facilitating mutual understanding of actors and transactions or agreements between the interested parties.

c) Identification of problems relating to living conditions and to conservation of resources in the sphere in question, as expressed and perceived by each of the actors or groups of actors participating in management processes. There is a need to analyse the causes and effects of each problem, classify and categorize them from different perspectives, determine what the current problems are, and analyse the historical processes which led to the current situation as well as project these into the future. The key to defining development objectives lies in identifying problems.

d) Transformation of the demands and problems identified into objectives. This is a vital task in converting the set of problems identified by the inhabitants, users and experts in different forms and with different degrees of precision into objectives ranked as accurately as is possible. Such objectives must be described precisely and in quantitative terms, to the extent that this is possible. There is a need to identify the beneficiaries of the objectives, as well as the area or sphere in which action is required, to determine the time frame for the attainment of goals (the short, medium or long term) as well as their relative priority in relation to the other objectives enunciated, and lastly to define the criteria which will be used

Table 2

PROCESSES OF EXECUTION OF ACTIONS
(Methodological outline)

STAGES	DESCRIPTION
1. ACTORS	Identification of the active and passive participants in the management process for sustainable and equitable development (actors). Tipology.
2. CRITERIA	Ascertainment of the explicit and implicit criteria, which support the positions of the actors involved in the process. Observation.
3. PROBLEMS	Identification of the problems of each of the actors, with regard to their needs and aspirations. Setting of priorities.
4. OBJECTIVES	Identification, either directly or by inference, of the problems, goals and objetives of each of the actors. Ranking.
5. SHARED SPHERE (ABSTRACT)	Inventory, evaluation and physical and socio-economic assessment of territorial and functional spheres where it is hoped to achieve objectives (past, present and future). Environmental sustainability analysis.
6. CONSTRAINTS	Identification of constraints of a technical, political, legal, economic, financial, organizational, functional, cultural, educational, commercial or other nature which hinder or prevent the attainment of objetives. Ranking.
7. SOLUTIONS	Generation of possible solutions for overcoming the constraints previously identified and ranking of solutions. Selection.
8. STRATEGIES	Design of strategies for implementing solutions through actions of a discontinuous nature (investment projects) and a continuous nature (services, production systems and others).
9. PROGRAMMES	Scheduling of actions (programmes, projects, activities and tasks) on the basis of the solutions and strategies selected, execution of control activities and follow-up of the results obtained.
10. SHARED SPHERE (REAL)	Execution of actions scheduled for the sphere. Systematic follow-up of objectives and of environmental sustainability. Monitoring of the environment.

A
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└———— Repetition of the cycles of stages at progressively more detailed and accurate levels.

Source: Axel Dourojeanni, Procedimientos de gestión para el desarrollo sustentable (aplicados a microrregiones y cuencas) (89/05/Rev.1), Ensayos series, Santiago, Chile, Latin American and Caribbean Institute for Economic and Social Planning, 1991.

in establishing priorities. The objectives are not only the expression of a problem in a statement, but, taken as a whole, embody the definition of the situation to be sought after in the future by all the inhabitants and users. The objectives are the aspirations of the different people involved in development, and for this reason should form a balanced whole and should be reconciled in such a way that the final expression of the objectives reflects the opinion of all the actors involved in development and not just some of them.

e) Demarcation and classification of the spheres or territories within which it is hoped to attain objectives. In the case of the environment, these are the geographical or functional areas which fall within the management process. Within these spheres, there exist smaller areas which also require demarcation. The most important of these are the geographical or natural sphere (e.g. river basin, sub-basin, river, hillside or ecological belt); the social sphere (e.g. the space inhabited by groups or peasant communities); the economic sphere, which may be defined as the area within which commercial transactions take place; the political-cum-administrative sphere, which is defined by the local, district or regional limits; the institutional or functional sphere, which may be defined as the area within which a business, community, cooperative, association or national institute can act; and the productive sphere (small farms, units, large farms or others). These spheres can be grouped into regions or micro-regions, or may be considered to be operational management units, geographical units or any type of basic unit of development.

f) Identification of constraints which need to be overcome in order to attain the objectives within the previously defined spheres. The constraints are obstacles which need to be overcome in order to solve the problems that have been identified (as expressed in terms of objectives) and not the problems themselves. For example, if the problem is the fall-off in production due to soil erosion on a cultivated, steeply-sloping hillside, the objective will be to control the erosion; constraints preventing the attainment of that objective may include the users' lack of knowledge of techniques for avoiding the erosion, the lack of legislation prohibiting the use of that land for such a purpose, the shortage of Government officials in a position to provide assistance, the lack of alternative ways of earning a living in other areas for farmers or the lack of economic resources.

Constraints can be classified as i) technical and physical; ii) political and legal; iii) economic and financial; iv) institutional and administrative; v) social and cultural; and vi) educational and scientific. Constraints need to be identified systematically, so that they can be addressed in order of importance and execution. This makes it possible, on the basis of the study, to propose a concrete programme of action with identification and ranking of goals, allocation of resources, designation of officials in charge, and terms within which the programme must be implemented.

g) Proposal of solutions to overcome the constraints that have been identified, so as to achieve the objectives proposed within the defined spheres. The solutions are selected from a set of possible options or are formulated specifically in accordance with the constraints, spheres, objectives, and overall strategies for action. The solutions proposed must be realistic and, as a result, the following should be determined as a minimum: i) the constraint or constraints to be overcome by means of the proposed solution and the order in which this is to be done; ii) the resources and materials necessary; iii) the area in which the relevant measures will be taken; iv) when these measures will be adopted and in what period (continuous or discontinuous); v) the officials in charge of their adoption and their status; vi) the people affected by the proposed solution and the resulting undesirable effects; vii) the connection between the proposed solution and other possible solutions; viii) other alternative solutions capable of producing similar results; ix) the institutions and people who will be involved in the adoption of measures; and x) the inputs required in the case of each alternative.

Furthermore, the solutions can be classified, according to their purpose, into solutions of a technical or direct nature, which offer tangible results in terms of productivity, such as the study of the potential of resources, formulation of projects, construction of developments, the use of previously constructed systems or resource management; and in solutions of an operational of indirect nature which open the way for technical solutions, inter alia planning, legislation, granting of credits, training, research, administration and promotion.

It is vital to make the distinction as regards the proposals, since the enactment of a law, the formulation of a plan or the creation of an institution are indirect solutions and will be effective only to the extent that they provide for the execution of direct initiatives. The effectiveness of a piece of legislation, for example, can only be measured or evaluated in accordance with its contribution to the feasibility of executing direct initiatives.

h) The following stage consists in identifying strategies to be applied. In this stage, it is necessary to carefully calculate the benefit, and its contribution to social equity, of each possible action in order to i) achieve viable political, social, economic and technical solutions; ii) overcome the most urgent and least complex and costly constraints, without ignoring the most important, long-term constraints; iii) harmonize the inputs of the various institutions with responsibilities or interests in the sphere; iv) determine effectiveness as a function of the costs of overcoming each constraint with the time and resources available; v) reconcile the desired and undesired effects of initiatives in political, social, environmental, economic and other terms; vi) determine the order of priorities of actions designed to overcome constraints in the territory in accordance with the potential beneficiaries; vii) formulate programmes, projects, activities and tasks, and group them in accordance with solutions to facilitate their execution; and viii) organize the institutions which will adopt the relevant measures.

The strategies determine the appropriate way for the conduct of both continuous activities (e.g. services) and discontinuous ones (e.g. projects), as well as the appropriate manner of operation of the system of public and private organizations in charge of their implementation. Some of these programmes or projects may be of a horizontal nature, if they are designed to offer solutions that are common to various spheres (sub-basins, municipalities, communities, etc.) or of a vertical nature if the programme or project offers solutions limited to a single sphere.

The important thing is that the programmes or projects proposed for each sphere be interlinked, in order to avoid duplication of efforts, obtain economies of scale and respond in a methodical fashion to the demands of the beneficiaries. Programmes or projects which are formulated independently and not coordinated may prove ineffective and compartmentalize the development.

i) The penultimate stage consists in the formulation of programmes, projects, activities and tasks which facilitate the application of the strategies selected as well as their evaluation. In this stage of the process, the activities necessary for the application of the strategies are formulated and are evaluated from the economic, social and environmental points of view. It is necessary to schedule both technical activities (works, production systems, etc) and administrative activities (provision of funds, institutional organization, training, etc.), in order to guarantee the application of strategies.

j) The tenth and final stage consists in the execution of activities and their follow-up.

III. THE PROCESS OF TRANSACTIONS BETWEEN ACTORS

The process of transactions between actors designed to achieve social equity takes place at each of the stages of the sequence of execution of actions. The sequence is normally performed in repetitive cycles which have been labelled "cycles of transactions" or "cycles of consensus-building".[3] Such repetitions make it possible to proceed from a level of perception, characterized by transactions or agreements of a general nature, to a level of execution, characterized by clear and specific agreements or deals between the actors.

In the first repetition **(perception),** information is collected on everything that the actors know or understand, through experience, intuition or direct observation. In the second repetition **(consolidation),** opinions are verified in practice, through awareness-raising or general assessments and proposals at the level of pre-feasibility. In the third repetition **(formulation),** studies are conducted and detailed, definitive proposals formulated. At each approximation, an effort should be made to achieve consensus between actors in order to advance the process.

This method is notable in that it takes into consideration, in a very simple way, a number of aspects that are vital to a management process relating to human development; this is due to the fact that the method:

- confers equal importance on all the actors participating in management processes for sustainable development in a particular sphere;
- gathers the opinions of the actors and compares them, before large sums of money are invested in studies, and this avoids wasting time and resources on detailed analysis;
- provides for a comparison between the ideas of different users and inhabitants of the area and the ideas of experts, who must in theory offer them their advice, thus avoiding a situation where they are unaware of one another in the initial phases;
- makes available a "portfolio of solutions", enabling all the actors to participate in the formulation of strategies, which thus also obliges them to implement such strategies;
- also enables experts to devote themselves to formulating strategies for the integration of solutions on the basis of real foundations, which means that they are not planning without knowing whether or not their plans will be implemented, but rather can plan with a view to putting into practice the ideas proposed and accepted by the majority;
- constitutes, in addition, a sequence which in its own right is a work method that can be used for formulating strategies, and forces linkage and harmonization of the stages proposed by the managers themselves.

It should be pointed out that, as the sequence progresses, there is an increase in the level of detail of the information and, consequently, in the level of precision of the transactions. The key stages are those which seek to achieve clear agreements between the actors in relation to constraints and solutions.

This is due to the fact that often what for some are solutions for others are constraints, and this causes conflict between actors if equitable solutions are not sought or trade-offs agreed to.

The cycle of transactions begins with the decision by a group or all the groups (external or internal, public or private, but with interests in the same sphere) to conduct a process of transactions with the aim of obtaining mutual and equitable benefits. In order to make that decision, the group or groups must agree, at least, on the following:

- that the process of defining and managing a spatial sphere must involve the participation of groups or people with interests in that sphere;
- that the margins within which such participation and the transactions between actors is possible should be marked out;
- that there exists at least a collective interest; and
- that there exists a minimum of prior understanding of the means available or necessary for achieving common objectives.

However, if the actors do not have the necessary training for participating in this process, it is virtually possible to reach workable agreements. The conduct of group activities requires more than simple will. It requires mutual respect, thoroughness, understanding and, generally speaking, the ability to work in a team. The organization of the actors and their training are the initial tasks which must be performed in order to facilitate the transactions process.

The issue or issues of collective interest can be suggested not only by the inhabitants of the area and the users, but also by any interested party or person familiar with the location. Based on these inputs, the team of experts responsible for providing assistance and the participants in the roundtable of transactions will be able to cooperate in order to negotiate, transact and reach agreements on issues which transcend their initial reason for negotiating.

The first repetition of the cycle of transactions, whose goal is to quickly obtain preliminary results, entails the observation and appreciation of the current situation and the possible future situation of the area on the basis of the following:

- the perception that each of the participating groups or people has of the situation, and
- the input that the team of experts makes, on the basis of their perception of the situation.

The comparison and reconciliation of these inputs of knowledge, information and experiences make it possible to prepare a preliminary assessment representing the viewpoint of the different actors participating in the process as well as the team of experts.

The preliminary assessment must be geared toward action, the dimensions of which will depend on the following:

- the knowledge of the users and the experts,
- the willingness to participate on the part of the inhabitants of the area and the users, and
- the ability of the experts to promote participation by the actors.

The degree of depth, scope, complexity and duration will depend on the following:

- the available resources,
- the abilities of the team of experts, and
- the planning outlook considered in the analysis.

These aspects are closely related to the level and depth of the problems for which solutions are sought as well as the management capabilities of the actors participating in the roundtable of transactions in order to reach agreements. The team of experts can and should raise the management level and skill of the actors through training courses.

The cycle of transactions is repeated at each of the stages of the process of execution of actions, and therefore comprises the following stages:

i) organization of the roundtable of transactions;
ii) identification and comparison of criteria;
iii) identification and comparison of problems;
iv) gathering and presentation of objectives;
v) assessment and evaluation of the sphere;
vi) identification and classification of constraints by order of priority;
vii) selection and comparison of alternative solutions;
viii) formulation of strategies and programmes;
ix) formulation of programmes and projects, identification of activities or tasks;
x) evaluation, financing and implementation of programmes or projects.

Next we will analyse the possible transactions between the actors at each of these stages.

Stage I. Organization of the roundtable of transactions

The roundtable of transactions should be made up of people who embody the desire, interest, willingness, and decisions of the inhabitants of the area, the users, the experts and other individuals who are conducting activities in the sphere in which intervention is desired. As a consequence, the roundtable should be made up of a group representing all people or groups who have interests, motivations and needs related to the sphere.

These people must be willing to "sit around a table" for the purposes of negotiating and reaching agreements concerning the following:

- criteria applicable to development and management of the area;
- the problems perceived by the different actors;
- individual and collective objectives;
- appraisal of the sphere by each actor;
- identification of constraints affecting each of the actors as well as the group of actors as a whole;
- formulation of alternative solutions to deal with the constraints identified;
- formulation of strategies; and
- formulation, selection, financing and execution of programmes and projects.

A roundtable of transactions which embodies the characteristics described is democratic in nature, because it can reflect the positions of different groups of inhabitants and users.

Lastly, the roundtable must faithfully reflect the balance of power and knowledge concerning the situation which it is hoped to modify.

The organization of the roundtable of transactions requires the existence of certain preliminary conditions which provide for the successful execution of the process. First of all, the team of experts in charge of providing assistance in the process of project management must be organized, and must meet the following requirements:

- have a multidisciplinary background, a dynamic, cooperative spirit, and the ability to relate to all groups and sectors in society. The team must be capable of reconciling the conflicting interests and activities conducted by the social groups participating in the roundtable of transactions;
- identify the genuine representatives of the different groups which have needs or interests relating to the area;
- persuade users and inhabitants of the area to deal in an organized manner with the planning process, to sit around a roundtable of transactions and give their points of view in order to reach one or more agreements in the private or collective interest. With this aim in mind, the team of experts must explain the advantages of the agreements and provide a list of options related to such agreements;
- identify the needs of all or some of the inhabitants and users and determine which people are prepared to act in unison to solve problems affecting them. This is one of the most important stages and consists, in part, in establishing direct contact with the inhabitants, above all in response to direct requests;
- clearly limit the geographical area and the institutional or administrative and private spheres; determine the relevant jurisdictions and legal structures and their relations with higher authorities.

The set of knowledge and power of each group or each actor to act in the spatial sphere are the key elements which need to be identified in order to determine how they can be combined to satisfy needs equitably and contribute to the development of shared space.

The factors which may characterize each actor's ability to manage include the following:

- the role or roles they perform (adoption of decisions, transmission, execution, etc.);
- the support each actor receives from groups in power (local population, economic groups, public authorities, unions, associations, institutions, etc.);
- the degree of dependance or independence each actor has to perform his role;
- the number of people whose living conditions are affected by the actor's decisions;
- the scope of the sphere, the volume and type of resources which are affected by the actor's decisions;
- the "instruments" at the actor's disposal to ensure enforcement of his decisions (legal backing, financial resources, protests, etc.);
- the organization supporting the actor, and in particular the efficiency, coverage, stability, resources and capacity to act of the organization to which he belongs or which he represents;

- the knowledge the actor has of the needs, criteria and interests of the rest of the inhabitants and users, and the prospects for development of the area in question;
- the technical resources and tools used by the actor or available to him for implementing the decisions he takes;
- the means at his disposal for announcing decisions and influencing them;
- the sort of activities he performs;
- the background of the actor and his experience related to the spatial sphere.

In theory, the roundtable of transactions is a dynamic, flexible and open entity. Its members can rotate in accordance with the information required and, to the extent that this is necessary, new participants should be integrated into the process. In some cases, members can be divided into work subgroups in order to facilitate direct transactions between some of the members on issues of interest only to themselves. In so doing, the process is streamlined and the discussion stage shortened, so as to reach agreements quickly and efficiently.

In sum, in order to initiate the process of transactions, there is a need to:

- place the negotiation within the general context of the usual relations of the participants in their respective spheres;
- specify the benefits expected;
- define or fix the limits of the sphere of action in which transactions can be carried out;
- restate the intention to achieve the best possible results as a whole, respecting the right to be different or hold divergent points of view; and
- define the formal and physical framework for the negotiations conducted at the roundtable of transactions (rules of procedure).

Stage II. Identification and comparison of criteria

The inhabitants of the area, the experts and the users, who may or may not belong to the area, have their own perception of the situation and of what they wish to change. Participating groups can apply the same or different criteria to evaluate those situations.

This perception, which reflects the interests, motivations and needs of each group, determines the relationships between the actors as well as their bargaining power. As a result, in order to facilitate the process of transactions, it is vital to determine the criteria on which each individual or group bases himself when intervening in the sphere. In this stage of the process, the following activities must be executed:

a) The team of experts must provide assistance to the representatives of the groups of users and inhabitants who participate in the roundtable of transactions in identifying criteria to be applied to their activities. Unclear criteria hinder communication and, as a result, negotiations as well. The team of experts must be aware of the members' criteria, so that it can help define each position clearly, which also facilitates the adoption of collective criteria.

b) The team of experts must also announce its criteria to the members of the roundtable so that these can be compared with the rest, in order to define the position of all the actors.

c) The participants in the roundtable of transactions and the team of experts must "adjust" the criteria that have arisen from the discussion. Once these are clearly defined, there is a need to establish priorities and classify them according to fields of application.

d) The criteria will be able to be revised and extended before a new discussion is begun, provided that the members of the roundtable agree. This is necessary in order for all the participants to know the rules and guidelines used for project evaluation.

Stage III. Identification and comparison of problems

The problems which are analysed in the roundtable of transactions are selected in accordance with the criteria and objectives of each participant. These problems must be accurately identified and both their causes and effects must be known. With this aim in mind, it is recommended that:

a) The participants in the roundtable of transactions indicate problems posed by conflicts that occur in the environment to which they belong. These problems may reflect either a partial or complete view of the situation. In the case of a partial view, these problems reflect the point of view of each user or inhabitant who is defending his interests and considers that the problems identified translate into a worsening of his living standards. In the case of a complete view, these problems affect the wider community. In order to avoid a trend towards compartmentalization, the team of experts must cooperate in quantifying and determining the scope of the problems, and clearly identify its causes and effects.

b) In a stage prior or parallel to the organization of a roundtable of transactions (a process which, for obvious reasons, poses difficulties in many localities), the group of experts makes contact initially with the people living and working in a particular locality or makes use of its resources in order to enable these people to communicate their problems directly to them.

c) The team of experts draws up its own list of problems identified by its members in the sphere. In addition, the team should help clarify the problems posed by the inhabitants and the users; to this end, the team can use classifications and descriptions of problems which have been suitably adapted to the area.

The participants in the roundtable of transactions and the team of experts should make a ranked list of problems grouped into different categories. Technical support is vital at this stage in determining the cause and effect of the problems posed, with the aim of classifying them by order of priority in accordance with different circumstances. In addition, it is important to describe the problems in a detailed fashion (see table 3). The technical input to the analysis of problems must reduce the scope of the discussion as well as any tension between the participants in the roundtable of transactions, in order to identify the set of problems effectively.

Table 3
EVALUATION OUTLINE OF PROBLEMS AND CONSTRAINTS

1. **Presentation of problems and constraints**
   - 1.1 Are they presented as described by each actor involved?
   - 1.2 Are they classified according to their relative importance?
   - 1.3 Are the causes and effects, in each case, clearly indicated?
   - 1.4 Are they described in a similar way or are some described in more detail?
   - 1.5 Are they mentioned in an isolated fashion, in such a way that it is difficult to identify them?
   - 1.6 Could the presentation and description of problems and constraints be improved?

2. **Actors (internal and external) linked to the problems and constraints**
   - 2.1 Is there an indication of who is affected, either directly or indirectly?
   - 2.2 Is there an indication of who is responsible for these problems or constraints, either directly or indirectly?
   - 2.3 Is there an indication of who benefits directly and indirectly?
   - 2.4 Is there an indication of who has benefited, directly and indirectly, as a result of the problem or constraint?
   - 2.5 Is there an indication of who is responsible for monitoring or avoiding the causes of the problem or constraint?
   - 2.6 Is there an indication of who is responsible for monitoring the effects of the problem or constraint?
   - 2.7 Is there an indication of which other people are directly or indirectly involved?

3. **Definition of the problem or constraint by the actors**
   - 3.1 Is there an indication of how each actor/user defines the problem or constraint?
   - 3.2 Is there an indication of how professionals or experts define the problem or constraint?
   - 3.3 Is there an indication of what other designations they receive or if the problem or constraint can be described more adequately?

4. **Subject area to which the problem or constraint applies**
   - 4.1 Classification 1: **By disciplines** (underline that which applies)

     Natural resources (climatology, geology, hydrology, land and soils, ecology)
     Production (agricultural, livestock and forestry production; fishing and aquaculture; mining; manufacturing; handicrafts and others)
     Social and institutional structures (demography, sociology, education, rural extension, health, public administration, farming cooperatives, agricultural credit, land tenure)
     Economic structure (macroeconomics, farm economics, economics of productive sectors with the exception of agriculture)
     Physical infrastructure (road, urban, public and other works)

   - 4.2 Classification 2: **By areas of planning and intervention** (underline that which applies)

     Natural resources (land and water)
     Production (agricultural, livestock and forestry production)
     Property, land tenure and agrarian reform
     Organization and administration
     Commercialization and trade
     Credit and financing
     Living conditions and social services
     Critical zones, for natural, political or other reasons
     Integration, participation and cultural identity
     Regionalization and micro-regional strategy
     Relations with the State and other institutions
     Legal aspects

Table 3 (concl.)

5. **Description of the problem or constraint**
   - 5.1 Are the background of, and trends in, the problem or constraint known?
   - 5.2 Is there a description of the current state of the problem or constraint?
   - 5.3 Is there a visualization of the future situation without intervention?
   - 5.4 Is there a visualization of the future situation in the case of intervention?

6. **Implicit objective in the description of the problem or constraint**
   - 6.1 Is there an indication of the implicit objectives in the description of the problem? Possible objectives:
     - to improve the quality of life of the inhabitants (health, education, housing, work, nutrition, recreation, security, etc.);
     - to conserve renewable natural resources;
     - others (identify the implicit objective in relation to each problem).

7. **Physical and functional (administrative) location of the problem or constraint**
   - 7.1 Is the physical location (geographical, administrative, etc.) of the problem or constraint identified?
   - 7.2 Is the functional location (law, institution, procedure, etc.) of the problem or constraint identified?

8. **Quantification and classification of the effects of the problem or constraint**
   - 8.1 Are the effects of the problem or constraint quantified?
   - 8.2 Are they classified according to their importance for the different people affected?
   - 8.3 Are they classified according to their degree of urgency in political terms?
   - 8.4 Are they classified according to the sequence of technical measures that should be adopted in this regard?

9. **Quantification and classification of the causes of the problem and constraint?**
   - 9.1 Are the causes of each problem and constraint quantified?
   - 9.2 Are the causes classified in accordance with their effects?
   - 9.3 Are the causes classified in accordance with the possibilities for monitoring ?
   - 9.4 Are the causes classified according to the sequence of measures that could be adopted?

10. **Background information concerning the successes and failures recorded in efforts to overcome problems or constraints**
    - 10.1 Are strategies previously proposed for overcoming problems or constraints identified?
    - 10.2 Are the successes and failures identified?
    - 10.3 Are the reasons for the success or failure of the strategies applied identified?

11. **Recommendations for analysing in greater detail the problem and the constraints which prevent it from being overcome**
    - 11.1 Are specific recommendations for improving the presentation of the problems identified?
    - 11.2 Are clear recommendations made concerning the tasks that must be performed on the basis of the evaluation?

Source: Axel Dourojeanni, Procedimientos de gestión para el desarrollo sustentable (aplicados a microrregiones y cuencas) (89/05/Rev.1), Ensayos series, Santiago, Chile, Latin American and Caribbean Institute for Economic and Social Planning, 1991.

Once the participants in the roundtable of transactions have available a list of problems, they must proceed with two tasks:

- determine the interrelation between the problems identified and rank them, and
- classify the problems in accordance with the ranking established at the roundtable of transactions.

In order to perform this exercise, the team of experts must provide assistance to the members of the roundtable. It can perform, inter alia, the following tasks of great importance:

- proposal of ranking and classification criteria for problems by order of priorities;
- assistance to members of the roundtable to help differentiate the causes of endogenous origin of each problem from the causes of exogenous origin;
- determination of the type of information required in each case in order that problems can be ranked, and classified by order of priority;
- description of each problem according to its characteristics, inter alia, location, scope, situation giving rise to the problem, causes, people creating or helping to aggravate the problem, those responsible for overseeing the problem, the people who are adversely affected, etc.;
- description of the possible course of the situation in the case where problems are not resolved;
- specification of the problems that must be resolved in the short, medium and long terms for technical reasons and their differentiation from problems of an operational nature (cultural, social, administrative, etc.);
- specification of the scope of the problems (social or individual); and
- assistance in determining the resources which may be needed to solve each problem identified.

The process of ranking and classifying problems identified by order of priorities must be a dynamic one. In this stage, the list of problems is a preparatory one since it must involve possible solutions; consequently, it is important not to prolong the exercise too long, even when discrepancies might arise with respect to ranking and priorities. These discrepancies will be overcome subsequently when it is determined what resources are needed and how problems can be resolved. The cause of the problems must be clearly determined, as must the most important problems from among the whole.

Stage IV. Gathering and presentation of objectives

Once the problems have been ranked by members of the roundtable of transactions, both individually and collectively, together they proceed to establish the objectives implicit in the description of each problem. Each actor or group of actors must declare his or their objectives, interests and aspirations. The methods used to deduce objectives are as follows:

- the direct method, in which objectives are deduced from problems identified by people whose opinions have been sought or as the result of the direct expression of aspirations or goals, and

- the indirect method, in which the "ideal" objectives are defined on the basis of a model of living conditions, applied to the population that is the subject of study. Once the difference between the situation as observed and the ideal situation has been established, problems needing to be solved can be identified in order to reach the ideal solution, which must be feasible.

It is necessary to reconcile the results of the application of both methods and, in taking into account all objectives, it is possible to build a "tree" or "model of goals" representing the possible future solution.

The formulation of a "tree of goals" which reflects the aspirations of all is a task that should be characterized by dialogue between those involved and which may consist of the following:

a) First part: Determination of the actors' objectives on the basis of their opinions.

i) gathering and classification of the "hidden" objectives in the descriptions of problems. In this manner, the first list of objectives is obtained (this is the list of objectives inferred from the list of problems);

ii) collection and classification of the objectives mentioned by the actors themselves. In this manner the second list of objectives is obtained (this is the list of objectives expressed by the actors);

iii) grouping into a single list, classification by order of priorities of the objectives included in the first and second lists. A distinction is made between the objectives that are common to all actors and group or individual objectives. Also, complementary and mutually exclusive objectives are identified. On this basis, the "tree of goals of the actors" is formulated.

b) Second part: Determination of the actors' objectives identified by the team of experts.

i) formulation of a ranked list of objectives based on the observations of the experts themselves;

ii) comparison of the actors' living conditions with a pre-established model; the differences that are observed provide for the formulation of a second list of objectives;

iii) grouping of the objectives of these two lists, fixing of priorities and construction of the experts' "tree of goals", as in the case of the actors.

c) Third part: Reconciliation of the objectives of the actors and the experts.[4]

i) comparison of the actors' tree of goals with the experts' tree of goals. The actors involved in the management process must build a unified tree of goals, which can also be defined as a "model of goals";

ii) classification of the objectives by categories, beginning with the most general. The first-level objectives relate to living conditions. The second-level objectives are the solutions necessary for overcoming constraints that prevent the attainment of first-level objectives. It is thus possible to build a "tree of objectives" which reflects the inter-relationships between the objectives;

iii) detailed description of the results hoped for. Merely indicating objectives does not always suffice to communicate to others what is desired; understanding is facilitated by precisely defining the results hoped for;

iv) a proposal concerning the strategy and the methods that can be applied in order to achieve the desired results; identification of the resources and calculation of the time necessary for attaining the objective and determination of the form of presentation or measurement of the results. This contributes to a clear definition of the objectives, but does not mean that in the future the same strategy need be applied.

The last, more minor consideration concerns knowing how to present and communicate the desired objectives in a document. In order to facilitate this task, the respective outline has been included (see table 4).

Table 4
EVALUATION OUTLINE FOR THE PRESENTATION OF OBJECTIVES

1. Questions concerning the structure of the document
   - 1.1 Does the title of the document accurately reflect the contents?
   - 1.2 Does the document feature an index of contents and page numbering?
   - 1.3 Is a summary of the work presented?
   - 1.4 Are the objectives of the document identified?
   - 1.5 Are the objectives of the actions proposed in the document identified?
   - 1.6 Are the development objectives of the sphere in which actions are proposed identified?
   - 1.7 Are the methodologies used to carry out the study specified?
   - 1.8 Does the document present the results obtained?
   - 1.9 Does the document present conclusions and recommendations?
   - 1.10 Are the conclusions in line with the objectives of the study?
   - 1.11 Does the document include notes, references and an annotated bibliography?
   - 1.12 Is there a reference to the name of the publishing house, the place and date of publication, the number of copies printed and the serial number?

2. Questions with respect to the actors
   - 2.1 Are the actors who set the development objectives for the project and the document clearly identified?
   - 2.2 Is there an explanation of how and in what area the inhabitants and users of the sphere participated in defining the objectives?
   - 2.3 Is the role played by the experts in defining the objectives specified?
   - 2.4 Are the people who stand to benefit from the objectives of the document identified?
   - 2.5 Are the users of the study identified?

3. Questions concerning the sphere within which the objectives are to be attained
   - 3.1 Does the document define the spatial or physical sphere(s) in which objectives are to be attained?
   - 3.2 Does the document define the functional, administrative or operational spheres in which objectives are to be attained?
   - 3.3 Does the document use consistent terminology (e.g. river basin, valley, hillside, treatment zone or micro-region) in describing the spaces?
   - 3.4 How could the study of the sphere be described (survey, general or detailed)?
   - 3.5 Is the study best described as a survey, an evaluation or an assessment?
   - 3.6 Using the study of the sphere, is it possible to determine the potential which exists for attaining the objectives?
   - 3.7 Using the study of the sphere, is it possible to grasp the obstacles preventing the attainment of objectives?

Table 4 (concl.)

4. Questions concerning the contents of the document 4.1 Does the document confine itself to being a survey of the state of natural resources, socio-economic variables or other issues? 4.2 Does the document assess situations, comparing the existing situation with an explicit frame of reference? 4.3 Does the document assess and explain why differences exist between the frame of reference and the situation as observed? 4.4 Does the document identify constraints and propose solutions for overcoming these? 4.5 Does the document formulate and present strategies for making proposed solutions viable?
5. Questions with respect to objectives 5.1 Are the development objectives, the objectives of the actions proposed and the objectives of the document presented and differentiated in an explicit manner? 5.2 Is a "tree of objectives" presented? 5.3 Are the place and time limits within which it is hoped to attain each objective identified? 5.4 Are the objectives ranked according to their order of importance, their order of execution and their order of urgency? 5.5 Are the objectives of the document clearly described and do they coincide with the result of the study? 5.6 Are the results of the study in line with the details, the method and the tasks performed?

Source: Axel Dourojeanni, Procedimientos de gestión para el desarrollo sustentable (aplicados a microrregiones y cuencas) (89/05/Rev.1), Ensayos series, Santiago, Chile, Latin American and Caribbean Institute for Economic and Social Planning, 1991.

Stage V. Assessment and evaluation of the sphere

In the evaluation, the difference between what is hoped for (model, theoretical framework, desired situation) and the real situation is established.

An assessment draws conclusions that facilitate people's understanding of the reasons for the differences observed between the existing situation and the desired one. As a consequence, in order for an assessment to be performed, an evaluation needs to have been carried out beforehand; and in order to carry out an evaluation, a frame of reference required, as this provides for understanding of the existing situation.

The first step of the evaluation consists in reaching a consensus between the actors and the experts on the frame of reference to be used. In theory, this framework is the "tree or model of objectives". The evaluations themselves depend on the people performing them, as a result of which they do not necessarily represent the wishes of all the actors involved in the management process. When the "desired model" is shared by the majority of people, this makes it possible to conduct evaluations which are satisfactory to a large number of people.

The important thing in an evaluation is thus that there is a clear indication of the model (abstraction of reality) on which it is based as well as the actors for which it serves as a "frame of reference". In order for this to be acceptable, there is above all a need to define and compare the actors' concepts, hypotheses and criteria of development. This is only achieved through dialogue and analysis, first overall and then specific. This means that the frame of reference must be formulated on the basis of a series of ideas duly set forth and confirmed in practice.

Stages of the process:

a) Review, on the ground, to be undertaken by the team of experts and with the participation of the inhabitants and users, of the declarations and agreements reached with respect to criteria, problems and objectives. This entails a study of the actors' working and living conditions, seeking the opinions of those who know the locality, checking of files which contain information about the locality (if indeed files have such information) and other activities which facilitate understanding of each actor's situation.

b) This review should facilitate an understanding of the real situation of the area under study and, above all, the problems and objectives identified by the actors, as well as the evaluation of the natural and human resources available for attaining the objectives included in the "tree" or "model of objectives".

c) Concurrently with the previous step, the formulation of the frame of reference must extend to the following stages of the sequence of analysis; in addition, there is a need to pinpoint which constraints, according to the different actors, prevent objectives from being attained or problems overcome, as well as determine the solutions each actor considers most suitable for overcoming such constraints. A brief outline of previous successes and failures should be sketched out.

d) Thus, in order to establish the frame of reference, an interaction should take place, on the ground, between the professional group, the inhabitants of the locality and the users. The data gathered as a result of that interaction must accurately reflect the opinion of the inhabitants and users about the value of their resources and activities which must use the local names or terms. At the same time, the professionals must perform an evaluation of local resources and activities; to this end, they can use their own systems and names, but it is vital to establish an equivalence between these and the local classifications and names.

e) The frame of reference should be presented in a clearly written document, which identifies those who participated in defining this frame of reference, the sources consulted, together with other elements which facilitate the reader's understanding of the procedure employed.

f) An evaluation and assessment of the existing situation can then be performed, based on this frame of reference. This evaluation and assessment should, first and foremost, pinpoint the constraints which hinder the attainment of objectives as well as identify possible solutions.

Stage VI. Identification and classification of constraints by order of priorities

Once the frame of reference has been defined and the evaluation conducted, the assessment must be instrumental in ascertaining the obstacles and constraints which prevent objectives from being attained. In order to facilitate the assessment, constraints must be grouped or classified by subject area, e.g.:

- technical and physical
- political and legal
- economic and financial
- institutional and administrative
- social and cultural
- educational and scientific, or an equivalent classification.

Constraints and problems are virtually the same thing, although the word "constraint" has the specific connotation of "an obstacle to attaining an objective". Moreover, a problem is not necessarily a constraint, inasmuch as it can be the expression of an objective in negative terms, without defining or studying it. That which is not desired may well be known, but that which is desired may not necessarily be known.

Owing to the aforementioned, the team of experts must again check the list of problems prepared earlier, and reclassify the problems, bearing in mind whether or not they pose an obstacle to attaining the objectives of the actors participating in the management process.

Constraints must be correctly described and classified as external and internal constraints; in addition, it is necessary to set priorities in this respect, in order that ways of overcoming constraints can subsequently be identified.

Once constraints have been identified, it is important that a thorough description of each of these be available. This description must be the same as that used to describe problems, the only difference being that this task is a relatively easier one, in that the objectives are already known.

The classification of constraints by order of priorities is carried out parallel to the identification, in a deductive process, based on the opinions of participants in the roundtable of transactions. First, objectives and problems are classified beginning with the most general objective. The next step, in descending order, is to identify the constraints which prevent the attainment of the objective in question. Overcoming each constraint then becomes a second-level objective, and this process is repeated. (This process can be performed with respect to each subject area.)

In order to perform and evaluate the description of problems and constraints, use can be made of the elements identified in the outline presented in table 3.

The method set forth is relatively easy to understand, but care must be taken to apply it rigorously. It is important to use this method, because it serves to identify situations and to classify information which is normally dispersed and receives dissimilar treatment in studies.

Stage VII. Selection and comparison of alternative solutions

The team of experts presents the list of constraints prepared in the previous stage for the consideration of the roundtable of transactions, in order that alternative solutions may be analysed. This process involves the following steps:

a) The participants in the roundtable of transactions propose, from their particular viewpoint, alternative solutions for overcoming the constraints previously identified and classified by order of priorities.

b) Given the possibility that the interests of individuals or several groups may take precedence over collective interests, the team must ensure that the solutions accepted benefit all. Technical assistance is also essential in facilitating negotiation between participants with a view to reaching agreements, transactions and consensuses in the selection of alternative solutions.

c) The team of experts must identify and announce the alternative solutions which roundtable participants are unaware of, whether due to their strictly technical nature or because they do not fall within their particular sphere. It is recommended that the team of experts have at its disposal a list of possible solutions classified according to their nature. It is also necessary that the team be in a position to explain what the consequences of each solution proposed will be when analysed as a whole.

d) Once the alternative solutions proposed by the participants and the team of experts have been presented, it is necessary to analyse their interrelations for, with the aim of identifying complementary, independent and mutually exclusive solutions. Technical support is crucial in defining the type of solution that is in keeping with the needs and availability of resources, which in most instances will be scarce and restrictive.

e) The alternative solutions proposed require the execution of activities of a discontinuous nature (investment projects) or of a continuous nature (permanent or periodic). It will also be necessary to classify them into technical or direct solutions (construction works, systems operation, equipping of teams) or indirect ones (in the sphere of education, organization, etc.) designed to facilitate the execution of direct activities.

f) It is necessary to select alternative solutions that are accepted by consensus or by transaction, agreement or negotiation. The outcome of this stage of the process will be a preliminary list of possible solutions classified according to various criteria. It is advisable that the type of information which must accompany each proposed solution be specified and standardized and that this be respected (see table 5).

g) Should disagreements arise on some issues, it would be possible to accept the list provisionally, on the understanding that it be re-studied in the light of new information provided by more detailed evaluations. For this, it is not strictly necessary to reach a consensus before continuing with the process.

h) It is necessary to identify the beneficiaries, as well as the relations and the hierarchical links which exist between them, so as to:

- determine to what extent the people proposing the solutions are representative;
- understand why they are proposing the solutions;
- determine to what extent the proposed solutions are accepted by the inhabitants and users (i.e. the direct and indirect beneficiaries);
- determine the relative interest of the potential beneficiaries of the solution chosen;
- determine the potential beneficiaries' willingness to participate in adopting and applying the solution;
- determine the possible negative effects of the proposed solutions on different groups and on the environment; and
- determine who should pay the costs, and who should receive the benefits, of each proposed solution.

Table 5
EVALUATION OUTLINE FOR PROPOSED SOLUTIONS

1. Identification of the solution
Designation: . . . . . .
Code: . . . . . .
Place of application: . . . . . .
(Name of the place(s) or area(s) in which the proposed measures will be taken)
Starting date:
Latest date for execution:
Degree of continuity of the activity:

Continuous (service, production system, etc.) . . . . ☐

Discontinuous (investment project, etc.) . . . . . ☐

2. Identification of the official(s) in charge
Name and address of the person(s) in charge of this outline:
Official(s) in charge of this outline:
Name: . . . . . .
Address: . . . . . .

3. Classification of the level of the proposed solution

Category: Programme ☐ Project ☐ Activities ☐ Tasks ☐

Level of precision of the project: Idea ☐ Pre-feasibility ☐ Feasibility ☐ Definitive ☐

4. Related subject areas (underline or join those which apply):

- Natural Resources:	climatology, geology, meteorology, land and soils, ecology,
- Production system:	farming, forestry, mining, fishing, aquaculture, primary industries, manufacturing
- Social/institutional:	demography, sociology, employment, education, research, extension, health, public/private administration, social organization, tenure and other
- Environmental management	preservation, protection, prevention, recovery, conservation
- Economic issues:	credit, taxation, ownership, business economics, farm economics, home economics
- Physical infrastructure:	works related to transportation, communications, housing, hydraulics, energy

5. Actors involved in the solution (individuals, institutions, sectors)
- Who is proposing the solution?
- Whom does the solution benefit?
- Who is evaluating the solution from a technical point of view?
- Who is evaluating the solution from a social, economic and environmental point of view?
- Who will be required to finance the solution?
- Who will be required to take the relevant measures?

6. Purpose of the solution
- What are the direct achievements of the proposed solution?
- What are the indirect achievements of the proposed solution?
- What tangible and quantifiable results can be expected?
- What constraint(s) will be overcome by the solution, with respect to the direct and indirect objectives?

7. Link between the proposed solution and other solutions
- What other technical and administrative solutions accompany the evaluated proposal for solution?
- What is the ranking of the evaluated solution with respect to other solutions?
- What technical and administrative measures would need to be included in the proposal in order to guarantee attainment of the objective?
- What technical and administrative links exist between the proposed solutions? (provide a diagram of the linkage matrix)

Table 5 (concl.)

8. Technical characteristics of the definition of the solution - Was the definition of the solution based on preliminary, general or detailed studies? - Is the proposal scientific and accurate? - Has the proposal been evaluated and tested before presentation? - Are the calculations and methods on which the proposal is based available and can they be verified? - Are there any maps, diagrams, photographs or other graphical resources which might facilitate understanding of the proposal? - Is any quantitative data presented in the proposal? Specify. - Is there an indication of what materials, equipment, human resources and inputs will be required and what results can be expected? - Is there an indication of what impact the proposed measures will have on the environment as well as on living conditions? - Is there an indication of what measures will need to be adopted in the short, medium and long term in order to contribute to the solution? Is there an indication of what maintenance, conservation and improvement projects will need to be undertaken?
9. Administrative aspects - Is there an indication of the training that the actors will need in order to apply the solution or benefit from it? - Is there an indication of whether the measures entailed by the solution will be permanent, periodic or infrequent in nature and are latest dates specified? - Is there an indication of the kind of organization and management required in order to apply the solution? - Are the political, legal, economic, financial, institutional, operational, social, cultural, educational, scientific, commercial, and industrial factors related to the solution specified? - Is there an indication of the costs and benefits implied by the solution in monetary, social, environmental, productive or other terms? - Are schedules and budgets presented? Is there an indication of the personnel required to apply the solution?
10. Obstacles and follow-up - Is there an indication of potential major obstacles to applying the solution?: Are these of a political, legal, financial, cultural, educational, commercial, technical or other nature? - Are the measures that will need to be taken to overcome these obstacles specified? - Is there an indication of the difficulties that potential beneficiaries may have in accepting and applying the proposed solutions? - Is there an indication of who will be responsible for monitoring the application of the proposed solution, how this will be done and how the success of the solution will be evaluated?
Source: Axel Dourojeanni, Procedimientos de gestión para el desarrollo sustentable (aplicados a microrregiones y cuencas) (89/05/Rev.1), Ensayos series, Santiago, Chile, Latin American and Caribbean Institute for Economic and Social Planning, 1991.

The alternative solutions which originate during this stage are again presented for consideration to the participants of both the roundtable of transactions and the team of experts for ranking and harmonization. This new cycle of transactions involves the following stages:

i) the participants in the roundtable of transactions must classify alternative solutions proposed in the previous stage by order of priority and then rank them, taking into account the criteria adopted. Setting priorities will make it possible to make a new selection of alternatives compatible with available resources, in order to determine which activities must be conducted in the short, medium and long term, whether they be discontinuous (temporary) or continuous (permanent or periodic);

ii) the team of experts must contribute methodological tools which facilitate classification by order of priorities and ranking of alternative solutions, in accordance with the previous stages of the cycle of transactions. Solutions must deal with the problems identified and their priority, as well as the social and strategic criteria adopted for the discussions; and

iii) when adopting decisions, the following factors need to be taken into consideration:

- the programmes, projects, activities or tasks proposed as solutions should be technically and economically feasible;
- the benefits that each solution offers the individuals involved in the selection of several solutions should be compatible with collective interests which must take precedence in decisions; and
- the activities conducted in the short term should facilitate the adoption of measures in the medium and long term.

iv) the adjustments made to the solutions and their harmonization should focus on those aspects which entail the greatest consequences. The experts should contribute to the negotiation by providing additional information, so as to ensure that agreements can be reached within the shortest possible time;

v) in selecting from proposed solutions, it is necessary to take into account the circumstances and management capacity of the inhabitants and users, the aim being that they can apply solutions in a self-sufficient manner. Thus, proposals should always be presented for improving management capacity. Proposed solutions should embrace not only to technical or physical aspects but also administrative aspects;

vi) the solutions selected, which should be classified by order of priority and be divided into components (programme, project, activity, etc), should take into account the following factors:

- importance with respect to the attainment of the primary objective;
- the urgency with which activities must be carried out in order to prevent the worsening of a particular situation, although these may not be the most important activities;
- feasibility (financial, political, etc.), i.e. the actual likelihood that a solution can be achieved with the resources and time available, although this may not be the most important solution;
- technical criteria, which determine the order in which activities must be carried out.

vii) the last exercise consists in integrating the alternative solutions selected, grouping the proposals according to one or several explicit criteria (e.g. latest dates for execution, areas of execution, subject, officials in charge of execution, procedure of execution, etc.). This helps to determine the strategy that will be applied, in addition to identifying the remaining proposals.

The description of the proposed solutions must fulfil the following requirements:

- similar degree of detail consistent with the level of detail in the study;
- consistent precise terminology;
- clarity of presentation;
- identical thoroughness;
- clear description of the type of constraint that the activity will help overcome (the expected result);
- identification of the links between direct and indirect measures whose adoption is proposed in order to achieve a particular objective (any technical measure must be accompanied by a managerial measure);
- explanation of the proposed solution's link and interdependence with other solutions;
- description of the sphere or place to which the proposal refers.

In addition, it is both useful and necessary to supplement outlines describing problems or constraints with outlines evaluating the presentation of solutions (see table 4), since these provide for order and consistency in the execution of a task.

Stage VIII. Formulation of strategies and programmes

For the purposes of the present guide, a strategy is considered to be a set of guidelines which, in a systematic fashion, pinpoint the different options for attaining previously defined solutions.

In practical terms, the formulation of relevant strategies and programmes constitutes the raison d'être of all the previous stages (identification of actors, criteria, objectives, spheres, constraints and solutions) which sustain the formulation of strategies.

The correlation between the formulation of strategies and previous stages is a not a matter of chance nor can it be dismissed. The establishment of that correlation is necessary not only for formulating strategies that are useful for achieving the previously defined strategies, but also for integrating in those strategies the requirements that make its execution feasible.

Rigorous application of the sequence, following the indications presented in previous chapters, should provide the following information:

i) identification, description, characterization and definition of the role of the actors involved in the management process for the development of the sphere in question;

ii) enumeration of the criteria which govern the activities and decisions of each actor or group of actors;

iii) characterization, on the part of each actor or group of actors, of the problems or the objectives. These objectives form as a whole what is known as the image-objective or desired situation;

iv) evaluation and assessment of the sphere from the viewpoint of the different actors involved;

v) enumeration of the constraints that need to be overcome in order to reach the objectives; and

vi) enumeration of the solutions.

A number of authors contend that this information constitutes a strategy in its own right. Such a contention is incorrect since, in actual fact, this only provides the inputs necessary for designing the strategy, and which cannot be ignored if serious errors are to be avoided.

In sum, it is essential that the information necessary for formulating a strategy be rigorously established and analysed. The failure of a large number of strategies is simply due to a lack of awareness of the information available, and this is an unacceptable state of affairs (see the example of the evaluation of strategies). Only once that information is available can the process of strategy formulation begin; moreover, the dynamic nature of the process means that information must constantly be collected and processed.

In order to differentiate one strategy from another and analyse their interrelationship, it is necessary to begin by classifying them according to several of their most important characteristics, especially the following:

i) the sphere of application: political-cum-administrative areas (country, region, department or province, municipality, neighbourhood, etc.), natural or physical areas (river basins, hillsides, etc.);

ii) the type and number of objectives established or the type and number of economic sectors involved; and

iii) the links or interrelationships between strategies for regions, micro-regions, or for local, municipal, communal or family river basins.

The interrelationship between the different strategies must be reciprocal, i.e. moving both ways, in such a way as to avoid a hierarchial relationship between different levels.

The description of the strategies should indicate how to proceed in order to achieve the objectives provided for. For this reason, the strategies have a certain number of characteristics (see table 6), and those responsible for their formulation are required to have a certain level of education and creativity in order to be able to analyse them. Moreover, strategies should meet certain requirements (see table 7).

The required participation of most of the actors who participate in management processes for the development of a particular sphere is facilitated in the stage of strategy formulation when they can be represented at a negotiating table. Furthermore, the acceptance of strategies by those involved is made easier if the roundtable is organized as a management group which proposes possible solutions.

Given that the management group always represents a large number of people, the need to use certain "tools" in order to ensure enforcement of adopted agreements cannot be ignored. If the group formulating the strategy is not representative of all the inhabitants of a locality, its decisions will tend to be an imposition, even if the aim is to assist and benefit those unrepresented at the table.

Since it is unavoidable that the strategies affecting a large number of people will be formulated by only a small group, it is possible to resort to "tools of participation" so as to involve a wider number of people. The best known tools of this sort are economic instruments, such as prices, taxes, exemptions, subsidies and special purpose credits. In addition, measures can be adopted relating to property, education, housing, communications and other areas, which in practice are also "instruments of power" used to exercise influence over others.

Stages IX and X. Formulation and execution of programmes and projects

These stages are not described in the present document, as it is relatively easy to find information about these subjects in other texts, above all in analyses of the formulation and evaluation of different kinds of programmes and projects.

Table 6
ESSENTIAL STRATEGY CHARACTERISTICS

i)	Generally speaking, the formulation, transmission and application of strategies are the responsibility of the individuals or groups concerned, together with those at whom the strategies are aimed. In order for these groups to participate in this process, it is thus necessary to use a number of instruments and tactics.
ii)	Strategies are based on positions which depend on the perception of the situation held by each of the actors involved in the management process. In fact, strategies reflect different sets of circumstances perceived by each actor or group of actors and their aim is to create a distinct set of circumstances, which again depends on each actor. There is no one fixed way of looking at things, nor are ways of looking at things invariable.
iii)	All strategies are based on projections and their application is thus characterized by a high degree of uncertainty. For this reason, it is necessary to generate different options in the strategies in order to deal with unforeseen circumstances.
iv)	The goal of strategy formulation is to achieve concrete objectives as they relate to each actor involved in the development process. As a consequence, the achievement of those objectives must also be based on concrete facts. Strategy formulation should not be based on abstract assumptions; it is necessary to come up with measures that actually ensure that strategies are put into practice, as well as alternatives on which to fall back should the situation envisaged not occur.
v)	The application of strategies requires, inter alia, time, human and financial resources, and equipment. The first two elements are vital. Moreover, in light of the fact that the resources necessary for applying strategies are generally scarce, selective activities should be proposed, and should be undertaken gradually.
vi)	The participation of most of the actors involved calls for an efficient, stable management system for the application of strategies. Such a system should be put together in the light of the development process which it is intended to carry out.

Source: Axel Dourojeanni, Procedimientos de gestión para el desarrollo sustentable (aplicados a microrregiones y cuencas) (89/05/Rev.1), Ensayos series, Santiago, Chile, Latin American and Caribbean Institute for Economic and Social Planning, 1991.

Table 7

INFORMATION NECESSARY FOR DETERMINING THE VALIDITY OF A STRATEGY

1. Code _____

2. Identification of the strategy
   - In which sphere(s) is it intended to apply the strategy?
   - How is the sphere sub-divided?
   - What is the objective of the strategy?
   - What name is given to the strategy?

3. Actors involved
   - Who participated in the formulation of the strategy?
   - Who applied it?
   - Who will be affected by the strategy?

4. Inputs utilized in formulating the strategy
   - Have the actors sharing the sphere been identified?
   - Have the criteria of external and internal actors been identified?
   - Is the list of problems identified by each actor and group of actors, and classified by order of priority, available?
   - Is the list of objectives identified by each actor and group of actors, and classified by order of priority, available?
   - Are surveys of resources, evaluations and assessments of the sphere available?
   - Is a detailed list of the obstacles impeding attainment of the proposed objectives, and classified by order of priority, available?
   - Is an evaluation of the potential for change available? Is a list of measures which enable previously identified obstacles to be overcome, classified by order of priority, available?

Table 5 (concl.)

5. Strategy characteristics

- Who is responsible for managing the application of the strategy? What preparations have been undertaken by those responsible for applying the strategy and what coordination exists between them?
- What tactics and instruments have been envisaged in the strategy?
- What measures have been adopted in order that those instruments fulfil their objective?
- What knowledge does the population have about the strategy that is to be applied for their benefit?
- What assumptions does the strategy make? (identification, classification and description) - What measures have been taken to ensure that the anticipated situation actually eventuates?
- What resources (essentially time, financial and human resources, and equipment) have been envisaged in the application of the study?
- What measures have been undertaken to reduce the margin of uncertainty?
- What alternatives have been envisaged for overcoming unforeseen obstacles?

Once the information necessary for evaluating the strategy has been gathered, it will be necessary to answer the following questions:

- Can the strategy be considered to meet all the requirements that comprise a strategy? Why?
- What are the weak points in the strategy that could cause it to fail?
- What organization and training by the core team has been envisaged in the application of the strategy?
- What organization and training have been envisaged for those at whom the strategy is aimed?
- What are the main positive elements of the strategy?
- What are the main shortcomings and inconsistencies of the strategy?
- What makes those responsible for formulating the strategy believe that it can engender positive effects?
- What shortcomings of the strategy are identified by those responsible for its formulation?
- How could the strategy be improved, in the event that this were feasible?

Source: Axel Dourojeanni, Procedimientos de gestión para el desarrollo sustentable (aplicados a microrregiones y cuencas) (89/05/Rev.1), Ensayos series, Santiago, Chile, Latin American and Caribbean Institute for Economic and Social Planning, 1991.

IV. INTEGRATION OF SUBJECT AREAS

It is necessary to integrate subject areas over the entire course of the process of executing actions (see table 8). Two types of integration are fundamental: technical integration and economic integration. Technical integration is currently understood to be an interdisciplinary or transdisciplinary area of study.

The method developed by professors at the Agricultural University of Wageningen, with the collaboration of members of the Institute for Research into Administrative Sciences (the Netherlands), serves as an excellent guide for studies of an interdisciplinary nature. The publication entitled "Framework for Regional Planning in Developing Countries" (International Institute for Land Reclamation and Improvement, Wageningen, the Netherlands, 1980)[5] presents a methodology for an interdisciplinary approach to development planning in predominantly rural areas.

In the opinion of the authors of chapter III (van Dusseldorp and van Staveren), the term "discipline" refers to a branch of science which, in turn, is subdivided in accordance with the methodology utilized and the issues dealt with.

Moreover, the authors make a distinction between the terms "multidisciplinary" and "interdisciplinary". In their view, multidisciplinary activities are those activities which involve the participation of professionals specialized in different disciplines, but in which none predominates. In contrast, in the case of interdisciplinary or transdisciplinary activities, the decision is taken from the outset to establish interrelationships between the numerous issues. The interaction is based on the idea that each discipline should incorporate progress made in the others and be strengthened by these, giving rise to a set of interdisciplinary skills.

According to these authors, the participants in an interdisciplinary team should not only have a thorough knowledge of the topic dealt with by the study; they should also know what their contribution to the rest of the team will be, as well as what the others can contribute to them. The important thing is knowing how to transmit information and how to obtain it. In addition, it is necessary to ensure that the information transmitted is used in an appropriate manner by others; for this purpose, it is necessary to explain how to use it, indicate to what extent it is reliable and other details.

The authors also refer to the numerous problems which may arise in interdisciplinary undertakings: these include the limited ability of each member to visualize the whole array of situations under study; the different criteria, methods, languages, and presentation formats used for the results; the different academic approaches; resistance to providing information that will be used by other people and resistance in the face of issues about which nothing is known; the likelihood that several members of the team may undertake detailed research, without proposing specific actions; the range of methods for collecting information that are used in different disciplines or subject areas; the personality (psychological) traits

of each member; and the different interpretations of objectives and priorities in the overall development process and differences with respect to what each team member is expected to contribute.

In light of the above-mentioned, the team members should demonstrate a number of personal qualities, such as experience, knowledge of various disciplines or subjects, understanding of their role, a willingness to cooperate, the ability to listen to others, respect for other professions, the ability to accept the conclusions of others, the ability to provide recommendations despite a lack of information, the ability to work in a team as demonstrated above all by punctual delivery of individual inputs, the capacity to identify important elements and respect for the authority of the team manager.

The authors contend that an interdisciplinary team responsible for formulating a comprehensive development strategy or plan for a region should be made up of specialists in natural resources, productive development, social and institutional factors, economics and infrastructure. It is possible for a number of experts to participate for short periods and the number of team members may reach up to 15 or 20. Key members should be permanently on the team; this applies especially to the team leader, who should demonstrate an array of personal and professional qualities which enable him to lead a team of professionals. These recommendations refer to the ideal situation; when comprehensive studies are performed of rural areas in Latin American and Caribbean countries, it is as a general rule only possible to bring together five or six professionals at the most, and for this reason it is vital to have the time and means available to work in a team.

The second type of integration is based on the economic evaluation of the elements which come into play in a decision with the object of comparing diverse situations. The greatest challenges today facing economists concern the calculation of the value of natural resources and the incorporation into national accounts of the "natural heritage".[6]

The integration of disciplines or subjects occurs essentially at the assessment stage, while economic integration takes place mainly during the economic, social and environmental evaluation of proposed solutions.

In order for actors to conduct transactions, they must all have access to the same data. Despite its limitations, economic evaluation is the only method which provides for standardized data. The economic evaluation of proposed solutions is facilitated when a prior linkage of interdisciplinary or transdisciplinary activities is achieved.

Table 8

RELATIONSHIP BETWEEN SUBJECT AREAS AND THE PROCESS OF EXECUTION OF ACTIONS

Subject areas	Stages in the process of execution of actions				Common sphere (abstract)					-> Common -> sphere -> (concrete)
	Identification of actors	Identification of criteria	Identification of problems	Establishment of objectives		Identification of constraints	Identification of solutions	Formulation of strategies	Formulation of programmes	
Politics and plans										->
Laws and regulations										->
Institutions										->
Social structure										->
Culture and education										->
Science and technology										->
Economics and finances										->
Market and trade										->
Resources and infrastructure										->
Production and consumption										
Communication and broadcasting										

Source: Produced by the author, 1992.

V. INCORPORATION OF THE ENVIRONMENTAL DIMENSION

The incorporation of the environmental dimension into the sustainable development management process is designed to avoid or resolve conflicts related to the use of the environment (environmental conflicts) which occur between actors participating in the development of the common sphere or who have an influence on it. The incorporation of the environmental dimension must be carried out at the same time as the process of execution of actions and that of transactions between actors, and comprises several stages with distinctive characteristics.

In order to understand how this incorporation can be achieved, it is necessary to begin by explaining how an environmental conflict is currently viewed. In principle, so-called "environmental problems" do not exist as such. An "environmental problem" is a categorization made by man with respect to a natural phenomenon or a problem created by himself. For this reason, it is more convenient to treat "environmental problems" as human conflicts in relation to the environment, with a view to finding solutions (environmental conflicts). This task is performed at this stage of the study. "Environmental management" is thus the search for solutions to environmental conflicts, reconciling human needs and the environment.

Generally speaking, an environmental conflict is any conflict perceived as such by each individual from his particular viewpoint. Everybody makes judgements on the basis of his knowledge and the perception of situations which affect him; thus, for as long as he does not understand how a specific instance of environmental deterioration affects him directly, he does not consider it a conflict. He neither takes stock of what is occurring nor feels concern as to whether his activities affect third parties, even less so if such people do not complain or are unable to prevent the situation from continuing to affect them. In general, in only rare instances is a single individual capable of perceiving an entire array of environmental conflicts, unless he has specialized training and the honesty necessary for recognizing which of these are due to his own activities.

Consequently, a series of environmental conflicts are occurring which many individuals do not recognize as such. In principle, an individual (or firm) will not consider to be a conflict that which affects people perceived to be outside his sphere when the law does not prevent it; he will takes few if any precautions to avoid the damage that may be caused by certain natural phenomena which are difficult to foresee; he will not be concerned whether the resources that he destroys are a public good or whether in extracting the resource that he needs he is destroying others on which he places no value; he will not protect natural resources that do not have an economic value for him; he will be unaware of the indirect and long-term consequences of environmental deterioration, especially pollution, for his health, let alone that of future generations, and as a result he will not feel concern for them.

In contrast, when the inhabitants of a particular area group together in order to detect environmental conflicts, their ability to identify conflicts they themselves cause rises exponentially.

External factors become internal ones, there is awareness of indirect effects, doubts are collectively recognized, long-term effects are taken into consideration and elements of nature valued, at least by some actors.

The process of incorporating the environmental dimension is sustained by the resolution of environmental conflicts detected with the participation of actors who share in managing the development of a sphere. For the purposes of this process, the incorporation of the environmental dimension has been considered the equivalent of a management process for resolving environmental conflicts based on the participation of actors who live in a shared surroundings as well as those who, though not living there, have an influence on that space. Both the process of execution of actions —already described— and the process of transactions between actors provide the foundations for the solution of environmental conflicts. The environmental conflict management process simply concentrates on the environmental aspects associated with the other two processes.

The process of solving environmental conflicts consists of the following stages:

Stage I. Identification of the actors associated with environmental conflicts

The first stage consists in identifying the actors whose activities have or may have negative effects for the whole area and for other users. In that selection, made from the set of actors identified in the process of execution of actions, it should be remembered that poverty causes as much unwanted change to the environment as wealth and, for this reason, all actors should be included, irrespective of their economic status. Consideration should also be given to those who do not live in the area, but do have an impact on it. It is also important to involve specialists in environmental impact analysis.

Stage II. Determination of the criteria and responsibilities of the actors

Next, it is necessary to analyse the criteria of the actors with respect to the environment where they live. In addition, it is necessary to take into account the laws and regulations applicable to the area under consideration; determine the responsibilities and roles of the actors, in both the public and private sectors, with respect to the environment issues; analyse the functioning of institutions and their adherence to standards; and determine other elements associated with each actor. Furthermore, it is essential to understand the suppositions, values, interests and the power of each group of actors to solve environmental conflicts.

Stage III. Identification of environmental conflicts

The third stage consists in identifying environmental conflicts which either are, or may be, derived from factors such as economic and demographic growth, spatial occupation of territory and extreme natural phenomena.

Conflicts should be described in the same manner as problems and constraints (see table 3). It is important to determine the scope of each conflict in physical, economic and social terms. For example, the erosion and deterioration of 500 hectares of cultivated land (the physical dimension) can also be expressed as an economic loss of US$ 140,000 annually in monetary terms (the economic dimension) or

as an annual loss of 15 jobs directly and 30 jobs indirectly (the social dimension) in the area under consideration. As there is no such thing as absolute equivalents, it is preferable to present the three dimensions in a single table, in order that the reader can draw his own conclusions.

The environmental conflicts which occur among inhabitants of a particular area are caused by different factors and should be identified through the use of the various methods which exist for measuring environmental impact, best described in guides for formulating and presenting projects to international banks.[7] Furthermore, it is vital to know to whom each environmental impact is attributable, as well as who is, or will be, affected in the short, medium and long term. It is thus necessary to construct matrices of impacts associated with the actors and matrices of physical impacts, economic impacts and social impacts.

Stage IV. Selection of conflicts which should be avoided and classification by order of priorities

In this stage, it is necessary to determine, on the basis of the matrix of conflicts (environmental impacts —physical, economic and social— and the actors associated with these) previously identified, the order in which conflicts should be overcome, and the actors involved in each case. The final objective of the process is to reduce to a minimum the conflicts identified at the least possible cost to those involved. All measures adopted to resolve conflicts should contribute to the attainment of the general objective with the resources and know-how available.

All conflicts, duly ranked and classified, should become "cases". In addition, it is important to establish a relationship between each case and the others, in order to determine how its resolution helps resolve the array of environmental conflicts. It is very useful to build environmental behaviour models (e.g. models of water and air quality) (environmental analysis) in this stage in order to understand how the system operates.

It is necessary to determine, on the basis of incomplete models of system behaviour, what one expects to attain through the elimination of environmental conflicts. It is also essential to design hypothetical situations that reduce new conflicts to a minimum. Those situations should be used to determine the impact of the objectives of economic growth established in the process of execution of actions; for example, what new environmental demands do those objectives entail. In this stage it is essential to have a clear understanding of the technologies of changing production patterns and environmental management which will be implemented.

In this connection, it is worth remembering that in formulating objectives of economic growth, it is necessary to consider, as factors in decision-making, the sequential effects on the environment that the attainment of growth will have in the short, medium and long term.

As is possible to deduce, incorporating the environmental dimension or taking the environment into consideration when formulating development objectives comes prior to the need for concern about lessening any negative effects. In fact, it implies at least three basic aspects which assume great importance, given that they contribute to a more efficient use of natural resources. These aspects are as follows:

a) Knowledge and appropriate management of available resources, in such a way that these resources are harnessed without being destroyed or exhausted. This requires the application of know-how about environmental management.

b) Knowledge and appropriate management of the demand for resources (in terms of quantity, quality, place and time), in order to avoid excessive pressure on available resources (again in terms of quantity, quality, place and time). Such pressure depends on the regional development models which are applied.

c) Knowledge and appropriate management of the positive or negative effects produced in the environment as a result of the interplay between supply and demand for resources, in order that they be avoided, monitored or allowed.

In practice, this imposes a series of obligations or commitments for permanent action, which come before the decision to intervene in the environment, and which involve both development policies and models and scientific techniques and know-how. For this reason, it is important to consider environmental factors from the time in which the objectives of economic growth are defined and not just once the decision is adopted to execute a project or some other initiative.

In the process of incorporating the environmental dimension, the adoption of decisions is rather similar to chess. Moves and their probable outcomes are anticipated before being made. A finger remains on the chess piece thus "feigning" the move, and all the possible consequences of the move are analysed. In addition, the player strives to anticipate all possible future moves by the "enemy", in order to neutralize them or have alternatives. The player is prepared to sacrifice a limited number of pieces in order to achieve the final; the winner is the player who anticipates the greater number of options and does not allow himself to be surprised by unexpected moves. In effect, the player seeks to control the long-term situation, externalities, uncertain factors and the behaviour of elements within his control.

In incorporating the environmental dimension, it is necessary to take into account the consequences of the planned intervention from **before** the commencement of any action. If intervention is decided upon, it will be necessary to continue monitoring each action on a continuous basis until the desired objectives are attained. This requires, for example, the incorporation of the environmental dimension from the level of planning for usage to the level of operating established systems and managing natural resources.

Stage V. Priority of land use in order to avoid environmental conflicts

Priority of land use is an activity which, by definition, incorporates the environmental dimension. It should be of use in scheduling activities designed to harmonize supply and demand for resources in the short, medium and long term, in accordance with political, social, economic and environmental needs. It should also be useful for correcting negative situations, recovering lost resources and avoiding conflicts between users, as well as for forestalling the effect of natural phenomena which can cause disasters.

Any activity of this nature should be undertaken with the participation of the actors involved and using any of the previously developed methods (for example, the method of environmental priority of the land, used by Mexico's Ministry of Urban Development and Ecology).[8] Priority of land use helps identify and avoid the possible consequences of the attainment of economic growth objectives, both for the environment and for the actors. In this regard, priority of land use should be useful in determining

whether it is feasible to attain the objectives of economic growth without damaging the environment, without generating conflicts between the users and with the least possible economic and financial cost over the long term.

Stage VI. Identification of obstacles which hinder the resolution of environmental conflicts

In the course of the land management process, it is necessary to identify obstacles which hinder the resolution of conflicts. With this aim in mind, obstacles should be classified by area (e.g. politics, finance, technology, society and education, etc). The obstacles associated with each conflict should be identified and ranked by order of priority. In each case, it is necessary to determine who has created the obstacle, who is responsible for its resolution as well as who can contribute in some way to modifying the situation.

Stage VII. Identification of alternatives for eliminating objectives

The creative stage of incorporating the environmental dimension consists in identifying alternative solutions for eliminating obstacles which hamper efforts to avoid conflict. There exist two sets of complementary solutions, consideration of which should go hand in hand: direct or technical solutions (e.g. sewage treatment) and administrative or indirect solutions which should precede the first (e.g. a loan commitment to build a plant and adoption of standards to prevent water pollution). In turn, direct solutions may be continuous or discontinuous over time. The second category comprises in essence investment projects while the first category is made up of all activities involving production and provision of services.

Two complementary alternatives present themselves in the process of reconciling economic growth and environmental sustainability (see table 9). On the one hand, it is possible to define "appropriate" environmental conditions (e.g. tolerable levels of air pollution or soil erosion) and to regulate economic growth based on the available technology in order that those limits of tolerance are not exceeded (e.g. reduction of the number of polluting vehicles in circulation or a ban on the cultivation of soils on steep slopes). On the other, it is possible to set targets of "desirable" economic growth (e.g. in the areas of transportation and agricultural production) and to attempt to use technologies and take measures which ensure targets can be attained without sacrificing the environment (e.g. the use of combustion non-polluting combustion engines and systems or farming techniques which do not cause soil erosion in areas with steep slopes).[9]

In theory, people should limit their demands for economic growth until such time as they know how to manage the environment without damaging it.

Table 9

ALTERNATIVES FOR RECONCILING ENVIRONMENTAL SUSTAINABILITY AND ECONOMIC GROWTH

	ECONOMIC GROWTH AS A FUNCTION OF ENVIRONMENTAL SUSTAINABILITY (Guidelines for meeting demands for resources)
Situation:	It is necessary to define "suitable" environmental conditions and then, based on these, recommend a level of economic growth which does not harm these conditions.
Questions:	1. How does economic growth harm the environment? 2. How should growth be redirected so as not to harm the environment?
	ENVIRONMENTAL SUSTAINABILITY AS A FUNCTION OF ECONOMIC GROWTH (Guidelines concerning the use of natural resources)
Situation:	It is necessary to determine the desirable features of economic growth and then, based on these, make recommendations as to how the environment can be "managed" so as not to cause it to deteriorate.
Questions:	1. How do environmental management techniques contribute to economic growth? 2. How can the environment be "managed" in such a way that the desired level of economic growth is reached or maintained?

Source: Axel Dourojeanni, Procedimientos de gestión para el desarrollo sustentable (aplicados a microrregiones y cuencas) (89/05/Rev.1), Ensayos series, Santiago, Chile, Latin American and Caribbean Institute for Economic and Social Planning, 1991.

As regards resources, there are two complimentary alternatives:

a) Formulation and execution of investment projects, which, by their very nature, constitute a form of direct intervention in the environment in response to demands. It is not necessary to explain in greater detail just how important it is to try and ensure that "intervention" is as harmless as possible and has as few effects as possible. This option is being widely analysed in order to incorporate environmental considerations, above all in projects that receive international financing.

b) Operation and maintenance of developments already built, and management and conservation of resources. This stage has to do with monitoring the possible effects of intervention, so as to ensure a suitable degree of profitability and conservation of resources. This activity is ongoing and provides major scope for improvement in the environmental sphere.

As regards the demand for resources, consideration of the environmental dimension is undoubtedly a complex task, and one in which it is necessary to consider changes in "styles of development"; ECLAC, via its Joint ECLAC/UNEP Development and Environment Unit, has been working on this issue for a considerable period of time. Demand management involves aspects of a technical, political, economic and social nature; it aims to modify the population's consumption patterns and foster more efficient use of resources.

Stage VIII. Strategies for the application of technical solutions

The formulation of strategies for applying solutions is the most important stage of all. It involves determining how solutions will be applied, who will do this, with what resources, when and in what order. Furthermore, in designing strategies, it is necessary to take into account the unique characteristics of solutions which may be used in resolving environmental conflicts and these are listed below:

- solutions are long term and their effects may extend to more than one generation;
- most solutions give rise to externalities:
- success of the solutions is contingent upon a series of uncertainties;
- a wide variety of indirect environmental effects still go unrecognized;
- no value is attached to many elements in nature or else they go unrecognized;
- generally there is an absence of mechanisms for applying solutions.

Stage IX. Formulation of programmes and projects for the solution of environmental conflicts

When designing programmes and projects, the use of guides put out by financial organizations, such as the World Bank, the Inter-American Development Bank and the United Nations Development Programme, is recommended.

Stage X. Execution of programmes and ongoing monitoring of the sphere

This is the final stage before the cycle is begun again. It is believed that monitoring should be an ongoing activity.

As regards the sequence suggested for incorporating the environmental dimension, it is worth mentioning that each shared area or sphere of management is characterized by the huge number of interests at stake, and that this number rises to infinity if we consider the objectives of each society, firm or individual involved. In actual fact, their positions are normally in conflict and anyone who has ever organized a roundtable for the aim of overcoming an environmental conflict will understand just how difficult it is to reach agreements based entirely on good will. Consequently, what is required is a system of environmental management which promotes transactions between actors and which provides for arbitration, application of laws, granting of subsidies and adoption of compensatory measures.

A situation of environmental anarchy will eventuate in the absence of a system of management which facilitates dialogue about environmental issues between all actors who share an area. As a general rule, the agencies established in an effort to avoid and overcome environmental problems can not resolve conflicts on their own, because they can never count on all the resources necessary for checking the negative effects which result from poor environmental management and, because, regrettably, in most cases the only people who have the resources and who know how to avoid undesirable effects are the same people who are producing the effects.

More efficient methods should thus be used. For example, those responsible for the management system which promotes economic development in an area can encourage, guide and administer a series of transactions between those who have caused environmental problems and those who are affected by

these problems. In such a case, there is a need for resources for identifying compensatory measures, mediating in conflicts and ensuring that the actors involved meet their commitments.

The afore-mentioned is based on the assumption that, when combined, the solutions of environmental conflicts —provided that these solutions take a suitable approach and span all of the shared area— may lead over the long term to comprehensive development and management of the region taking into account both the environmental and social spheres. This assertion is based on the fact that up until now transactions on environmental issues have been minimal or incomplete and, as has already been indicated, the existing situation is one of anarchy between those causing environmental conflicts and those affected by these conflicts, rather than a search for solutions.

The few agreements which do exist are simply measures designed to protect against negative situations, and these generally only benefit a few groups, because no consideration is given to either the advantages of avoiding conflict from the outset nor to the rest of society. This is true of flood control systems, which only take into account a few sections of a river and do not entail measures directed at the river basin nor other parts of the channel, or with proposals for watershed management formulated for the exclusive benefit of inhabitants of areas located downstream.

This situation reflects in essence three factors:

a) The users' lack of awareness of possible environmental transactions which they may conduct among themselves for their mutual benefit, together with their lack of awareness of the possible value of such transactions over the short and long term.

b) The users' relative impunity as regards the destruction or misuse of the environment when it affects third parties or people with relatively less power (generally speaking, the most powerful user does not feel the need to sign agreements with anyone if he can defend himself on his own, and as a result he assumes no obligation to not harm third parties either).

c) The lack of political will to enforce laws and agreements previously agreed upon and to establish agencies which will be responsible for ensuring enforcement.

In order to promote the greatest possible number of environmental transactions and give shape to the process, there is a need, as has been mentioned, for a management system —and not just a simple administrative apparatus— to be set up at the regional level and implemented within a framework of comprehensive development, taking into account the needs of all the inhabitants as well as conservation of the environment. This type of management system should incorporate technical and legal activities and have, inter alia, the following functions:

a) The formulation of conceptual frameworks and indicative plans (environmental management), in order to identify possible transactions between users, and give shape to the process striving to ensure that these benefit both individuals and society to the greatest possible extent.

b) The summoning of potential participants so that they carry out transactions in the knowledge of the value of each transaction, as well as the legal requirements established by society. The stages of the process of environmental transactions are presented in table 10.

Table 10

STAGES IN THE PROCESS OF ENVIRONMENTAL TRANSACTIONS

Stage 1:	Identification of the actors participating in development, and utilization of the natural resources and the environment, as well as those actors whose activities harm the environment.
Stage 2:	Adoption of measures designed so that the interests of individuals or groups whose relations are marked by interdependence are duly represented.
Stage 3:	Comparison of the differences and affinities between the actors in order to identify possible areas of agreement.
Stage 4:	Definition of technical and operational alternatives which provide for evaluation of possible areas of agreement between the actors present.
Stage 5:	Delimitation of the alternatives' area of geographical or physical and institutional or administrative influence, in order to determine which actors are involved.
Stage 6:	Prediction of the effect of adopting proposed solutions in order to determine the degree of commitment on the part of the actors.
Stage 7:	Evaluation of proposed solutions, wherever possible in quantitative terms, through the calculation of the direct and indirect costs and benefits of each. Provisional allocation of costs and benefits identified by the various actors.
Stage 8:	Identification of possible compensatory measures to be carried out by the State or community agencies, in order to overcome possible anomalies in allocating costs to actors when the agreements in question benefit society as a whole.
Stage 9:	Execution of the transactions with a clear understanding by the signatories of the agreement of the obligations they assume and of possible compensatory obligations.
Stage 10:	Adoption of juridical measures, guidance and provision of technical assistance, where necessary through ensuring the observance of commitments procured from actors. Maintenance of a system of monitoring.

Source: Based on Stanley A. West, "Planificación, análisis ambiental y gestión del conflicto", Las represas y sus efectos sobre la salud, Thomas S. Schorr (ed.), Mexico City, Pan American Health Organization (PAHO), 1984.

The management system should deal with avoiding the outbreak of conflicts, solving, monitoring or mitigating the effects of problems and eliminating the causes. In order for this to happen, it is essential that the users be made to participate so that they adopt measures of environmental management.

Hypothetically speaking, the establishment of a system of this nature would be similar to the setting up of a market for "environmental transactions". In the event that this market offered options with a known economic value, it would provide for the sale and purchase of environmental shares on a basis of mutual agreement between the interested parties and in accordance with pre-established rules. A transaction of this type could take place, for example, between the inhabitants of the lower part of the river basin, who wish to have access to water of a good quality, and the inhabitants of the upper part of the river basin, in order that this quality be maintained.

Furthermore, we must regrettably acknowledge that neither the existence of a system of environmental management or something along these lines, nor environmental legislation, is any guarantee that objectives can be successfully attained. Many countries or regions have put systems of this type into place, but these are not implemented in the absence of solid political backing. In many instances, that support has only been forthcoming in the wake of major crises or disasters. Major disasters have undoubtedly proved more of a spur than hundreds of meetings or articles in periodicals, but clearly they are not the most appropriate solution. The ideal situation involves taking measures before crises occur, in order to avoid them or be in a position to cope with them should they prove unavoidable.

VI. A PLEA FOR SUSTAINABLE DEVELOPMENT

The three objectives which contribute to sustainable development should be attained using certain territories or areas as a yardstick. These areas can vary over time, either because they change the range of management or because the areas themselves undergo change. This should be understood as part of a dynamic process involving the concept of sustainable development. The leading actors, those who direct the process, are the inhabitants of the space as well as those who have an impact on it. As has been indicated, each actor has his own criteria, problems and objectives.

To sum up, it is worth noting that reconciling economic growth (represented by the process of execution), social equity (represented by transactions) and environmental sustainability (represented by the environment's possible response to intervention) is a complex task. In view of the fact that decisions depend on numerous subjective factors that have yet to be quantified, methods should be used which facilitate the actors' effective participation.

The management procedures described in this document offer the principles for carrying out this reconciliation without taking into account conceptual and theoretical limitations; this implies the direct participation of the actors committed to the search for sustainable development. The method described has proved useful for classifying the hundreds of inputs to the issue of the environment and, in addition, for applying many ideas which for the meantime remain good intentions. The application of this method is valid in any sphere, but is more suitable at the municipal, micro-regional and regional levels and in the case of catchment basins. The book on which this summary has been based contains ample practical information which facilitates an understanding of the application of the procedures presented.

Notes

[1] Peter Nijkamp, "Regional sustainable development and natural resource use", Proceedings of the World Bank Annual Conference on Development Economics, World Bank, Washington, D.C., 1991.

[2] Robert Costanza and Lisa Wainger, "No accounting for nature, how conventional economics distorts the real value of things", The Washington Post, Washington, D.C., 2 September 1990.

[3] Axel Dourojeanni and Tomás Santa María, "Estrategia de participación y concertación campesinas para el desarrollo de microrregiones de alta montaña en América Latina", Desarrollo agrícola y participación campesina (LC/G.1551-P), Santiago, Chile, ECLAC, 1988. United Nations publication, Sales No. 89.II.G.11.

[4] In this stage, the application of the "project planning by objectives" method is recommended. This is the method used by the Germany Agency for Technical Cooperation (GTZ), whose address is Dag Hammarskjöld Weg 1-2, Postfach 5180, D-6236 Eschborn 1, Frankfurt, Germany. Telephone (06196) 79-0, Telex 407501-0 gtz d.

[5] J.M. van Staveren and D.B.W.M. van Dusseldorp (eds.), Framework for Regional Planning in Developing Countries. Methodology for an Interdisciplinary Approach to the Planned Development of Predominantly Rural Areas, ILRI Publication series, No. 26, Netherlands, International Institute for Land Reclamation and Improvement (ILRI), 1983.

[6] CCT/WRI (Tropical Science Center/World Resources Institute "La depreciación de los recursos naturales de Costa Rica y su relación con el Sistema de Cuentas Nacionales", San José, Costa Rica, February 1991; and Li Jinchang and others, "Natural Resource Accounting for Sustainable Development", Centre for Research into Development of the Council of State and the World Resources Institute, Beijing, The China Environmental Science Press, 1987.

[7] For example, the Asian Development Bank has made available a series of guides (including "Environmental Guidelines for Selected Infrastructure Projects" and "Environmental Guidelines for Selected Agricultural and Natural Resources Development Projects"), in which recommendations are presented for measuring environmental impact.

[8] The Ministry of Urban Development and Ecology is located at Constituyentes N° 947, Colonia Belén de las Flores, Delegación Miguel Hidalgo, Mexico City, Telex: 271-6614, Telephone 271-8481.

[9] Axel Dourojeanni R., "Transacciones ambientales en el campo de los recursos hídricos", Medio ambiente y urbanización, year 8, No. 31, Buenos Aires, International Institute for Environment and Development (IIED), June 1990.

Annex 1

STRATEGIES FOR THE DEVELOPMENT OF THE PERUVIAN SIERRA: ARE THEY STRATEGIES?*

* English version of an article prepared by Axel Dourojeanni R., published in Actualidad económica del Perú, No. 114, extraordinary edition, Year XII, March 1990 and No. 115, April-May 1990, Lima, Peru.

A. Development strategies for the Sierra

A number of global and partial strategies have been devised in Peru for promoting human development in the Sierra (see table 1). A great deal of effort went into the formulation of these strategies which, taken as a whole, include virtually all the elements and characteristics needed to permit the design of a coherent, viable programme of work. In spite of this entire array of strategies and plans, however, it is obvious that none of them has the features required of a national strategy.

Apparently, however, the only strategies that have successfully been transformed into coordinated, effective action programmes are the quite limited number of local or micro-regional strategies which are directly supervised from within the region, which make use of personnel already in the communities in question, and which are run on the basis of stable, flexible, autonomous management systems. Examples of such strategies include the Rural Development Programmes for Micro-Regions in Cuzco (PRODERM) and the Integral Forestry and Agricultural Rural Development Programme of the National University at Cajamarca.

The national-level strategies are relatively less effective. Peru's subsectoral programmes, however, have also proved capable of carrying out concrete activities. Some examples of such initiatives are the Sierra Irrigation Improvement Programme (PLAN MERIS) and the National Soil and Water Conservation Programme directed by the Ministry of Agriculture. There are many other strategies aimed at, for example, promoting specific crops (e.g., maize, potatoes), improving rabbit breeding or bee-keeping, or promoting the generation of biogas and the use of solar cookers. Unfortunately, as noted by A. Paniagua, despite their unquestionable value as individual undertakings, these strategies tend to atomize or "compartmentalize" development.

Serious problems have also been encountered at the sectoral level. For example, the initiative known as the Sierra Plan Special Project, which was launched by the Ministry of Agriculture, was aborted after it was found to have what were regarded as conceptual flaws in its design. The failure of this plan was analysed extensively by Orlando Plaza in an article which appeared in Issue No. 5 of the Revista Debate Agrario.

At multi-sectoral levels, attempts to co-ordinate human development initiatives targeting the Peruvian Sierra have thus far been unsuccessful. At the national level, the most significant effort appears to have been mounted by the Special Project of the Programme for the Development of Micro-regions in Economic and Social Emergency Situations. This project is in serious danger of being discontinued, however, despite the fact that its originators identified the reasons why it has fallen short of its objectives quite early on.

Table 1
LIST OF SOME STRATEGIES FOR PROMOTING THE GLOBAL OR PARTIAL DEVELOPMENT OF THE PERUVIAN SIERRA

Names assigned to the strategy and references used

1. Development strategy for the Peruvian Sierra
   Reference: Documents of the Special Project of the Programme for the Development of Micro-Regions in Economic and Social Emergency Situations. National Planning Institute (INP). Working documents series, Lima, 1984.

2. Plan proposed by the Izquierda Unida government for the Peruvian Sierra
   Reference: Javier Iguiniz in "Estrategias para el desarrollo de la Sierra", published by the Universidad Nacional Agraria "La Molina" and the Centro de Estudios Rurales Andinos "Bartolomé de las Casas". Cusco, April 1986.

3. Sierra Plan Special Project
   Reference: Documents of the Ministry of Agriculture, 1988. Comments of Orlando Plaza in issue No. 4 of Debate Agrario.

4. APRA programme: Development of the Sierra
   Reference: Víctor López in "Estrategias para el desarrollo de la Sierra", published by the Universidad Nacional Agraria "La Molina" and the Centro de Estudios Rurales Andinos "Bartolomé de las Casas". Cusco, April 1986.

5. Water resources projects to help peasants of the Peruvian Sierra
   Reference: W.W. Shaner and Axel Dourojeanni. Document of the International Development Agency (IDA) and the Water Resources Department, Lima, 1975. Note: This proposal later became the Sierra Irrigation Improvement Plan (PLAN MERIS).

6. National Soil and Water Conservation Programme of the Water Resources and Soils Department of the Ministry of Agriculture
   Reference: 5 Años de Conservación de Suelos con los Campesinos de los Andes Peruanos. Ministry of Agriculture. Lima, 1988.

7. Communal Reforestation Project-Guidelines and methodologies for its formulation
   Reference: Chris Van Dam and Arjen Hettema. Publication of the National Forestry and Wildlife Institute (INFOR) and the Food and Agriculture Organization of the United Nations (FAO). Lima, March 1985.

8. Special Rural Development Programme for Micro-Regions (PRODERM) Reference: "La experiencia de 10 años del PRODERM", published by the Cusco Development Corporation under an agreement between Peru, the Netherlands and the European Economic Community. Cusco, March 1988.
9. Integral Rural Development Programme of the Forestry and Agricultural Service (SESA) of the Universidad Nacional de Cajamarca Reference: Various SESA documents and the "Manual Silvo Agropecuario", published by the Board of the Cartagena Agreement and the European Economic Community. Lima, 1989.
10. River Basin Management: Towards a new Rural Development Strategy in Peru Reference: Julio Alfaro and Alberto Cárdenas Alva, book published under the auspices of the Friedrich Ebert Foundation. Lima, October 1988.
Note: This list has been drawn up solely for illustrative purposes. There are many more similar strategies at the national, regional, micro-regional and communal levels.

Concepts concerning national, multisectoral policies have been superimposed upon these programmes, as in the cases of those put forward in the APRA programme for the development of the Sierra and the proposal contained in the plan of the United Left administration for the Peruvian Sierra. They have been formulated at such an aggregate level that Julio Cotler, upon hearing a presentation of these policy ideas, was moved to ask, "How is this to be done? How can this be done, and by whom? These questions are simply a reflection of the fact that these integral national plans still fall far short of providing a clear indication as to how to go about achieving concrete goals, and they therefore raise yet another question: "Why do they fail to do so?"

This essay attempts to answer that question. In so doing, some hypotheses will be advanced concerning the reasons for these failures.

Among the various possible hypotheses, there are two which would appear to explain part of the reason why a number of strategies have failed:

1. The requisite information for their design and formulation was not employed in carrying out these tasks. Assumptions took the place of the necessary data and knowledge.

2. Although they were called "strategies", many of the proposals were not designed in such a way as to fulfil the inherent requirements of a strategy.

In order to ascertain whether or not these postulates are valid, an effort will first be made to formulate a definition of what, in the view of the author, a strategy actually is and what its main qualifying characteristics are. Once such a definition has been devised and these characteristics have been identified, they will be used as a basis for evaluating some of the strategies which have been designed for promoting human development in the Sierra.

B. Strategy-design inputs and requirements

The first step in testing the above hypotheses is to define what inputs are needed in order to formulate a strategy and what requirements its design should satisfy.

The inputs needed in order to formulate a strategy are obtained by means of the sequence of steps outlined in table 1 of the text. The actual design of the strategy is not begun until one reaches step 8 in this sequence, after it has already been determined which actors will be involved in its management; what the strategy's guidelines, problems and objectives will be; in what setting the strategy is to be applied; what obstacles or constraints will have to be overcome; and how they are to be surmounted. In other words, strategies can only be designed once we know what their objectives are to be and whom they are to benefit. There is also a close correlation between the nature of the information obtained through the execution of the preceding steps in the sequence and the nature of the information needed in order to design the strategy.

Some authors feel that the information acquired in the course of these initial steps of the sequence constitutes, in and of itself, a strategy. This is not the case, since this information actually constitutes no more than the inputs for the strategy's design. None the less, a failure to acquire these inputs will lead to serious mistakes later on (see table 4 in the text).

Once it has been ascertained whether the strategy has been formulated on the basis of the necessary inputs, it must then be determined whether the design as such includes the characteristics required of a strategy, which are as follows:

i) Strategies are usually designed by one group of people, transmitted by another, and applied to yet another. In other words, some people formulate a strategy, other people implement it, and still others are its target group. Tactics and tools must be employed in order to ensure people's participation in these three phases. The greater the degree of participation of the same actors in these three phases, the less need there will be to use tools of persuasion or coercion to secure the acceptance of the decisions reached. Strategies that do not provide means of coordinating the actions to be taken with the participation of the actors involved are incomplete.

ii) Strategies are based on positions deriving from the way in which each of the actors involved in the development process interprets the situation. Indeed, they are based on current "realities" or "scenarios" visualized by each actor or group of actors, who look forward to the achievement of other "realities" or "scenarios" which are also relevant to each such actor. There is more than just one current and future reality for each actor, and these realities change over time. In designing a strategy, these positions should be taken into consideration and coordinated with one another.

iii) All strategy proposals are based on projections concerning future situations and therefore involve a high degree of uncertainty. This uncertainty increases in proportion to the extent to which knowledge about the situations involved is lacking. In order to do away with this uncertainty, optional paths towards the strategy's goals should be plotted. In order to learn more about the relevant situations, the inputs provided by the actors and the available information should be studied and internalized. Strategies which do not provide for such optional or alternative avenues tend to fail the first time an obstacle presents itself.

iv) Strategies are designed to achieve tangible, specific goals for each actor in the development process. This means that the achievement of such goals must also be based on tangible, specific facts. "Assumptions" have no place in the design of a strategy unless they are accompanied by ways of transforming those assumptions into certainties or of opening up alternate avenues in the event that the assumptions prove to be incorrect. Assumptions are a strategy's weakest point.

v) The implementation of a strategy requires a number of different types of resources, including time, funds, personnel and equipment. Time is a fundamental factor in the implementation of a strategy and is a function of the amount and types of resources available. Tactics for managing the available resources are just as important as those used to incorporate the relevant actors into the strategy's application. This is why it is important to have a clear idea of what resources are, may be or will be available for the implementation of the strategy and to prioritize their utilization in terms of the goals to be achieved.

vi) The necessary participation of the majority of the actors involved can only be attained if a system for managing the implementation of the strategy exists. The design of this management system should be tailored to the development process to be carried forward. A strategy which is not backed up by an efficient management system cannot be implemented. Furthermore, it is of no use to plan interagency coordination processes if they are not going to be put into practice or if they are not accompanied by the necessary resources, in addition to the corresponding legislation. A strategy must be designed so as to incorporate these considerations if it is to have any validity.

C. Evaluation of the necessary inputs for the design of a strategy

The first hypothesis can, theoretically, be tested by ascertaining whether the first seven steps outlined in table 1 in the text have been completed before work on the actual design of the strategy is begun. To this end, the following questions need to be answered:

1. Have the main Sierra and non-Sierra actors involved in the development management process participated in the design of the strategy?

This question must, in turn, be broken down into two parts: a) have all the actors been considered in the formulation of the strategy?; and b) have the appropriate arrangements been made to ensure that they participate in its application?

The answer to both part of this question is usually "no". Only rarely have all the relevant endogenous and exogenous actors been considered, and it is even rarer still that the appropriate steps have been taken to ensure their participation.

In many cases, the overriding tendency is to identify only three groups of actors:

- The executing or cooperating agencies or authorities in charge of financing, executing or supervising the application of the strategy;
- The type and number of technicians or experts who are to be responsible for formulating or applying the development strategy; and

- The people, families or communities who are to benefit from the initiative. The identification of these latter groups is generally no more than a list of the names of the communities and the number of families.

Numerous actors, inhabitants and users therefore go unidentified, as well as others who play a role in the area in question, such as local entrepreneurs, merchants, carriers, representatives of mining companies, university professors, clergymen, teachers, etc.

Moreover, even the list of the three groups mentioned above generally includes only the names of the persons who have formulated the strategy or who are in charge of its implementation: the directors of the institutions concerned; the executive, financial and supervisory authorities; technicians; and even the project's graphic artists, secretaries and drivers —but it is practically impossible to find the names of the mayors or community directors participating in the programme, to say nothing of the names of other people of significance to the development of the area in question. Obviously, it would be unrealistic to expect such a list to include the names of hundreds of people living in a given location, but it should at least contain those of the main participating local authorities.

In addition to identifying the actors involved in the development management process, means of promoting their participation must also be found. Despite the fact that most of the strategies which were examined mentioned the importance of the participation of peasants or local inhabitants, virtually none of the strategies achieved this goal except those conducted at the local level. One of the main reasons for this failing is that the strategies did not make the necessary provisions for recruiting, training and retaining the large number of technicians needed to undertake the promotion and extension work that would have been necessary in order to elicit the desired grass-roots participation.

This situation is clearly illustrated by the Programme for the Development of Micro-Regions in Economic and Social Emergency Situations, which included the following statements in its original proposal:

> "Another aspect of special importance is that of technical staff. Due to the primarily sectoral organization of the government service, there is a severe shortage of staff having sufficient technical know-how and field experience in integral projects requiring an interdisciplinary approach and a knowledge of Andean culture and technology. It is noteworthy that these staff will acquire a large part of their training through their daily work, in which theory contrasts with reality. This requires an effort to systematize the experiences encountered by technicians and the methods and instruments they devise to solve the problems which arise in connection with participatory programming, implementation and evaluation at the community and micro-regional levels. A national register of these valuable resources (technicians) should therefore be drawn up in order to keep them in touch with rural public authorities, and an appropriate policy of incentives should be provided for them that would include improving their skills and capabilities. This would also make it possible to mobilize them at the national level, in accordance with the needs of the strategy...".

The programme was not able to put these ideas into practice, precisely because they remained "ideas", with no clear specification of how to carry them out. The result, as the authors of the strategy themselves pointed out four years after the above statements were made, is that:

"An analysis of the process of implementing and launching the Programme for the Development of Micro-Regions in Economic and Social Emergency Situations reveals three of the basic factors which hindered the fulfilment of the objectives of the process:

- The insufficient technical skills of most of the persons in charge of implementing works and activities in the micro-regions owing, on the one hand, to the nature of their university training and, on the other, to their lack of professional experience, in part because those who are assigned to these posts in the micro-regions are young, as indeed they must be in order to endure the difficult living conditions and accept the low pay offered.
- The shortage of certain types of professionals in the interior of the country, especially civil and agricultural engineers.
- The technological content of the design and execution of projects, which is a reflection of university and technical training received under rules and procedures designed by developed countries...".

An awareness of the importance of having skilled technical personnel, which was amply reflected in the formulation of the strategy, was not enough to prevent the problems which arose.

This situation was repeated in the implementation of the strategy of the National Soil and Water Conservation Programme. An evaluation of its application notes that "The staff originally provided for by the programme, except for the core team, was insufficient". This evaluation adds that the core team included a multidisciplinary group of professionals composed of a soil agronomist, an agricultural engineer, a sociologist, an economist, a specialist in range land and pasture land (agronomist, biologist or zoological engineer) and a forestry expert, but that "the work of the core team could not be effectively carried out inasmuch as there were no multidisciplinary teams in the field offices. These teams had to comply with directives from various kinds of professionals without having a corresponding back-up team. The programme's administrative constraints were thus compounded by the fact that the field offices were operating without specialists in the areas of forestry, crops, livestock, sociology, economics, etc.

The importance of participation by the supposed beneficiaries of the strategy is discussed in nearly all the strategies assessed. However, the ways in which such participation is promoted and interpreted differs significantly from one strategy to another.

One strategy which deals with this aspect of the question in depth is the National Soil and Water Conservation Programme. To further the aims of this programme, a promotional strategy based on the following two postulates was devised:

"- Large-scale soil conservation projects of the kind undertaken by the Programme must be based on the awareness, organization and conviction of the peasants themselves.

- What was primarily needed in order to motivate the peasants to use conservation practices was training. The kind of training needed was practical training which would have a virtually automatic multidisciplinary effect (in that peasants who had received training would train others)".

The authors noted that difficulties were encountered in respect of the first postulate because the peasants were receiving incentives (food, pay, etc.) from other projects, so that mere consciousness-raising was not enough. Therefore, they also had to offer incentives, as well as to provide

training. In addition, they found that the training being given to the peasants was not enough to induce them to pass on what they had learned to others.

The Programme reformulated the strategy so as to promote the creation of committees of conservationist farmers, prepare more adequate communications material and use zonal promoters. Programme personnel also realized that they should first recognize what the farmers already knew about soil conservation before teaching them anything. The experience acquired in this programme is discussed in a document entitled "Estrategias de promoción en las comunidades y caseríos andinos para la Conservación de Suelos en el Perú".

The Rural Development Programme for Micro-Regions (PRODERM) document states that "although the basic problems are in general similar, each community has its own characteristics and priorities which must be taken into account. Consequently, a second basic component of the method of work is participation by the population. Experience has clearly shown that in the absence of this component, any activity initiated under the project has very little likelihood of being accepted and continued by the community".

The need for PRODERM to incorporate local agents is recognized from the outset and is supported in a statement made by the authors themselves in which it is noted that "there is no single standard package of activities which can be applied to each and every community. In all communities the need exists to rank the demands and needs in terms of the priorities (of the local agents) and to bring this list into line with what the project may offer".

In general, it has been found that the most successful projects have been those in which the project personnel have taken the time to identify the agents participating in the development management processes and, in particular, to create mechanisms and methods in order to make their participation effective.

2. Does the strategy design clearly reflect what the criteria, problems and objectives of each of the agents involved in the management process are?

The way in which these three closely related factors —criteria, problems and objectives— are dealt with is another key aspect of strategy design. It is crucial to know the position of each agent with respect to these factors in order to make it easier to obtain censuses and to carry out transactions among the agents.

The strategy relating to the Rural Development Programme for Micro-Regions, for example, explicitly defines its criteria for action, and to that end various approaches, principles and methods of work are noted. In describing the development of agriculture in Peru, it is stated that:

> "The growth of agricultural production as a whole has lagged considerably behind the growth of the population, and the country's capacity has therefore declined.
>
> The relatively slow growth of output is due to the poor performance of agriculture in the Sierra, where production has declined during extended periods of time.

Sierra agriculture produces primarily for on-farm consumption and local markets. There is a close relationship between agricultural stagnation in the Sierra and migration and urbanization processes in Peru...", and so on.

On the basis of this statement of criteria and problems, the objective of the programme was "to contribute to the integrated rural development efforts of the Peruvian Government and to complement them in the context of micro-regional planning".

The working criteria of each actor shape the type of strategy used, and they must therefore be stated explicitly. Thus, the PRODERM staff feel it is necessary to implement the entire series of planned activities in order to deal with the problems of the communities, and they state that "a number of factors determine the extremely low levels of current production and income. Changing one small part will not basically alter production conditions. Only simultaneous efforts to deal with a number of the most serious limiting factors (constraints) could have any real effect".

The programming elements and programme budget should reflect this statement. According to PRODERM staff members, this is precisely what they are doing when they say that "the programming elements of PRODERM correspond to the main activities of the economic life of the community". They also note that these elements are never applied automatically, since "each community has its own characteristics and priorities that must be taken into account". In other words, the criteria, problems and objectives of the "community" actor must be considered if the programme is to be at all successful.

Another valid criterion for other development strategies in the Sierra is that "actions must be taken in a decentralized manner and in concentrated areas, in order not to waste resources... There is not enough local knowledge about the characteristics of each community to allow for a proper assessment of the problems, nor is there enough time for effective participation of the population if an attempt is made to cover too many communities with too few resources". In other words, they have criteria which guide the establishment of action priorities.

Another important PRODERM policy or criterion is that "wherever possible, investment projects must be transferred to peasant communities rather than to institutions, which generally lack the necessary staff and equipment. The entire project formation strategy is based on this principle."

Some strategies, however, appear to take inadequate account of, or even to ignore, the criteria of some of the participating actors. This is what apparently happened in the preparation of the project known as the "Sierra Plan Special Project" by the Ministry of Agriculture of Peru.

According to Orlando Plaza, "the strategy did not use as an input the information acquired in recent years on the Peruvian Sierra, and ignored a series of accumulated positive and negative experiences". Plaza supports his position by listing a series of commonly accepted criteria relating to the development of the Sierra which were not taken into account in the strategy.

It may be concluded, then, that the failure of many strategies to incorporate acceptable criteria for the conditions in the Sierra limits or prevents their implementation.

3. In respect of strategy design, was provision made for an adequate baseline study of the environment? Did this study make it possible to identify the constraints and solutions involved in achieving the goals of development in this environment?

For purposes of strategy design, a baseline study of the environment is needed. The study must be in keeping with the development objectives sought or the programme to be executed. Its purpose is to identify the existing constraints and to define means of overcoming them so as to achieve the strategy's development objectives.

The various strategies analysed here have generally been based on baseline studies of the areas where development processes are to be carried forward. A number of these studies, however, do not provide necessary or useful information for strategy design, but instead provide a large volume of information of little relevance to the task of designing a strategy.

Consequently, some of the development programmes in the Sierra, such as that discussed in the above example, have formulated specific guidelines for the preparation of their individual baseline studies. These guidelines could be significantly improved, however, if such initiatives were to pool their experiences.

For example, according to the Programme for the Development of Micro-Regions in Economic and Social emergency Situations, "The scope and content of the evaluations and baseline studies prepared by the professionals working at the local level varied. Some dealt with certain subjects while others did not. Some provided quantitative figures while others provided only descriptions. The presentations of their findings also differed." This situation prompted the programme to design its own methodological guidelines for community studies. It is unfortunate, however, that many such initiatives are isolated efforts and thus do not draw upon the experiences of other, similar programmes. There must be at least 30 sets of "methodological guidelines" for working with communities in the Sierra, but it is difficult to locate them when personnel are called upon to formulate a new one.

A great deal of work still remains to be done as regards compiling information on development constraints and solutions in the Sierra as well. For example, out of 143 proposed solutions set forth in 15 studies on basins and micro-regions in the Andean highlands, only two of them suggest means of upgrading local industry and only three propose activities for improving marketing. This runs counter to the necessary integral design of solutions to development problems and points up the urgent need to train personnel to direct integral development management processes in the Sierra.

D. Evaluation of strategy characteristics

The aim of this section is to test the second hypothesis, i.e., to determine whether the strategies in question include the provisions and elements needed in order to give them the characteristics inherent in an effective strategy (see table 4 in the text):

- Design of viable tools for gaining acceptance of the strategy and for eliciting participation in its application;
- Incorporation of the viewpoints of all the actors regarding the nature of the current situation and the desired situation, together with the methods of attaining the latter;

- Elimination, insofar as possible, of assumptions or the provision of means for converting them into certainties;
- Generation of options or alternatives for eliminating uncertainties;
- Provision of the resources needed to implement the strategy;
- Organization of the management system needed to direct the application of the strategy.

To begin with the first element in the above list, it is important to note that, even in a situation where agreements are reached by consensus, the management team cannot neglect to decide on the "tools" which the various actors involved in the development process are to use to put these agreements into practice.

If the group which designs the strategy does not represent all of the actors involved in the process, then there will be a tendency to regard the group's decisions as being imposed upon the unrepresented actors, even if the decisions are intended to assist and benefit them.

It is to some extent inevitable that strategies affecting hundreds of persons will be originated by decision-makers, will be channelled through links or transmitters, and will be executed and applied by third parties.

Therefore, those instruments known as "tools of participation" are usually means of eliciting action from third parties. The best known tools of this sort are economic instruments, such as prices, taxes, exemptions, subsidies and directed loans. There are also other tools, such as the control that can be exercised over property, education, housing, communications, etc. In actual practice, there are also "tools of power" which use some agents to act upon others.

In order to employ these tools, some of the strategies rely on reason by proposing mechanisms based on teaching, dialogue, the exchange of ideas, consensus-building and compromise. Others resort to inducement in the form of praise, attraction, tempting offers, rewards, demagogy or idealization. Finally, there are those which have recourse to threats that may take the form of controls, repression, coercion, terror or imposition.

In the first case, what begins as a confrontation of ideas may end up as the formation of a consensus of ideas and equitably beneficial compromises. In the other two cases, equity is rarely achieved.

Few of the strategies clarify exactly what tools are being proposed for the strategy's application and why. Nor do they indicate whether the majority of the actors are in agreement as to their use. In addition, the tools need to be effective. There are cases, for example, in which "incentives" are provided for the decentralization of business enterprises through the reduction or elimination of taxes in a remote region. Nevertheless, entrepreneurs do not relocate to that region because, at a central level, it is quite easy to evade taxes. Therefore, the incentive is not performing its function.

When the tools used are ineffective they cause the strategy to fail. For example, many Sierra development strategies start from the assumption that peasant participation is assured. This assumption entails the further assumption that the peasants fully understand what their situation is and what they want, and that they have representatives and channels through which to express this. Moreover, it also assumes that the entire public system is in agreement with such participation and is capable of working on a participatory basis.

In practice, however, many of the strategies could not be applied, precisely because they were based on the large-scale participation of the population or of other public sectors which did not materialize, whether because the population did not have as much know-how as expected, was not in agreement with what was proposed, or did not know how to go about it, or because other public sectors did not wish to abide by plans that they played no part in formulating and thereby be subject to undesired controls, or because the tools used to bring about participation did not work.

Another common failing was to base the strategies on the State's supposed capability to reach the entire population. In practice, this did not come about because no such capability existed or because of a lack of a State presence, especially in highland areas (or, if there was such a presence, the State lacked the necessary operational resources).

Another common assumption is that all the required professional personnel will be available or that the desired inter-institutional coordination will take place. This usually does not materialize, unless the appropriate steps are taken to ensure it.

If someone designs a strategy based on assumed "realities" which do not exist, he may be doing so out of simple ignorance or naivete, as an expedient, or intentionally. The first of these —ignorance— appears to be the cause more often than is generally thought.

The uncertainty inherent in the design of a strategy cannot be avoided, but it can be mitigated. In the real world, there is no such thing as absolute certainty as to the nature of an existing situation, as to what the situation will be in the future, or as to the best way to change the situation.

Knowledge is no more than what man knows about "reality", and man's knowledge of reality is never complete. Moreover, each actor or person evaluates reality from his own perspective, and his knowledge is therefore invariably a relative and changing one. The greater the consensus as to the nature of a given situation, however, the greater its usefulness and applicability.

It should be added that no indicators or parameters have yet been devised which are sufficiently representative to permit the abstraction and communication of reality; nor are there means of monitoring a situation which provide information quickly enough about that ever-changing reality. Art, in this case, consists of knowing how to work with what information science is currently capable of providing.

The formulation of a strategy begins with a situation and the knowledge possessed about that situation at a given point in time, and then goes on to plot the sequence of steps which will theoretically lead to the desired situation. This theoretical sequence will never, however, define with absolute certainty how something is to be achieved. A good strategy should therefore identify alternatives and/or options which can be used in the event that the original sequence cannot be applied.

The multisectoral and integral nature of human development also means that such development cannot be attained wholly through the use of piecemeal or sectoral strategies, and this is all the more true if they are not interconnected. Entirely local and sectoral efforts can, of course, attain some objectives, such as the construction of an irrigation system or a bridge. None the less, if the other obstacles to human development are not addressed simultaneously, then piecemeal actions lose their value. If, for example, a farmer who benefits from an irrigation project cannot obtain the loan he needs to plant his crops (or obtains the loan but does not manage to recover his investment because he lacks a market for his products or they bring too low a price), then the benefit becomes null and void.

Some of the strategies that were assessed, particularly those designed for small areas, have been able to surmount unforeseen obstacles which arose during their implementation. In so doing, these projects —which began with a concrete goal such as building an irrigation system— underwent a spiraling growth process whereby they carried out complementary activities. Unfortunately, however, such a process is usually much more protracted and much less productive in terms of time and spatial coverage than it would have been if methods of minimizing these situations had been planned at the outset.

Hence, in designing a strategy, it is extremely important to pave the way for an integral effort even if this is not the original intention of the strategy. This is done by establishing links among the different sectors in question which can later be consolidated.

Pragmatism insofar as the allocation and management of available resources, especially as regards their stability over the period of time required to apply the strategy, is also essential.

Strategies should normally plan the execution of activities sequentially, since there are never enough resources or proper natural conditions to permit everything to be done at the same time. The sequence should begin with actions designed to overcome crisis situations and to stabilize them, and should then proceed to activities which will result in forward progress. This requires a stable management system which will outlast any given government.

Urgent tasks come before priority tasks in the short term, but an initiative cannot be devoted solely to dealing with emergencies. In an economically depressed area the first step should be to assist those who are the worst off, but at the same time efforts should be made to consolidate the progress that is made. Short-term actions and the initiation of long-term activities should be carried out simultaneously in order to avoid becoming bogged down.

A strategy should therefore specify how the project is to advance, step by step, towards the elimination of the obstacles standing in the way of the project's objectives by means of successive changes in the initial situation or situations. The greater the number of objectives to be achieved simultaneously, the more complex the task will be. It is valid, however, to define —as part of the strategy design— the entire sequence of objectives which the project wishes to achieve as it works towards its ultimate objective, even if a detailed explanation is provided only of the methods to be used to attain the first of these objectives. It is not valid, on the other hand, to design a strategy having no more than a partial objective without explaining how it ties in with other goals or what purpose it is to serve.

For example, it is not valid to state that the "strategy" for achieving a country's objectives with respect to river basin management is "to create a national commission on river basin management" unless the strategy also specifies what the role of such a commission might be and what other steps should be taken, once the commission has been created, in order to achieve those management objectives.

Finally, one of the most important aspects is that each strategy must be designed so that it is accompanied by a management system for putting it into practice.

The dynamics of the strategy itself make it necessary to create a stable, flexible management system that can deal with uncertainty by adapting action procedures to the characteristics of new situations and information. There should be an effort to foresee what might eventually occur and prepare to deal with possible changes rapidly, especially where the very implementation of the strategy constantly modifies

existing realities and information. There is therefore a need for a flexible, stable management system in which many people participate, and which is decentralized and near the development location.

In a number of the above-mentioned strategies, although precautions were taken to ensure the long-term management of the programme and inter-agency coordination among the various public bodies involved in the same field, these intentions did not materialize. The teams were dispersed, their leaders were replaced and, in general, what had been achieved with considerable effort was destroyed.

This situation is very serious, since it undermines the organization which is theoretically responsible for the long-term implementation of the strategy.

For example, one of the programmes which seriously attempted to deal with the inter-agency organizational and participatory phase was the Programme for the Development of Micro-Regions in Economic and Social Emergency Situations. Its proposals with regard to institutional organization were as follows:

- To link together institutional activities from the national level to the local level;
- To promote, on the medium and long term, changes in the State structure to enable it to act at the micro-regional level, without attempting to change the present structure from the beginning; and
- To create special rural and community development commissions, micro-regional administrations, community development councils and other management bodies.

Although the proposal was supported with legal provisions, including some of the highest decree level, it suffered a number of setbacks. This was largely due to the fact that the expectations for institutional coordination were based on too many assumptions, such as the following:

> "Although the current organic, functional order of the State poses some constraints which hinder the implementation of the strategy, the latter does not attempt to recommend significant modifications in the State structure ... However, one of its expectations is that its implementation will lead to such changes in the long run ..."

> "It may be assumed that a strategy such as the one presented would be enhanced by a closer relationship between the plan and the allocation which might be budgeted under a Ministry of the Economy and Planning or if regional governments were established ..."

> "The application of the strategy for the development of the Sierra, having a long-term time frame and being broadly based, presupposes the political backing of current and future governments ..."

> "In addition to a consensus, the strategy requires a coordination effort by all agencies, both public and private, which operate at different levels ... Although the strategy needs the cooperation of the entire public sector, it requires that one agency be responsible for rural development ...".

These were the original assumptions. In practice, however, these ideas did not materialize as they had been envisioned by their authors. They were primarily hindered by the following difficulties:

> "It was an arduous task to establish micro-regional offices, since the centrist-minded bureaucrats in the departmental capitals repeatedly set up stumbling blocks. There was no real decentralization

of the permanent staff of the Development Corporations (CORDES) to the micro-regions, since over 70% of the staff were hired on temporary contracts and therefore had little job stability. The Development Corporations played more a supervisory than a supportive role in the micro-regions and, finally, even where there was a degree of diversification and decentralization of functions, the heads of the micro-regions continued to be hierarchically subordinated to the Development Corporations".

Furthermore, the Multisectoral Coordination Committees at the micro-regional level, which were also supposed to serve as coordinating mechanisms both for the public sector and for the non-governmental agencies in the micro-regions, received no support from the departmental and national institutions. They point out that "it is necessary to draw attention to the spirit of partnership, cooperation and mutual support existing in most of the micro-regions among technical government personnel. However, this spirit is not reflected at the departmental and national levels, where lack of coordination among the different sectors is the norm".

They noted, moreover, that "in the majority of sectors, there has been a failure to take account of human, material and financial resources, on the pretext that the organic laws (to which the Supreme Decree is subordinated in law) makes no provision for this". "The limited number of personnel residing in the micro-regions has had no meaningful functions delegated to them in the field of programming, which would permit them to be part of the decision-making process at the level of the micro-region."

What finally affected even more severely the sought-for inter-agency coordination machinery was the fact that neither the multisectoral coordination arrangements at the departmental level nor the Special Commission on Microregional Development (at the national level) really operated properly. At the departmental level, the proper importance was still not given to multisectoral coordination, while at the national level the duty of attending the meetings of the Commission was assigned to officials without decision-making capacity, there were not enough meetings, and requests for information were not fulfilled by the representatives.

Another effort aimed at promoting local participation and concertation was the establishment of the Councils for Microregional Development.

At this level, there does seem to be more participation. These Councils are made up of Mayors of provinces and districts, delegates of peasant and ethnic communities, and officials from bodies representing productive activities in the region. It is noted, however, that it is still necessary to make a clear definition of the respective competence of the Microregional Office and the Municipalities; to train the delegates of the communities to unite vis-à-vis the urban delegates (i.e., to give them greater capacity); to define methods of grass-roots participation (mechanisms for the functioning of the concertation committees), and to back up the activities of the Council for Microregional Development with legal provisions.

The strategy designed by the National Programme for Water and Soil Conservation in River Basins of the Ministry of Agriculture also placed high hopes in inter-agency coordination and also suffered setbacks.

Their institutionalization strategy was based essentially on "bringing home to public institutions the need to improve the existing land and water management practices in Peru". They believed that that could be achieved by: demonstrating the effects of those practices in the communities; training technicians and

professionals of those institutions; holding meetings in which officials would take part, and finally, creating a "soil and water conservation system".

These assumptions were not fulfilled, and finally inter-agency coordination was not achieved. Those behind the project felt that the failure of their programme for training officials of other institutions was due to "lack of time for giving classes; lack of teaching material; lack of follow-up of those attending the classes, or the fact that the latter were not the most appropriate". They also noted that they did not make clear agreements or understandings which obliged the central offices to coordinate with each other, while the designated officials followed the rule of always making the least possible effort.

Despite these difficulties; they did manage to form an inter-agency coordination committee. Most of the resident professionals in the areas where there were committees were very young and low-ranking, however. They had neither the authority nor the capacity to summon and coordinate with the chiefs of other institutions. Nor did the committees receive the expected financial support. The committees were initiatives which did not yet enjoy the legal backing of the ministry; they did not manage to concentrate the efforts of various institutions in a single area or commune, but only served to report on what was being done. The majority of the committees were made up of chiefs of local institutions, who, because of the very fact of being chiefs, either did not attend (there was much absenteeism) or else sent unqualified replacements.

In addition to this, they ran into a good deal of institutional jealousy. The Agricultural Regions did not look kindly on the existence of a programme which operated in their areas with some professionals who were better paid and equipped than their own staff.

E. Some reflections on future work

These brief reflections on the formulation of development strategies to benefit the people living in the Sierra region of Peru seek both to highlight the potential which exists for designing and executing such strategies and, at the same time, to emphasize the little that is done to take advantage of this capacity, due to the lack of continuity in the work and the constant changes in the rules and in the persons responsible for carrying out the tasks.

It is therefore both urgent and necessary to compare and combine the strategies designed in the past, in order to place them at the disposal of those who are in the process of preparing other projects.

It is also obvious that efforts should be made to train personnel to formulate strategies with at least a modicum of strictness. The constant changes in State action policies reflect ignorance rather than capacity for work. The retrieval and exhaustive analysis of the strategies designed in the past, verifying why and where they failed or were successful, is the only approach which can give us the necessary indications on how to make progress on the basis of the efforts already made.