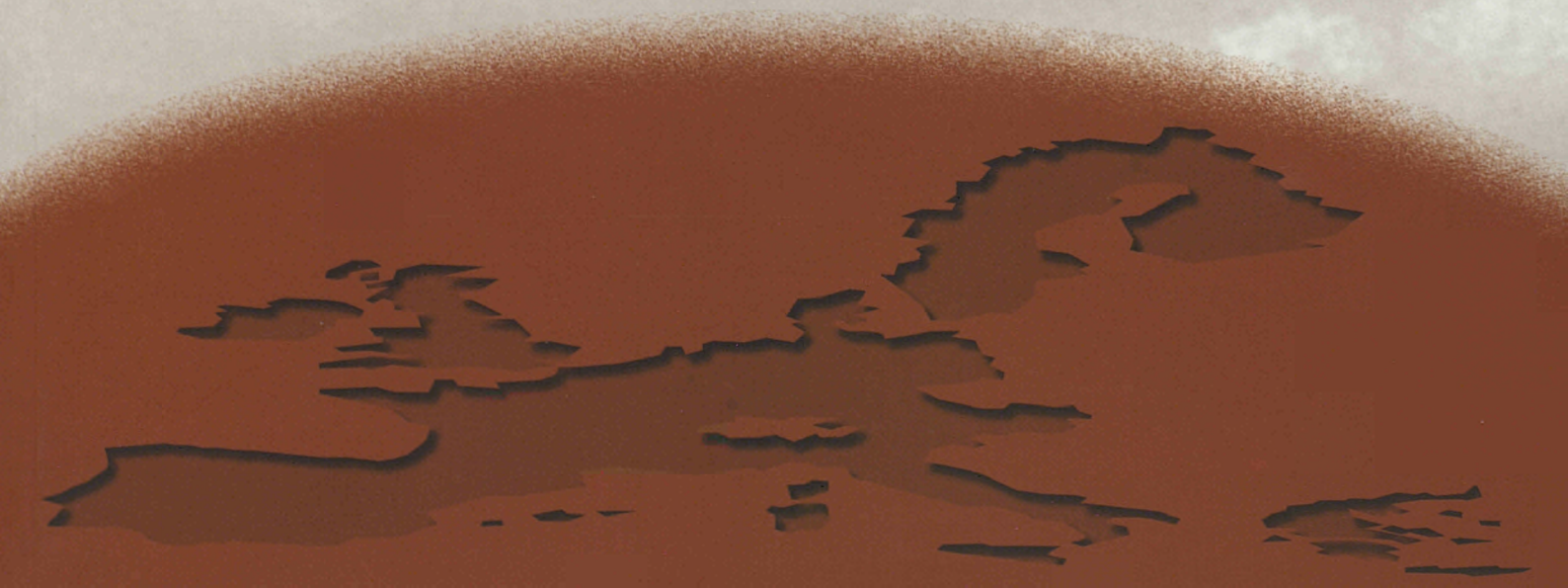
European Commission

The law of sustainable development

General principles



European Commission

The law of sustainable development

General principles

Report produced for the European Commission

by
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PREFACE

By Jacques Santer

Former President of the European Commission, Member of the European Parliament

The interest of the European Union in sustainable development grew in parallel with the initiative of the United Nations on the same issue, which culminated in the World Conference of Rio (1992) on the Protection of Environment and Sustainable Development. The output of this conference was two documents, fundamental for understanding the philosophy and strategy of sustainability, namely the Rio Declaration and the Agenda '21. Equally important was the outcome of the European initiative, i.e. the Fifth European Action Plan on the Protection of the Environment and Sustainable Development under the title "Towards Sustainability".

Since then, despite the initial enthusiasm, we have come to realise that the road to sustainability is more difficult than we had anticipated. One of the obstacles, among many identified, since the Rio Conference is the lack of a specific methodology for incorporating the criteria of sustainability into the policies of the European Union.

That problem is indeed a complex one and efforts were made during the term of my Presidency of the European Commission to solve it. In fact, the Treaty of Amsterdam (1997) has duly clarified the legal regime of sustainability. Today, sustainable development is a fundamental principle in the Member States, which have also shared the Union's experience in this respect. This is a good example of interaction between the European Union and its members on a matter which is crucial for both.

Viewed in this perspective, the Greek national experience in sustainable development, as reflected in the case law of the Fifth Section of the Council of State (Conseil d'Etat), makes this Court a pioneer in the field. The decisions of this Court on matters of sustainable development have a great theoretical and practical value. For that case law is successfully realising the vision and spirit of both the Rio Declaration and the Treaty of Amsterdam on a wide spectrum of sustainability problems. The aforementioned Court has succeeded in creating a legal system of general principles of sustainable development which have enabled it to penetrate deeply into all public policies and harmonise them with a view to protecting natural, cultural and social resources. This book, written by Justice Michael Decleris, the Founder and President of the Fifth Section of the Greek Council of State for the last ten years, draws heavily on the case law, but at the same time uses the methodology of large scale systems as the necessary link between abstract models and principles on the one hand and concrete problems on the other. It is an original book, the first of its kind in Europe.

Due to the great variety of the sustainability cases which have served as the raw material for the Greek system of general principles of sustainable development, this system will be a valuable tool beyond the Greek borders. The publication of the book by the European Commission, in recognition of its merits, is the best way to disseminate the Greek national experience on sustainable development within the World Community.

In view of all the above, it is my pleasure to write the Foreword to this important book.

INTRODUCTION

This book is a legal dissertation on the greatest issue of our age, which is to achieve **sustainable development** as defined in the Rio Declaration (1992) and planned in Agenda '21, in other words as a combination of economic development and protection of the environment. Besides its legal aspect, sustainable development has clear philosophical, scientific, economic and political dimensions. However, like all the social institutions created by man so far, the institution of sustainable development too will acquire its specific form via the science of law and its application by court decisions. In other times, philosophy in particular paved the way for the work of lawyers. Today, unfortunately, lawyers have little to gain from the other sciences where sustainable development is concerned. The theory of sustainable development is new and still under development. In contrast, the social problems that must be solved by sustainable development cannot afford to wait. Global Change, whose main manifestation is the Global Environmental Crisis, is taking place very rapidly and approaching "thresholds" of irreversibility. So Sustainable Development, which is the proper global strategy for its control, must not only forestall it but also direct it. Important research programmes on Global Change, such as WCRP, IGBP and IHDP among others, proceed at the usual slow pace of science. However, the States and their citizens cannot wait. They must act immediately, even under conditions of possible uncertainty. For that reason, politicians, legislators and the judiciary are necessarily in the front line because they are the first to assess the facts and they are the necessary administrators of the problems of sustainable development. Thus, jurists must draw on their experience of sustainable development to prepare their arguments so that they can inform their colleagues in other disciplines or sciences.

Yet, this book is not the product of legal experience alone. On the contrary, it combines theory and practice. The author's theoretical conclusions stem from his researches as a professor of the science of large-scale systems (LSS) and especially environmental systems, while the practical side stems from his experience as President of Section V of the Greek Council of State, the court that deals with the problems of sustainable development. The author has served in both these areas, namely science and law, for a very long time and this has enabled him to plumb their problems. As regards theory, like other system scientists the author has seen during this time how the conventional analytical method has proved wanting, in terms of both legal and economic and administrative science. Long before the present environmental crisis reached public awareness, far-sighted scientists had expressed their concern about the phenomena of "paper law" and "paper decisions", about one-dimensional economic growth and the failure of public policy. Anyone disposed to look at the facts could see quite clearly that there was a common platform of failure among Law, Administration and Economic Science, i.e. in past, narrowly focused methods. Traditional analytical methods had exhausted their capabilities and could not master the complex problems of our times. So, together with other systems scientists, the author began to work for "integrated development", as sustainable development was known at that time, but in parallel also for a change from the "reductionist" to the "systemic" method and to improve the theory of large-scale systems by means of value theory.

Without this important step forward, we would not nowadays be in a position to speak of sustainable development. Unfortunately, however, there are still many who have not fully grasped the vast, qualitative difference entailed by the change from the Old Environmental Law to the Law of Sustainable Development. The old law was inspired by the then reductionist reasoning that it could and should stick to its defensive role, in other words just prevent extremes of ruthless development, without in other respects intervening in economic policy. But in many ways reductionist thinking led to "paper law" and became the alibi for continuing ruthless development.

Today we know full well that, for example, it is clearly futile to monitor the cleanliness of the atmosphere, waters and soils, if you do not at the same time curb those who pollute them. There must at least be understanding of the simple systemic rule "think globally and act locally", which is addressed to every responsible citizen in our age and stresses the interdependence of the many factors that stem from man's intervention in the environment. However, the decision-makers must also recognise that sustainable development, which imposes the incorporation of criteria for the protection of natural, cultural and social capital in every policy whether public or private, is nothing more than the necessary and delayed application of systemic thinking in making decisions of all kinds. But although that is how things stand in the new science of sustainable development, the same need to implement systemic methodology also exists for the Law of Sustainable Development. Today, no serious study and application of the principles of sustainable development is possible without the help of systems science. Agenda '21 itself is a practical systemic Guide to sustainable development, which will certainly help the open-minded but will suffer at the hands of those who insist on the discredited reductionist line of thought.

It is true that the change from reductionist to systemic thinking will take time, since the academic community is moving rather slowly in that direction mainly via interdisciplinary teams. It is of course already being greatly assisted by the "information systems" created in every branch of science by systems analysts trained in the field of Information Technology. Yet, what we really need is original knowledge of systems by scientists in every field, because the "information systems" themselves are designed on the basis of data they provide to the designers of such systems, and that are the critical data for a given problem is a question which can only be properly answered by systemic logic. More particularly, what are the facts of a given environmental problem, what other problems are related to it and what public policy of sustainable development should be brought to bear, is a complex, large-scale systems issue. It must therefore necessarily be concluded that knowledge of the science of large-scale systems is an essential prerequisite for correct theory and practice in sustainable development.

Since, therefore, all the problems of sustainable development have to do with large-scale systems, what can traditional legal theory contribute to them, fixated as it has been for the past two centuries on the outdated methods which are the bequest of those who taught Roman law? Most lawyers still swear by the name of simplistic "positivism" and try to make do with the help of the Aristotelian juridical syllogism, seeking safety in a sterile formalism totally lacking the substantive Aristotelian concern with distributive justice. According to conventional legal "science" the task of jurists is only to "interpret" the provisions of law. Neither legislation nor practice are within their scope, because the first is a decision for politicians and the second is social practice and therefore the prerogative of sociologists. Many lawyers are unaware that at least during the past forty years the science of decision-making has become fully developed, and is already used in both public and private administration. Very few, among whom are the founders of "contextual and problem-orientated jurisprudence", McDougal and Lasswell, have wondered about the impact of that science on legal science. Under such conditions, legal science is made subservient to the political expediency that still governs the production of laws and regulatory provisions, is prevented from fulfilling its prime role of completing and establishing the Rule of Law, and can therefore do very little for the environment and nothing at all for sustainable development. This is because in such matters there is no place for political expediency. There is no such thing as "a little" or "a lot" of protection. Either the environment is accorded the protection it needs and is therefore saved, or it is not protected at all and is lost. What the required protection is, is a matter for science and not political expediency to determine. Consequently, the dilemma for legal science in our times is a hard one: either it must become the predominantly applied science which must guarantee the scientific solution of sustainable

development problems and the protection of the environment, or otherwise, it will fail in its mission. So it is not at all surprising that a large measure of responsibility for the "paper law" of our times falls to the equally "paper" legal theory of the past which perpetuates its tradition but without achieving practical results. This also explains the conviction held by many politicians that Law and jurisprudence are formalities and are not really binding on their decisions. So the old-style legal method, subjugated as it is to legislators who are often cynical and led by market forces, has utterly failed to curb ruthless development. It is an undoubted fact that the inadequacy of current legal theory has contributed much to the control crisis that characterises industrial countries in our times.

If that is indeed the situation, where is the basis for saying that legal theory can help to focus and implement the rules of sustainable development? Like all systems scientists, the author of this book too believes that a control crisis arises when any problem becomes more complex than the existing control system. This means that if the control system changes and also acquires the necessary complexity, then the complex problem will certainly be controlled. And that is what must be done today. Global change and especially the global environmental crisis pose a serious challenge to the available control systems, including the legal system. We already know what has to be done: the demand for an ***"effective state"*** and for ***"effective law"*** is the central axis around which political and administrative reform must be attempted in our age. The Law that has adopted the new, systemic decision-making methods has been put forward as the most flexible. The administrative reforms achieved during the past two decades in the most developed countries (USA, United Kingdom, Canada, France, etc.), cannot but eventually carry legal theory and science along with them. We need a new and effective Law and a new and effective legal science. These will emerge in parallel. Without a review of legal science we will not get new Law, and vice-versa. The measure of success will be the extent to which the behaviour of States, citizens and organisations becomes "sustainable". And as always, the process will begin with court decisions, which are a sensitive index of the changes taking place. For how else is the judicial control of the Administration to survive? What can it put up against the Administration's modern arsenal, which now includes technical knowledge of information systems, decision support systems, expert systems, neural networks, etc.? Inevitably, therefore, legal theory will be brought up to date at least in the area of Public Law. But for public law to become sustainable, as it must, legal methods must become sustainable first. This book, *inter alia*, precisely also points the way towards the methodology by which application of the rules of sustainable development is already being attempted. It would have been desirable for national codes on the principles of sustainable development to have been drawn up already on the basis of Agenda '21 and the peculiarities of each country, but only timid steps have been taken towards that. Unfortunately, there is resistance to the full application of the principles of sustainable development and "globalisation" of the economy is reducing the scope and efficacy of public policy by weakening the powers of the State. So far no European Directive has even been issued on the principles of sustainable development, as should have been the case. Only in Draft Directives of the European Council have some principles of sustainable development been stated. Thus, the burden necessarily falls on the judgements of courts, which are confronted by the vast variety of problems associated with sustainable development. How do they react? In countries where there is no constitutional clause on environmental protection, the courts can only do what legislation permits and, consequently, there is no substantive progress if legislators are hesitant about imposing the principles of sustainable development. However, where a constitutional clause exists but, for many reasons one need not go into, legislators are indifferent to it or slow to act, responsibility for applying the principles of sustainable development is transferred to the courts and especially to the Council of State, in which such a court has been established. The intention of the constitutional clause is precisely to exempt the realization of sustainable development from current political will which is

subservient to fluctuations of short-term expediencies. Thus, the judiciary have no alternative but to undertake that responsibility and fulfil it, abiding by the prime duty conferred upon them directly by the Constitution to protect the environment and the quality of life of their fellow-men. Perhaps, indeed, that situation is preferable to a bad or merely inadequate legislature, because the judiciary have sufficient freedom to interpret the constitutional clause with the help of the valuable guidelines of Agenda '21 and environmental science, since according to Principle 17 of the Stockholm Declaration that science must be used for the identification, diagnosis and reaction to the problems of sustainable development. This book will show that the chances of success in the judiciary's work are serious if they apply systems logic.

This is precisely the situation in Greece, and it constitutes the platform of the theory and jurisprudence described in the present book. Greece, when its Constitution was last revised in 1975, enacted in Article 24 of the Constitution a series of progressive provisions on the protection of the natural and cultural environment, in parallel with support for development (Articles 5 and 106). Article 24 imposes both preventive and suppressive protection of the environment in its broad sense, and the spatial planning that is inseparably linked to this. Moreover, it entrusts the particular implementation of that protection to the legislature. The latter, however, has not risen to the challenge of its historic mission. After prolonged inaction, in the end it was not bold enough to go ahead with drawing up the necessary, updated Codes of Environmental Protection and Spatial Planning, but instead, when sorely pressed by events, made do with the adoption of fragmentary measures and the enacting of in part timid regulations, which were not lacking in retractions and contradictory provisions. Thus, the legislature transferred responsibility to the courts and especially the Council of State, which was swamped by appeals for protection concerning numerous problems dominated by disastrous conflicts over land use and the headlong destruction of the environment arising from this. The courts could not decline that responsibility, since the Administration had already been allowed to regulate the market's productive activities and to go on with town planning without spatial planning. To compensate for this, they therefore had to provide environmental protection directly on the basis of the Constitution and without help from the legislature. And that is what the courts did and - as it seems - were right in doing since the aforesaid Codes have still not appeared to this day. Let us therefore see how the courts have been able, for a start, to establish an effective Court of Environmental Protection, and then (after Rio) to formulate the General Principles of Sustainable Development essential for that protection.

The Greek Council of State, which was founded by King Otto I in 1835 on the basis of a French model, has since the first half of this century and after assuming juridical powers in 1929, become the traditional protector of the natural and cultural environment. Before such protection became the greatest and most urgent problem of our age, the Court protected our unique antiquities, our forests, and the health of city dwellers from polluting industrial and other similar installations. Since the 1980s, however, the author, who was at that time acting President of Section IV of the Court, perceived clear indications that disputes concerning environmental protection were multiplying and that both those and cases relating to spatial and urban planning were bringing up new and serious issues which had to be dealt with by legislation not up to the task. As early as 1977 the Court had declared its determination definitely to go ahead and provide environmental protection directly on the basis of Article 24 of the Constitution and without recourse to the legislature (**Council of State [hereinafter C.o.S.] 810, 811/1977**). Now, however, it had to formulate that protection and for that new task to succeed, an appropriate reorganisation of the Court was needed. Thus, the author, as Vice-President, recommended to the then Government in 1990 the creation of a Special Environmental Section of the Council of State, which would be empowered to control public decisions in all "environmental" matters. "Environmental matters" were defined and enumerated broadly and completely enough to cover nearly everything that

related to sustainable development. At the same time, jurisdiction over them was assigned to Section 5 of the Council of State, which had until then been responsible for working out regulatory provisions. On the one hand this ensured unity of juridical action on the environment, and on the other hand it invested the said Section with the preventive and suppressive powers of intervention needed for the task. That recommendation was accepted by the Government of the day, and by virtue of Law 1968/1991 Section 5 of the Council of State was fully established and enabled to play a substantive part in the formulation of principles and rules related to sustainable development[1]. Indeed, at the International Conference in Rio (1992) Greece announced the formation of that institution as its contribution to effective protection of the environment.

From the very start, Section 5 attracted numerous cases related to all the issues of sustainable development. Those issues were brought before it either at the level of regulatory provisions, when the Section was working on Government decrees, or at the level of administrative disputes, when the Court was pronouncing on applications for the protection of citizens against decisions and acts by the Government and the administrative authorities. The Court was therefore in a privileged position which enabled it to keep itself continually informed about and supervise the course of sustainable development, its problems, and the state of the environment in Greece. It also had an overall picture of public policy and accurate knowledge of what was wrong with it in all areas related to the environment. Consequently, it was in a position to formulate integrated and consistent jurisprudence on such issues and it did indeed move methodically in that direction. As explained earlier, there were of course jurisprudential bases for the Court on the classical issues of environmental protection, namely the protection of nature, monuments, etc. But the new problems were far more complex than the scope of jurisprudential argument up till then. The coordination of solutions for the many different problems of sustainable development required a broader jurisprudential base. The paucity of legislative provisions and the poverty of pre-Rio Environmental Law compelled the Court to formulate a system of principles for sustainable development. As its legal base the Court used Article 24 of the Constitution, which it interpreted "in the light" - as it said - of the principles of the Rio declaration and the directives of Agenda '21. In other words, the general constitutional requirement for environmental protection was particularised into a system of legal rules with the aid of the principles of "soft" international law. Later, the Court also invoked the legal provisions of the Maastricht Treaty and more recently the Amsterdam Treaty concerning sustainable development. But beyond the legal texts, the Court had appropriately prepared itself to deal with the problems of sustainable development. It would not have been possible to formulate general principles for sustainable development without a good grasp of its problems. Between 1991 and 1994 the members of the Section collaborated with scientific specialists in seminars or fact-finding visits[2]. The best school and laboratory for members of the Section, however, remained the Court itself, where the very great wealth of legal issues concerning sustainable development generated an atmosphere of fertile dialogue and creative problem solving. In the Section's deliberations, from which the very principles of sustainable development stemmed, it was attempted to combine painstaking scientific research with the critical analysis of legal concepts.

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[1] The law was introduced, in succession, by the Ministers for Justice Ath. Kanellopoulos and Mich. Papakonstandinou.

[2] Besides the author (President), the following members of the judiciary have served in Section 5: Io. Tzevelekakis, K.G. Halazonitis, G. Deliyannis, S. Sarivalasis, Io. Mari, K. Menoudakos, P.N. Floros, S. Rizos, G. Papamentzelopoulos, Ang. Theophilopoulou, N. Rozos, Ath. Randos (Councillors), M. Karamanof, Io. Mantzouranis, Ek. Christoforidou, Io. Kapelouzos, Dim. Alexandris, El. Tsoumba-Darzenta, M. Konstandinidou, V. Kambitsi, M. Papadopoulou, V. Aravandinos, D. Kyrillopoulos (Assistant Councillors).

The Court was aware from the start that the problems of sustainable development could not be solved by "paper" Law, and it was determined to provide effective protection at all levels of the Law. With prudence, therefore, but also with determination, it explored new avenues: First, the production of regulatory provisions by the Government was subjected to systematic and profound scrutiny resulting in the immediate and substantive improvement of the state of affairs, because here public policy was checked for legitimacy during its planning and definition. Because of this, soon most of the regulatory decrees (65%) were the product of close and constructive collaboration between the Court and the Administration. This proved particularly significant in the areas of spatial and town planning, in which there were very serious problems in relation to sustainable development. In parallel, the Court saw to it that the protection it provided would be effective. The measure of summary injunction was used with an efficacy which neutralised the traditional administrative practice of the *fait accompli*. A particular innovation of the Court, however, lay in its abrogation procedure. First of all, it was necessary to improve the legislation, which often, when it did not bear the evident stigma of clientelism, was fragmentary and mutually contradictory. There, the Court created the supra-legislative system of principles for sustainable development between the constitutional clause and the inadequate and deficient legislative provisions, with the aid of which it restored legislative order. Improvement and good order then resulted automatically where the Administration did not make things difficult by machinating to circumvent the legal decisions. But at the executive level too, i.e. in the review of administrative decisions, the Court distanced itself from the indirect and ineffectual methods of the past, particularly from the simple checking of the reasoning of such decisions which had always rewarded administrative artifice. Putting more emphasis on the substance of environmental problems, it was interested in compelling the Administration to apply the principles of sustainable development faithfully and forestalling or averting damage to the environment. Here, the Court's jurisprudence has substantive value because it demonstrates clearly to the Administration how to implement the principles of sustainable development. Bearing in mind developments in the science of public policy (policy analysis and evaluation), the Section's jurisprudence can be taken as an example of legal methodology adapted to the demands of the science of decision making and serving the principle of effective Law and Government.

Essentially, the need to apply the principles of sustainable development in Greece, and indeed to do so with the consistent jurisprudence of a special Court, arose from the particular nature of Greece's environmental problem. Greece is a European country with a unique natural and cultural heritage. Its cultural heritage includes antiquities and monuments distributed all over its territory and covering a history of millennia. Its natural heritage includes Europe's great biodiversity, sensitive ecosystems of rare beauty, both on the mainland where forests and mountains had been regarded as sacred since the earliest times, and in its marine areas with thousands of small islands and the longest extent of coastline in Europe (around 16 000 km), as well as an exceptionally rich network of important wetlands. In contrast to Europe's industrial countries, all that national wealth remained almost unscathed until, only very recently, the mania of ruthless development took over the country, inflamed indeed by financial aid from the Community. The characteristics of "development" in Greece are its headlong pace and its great intensity, which are constantly on the increase. The country, believing that it is lagging behind its European partners, has been possessed by the determination to "develop" at any cost, without realising that in this way it is in fact dissipating its real wealth, which in any case its partners do not possess. This very powerful "developmental" drive has proved to be and still is the main cause of the destruction of Greece's natural and cultural environment, and is indeed reinforced by the non-existence of order in an area where disastrous conflicts over land use are raging. The peaks of "developmental" policy are especially residential development, which is in fact the incentive for unprecedented land profiteering and clearly criminal acts (for example arson), and mass tourism. On the altar of that

policy important monuments have been destroyed, traditional dwellings have been degraded, forests have been burned or cleared, biotopes have become deserted and coasts have been polluted, all within a relatively short period of time. Because of the same "development" the population distribution has been seriously disturbed all over the country and about 40% of the population is now concentrated in the greater area around the capital, exceeding the carrying capacity of the relatively small peninsula of Attica. The example of Athens has been imitated by other cities, where again in a short time, problems of a sustainable urban environment have been created. This ruthless residential development has led to the national affliction of the creation of unauthorised "arbitrary" settlements and buildings (the latter reckoned to be in the millions). The lack of appropriate infrastructure for residential areas is also preventing a solution of the problem of waste: very few residential developments have an acceptable waste disposal system. Atmospheric pollution in Athens and other cities is exacerbated by the very small ratio of common land and green areas. Besides, though Greece is a windy country with exceptionally high insolation, energy policy, burdened by very low efficiency, has developed into a serious threat against nature, without having been able to take advantage of the renewable energy sources available. Under conditions of indiscriminate use, industry, still concentrated to the extent of 60% around the residential backbone of Athens and never having been subjected to effective control, has exceeded the area's carrying capacity and is providing more pollution than benefit. In agriculture, the uncontrolled use of phytochemicals is responsible not only for the quality of the products, but also and in particular for the imponderably widespread and non-localised pollution of underground waters.

The above brief and rather understated description of the country's environmental problem would be incomplete without referring to the inadequate statutory framework of state environmental protection. In the first place, in a country like Greece where public attention is focused exclusively on "development", full awareness of the environmental problem is lacking. Six whole years after Rio, Greece, though a signatory of both the Declaration and Agenda '21, has still not drawn up its National Strategic Plan for Sustainable Development. Neither has a National Committee for Sustainable Development been formed to advise the Government authoritatively about the issues of Sustainable Development. There is a clear gap between proclamations and statutory measures. As has been said, the Constitution itself contains clauses about environmental protection and the Maastricht and Amsterdam Treaties, which embody clauses about sustainable development, have been ratified by laws of the State. But very little has been done to convert those general clauses into specific statutory rules. Twenty-four years after the adoption of the Constitution, no modern Code of Environmental Legislation has been drawn up, nor a Law on Spatial Planning, which is also explicitly required by the Constitution. No special laws to protect coastlines and small islands have been drawn up, as they should have been, nor any relating to mountains and cultural heritage. Nor have the country's wetlands been demarcated, even though the RAMSAR treaty was signed twenty years ago. So there has been no statutory provision for sustainable development and environmental protection. The governments of the day, reserving most of their time and energy for economic development and "projects" of all kinds, act only opportunistically and in a fragmented way on behalf of the environment. The regulatory vacuum is exploited by various private interests to create *faits accomplis* to their own advantage, which are then as a rule accepted by the State. This discord between constitutional imperatives, statutory shortfall and ruthless development obviously creates acute and complex problems most of which are indeed urgent. That is why the environmental problem has been transferred from the Administration to the Courts and especially the Council of State. If the State had done what the Constitution calls for, the role of the courts would certainly be limited. But the Administration is in thrall to an all-powerful, party-political and everlasting patronage system which abhors order because it feeds on and is strengthened by disorder. The patronage system is in fact a form of a

very ancient "privatisation" of the State based on strict relations of reciprocity: the patron/master provides benefits and the customer/vassal renders support. In a situation of order servicing the general interest, the provision of private benefits has no place. On the contrary, a situation of disorder and chaos allows a gold-mine of patronage provisions whose high cost devolves upon the environment and society.

As will be explained in the appropriate part of this book, adoption of the general principles of sustainable development is the proper way to establish the new Law of Sustainable Development. This new Law is not defensive or deterrent, like the old Environmental Law. The latter merely set limits upon administrative intervention. In contrast, the new Law must guide the behaviour of the Administration, organisations and individuals towards achieving certain aims, in other words towards interventions which, having incorporated the fundamental criterion of sustainable development, provide a sustainable result in all areas of human activity. Consequently, the basic question is how to achieve that sustainable result. The statutory general legal clause according to which every political decision and act must embody the criterion of sustainable development does not answer that question, because it is procedural, i.e. it only says when the decision-maker should devote attention to the sustainable result. But it does not particularise the criteria of sustainability. Some general criteria or, as used to be said, some general principles of Environmental Law, had also been proposed in the old Environmental Law at the time of the Stockholm Declaration. Those principles, however, were either procedural or too general, for example the principles of protection, prevention, participation, etc. What we need now, however, is substantive principles, in other words ones which will provide guidance on how man should intervene in the natural environment or, with scientific approval, principles defining the general framework of relations between man-made systems and ecosystems. It is in that sense that they are general, because they relate to every sector of the environment and every policy. But they are also substantive, because they define what man should or should not do in each of his interventions. Obviously, in the last analysis an important source of those principles is environmental science, but the fundamental principles of the Rule of Law are also involved. But not just that. The fundamental criterion of sustainability means in particular that all public policies must be interrelated and harmonised around the prime factor of concern for the conservation of natural, cultural and social capital. That is why to create those principles is a task for the judiciary and not for specialists in environmental science. The formulation of general principles has always predominantly been the task of the judiciary, which is inspired by an overall view of the law and by knowledge of the problems of administrative action. Administrative law is the most evident area in which the law-making activity of the judiciary emerges in the form of general principles. But the case of Civil Law has shown that codification of the general principles so generated in a legislative text is also conceivable. Indeed, where it is urgent to implement a particular public policy, as in the case of sustainable development, the legislative route has the advantage of promulgating the concepts of sustainable development more rapidly than the relatively slow jurisprudential process. Incorporation of the principles of sustainable development in national legislation would contribute much to the establishment and effective promotion of sustainable development. Unfortunately, very little progress has been made in this so necessary direction. For the European union in particular, so far no Directive has been issued, as it should have been, to converge the national laws towards any particular system of principles for sustainable development. The study of the 5th Programme and its evaluation shows convincingly that incorporation of environmental criteria into community policies has been undertaken in a limited way and in only some sectors. The result of this is that the established legal clause of incorporating sustainable development in all public policies in the Member States has remained largely platonic, without practical implementation. This is because without clarification of the general criteria, there remains a possibility of political assessment and manoeuvres that may

make empty words of sustainable development and may even in fact turn that policy into one of misrepresented growth. What we need, however, is genuine principles of sustainable development firmly based on both science and law. Those will provide the true impulse towards sustainable development. Let us be frank: at the European Union level as well, the steps planned internationally under Agenda '21 have not taken place. Courtroom experience, as expressed in this book, is an ***advocacy*** to warm up and energise the movement towards codification of the Rio principles. Perhaps indeed, the proper means may not even be a Directive but a Regulation, which would constitute the source of direct obligation for the countries and citizens of the European Union to adopt sustainable behaviour. That route is deemed more effective, because at the same time it would provide technical aid at least to those Members of the Union in which authoritative information about the problems of sustainable development is lacking or incomplete. At any rate, the case of Greece shows that even if legislators remain inactive, their task can be undertaken by the courts. In that case, more time will simply be required, for the formulation of a complete system of principles at sustainable development.

The structure of this book essentially follows that of its first Greek edition in 1996 with the title "The Twelve Tablets of the Environment: A Handbook of Sustainable Development". It goes into the legal theory of Sustainable Development (Part I) and its jurisprudential application (Part II). The new title places due emphasis on the Sustainable Society, without which no protection of the environment is really possible. In its content, besides, the book has been rewritten from the beginning. The legal theory of Sustainable Development is presented in relation to the theory of "Global Change", so that Sustainable Development will be fully understood as a strategic response to the Global Environmental Crisis. The complexity revealed in both provides an opportunity to explain better the need for systemic thought, both for their conceptualisation and for the handling of Sustainable Development's newly emerging problems. In a clear way, the path from environmental growth to sustainable development is a change from analytical to systemic thought, and this is adequately demonstrated in the present book. It is also explained in greater detail because the achievement of sustainable development presupposes a substantive change in peoples' culture all over the world, a change which must not be impeded or scaled down by the recently observed efforts to revive unilateral "economic" thinking with the emphasis placed on the very rapidly unfolding process of morphogenesis in world-wide capital market and communications subsystems. This book analyses the relation between Global Change and so-termed "Globalisation" in whose name many misguided positions are maintained. The book, therefore, puts things in their place as regards the topical issue of the role of the State and Law in relation to Global Change. It points to the error of those who foretell the end of both those institutions, which are the main levers of morphogenesis for the Global System, as designed, by the well-founded strategic plan and programme for sustainable development (Agenda '21). This is because sustainable development is predominantly a cultural change and, secondarily, an economic policy, while "globalisation" as a process of market extension is still governed by the economic thinking of the past. However, people in the 21st century are wiser and they know that the part, i.e. the economy, cannot determine the whole, i.e. the global system. Otherwise the result would be disastrous and would justify the pessimistic forecasts of many futurologists. The indications we have, however, lead to the opposite conclusion: the State and the Law react positively to Global Change and are undergoing changes which will enable them to adapt to the new circumstances. They are becoming more complex and so provide well-founded hopes that they will ultimately achieve the ***efficacy*** that will allow them to implement the strategy of sustainable development guaranteed in Rio.

That too is precisely the purpose of this book, in other words to show that this can be achieved and to indicate the legal method for dealing with the problems of sustainable development.

Indeed, the book does not limit itself to general recommendations about desirable features of the New State and the New Law, but goes as far as to present detailed analysis, proposing the systemic method of designing legal systems as the only one appropriate for the effective handling of Sustainable Development issues. The entire second part of the book is devoted to the Practice of Sustainable Development and the utility of the method is indicated by applying it to an exceptionally rich variety of legal problems related to sustainable development.

Sustainable Development will certainly not come about via the State and the Law alone. Since cultural change is involved, it will require the cooperation of society and the market. But the leading role will be that of the State and the Law. Otherwise, Sustainable Development will fail and there are already not a few who hasten to classify it as yet another human utopia. The book's message, however, is one of optimism: the State and the Law are not going to abandon their centuries-long mission as guardians of society, and that society must be made sustainable, by renewing its foundations.

CHAPTER 1

THE VISION OF A SUSTAINABLE SOCIETY

The Rio Conference on the Environment (1992) will live on in mankind's history as the occasion which put an end to obsession with economic development. That "development" was no more than misrepresented growth of wealth along with a corresponding frantic squandering of mankind's natural reserves. The irrational vision of an "affluent society", an earthly material paradise, had dominated the mind of peoples for twenty years, to the point of blindness: all countries had thrown themselves into a competition of ruthless development and were concerned solely to measure their gross national income, on whose basis they compared themselves with one another, while being indifferent to the natural cost of this economic "progress". During the same period people were losing basic benefits enjoyed by their ancestors, such as the sun, the air, water, soil and nature.

It is true the above vision had become somewhat faded since systems scientists openly raised the problem of the limits of development, and their concern was done justice by the Stockholm Declaration on the Environment (1972). But for an ideology to be buried, its successor must first be born. The Rio Conference is memorable because it succeeded in offering mankind the new vision of **sustainable development**: no longer quantitative but **qualitative** development, in other words a balanced striving for all human values, whether material or intangible, in harmony with nature. The old vision of the "affluent society" had resulted in an unjust and ardent "consumer society". The new vision proposes a "sustainable society" as the attainable model of a just and prosperous world.

In reality, what happened was that misconceptions were abandoned and development resumed its true meaning and moral content, which does not consist in the consumption of material goods but in improving education and health, securing a good natural environment, establishing harmonious coexistence between people in a just and peaceful world, and encouraging the stable joint development of civilisation and nature, in other words a development having all that "quality of life" which had ceased being accessible to most of mankind. "Quality of life" includes in particular employment, which in the developed countries, however, can only be achieved by appropriate restructuring of their sustainable economy and not by its expansion. To avoid misinterpretations of the meaning of such development, the Rio Declaration was supplemented by Agenda '21, the *magnum opus* of the Conference. Agenda '21, in other words "What must be done in the 21st century", is the systemic programme for mankind's sustainable development, the strategy for the new, qualitative development. Thus, after Rio insistence on unilateral economic growth is not just an outdated policy but one that is both **illegal** and **unethical**.

The dogma of sustainable development inaugurates a period of great cultural change. As happens in similar historic circumstances, there were not a few who did not grasp the profundity of the change. Many people still underestimate it, even today when it has started becoming established. No-one, however, has dared question it openly, because it is safeguarded by world-wide assent. But it has also had a firm basis as the product of systemic science. Agenda '21 has gone beyond the analytical reasoning of the past and has united Development Law with Environmental Law. This has eliminated the disunity and contradiction in man's activities which were, at bottom, a conflict between Man and Gaia.

According to systemic models, the planning of sustained development goes hand in hand with planned implementation, and since then this has been set in motion. The European Union, which

took part in the Conference, has already adapted its founding Treaty with the Maastricht provisions and the 5th Action Programme, and participates in the implementing mechanisms. The Sustainable Development Committee of the United Nations is working on issues arising from Agenda '21, which are roughly estimated to number some 2 500! Both that Committee and the new science of Sustainable Development are now working to define the indicators of sustainability. A start has been made in the adoption of measures in the areas of greatest priority, in other words the relief of hunger, the restriction of overconsumption and the control of population explosion. Indeed, the European Union gives priority to measures concerning the more efficient use of energy, the limitation of waste and assistance to the public in environmentally sound consumption. It is true that the official report on the first five years since the Rio Conference (1977: Five Years Plus) is not encouraging from the standpoint of tangible results. It does, however, confirm the full prevalence of the principle of sustainable development and the firm determination of peoples to implement them in the future.

We are therefore on the road towards sustainable development. But that noteworthy progress goes with some confusion: there are still some who insist on the outdated policy of economic growth, others who are nostalgic for the days of ruthless development, and still others who will not countenance any development at all. Some, out of ignorance or ill-will, confuse Environmental Law with the recent neo-romantic propensity of extremist environmentalists for a return to nature! Others are trying to distort the meaning of sustainable development by identifying it with preservation of the present high level of consumption, and so on.

In our country this confusion is great. Since no official national strategy at all has been announced so far for sustainable development in Greece, but the State and politicians continue using the vocabulary of economic development, it was thought best to summarise in this book the new Environmental Law identified with the rules of sustainable development. This will make clear the legal commitments in drawing up the so far deficient national strategy and current policy. The structure of the argument is plainly synthetic, in other words it aims to give an overall picture of the **system** of sustained development, and is for that reason limited to its basic principles, stemming from another and larger work by the author in the context of large-scale systems[3].

The book is written in simple, systemic language so as to be accessible to the average reader, since without systemic thought it would be impossible to understand modern environmental law and to plan a policy of sustainable development. Nearly all new sciences, such as "earth science", "environmental science", "ecology", etc. are interdisciplinary applications of broader systemic science. But more generally still, for survival in a world which is constantly becoming more complex, the common man needs systemic reasoning, which is also the reasoning of sustainable development.

Expressed in simple systemic language, then, the substance of the book can be put as follows: In contrast to ruthless development, sustainable development will be qualitative and controlled. The control will be a system of logical coherent rules (algorithms) whose purpose is to secure the natural basis for qualitative development, in other words the survival of the ecosystems. A further aim is the stable co-evolution of man-made systems and ecosystems. That will be the order of a sustainable society which will be stable and lasting.

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[3] This is a treatise on the sustainable combination of man-made systems and ecosystems, characteristic of the pure systems theory of sustainable development as taught by the author in his course "Sustainable Management of the Environment" in the newly established Department of Environmental Engineering at the Polytechnic School of the Democritean University of Thrace.

* Thus, the **first** principle of public environmental order establishes the obligatory nature of this control system aimed at the evident general good not only of the present generation but those to come: sustainable development must not be abandoned to market forces but must be a responsibility of the state.

* The **second** principle of sustainability requires all public policies to be harmonised and prohibits any further reduction or degradation of natural, cultural and social capital, because even what has been left after ruthless development may well not be enough for survival.

* The **third** principle demands respect of the carrying capacity both of man-made systems and of ecosystems, to prevent the construction of still-born, hypertrophic man-made systems which drag ecosystems down towards their destruction.

* The **fourth** principle demands correction of that error where this is still possible, i.e. the restoration of disturbed ecosystems so that the reduction of natural capital will be averted.

* The **fifth** principle enjoins the protection of biodiversity in order to preserve the stability (equilibrium) of ecosystems.

* The **sixth** principle, that of common natural heritage, strives to secure for the sake of all the vital nucleus of natural capital, i.e. untamed nature where it exists and the ultimate reserve of life.

* The **seventh** principle demands restrained development in fragile ecosystems.

* The **eighth** principle, that of spatial planning, calls for the overall planning of balance between man-made systems and ecosystems, so as to control and maintain their stability and to improve the quality of the former.

* The **ninth** principle, that of cultural heritage, is interested in the stable continuation of man-made systems and the qualitative (spiritual) character of development.

* The **tenth** principle, that of sustainable urban environment, strives to reverse the advancing decay of modern cities, and to restore quality of life therein.

* The **eleventh** principle, that of the aesthetic value of nature, also serves qualitative development and the satisfaction of man's aesthetic needs, and

*The **twelfth** (and last) principle establishes a sound system of values and environmental awareness in people, as the real guarantee of the entire control system.

The system formed by these general principles is complete because it covers all the fundamental problems of relations between man-made systems and ecosystems. On the basis of those principles other, more specific ones can be drawn up where necessary for the solution of specific problems. By respecting these principles, people are free in future to impart quality to their development, on the one hand by controlling its natural cost and on the other hand by the equal satisfaction of material and intangible values. At any rate, the success of the control system presupposes a sustainable State and especially sustainable behaviour by its citizens, because in the last analysis what is involved is a system of values, a new culture of post-industrial society. The old values of the Constitution which are the content of individual and social rights and date from the Enlightenment and the Welfare State remain, and retain their importance intact. But they do

not suffice. The new values, namely the general principles of Sustainable Development, are those which will show the way out of the environmental crisis and secure the future of mankind. And that future leads only one way, i.e. to man's **coexistence** with his natural environment. In that way, old and new values form a complete and coherent system.

We have no right to be other than absolutely clear about what we are saying. Any argument of modern environmental law must have as its points of departure:

a) the reality of the environmental crisis; that crisis is a fact of life, is global, and is approaching the threshold of irreversibility; it is downright criminal to ignore or underestimate it;
b) the connection of that environmental crisis with the direct need to restore justice in relations between the 'haves' and 'have-nots' at the international and domestic levels; the environment is not for the convenience of the former, it is a need of the latter; the unjust world of "affluence" leads to its own self-destruction;
c) the realisation that the blame for the environmental crisis falls largely upon the prevailing state of the economy in the countries of the western world and the resultant subjugation of science and technology, but also the substantive withering and shrivelling of the political and ethical voice; as has been explained, sustainable development is in particular the balancing and harmonisation of human values;
d) the conviction that sustainable development is a one-way street; without it there is no salvation, nor any return to the past, but only a threat to survival;
e) the axiom that sustainable development presupposes a sustainable State, i.e. a State that has acquired the ethos and ability to plan and implement such a policy.

And now a brief comment on the original title of the Greek edition, namely "The Twelve Tablets of the Environment". The Twelve Tablets of Law was the primitive Code of Roman Law when man began to assert his dominance over the land. Its twelve Tablets contained the basic rules needed at that time for social coexistence and for people to act productively. Today, sustainable development is no longer dominance over the land but a symbiosis man and nature, and it needs its own Twelve Tablets, which provides the same number of basic rules for that collaboration and which summarises the new environmental law. The New Twelve Tablets of the Sustainable Society is not just a legal code, it is also a manual of morality which, though heralded as new, resurrects the classical Greek values of "justice", "frugality", "moderation" and "nature". It would be a tragic irony if Greeks, of all people, were to persist with the belated initiation of the western model of "progress" even after its failure had been officially recognised.

It is true that Greece will find it more difficult than its European partners to become a sustainable society, because its institutional weaknesses are due to a hypertrophic clientelistic system whose ability to survive is great and which is the main source of the Greek environment's afflictions. Its very nature makes this system hostile towards order and planning, and it regards the environment as an inexhaustible source of profitable transactions. The disastrous efficacy of the system tends to render environmental protection provisions worthless and encourages extensive lawlessness (encroachment upon and the deliberate destruction of forests and ecosystems, unauthorised building, etc., are a few examples), to which part of the population has already become accustomed. All the more because official environmental policy, though it is trying to bring itself into line with Community policy, is nevertheless developing very slowly and is hesitant if not submissive in its application. Thus, circumstantial adjustments remain the regular practice compatible with assessments of the political cost which determine political behaviour. This disagreeable picture does, however, contain some optimistic points, particularly such as the awakening of environmental awareness among the young, the environmental movement, the

increasing numbers of people in the public sector, scientists and workers, who are interested in the environment, and the inflexible insistence of the courts on imposing order. Nothing can better explain the jurisprudence of the Council of State in environmental issues than its firm opposition to the overt or covert action of the clientelistic system in the context of these issues[4].

There is therefore hope for Greece too. If it were otherwise, that is not compatible with the intelligence and tradition of the Greek people, whose primitive religion was a metaphysical ecology with marvellous poetic symbolism. Besides, in terms of the so-called "green accounts" Greece is one of the richest countries and nothing could excuse any imprudent squandering of the nation's natural wealth.

In conclusion, the vision of the "sustainable society" propounds a just and stable world with the prospect not only of survival but also qualitative development of its civilisation on a secure natural basis. It is therefore opposed to the misleading vision of the "affluent society" which insists on the accumulation of material wealth and on ever-increasing consumption while remaining silent about or concealing the dangers that stem from the unthinking destruction of the environment. It is also opposed, however, to the neo-romantic vision of a "return to nature" that equates mankind with the other living systems and condemns its civilisation.

[4] A study of Decision No 2153/1993 by the Council of State shows how far such a conflict may go.

CHAPTER 2

FROM ECONOMIC GROWTH TO SUSTAINABLE DEVELOPMENT: THE RESPONSE TO GLOBAL CHANGE

1. Economic and Political Development

The subject of this book is the critical problem of our age. In strict systemic terminology, it concerns the sustainable inter-relation of man-made systems and ecosystems. To put it simply, the question is: How can man continue his civilisation on earth without destroying nature and itself?

In the past the problem had been ignored and it was only man's productive activity which was regarded as the province of economic science. That association was destined to have enormous consequences for the development of human affairs, since the recommendations of economic science became the dominant factor of public policy. No consideration will be given here to the great question of whether the study of production could have developed independently as the subject of a separate science or whether that science could have isolated economic values from man's other values, even from the determinism of the natural basis of production, in other words the natural environment. In systems science circles there has always been scepticism about the ability of classical economic science to deal successfully even with its conventional problems using methods reminiscent of "celestial mechanics" (as aptly expressed by systemic economists). In essence, those systems researchers were saying something which seems self-evident today, namely that complex problems call for complex methods, but economic science had at that time become entrenched in its tradition and its authority had not yet been shaken as it was later. At any rate, when the failure of reductionist economic thinking became evident to all, the classical study by the members of the dynamic systems group at M.I.T. on the "Limits of Development" (1972) was the first serious attempt to re-orientate the problem towards its correct basis. Since then matters have developed headlong and the problem of relations between man-made systems and ecosystems has ceased to be the exclusive concern of systems scientists, it has been recognised officially and has been brought under the management of the United Nations Organisation. The Declarations of Stockholm (1972) and Rio (1992) on the environment and development, and Agenda '21 - all products of systemic thinking - have opened new horizons for overcoming the global environmental crisis.

The impact of these developments on the science of economic development and on Environmental Law has been profound. It can certainly be said that both are being transformed before our very eyes as the morphogenesis of the new interdisciplinary science of sustainable development progresses. Under the pressure of the same developments, economic science too is being transformed by "Environmental Economics" or "Ecological Economics". It has become anachronistic to speak on the one hand about "development" and on the other hand about "environmental protection" as if they were separate issues. That dualism has disappeared. There is only one "sustainable development" and its rules must be followed by economists and environmentalists alike.

It is best, however, to approach matters from the beginning and follow the path ***from Economic Growth to Sustainable Development.*** It is not so long ago that the "melancholic" science of economics was still defining its subject-matter in terms of the narrow description of the productive problem (what and how much to produce and distribute) on an epistemological platform which equated the observation and analysis of man-made and natural systems. There

was no awareness of the complex character of the former, and despite all its variations the analysis of their behaviour was attempted by the reductionist method established in the times of Newton and Galileo for the study of the latter. Thus, economic science, as indeed other social sciences, thought that it was borrowing the authority of physics and in fact tried to reinforce that with the aid of mathematics. Captivated by the "physical" method, it is not surprising that the science in question had accepted "cyclic crises" almost as a natural phenomenon and only when the daring practice of certain political systems led the way and demonstrated that man is not bound by any particular and indeed inevitable economic determinism, did it to adopt the model of "development". Unfortunately, however, it grasped that model too with the same scientific methodology and "development" necessarily was perceived as "growth", i.e. as an increase of the economic parameters and especially the gross national income. The clearly economic theory of Rostow concerning the "stages of development", which opposed the also economic theory of historic materialism, is still fresh.

Inevitably, then, the age of optimistic models of economic development (inspired mainly by the Soviet and Japanese experience) was succeeded by concern about the failure of their practical application, especially in the poor (or "underdeveloped" as they were then known) countries. To the aid of economists, who had meanwhile acquired a dominant position in the planning of public policy, hurried political scientists who regarded the dimension of "political development" as essential. An entire literature was developed on the subject and indeed some people spoke, more broadly, about "modernisation", of course taking the Western model as the measure of progress. But those theoretical models too failed, because they had the same inherent flaw, namely the inadequacy of the reductionist method. Of course that limitation was becoming more evident with the passage of time and the newer manuals of economic science were constantly becoming more "encyclopaedic" to compensate for this, but without any substantive innovation. Thus, mankind, led by the short-sighted market and by one-eyed economic science, eventually found itself unprepared and almost blind in the midst of the "environmental crisis" brought about by the models of "economic development" in both East and West.

2. Global Change

The planet's environmental crisis is the sure negative side of "Global Change", now the official term for the clear change in the condition of the "Global System" brought about by man's activities as described above. To understand it, and to enable a correct assessment of the importance of "sustainable development" as the appropriate global strategy for restraining and controlling the crisis, a theoretical account of the complex phenomenon of Global Change is needed. For this, there is no other way than to use the systemic method, which is the "science of complexity". An overall grasp of Global Change and, through this, of Sustainable Development as the positive reaction to it, is also necessary to dispel the confusion already observed because of the mistaken use of the term "globalisation". "Globalisation" is the focus of attention of those who are unrepentantly nostalgic for "economic growth" and who extol the extension of the market and the miracles hoped for therefrom. The world-wide extension of capital markets is indeed a feature of the internationalisation of the productive system. But to refer to it as a fundamental parameter of Global Change is an attempt to resurrect the one-sided economic thinking of the past, which diverts attention away from the central problem of the environmental crisis and back to growth. In this way, that view, combined with unconditional support for absolute freedom in world trade, is really a circumvention and neutralisation of the strategy of sustainable development, or acts as such by its results.

"Globalisation" is also the focus of attention among those sociologists who regard it as a mainly "cultural" process, and who speculate whether or not the future will bring a single, global culture. The interaction of national cultures has always been present on the planet, and there are no grounds to support the forecast of a homogeneous global culture which will abolish national cultures. Global culture relating to mankind's common values has always existed and, as it becomes broader in the future, will simply be the connective tissue of national cultures, which will continue to exist. What is prominent at present, however, and is an urgent duty, is to cleanse national cultures from a misguided cult of growth which, as we shall see, is at the origin of the syndrome of environmental crisis. Unfortunately, that misguided cult is a western product which has prevailed on our planet with disastrous success. Mankind's current cultural problem is to replace it by the spectrum of values that make up the notion of sustainable development, in other words moderation, frugality and justice.

The systemic model proposed in this book to depict global change differs from those drawn up by authoritative research programmes for the study of its respective phenomena, such as the World Climate Research Programme (WCRP), the International Geosphere, Biosphere Programme (IGBP) and the International Human Dimension Programme (IHDP). Those programmes, and others which do not relate to quite the same thing, are based on interdisciplinary scientific collaboration and end up as efforts to put together an information system working from its parts towards the whole. That, precisely, is their weakness, which is inherent in the whole effort because of communication difficulties between scientists with different specialisations.

In contrast, the model proposed is systemic in its origin, in other words it proceeds from the whole towards the parts and is based on diagnosis of the problem. A genuine systemic model must reflect the hierarchy of all the systems that make up the global mega-system, including the man-made, the living and the geosystems. With this content the global mega-system cannot be simply identified with the Gaia system (understood as a compound of the geosphere and biosphere), as some biologists and most ecologists maintain. This is because that view ignores or underestimates the emergent qualities of man-made systems which make those systems different from all other living systems.

Neither can the global mega-system be limited to "mankind" as maintained by many social scientists, economists in particular, because that interpretation deprives man-made systems of their natural basis, in other words the Gaia system. The global environmental crisis is in large measure due to precisely that erroneous view.

The systemic model of global change is the most serious challenge faced by the science of large-scale systems. This is because even a rudimentary representation of the relation between man and the earth, or to put it differently, between civilisation and nature, presupposes the formulation of the largest conceivable system, or rather the system with the greatest conceivable complexity. It is also a system which makes unprecedented demands, both in terms of the number of variables and especially because it will necessarily constitute a link between qualitative and quantitative data.

In the science of large-scale systems a general mega-system model has been proposed[5], which embodies the "first" systemic principles, in other words the epistemological bases of systemic, cybernetic and information sciences (see Diagram 1). That mega-system, which is valid for any large-scale system, has a hierarchical structure according to the complexity of its systems and

[5] See MICHAEL DECLERIS: "Introduction to the Science of Large-Scale Systems" (in press).

consists of the following seven systems, which in any case share relations of interdependence and interaction.

The main system of the mega-system is the ***evaluative or value system*** (VS). With that system the mega-system recognises, works out, codifies and "consecrates" its values and principles, on whose basis it orientates itself towards its environment and by means of which it constantly nurtures the other systems of the Mega-system. By definition the value system is that with the largest content and consequently constitutes the fundamental long-term control element of the mega-system. Its values correspond to man's innate quality as the optimiser capable of grasping the ideal perfect state of any material or abstract system ("the good") towards which it tends. The study of values is definitive for the interpretation and control of human behaviour and the starting point for the study of the large-scale systems that constitute the man-made environment. This is because values, taken as good and sought-after by the members, are then converted to aims and objectives of their activities.

After the value system comes the ***communication system*** (CS) by means of which the mega-system gathers, processes, stores and distributes to its elements, in other words the rest of its systems, the information they need in order to realise its values.

Next, the system of ***hierarchical structure*** (HS) converts the information to objective tasks with a valid social distribution, in other words it uses the information to generate tasks which it assigns, in the order of importance, to the hierarchically arranged elements. From this distribution stems the fundamental structural order of the mega-system, consolidated by the distribution of **authority**.

Then comes the ***system of governance*** (GS), which exercises the appropriate short-term and medium-term control over the behaviour and course of the mega-system on the basis of rational decisions that coordinate the behaviour of all the mega-system's systems.

At the hierarchical level immediately below operates the ***environmental control system*** (ECS), through which the mega-system is linked with its physical space and regulates its coexistence with the relevant ecosystems, drawing energy and resources from them.

Then comes the ***system of reproduction*** (AS) of the members of the system, which ensures that the mega-system will survive for longer than the life of its members.

Finally, the spontaneous action of the human members of the mega-system is coordinated with the overlying systems by means of an ***archetype for the role of a member*** (PS).

The systemic model of every large-scale system described above is:

a) **complex**, because it is hierarchical and it combines control of the system with autonomy of its members and also combines information with energy, reflecting the interaction of the elements at all the hierarchical levels;

b) **dynamic**, because the state of all its elements may change, more rapidly at the lower hierarchical levels and more slowly at the higher ones. That change, whether gradual or random, does not destroy the order of its systems, which can therefore be said to be in dynamic equilibrium, though errors, fluctuations, disturbances, or even periods of disorder and chaos cannot be excluded. This is because essential order is maintained and restored if disturbed, since

man-made systems are firmly directed towards their values even if they modify the practical objectives by which those values are striven for over the course of time.

3. Systemic Model of Global Change

Following the above explanations about the design of systemic models and in particular the models of man-made large-scale systems, Global Change can be understood more completely and clearly via such a model (see Diagram 2).

The ***credibility criteria*** of the model are considered to be as follows:

1. The model is ***total*** in the sense that it fully reflects the fundamental structure of the global system, consisting of ***man-made, living and natural*** systems. However, owing to its evident large size and the variety of information it contains, the model cannot be read other than in successive descending scales. At the largest scale, where we begin, the global system is necessarily very general and is depicted only in bold lines, in other words in its most essential elements, to enable its ***unity to be grasped and represented.*** At the levels immediately below, the model can be more analytic and specialised according to groups of systems or even isolated ones, depending on the needs of the analysis, which is beyond the scope of this book.

2. In line with the fundamental rule of a hierarchy of systems, the model is ***hierarchical*** according to the complexity of the systems depicted. This is necessary not just for reasons of scientific orthodoxy, but so that from the start it will indicate: a) the time scale of change, which is longer at higher levels; b) the dependence and controls of the systems, and c) an appreciation of the difficulties of appropriate human intervention.

3. In line with the above principles concerning the model's structure, the critical relevant parameters of the global system are considered to be those ***which, by virtue of their interaction, constitute the syndrome of the present global change.*** The selection of these variables is not subjective, because in its present phase global change has assumed the dimensions of a world-wide crisis and the particular constituents of the crisis have been officially recognised and are subject to political manipulation. The purpose of the systemic model is not so much to identify those variables as to cast light on the way they are interrelated and involved in the overall system of global change. In other words, it is understood in systemic reasoning that the present global change is the final multiplicative result of several respective changes in the various elements of the global system. The duty of the systemic model is therefore to identify the position of the critical interactions and the links between them, so that the picture of the problem may emerge clearly. Of course, while the model is being drawn up, other variables "not visible to the naked eye" may emerge from systemic reasoning. That indeed is the advantage of systemic models. Essentially, however, the systemic model's first duty is to ***recognise and describe the problem of global change.***

4. Granted the above, no subjective selection of model variables is involved, but rather, a scientific codification of those variables that have been accepted in official texts of the world's organisations. Those too became accepted in an empirical way, i.e. as the subject of denunciations and demands by the member states of the global system. However, the systemic model can also indicate whether or not those demands are well founded. Under any interpretation the model must start off from them, because most of its variables are already subject to legal and political manipulation.

5. Once the systemic model for recognising the problem has been drawn up, it is also necessary to prepare a model for intervention in global change. That model comes after the fact, because an action plan has already been incorporated in Agenda '21, in other words in the global strategic plan (UNO) for sustainable development. Consequently, the duty of the systemic model is to assess the correctness and efficacy of the said plan and to indicate its logical prerequisites, and possibly too any necessary amendments and improvements. According to the principles of systemic science, the scientist is not only a spectator of reality but the assistant of those who take the relevant decisions about how to manage global change. In that sense he has a duty to indicate solutions and measures.

6. In the systemic model of global change drawn up as above, quantification and measurement are clearly very important, but it must be realised that these relate mainly to the simpler systems, namely the physical and living ones. Where man-made systems are concerned, however, quantification and measurement, which may be useful in certain sub-systems (e.g. productive, demographic, etc.), are not what is definitive. Definitive character belongs exclusively to other elements of man-made systems. As mentioned earlier, these are the ***values and institutional rules*** which dictate the behaviour of man-made systems. These do not alter the scientific nature of the model, because systemic assessment aspires to objectivity since it associates values and rules with the appropriate man-made systems, whose mutual dependence it reveals, so rendering objective their hierarchic classification.

7. According to the above, the systemic model's purpose is not just to forecast global change accurately. The change does not take place in a deterministic way, in other words by virtue of inevitable causes and forces, so that the scientist, as an observer of inescapable developments, is limited to the mere measurement of the impending change, as for example with cosmic events. Here, we are actually on the planet Earth and what is happening now has its origin in man's decisions and actions. A deterministic investigation might possibly help one to understand the development of this Gaia system as it was before mankind acquired the technology which influenced the geosphere and the biosphere. Today, such a prognosis would only be valuable for revealing what will happen unless human behaviour changes. But the duty of science is not exhausted by such a prognosis, which is in many ways self-evident. The compelling duty of science today is: a) to say whether the present, manifestly undesirable development of the Gaia system is reversible or not, and b) if it can be reversed, then what the behaviour of man-made systems must be to do this. The proposed systemic model is animated by that view of its scientific purpose.

4. Brief Analysis of the Systemic Model of Global Change

The process of global change is dominated by a qualitative factor, namely the value of ***"Development"***, which became world-wide in the second half of the present century. Though the global assessment sub-system is far from being uniform, that value, proclaimed by the world political sub-system (UNO) as the right of all peoples (1986), has permeated every cultural sub-system and directs the behaviour of national states and economies and that of ordinary people of every race and nationality on a world-wide scale, to the point that it can be regarded as the ***algorithm of the present Global Change.***

The value itself is materialistic, since it legitimises the generation of wealth, namely material goods. People have always aspired to wealth, but never before - and this is the main characteristic of the new value - have they believed as they do now that wealth could be ***increased without limit*** by the systematic exploitation of natural resources. In other words, ***accumulation of wealth*** is one

thing and ***growth*** is another. Being the driving force of the ***world market*** , development has become predominant in the scale of values, due to the fact that it is now the first aim of public policy and is also fully supported technology and science. To this have also contributed the increased social prestige of entrepreneurs and the world-wide effect of the mass media, which are to a large extent sustained by the advertising of wealth creation. At the Rio Conference (1992) the vital role of that value in Global Change was recognised officially and an effort is being made to replace it with the value of ***sustainable development***, about which more will be said below.

However, an important contributor to global change is **science** itself, which has for the last 40 years climbed on the bandwagon of the productive system and devoted a considerable proportion of **research** to its service. This is evident in **technology**, which has become the main instrument of growth. In particular, the revolution in information technology and the recent establishment of a global communications network are changes which have accelerated the global spread of the productive system and have helped it to circumvent the control of national political sub-systems.

In the sub-system of ***hierarchy*** the guiding of social practice by the new elite of managers and the popular images of mass consumption have elevated the production and ownership of material goods to a powerful symbol of social status, and have therefore encouraged the masses to adopt the ***twin value of hyperconsumption***, which is indicated explicitly in Agenda '21 as a basic ingredient of the environmental crisis.

However, the great victim of global change is the national political system, which is at risk of losing its role as the **control system**. The State elevated development to the status of an ideology in order to compensate for the dominance of private economic interests. But ultimately that relationship developed into an unbalanced partnership in which the market acquired the lion's share of benefit while the State had to bear the social cost of continually expanding economic activity. In name the guarantor of the market but in fact its rear-guard, the national State undermined itself by shouldering insoluble problems (such as the destruction of the natural environment, social security, health, etc.), under the burden of which its public policy failed and its control collapsed.

Thus, the spearhead of global change is still the **productive sub-system**. It is true that this is encouraged by the pressure of the **demographic sub-system** which is showing the phenomena of **population explosion** and the **migration** of peoples, but the present intensity at which it operates, which is due to its inherent nature, is unprecedented in human history. The mania for growth is accentuated by savage competition on the world markets between the richer countries and monopolies, with the end result of intensification in, and disastrous conflicts over the **use of land**. Via land usage, man-made systems are linked to the bio-geo-chemical sub-systems of the global system, and this in a dramatic way in the present phase of global change.

This is because the main negative outcomes and results of man-made systems that affect ecosystems are **pollution, carbon dioxide emission** and the **direct destruction** of ecosystems by the insatiable plundering of natural resources (for example the draining of wetlands, all kinds of building on the land, deforestation, desertification, etc.). These outcomes, alone or in combination, bring about extensive alterations of the earth's land cover mainly in the tropics, with disturbance and loss of the local ecosystems, both on land and aquatic, and a drastic reduction of biodiversity with consequent disturbance of the operation of geosystems (atmospheric, stratospheric, tropospheric, climatic), as a result of the complex of interactions depicted in the relevant diagram (Diagram 2). These serious disturbances of the bio-geo-chemical systems also

have adverse reactions on the man-made systems themselves, ranging from the demographic (e.g. migration of peoples) to the political sub-system (entropy).

That, in brief, is the general picture of the developing global change in the sense intended.

5. Agenda '21: The Systems Guide to the 21st Century

Above, we saw that recognition and management of the global environmental crisis coincide with the transition from analytical to systemic ways of thinking. In the diagram of global change we have analysed, the complexity of the problem emerges clearly as does the interrelation of the parameters to be dealt with in order to control the crisis. In fact, the inability to perceive the crisis and grasp its severity was largely attributable to the absence of any awareness at all of the interdependence of all human activity and the natural environment and man-made systems, which constituted mankind's civilisation. And there was no information, because there was no method of viewing the problem as a whole. It is precisely that method which systemic thinking offers. Its importance must be stressed, because not only is an understanding of the global crisis unattainable without such thinking, but also the formulation of sustainable behaviour in the future. Even today, those who in good faith deny the severity of the environmental crisis do not do so because of voluntary blindness, but simply because they lack the cognitive ability to recognise it.

The origin of systemic thinking goes back to classical Greek thought. The Greeks thought in terms of wholes both in mathematics and in philosophy. They also did not separate between the diagnosis of a problem from its appropriate solution. Unity of theory and practice is the hallmark of this approach, which was abandoned in the West after the discovery of the "New Science" by Newton, Galileo and Descartes. The newly enlightened scientist forgot the objective Reason (Logos) of the Greeks, and what was finally accepted as the correct Reason was a narrow utilitarianism based on an even narrower empiricism and on the definitive break between ***what is*** and ***what ought to be***. This fundamental epistemological deviation from classical Greek thinking could only end in reductionist reasoning, which is responsible for the fragmentation of human thought and spirit. It is true that the particular sciences multiplied and that a great deal of data were accumulated, but in parallel there was less understanding of the major problems and especially the fundamental relationship between man and nature. Industrial man, the product of empirical analytical science, began producing all-powerful technology, but used it with a narrow conception of that relationship and did not start questioning what was being done until the negative consequences of his behaviour approached the limits of catastrophe. That is when he sought the help of systemic thinking, which had meanwhile been revived at the beginning of the second half of this century. This was a natural development, since it was systems science which had created that all-powerful technology. In that way, systems science held the authority and substantiated knowledge of complex problems. However, the 20th century's systems scientists were opponents of the narrow view of technological enterprises. They have always advocated systemic analysis as the way to investigate the remotest consequences of human interventions. Thus, after attaining full dominance in the technological systems of the 1960s, systems analysis turned its attention to man-made systems and extended its influence, directly or indirectly, to both theoreticians and practitioners. This was the time when environmental awareness was awakening in the West, a time of intellectual ferment, questioning and searching. The Stockholm International Conference on the environment (1972) can be regarded as the starting point of the new, systemic approach to the problem of protecting the environment. Systems scientists had already denounced one-sided economic growth and in its place propounded ***integrated development***. According to systems science, development is an organic transformation of the

social system towards greater complexity, and in this process the parameters of the productive sub-system depend on the hierarchically higher sub-systems of values, communication, hierarchy, control, etc. The Stockholm Declaration itself adopts the concept of integrated development whose fabric is composed of the sum of its principles and the Action Plan that goes with it, in the sense that a considerable number of sensitive people began to be aware of the link between the problem of environmental protection and development, involving very many parameters both social and physical. In that sense it can be said that the Stockholm Conference paved the way for the Rio Conference twenty years later.

Despite its importance, however, the awakening of systemic thought in the context of development did not immediately produce practical results commensurate with its importance. To be sure, Environmental Law was born and promulgated, but in parallel the Law of Economic Development remained in force and this dualism could only operate against the first of two. Jurists remained entrenched in their dogmatic methods and economists too in theirs. The market, however, was proving mightier than the Law and the deterioration of the environment continued both in the West and elsewhere in the world. The wealthy countries in Europe may have been disposed to make some concession for the sake of their quality of life (since they had the moral insensibility to export to poor countries the destructive by-products of their prosperity, such as toxic wastes, etc.), but the poor countries in the third world continued to covet the prosperity of the West and try to acquire it themselves, so destroying their own environment and incurring crippling debt. It became clear that the systemic protocol of the Stockholm Conference was limited and had not included all the problem's parameters. Obviously, the design of a comprehensive systemic model required sometimes more than mere systems theory.

It took twenty years of painstaking negotiations to lay the full foundation of a new systemic model, more complete than the Stockholm one, for the relationship between Development, Society and the Environment. Thus, the concept of Sustainable or Lasting or Permanent Development saw the light of day in Rio. The Rio Declaration proclaimed the principles of such development and Agenda '21 laid down a systemic strategic plan for implementing those principles. Although the Rio Declaration explicitly reconfirms the validity of the Stockholm Declaration, the difference between the systemic models of integrated development (Stockholm) and the sustainable development (Rio) is important. The Rio systemic model, although it does not attain the completeness of a genuine systemic model as we shall see, has clearly increased the number and interconnections of the parameters it combines in the concept of sustainable development[6]. The parameters, or themes as it calls them, represent according to their explicit characterisation important dimensions of an overall strategy for a global transition to sustainable development. Thus, for the first time, politicians and nations saw that the destruction of the environment did not come only from directly perceptible causes such as pollution and the plundering of natural resources, but from other factors as well which in the past were not associated with it, such as poverty, the consumerist model of living, inadequate information, deficient education, the exclusion of social groups from decision making, and others.

A systems scientist who studies the model of sustainable development as defined in Agenda '21, will certainly recognise its deficiencies which he will also have to justify. This is because the said model was not drawn up in the workshops of systemic groups with strict scientific criteria, but emerged from the table of negotiations in which the ardent problems of mankind became *de facto* its fundamental parameters. Indeed, the practical structure of the Agenda '21 model is manifest, and it is also useful because the model addresses not only scientists and those in government, but

[6] See in particular the diagrams in the Official Guide to Agenda '21.

also ordinary people who are recognised as an important factor for achievement of the ideal of sustainable development. The notion of ***sustainability*** permeates the entire system of Agenda '21: people are called upon in future to behave in sustainable ways, in other words to practice sustainable agriculture, sustainable industry, sustainable trade, etc. It is precisely this concept of sustainability which recommends a transition from the old Environmental Law to the new Law of Sustainable Development. The origin of that concept is probably the principle of prevention already proclaimed since the time of Stockholm, and is a popular acceptance of a type of control which systems scientists call 'feed-forward', the opposite of the more familiar 'feedback'. In the usual feedback, an actor is informed of an error he has made and corrects it. In feed-forward, the actor foresees in advance even the remotest consequences of his actions and, in advance, adapts his actions in line with the demands of the environment in which he is acting. This behaviour does not call for particular wisdom, because it is a simple recognition of the fact that every system must be - and is - open to the effects of its environment, with which it has relations of mutual dependence and interaction. Yet, that simple principle had been forgotten because of the arrogance of Western man (Homo Faber) who, as aptly said, perceived nature as a store of raw materials and an obedient recipient of his technical interventions. The Rio Conference revived that idea and rendered it operational by the obligatory incorporation of environmental protection in every decision, whether public or private. In the appropriate part of this book we will see that this general clause of sustainability is a serious change, equivalent to a mutation, not only of Environmental Law but also of Law in its own right, in other words legal methodology. It is difficult for conventional lawyers to grasp that change and they continue to regard as Environmental Law the Stockholm Law which is closer to the dogmatic method they were taught. But the idea of amalgamating economic development and environmental protection really produces a new kind of Law which is not exhausted by the formulation and interpretation of legal rules, but rather, is interested in taking correct and effective decisions which really transform the objective world. The fundamental objective of Agenda '21 is the prospect of a prospering world in which development will continue and last indefinitely, so that it benefits not only this but also future generations, because every developmental decision or act, whether public or private, will already have incorporated care for the survival of the environment. How is that to be achieved? Could it become the subject of special and detailed provisions and prohibitions, as classical legal method would wish? The answer is negative. No such thing is scientifically attainable. So we need a kind of Law which will enfold a range of programmes and decisions which starts from the statement of values ("soft" law), continues with holistic programmes in which those values are converted to goals, is broken down into general principles, which guide and shape the desirable decisions and acts, and is ultimately realised as objective changes which are brought about and evaluated by other decisions. All this falls within the meaning of the new Law of sustainable development, as will be seen in the appropriate section. To understand it, however, we need to dwell a little longer on Agenda '21, which constitutes the infrastructure of this new Law.

As a systemic strategic plan for overall intervention (an overall strategy), Agenda '21 comprises seven interwoven sub-systems each of which constitutes one aspect of the desired world of the future (Diagram 3). In other words, the world prepared by the principles and directives of Agenda '21 will combine the qualities of the sub-systems and will be Prospering, Just, Habitable, Fertile, Shared, Clean and a Peoples' World. Each of those dimensions will stem from a series of specific policies and measures which will be elements of the respective sub-systems. Thus, ***the Prospering World*** will stem from the flavouring of development with sustainability and from the incorporation of environmental protection criteria in the process of developmental decision-making. ***The Just World*** also presupposes combat against poverty, changes in consumer models and habits, sustainable demographic dynamics and the improvement of public health. The bundle of policies for a ***Habitable World*** comprises specific measures aiming to improve the urban

environment. The inclusion of so specific a factor in the mega-system of sustainable development is explained by the enormous importance of cities in the modern world. The Habitable World is in fact the world's urban population, in other words 60% of its people. Thus, policies on the sustainable development of human settlements, for the supply of water to them, the treatment of their wastes and the pollution of their atmospheres, have a direct impact on public health and manifest links with all the other measures of sustainable development. The ***Fertile World*** is the system of measures that aim to ensure efficient utilisation of natural resources. It is the pre-eminent systemic and regulatory hyper-system that aims to rationalise the productive system. It is the factor proposed to validate the position that development can continue with proper planning and good management, and in particular with continual recycling of the earth's resources. The planning of land use, natural, water and energy resources, sustainable farming and agricultural development, sustainable forestry, careful management of fragile ecosystems (mountains, coasts, islands), the prevention of soil erosion and desertification, the conservation of biodiversity and the environmentally sound management of biotechnology, are the elements of the Fertile World sub-system. With the factor of the ***Shared World***, Agenda '21 cares for global and regional resources such as the atmosphere, the oceans and seas, and living marine resources. Another special sub-system of measures that envisage a ***Clean World*** combines the management of toxic, hazardous and radioactive wastes. Finally, ***The People's World*** includes the strategy of information and activation of the various social groups to bring about sustainable development. The philosophy of Agenda '21 is that although the State may be mainly responsible for sustained development, this cannot be achieved without popular participation and responsibility. It therefore provides for intervention in the education, training and information of the public, and for reinforcement of the role of major social groups, such as indigenous peoples and communities, non-governmental organisations, scientists, farmers, the unions, local government, women, and even children.

Those are the strategies of Agenda '21, in other words the substantive measures for intervention in society and the market in order to bring about sustainable development. However, Agenda '21 does not stop there, but also lists and analyses the ***essential means*** by which it will pursue its strategies. Thus, it understands the importance of ***information*** for decision-making and the need for ***governmental capacity building*** of States, for which it strives by means of national mechanisms and international cooperation. Further, it also attributes importance to the cultivation and promulgation of ***science for sustainable development*** *and* ***environmentally sound technology***. Finally, it reconfirms the importance of international institutions and legal acts.

The above content of Agenda '21 indicates the difference between the new, systemic approach to environmental protection and the old, and between old Law and the new Law. In the past, traditional legal protection was limited to the formulation of a legally complete convention concerning a specific objective (e.g. the protection of monuments, whales, etc.). Agenda '21 is systemic, not only because it seeks out and regulates all interconnections between the issues of sustainable development, but because it understands that legal regulation of those issues is not enough in itself, and must be reinforced: a) by appropriate mobilisation of the public, and b) by other, more substantive measures which will influence human behaviour, for example information, education, training, etc. Agenda '21 also understands that as most states are today, they do not have the capacity to proceed with regulations and implement them. It therefore concerns itself with the improvement of the State.

Without doubt Agenda '21 is the most important text ever prepared on environmental protection and sustainable development. Today, therefore six years after it was passed unanimously by the international community, it is worth looking at how effective it has been until now. It should be

noted that Agenda '21 itself provided for a mechanism for monitoring its own implementation. Its first assessment took place in June 1997. It is of course commonly accepted that the world has not changed much since 1992. Equally certain, however, and officially recognised, is the fact that although the world has not changed, peoples' minds have changed and sustainable development has already become a global ideology. It would be mistaken to suppose that unrepentant supporters of and those who are nostalgic for ruthless development have abandoned their habits and plans, but it is no exaggeration to say that nobody now dares openly to question the new philosophy. On the contrary, it is now correct to regard sustainable development as the new global public value, to which all other values proclaimed and established so far must necessarily relate. This must be stressed, to avert the confusion cultivated by certain opponents of sustainable development who are already trying to evade and circumvent the obstacles to their ambitions raised by the value of sustainable development. As has been said, they therefore promote and publicise another value that contrasts against sustainable development, namely globalisation of the market and absolute freedom of international trade, for whose sake it is regarded as necessary to sacrifice sustainable development on the promise that those economic values can by themselves ensure prosperity for all, and environmental protection along with it. The practical appeal of that argument is that the control of sustainable development should not be exercised over international trade. This is of course a covert rejection of sustainable development. The truth is certainly very different and that issue has already been settled by the Twelfth principle of the Rio Declaration which, however, states that the desired open international economic system should lead to sustainable development in all countries, the better to enable them to deal with the problems of a deteriorating environment. Consequently, the values of the world market and free international trade are made subservient to the value of sustainable development, and every legal or practical measure that serves them must be compatible with sustainable development and - all the more important - must be scrutinised from that point of view by the competent State authorities. International agreement on free trade must include this clause too. In other words, the needs of the global market do not abolish, but on the contrary must amplify the checking of sustainability carried out by national States. This is perceived by the opponents of sustainable development and that is the reason why they also explicitly publicise the supposedly fatal trend for national States to be weakened by the process of globalisation. But this is just a pious hope, because on the contrary, Agenda '21 recommends the strengthening of States as a necessary prerequisite for sustainable development.

Agenda '21 was adopted and signed by every country in the world. Thus, its legal value is that it expresses world-wide consent to the strategy of sustainable development and in that way either incorporates precepts, general principles and practices of International Law, or prepares for their creation, or finally, compels the governments of national States to enact legal rules in that direction. Besides, and still more important, it establishes mechanisms for the monitoring and implementation of the measures it proposes. In that way Agenda '21 embodies a complete system of the new Law, which begins with the proclamation of values and reaches as far as the realisation of specific objectives. It must be repeated, however, that this is because the new Law differs from the old in that it is systemic, in other words it does not limit itself to the formulation of legal rules, but prepares and shapes them, gives instructions for their application and is concerned about their implementation and the verification of their effectiveness. Consequently, the general characterisation of Agenda '21 as "soft" law is incorrect and every one of its provisions must be examined separately from the standpoint of its legal validity. Some of its provisions are "soft" and others "strict", but all of them constitute a valid interpretative guide for national constitutional precepts concerning sustainable development.

So much, then, for the legal importance of Agenda '21. However, Agenda '21 is systemic Law in the broader sense of the term, in other words Law that is ***incorporated*** in the mega-system of the social complex and fully interlinked with the controls of the other social sub-systems, which it presupposes. Without that systemic incorporation, Agenda '21 would automatically lose its efficacy. Consequently, and wherever Agenda '21 is expressed sparingly or with restraint, interpreted only in combination with the principles of the Stockholm and Rio Declarations and incorporated in the full systemic model of the social mega-system, it reveals its deeper meaning (see Diagram 4). Indeed, with this correct interpretation Agenda '21 exhibits its high ethical and cultural importance by the ***logical prerequisites of the strategy it proposes.*** This deeper moral mission of Agenda '21 is already embodied in the explicit recognition of the true meaning of development, as expressed in the Official Guide to Agenda '21. There, it is expressly stressed that "development goes beyond utilitarian purposes, it is rooted in the most profound moral and spiritual motives of the peoples and must respond to their fundamental values". And indeed, the systemic analysis of Agenda '21's programme readily reveals that system's logical prerequisites, in other words the deeper principles that govern it. In that way, by locating Agenda '21 in the broader and systemic model, we surely bring together those logical prerequisites: a) mainly by correlating the measures proposed for the prospering and just world with the strategy of essential means for the implementation of Agenda '21, we perceive that Agenda '21 makes deep inroads into the value system of contemporary society. It deposes wealth from being the supreme value and installs sustainability in its place as the supreme value, in the sense of a triptych of Justice, in other words Justice towards Nature, Poor Peoples and Future Generations. At the same time it restores the collective values, which had been entirely set aside during the times of ruthless development and unrestrained individualism. The fundamental Greek values *of **frugality, moderation*** and the ***common good*** return. All those values, which are intangible and moral, are put forward as global values which hold good regardless of national cultures. This precisely is the important change in the system of values which validates the position that sustainable development, despite its conventional name, is not merely a new economic policy but a very major cultural change. So to speak, it is the end of the market's predominance over society and the abolition of its hedonistic philosophy. All the logical prerequisites of sustainable development imply and presuppose the superiority of intangible spiritual values, with the Greek value of "paideia" at the summit. This last is manifested clearly by the importance ascribed by Agenda '21 to education and culture more generally, in shaping and establishing the values of sustainable development.

In Agenda '21 the culture of sustainability is described in particular as the dissemination of environmental science and the new science of sustainable development. But Agenda '21 does not omit to point out that the education and information of the citizenry aims not just to disseminate knowledge, but to create a sense of social responsibility and to develop their behaviour. Indeed we need people to adopt a new ethos in order to bring about their responsible participation in the management of public affairs for the realisation of sustainable development. However, a logical prerequisite for this is to restore the autonomy of science, which has until now been led by the demands of the market. Also presupposed is the restoration of the independence and supremacy of the humanist rather than the physical sciences, which will bring an end to the simplistic worship of the latter which are put forward as supposedly authentic. On that point it should be noted that the science of large-scale systems has already restored truth in this area, by confirming the greater complexity of man-made systems compared with physical ones. Another logical prerequisite of sustainable culture is to replace reductionist thinking by systemic thinking, a thing advocated in practice by the recommendation addressed to every person in our times to "think globally and act locally". Without systemic thought it is impossible to understand the meaning of environment, much less to plan action to get over the environmental crisis. So the necessary

emphasis on sustainable culture and the rationale of its priority put productive activity back to the level where it belongs which, as we shall see, is hierarchically inferior. Finally, a logical prerequisite of sustainable culture is also to review the role of the mass media in informing people. Insofar as the media are the effective channel through which the market communicates with the citizenry, demoting them to mere consumers and subjecting them to daily brainwashing by cynical and unhesitant advertisers, any thought of establishing a new system of social values is futile. It must at last be understood that sustainable development means, *inter alia*, sustainable advertising. How else can the change of consumer models enjoined by Agenda '21 be brought about?

After sustainable culture, the other fundamental logical prerequisite of Agenda '21 is to restore the social cohesion which is absent today. Order in the system of social hierarchy has been seriously disturbed by the disproportionate social influence acquired by marketeers in this. Critical choices and decisions for the course of humanity are initiated in the closed conference rooms of global economic enterprises, and are implemented to create *faits accomplis* without prior regard for scientific word and public policy. Since Agenda '21 allows only sustainable development and that presupposes scientific and legal planning, important decisions for States and humanity cannot but be made by the intellectual, moral and political elite of society and not by entrepreneurs alone. Agenda '21 recommends entrepreneurs to become partners of the State, together with other social groups, in the planning and implementation of sustainable development. This of course is a euphemism, since according to what has been said earlier, it is the State that is mainly responsible for sustainable development. The social prerequisites of the State's leadership must therefore have been secured with increased authority. To acquire the status of partners of the State, businesses must moderate their profiteering nature and give pride of place to their social responsibility. They must also respect the leadership of the State and not try to weaken or circumvent it.

Agenda '21 attributes great importance to the need to increase the ***governing ability of States (capacity building)***. Sustainable development is not attainable without a sustainable state, and a sustainable state is not a weak one as certain marketeers would wish, but a strong and governing one, since it undertakes the responsibility to steer society towards the ideal of sustainable development and to plan and implement towards that end. Essentially, therefore, Agenda '21 presupposes drastic changes in the structure and operation of the State in order to increase its capacity. The most important change is to abandon the evaluative neutrality of the former liberal State, which had become the rear-guard of the market. The sustainable State has an ideology and a mission: to bring about sustainable development. Consequently, it is the guarantor of a certain public morality, thanks to which it has the authority to lead and control the market. It is also by definition an intelligent State and not just the holder of power and authority. The successful planning of sustainable development is in fact the supreme science and cannot be achieved without the more general reorganisation of the way public decisions are taken and, in particular, without modernising the legal system. As we shall see further on, the Law and legal methodology do indeed have to be renewed if they are both to respond to the demands of sustainable development and convert it into obligatory rules of behaviour.

The new sustainable Law has begun to be formulated. Both the sustainable State and sustainable Law presuppose ***reinforcement of the role of the State's professional elements and adaptation of popular participation***, to make it real and so that the citizen can stop being a mere consumer of the political market's messages. Indeed, Agenda '21 places great weight on the creation of well-informed citizens who can express their views in assessing the sustainability of economic enterprises and easy access to the courts, should that be necessary.

The part of Agenda '21 which is most complete is that which regulates intervention in the productive system. There, Agenda '21 has correctly grasped that without a strategic plan, the productive system cannot be led towards sustainable development. Spatial planning therefore becomes the cornerstone of the sustainable State. Yet, on the critical issue of the boundaries to which the expansion of large cities should be limited, Agenda '21 remains silent even though the Habitable World is one of its particular sub-systems. Inasmuch, however, as it provides for a sustainable urban environment, which is one of its basic concerns, it can be concluded that the sustainable size of urban settlements is a problem to be faced by each country according to its own circumstances. In that way, the problem of city boundaries remains a fundamental problem for the national State.

In the assessment of the first five years after Agenda '21 was adopted (1997), it was explicitly ascertained that very few States had drawn up national strategic plans for sustainable development and this important omission was regarded as one of the reasons for the serious delay observed in the implementation of Agenda '21. Confirmation in the Official Report that States are obliged to draw up national strategic plans until the year 2002 shows convincingly that this is perhaps the most basic condition for sustainable development.

According to the genuine systemic model, no planning of social or political reforms can take place without the primary groups, and Agenda '21 has taken that prerequisite on board. Its interest in indigenous populations and small societies shows that the survival of those primary groups is an aim of sustainable development. We believe that this applies to all the other primary groups, from the nation itself right down to families, which are society's living cells and not just "households", the status to which they are reduced by the market and by one-sided economic theory and policy. The spirit of Agenda '21 is opposed to the fantasies of those who support globalisation of culture, and proclaim that ethnic groups are doomed to disappear. That issue is enormously important, because respect for the cultural values of peoples is inseparable from respect for their foundations. Sustainable development is meaningless without the preservation of national groups and cultures. Anything that goes against that need is not sustainable development. Any broader synthesis at the level of a global system is realised and implemented at a hierarchically higher level without threatening the autonomy of the lower level. The State, then, needs to reconsider family policy radically in order to compensate the corrosive and dispersive effect of the market. Having completely done away with the patriarchal family and then dissolved the nuclear family, today the market is threatening the one-parent family. The revival of small national groups and the almost fanatical devotion to them are probably a substitute for basic biological and emotional ties of which modern man has been deprived, exposed as he is to the pressure of ruthless economic development. So the restoration of people as people in place of the 'units' which the market regards them as, is perhaps the most fundamental prerequisite for the sustainable development of societies.

Agenda '21 stresses the need to rekindle the feeling of social responsibility, but this cannot happen for the environment alone. There is no doubt that a logical prerequisite of Agenda '21's sensitivity on that point is to restore the value of virtue as part of the archetype of the person. That archetype is of course moulded by society, but in transitional periods such as the present, the State must share the responsibility. So it is not enough for the new constitutional charters of the sustainable State to add lists of rights. The time has come for an explicit statement of citizens' duties, especially the duty of sustainable behaviour.

To summarise the logical prerequisites for sustainable development, as they emerge from the systemic treatment presented in Agenda '21, it must be stressed that its application by national legislations and case law perhaps means the following:

a) A new, minimum system of public values for all the world's States, one that ***is well-grounded and obligatory*** and is dominated by the values of sustainability, justice and frugality.

b) Rapid progress of the new science of sustainable development, which is broader than Environmental Economics and is the legal heir of the previous, pure economic science. The Environmental Economics propounded until now does not suffice, because it is an attempt by conventional economics to incorporate into economic parameters the intangible values of ecosystems, landscapes, etc., using that science as a life-belt. This of course is an impossible task since neither the functions of nature nor the inherent value of intangible goods can be quantified. The new science of sustainable development has a different, specific and essential mission, namely to reconcile the productive system with the limits of its natural basis, and that precisely is what is needed for implementation of Agenda '21.

c) Control by the State over the market, via the strategic plan for sustainable development and the mechanisms for monitoring its implementation. It must be understood that the market is not and cannot become an equal partner with the State in the enterprise of sustainable development, much less can it remain unaccountable as those who support globalisation imagine.

d) A strong, moral, intelligent and effective State.

e) An open, just and effective legal system.

The next chapter deals separately with the last two of these.

In fact, the logical prerequisites of Agenda '21 coincide with the main characteristics of the Sustainable Society (Diagram 5).

CHAPTER 3:

THE LEGAL THEORY OF SUSTAINABLE DEVELOPMENT

1. The current transformation of State and Law

The main subject of this book is the legal theory of Sustainable Development and its application in practice. So far we have seen that sustainable development is not just a change of economic policy, but in fact a planned social reform to be attempted under the aegis of the state. Although all the systems of the social mega-system will be involved in that effort, the main parts will be played by the State and the Law. In that sense, the legal theory of sustainable development is vitally important for its realisation. However, that legal theory cannot be understood unless the substantive changes in progress in both those systems, State and Law, are first grasped[7]. Conventional legal culture and conventional political theory are not sufficient for the emergent Sustainable State and Law.

But let us take things in logical sequence. First of all, the ***State***. Conventional political and legal science so far, both on the continent and in the Anglo-Saxon world, started with a concept of State that had its roots in Roman Law supplemented by the continental theory of sovereignty after the Treaty of Westphalia (1648), the German theory of the legal personality of the State and the Anglo-Saxon tradition on the rights of the individual. According to that conventional view, the State is a system of sovereign rule with a self-reliant mechanism for enforcement, which supports its limited role as the arbiter of social conflicts and guarantor of public order. That limited view is transplanted into the conventional concept of Law, which also originates from Roman Law. Even today, most lawyers regard matters as very simple and clear on that point, and have no doubt that the Law consists of certain legal rules whose application is guaranteed by the enforcement mechanism of the State. The legal science taught to the judiciary, teachers of law and lawyers is approximately that, namely the science of interpreting and applying those rules. The origin of the said rules of Law, their purpose, the social process whereby they are produced and their ultimate real effect on peoples' behaviour are not of interest to conventional lawyers, who believe that those matters belong to the province of Political Science and Sociology. There can be many schools in the philosophy of Law. Teachers of law, judges and lawyers may even be supporters of this or that among those schools. But in the exercise of their conventional role in interpreting and applying the precepts that are considered rules of law, all such people are inspired by an enviable unanimity about the scope of their task: that task is limited to interpreting the rules, whatever the source of inspiration for that interpretation.

It is precisely that legal culture which has clearly exhausted its usefulness today. So to speak, it is the legacy of classical Civil and Penal Law, which has for a long time been a stable and closed legal system. It is true that French Administrative Law, as true praetorian Law, has developed into a dynamic legal system which has been open to its numerous links with social processes. But that system too eventually settled into a recognisable system of principles of marginal control, and its theoreticians ultimately lost their initial creative spirit. The legal system of constitutional control also proved to be dynamic, especially as formulated by the jurisprudence of the Anglo-Saxon courts. That legal system contributed much to broadening the concept of the Rule of Law, by which the classical enforcement model of the State was modernised. But after brilliantly working out the issues of human rights, that system too had run its course after having also

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[7] See also MICHAEL DECLERIS: "State and Law in the Age of Global Change" (in press). That book was announced as Volume II of the Twelve Tablets of the Environment (1996).

somewhat broadened the concept of Law. Despite that noteworthy development, none of these more recent dynamic systems averted the degeneration of modern Law into "paper law". Long before people became aware of the global environmental crisis, the ineffectiveness of the State and the Law had been ascertained. It is no paradox that although political and legal culture insisted on the notion of the coercive State and the rules of Law, in parallel reality presented quite a different picture, namely that of deficient government and lawlessness.

There is a fundamental systemic principle which says that for a control system to be effective, it must be at least as complex as the object it is intended to control. It is precisely that principle which conventional legal culture totally neglected. Social problems had become more complex than conventional legal science and that science inevitably produced paper law and paper decisions. That situation eventually became manifest and comments began to be made about the State's failures in almost every sector of public policy. There are serious indications of those failures: the public order system is too weak to cope with internationalised and organised crime (especially drugs), the modern slave trade (illegal immigration) etc. Health systems cannot provide services to the needy. The welfare system does not provide satisfactory coverage. Education fails the indigent and its aims are called into question. It is, however, in the context of the environment that the crisis has assumed the largest dimensions and provoked the greatest concern. Awareness of all those failures has indicated the limits of conventional legal science's utility. So in application of the aforementioned systemic principle, there began a process of the mutation of State and Law to make them more complex so that they will be able to control their objective. And that is exactly what is happening now.

The modernisation of the coercive State began with a series of administrative reforms undertaken in the large western countries during the last twenty years (USA/Carter 1979, United Kingdom/Thatcher 1980, France/Rocard 1989, etc.). In other words, the problem of the State's crisis was defined at a clearly administrative level and accordingly the changes focused on the structure and action methods of the Administration. Although by definition these changes could only be limited and incapable of solving the fundamental problem, they must nevertheless be regarded as noteworthy, mainly because they strengthened the teleological, professional and scientific element of the State's action. People began to speak of the ***principle of effectiveness*** of the State, even if that principle was interpreted differently in every State. Certainly, however, the replacement of the old practical policy by the scientific analysis of public policy, and especially by the use of exact methods to assess the results of public policy, considerably blunted the old authoritarian nature and legal formalism that had characterised the State until that time, and offered an avenue of escape from the credibility crisis by which politics was beset. In that way, the State began to be perceived more as a governmental system of decisions and less as a mechanism of authoritative power.

In Law too, an attempt has been made to broaden the principles of the Rule of Law, while in some areas of legal science efforts have been made to modernise legal methodology. The most characteristic example of this is the so-termed "policy-orientated jurisprudence" or "comprehensive jurisprudence" which was successfully cultivated at the Law, Science and Policy workshop of the Law School at Yale by Lasswell and McDougal, to deal with some of the major problems of our times (Space Law, Ocean Law, etc.).

Despite this, however, the real problem of political reform, which is necessary, has remained open at the state of mutually conflicting proposals. To the fundamental question of what structure of the political system can realise the recognised principle of effectiveness of the State, the Anglo-Saxons have adopted the positions of the market to curtail and weaken the role of the State, while

in continental Europe various plans have been proposed to restore the Welfare State. Yet, the Directives of Agenda '21 are more valuable than any of those proposals on the point in question. A reading of the relevant portion of Agenda '21 leaves no doubt that its directives recommend the building up of the governing capacity of the State in every country, especially in developing countries. In that way, the effectiveness of the State is seen as its ability to govern. Consequently, instead of the hitherto neutral State which follows the lead of the market, Agenda '21 calls for a sustainable and capable State which:

a) will express and strive for the basic objectives of sustainable development and indeed draw up a strategic plan to achieve them,

b) will enact effective legislation for those objectives, and strive to realise them by modern methods of administration and management,

c) will establish law enforcement mechanisms and periodically check their efficacy.

Bearing in mind that, as we have seen, the totality of Agenda '21's directives have a systemic character and are proposed as the content of public policy in every country, there is no doubt that Agenda '21 proposes the ***systematisation of the State*** and its policies as appropriate means for increasing its governing capacity. That is indeed exactly the correct description of the direction in which the transformation of the modern State is taking place[8].

Analogous importance for the development of Law has the methodology followed by International Organizations, in particular the UNO, to establish modern International Law and the Law of Sustainable Development. It is clear that the initiative and direction of the entire legal process of establishing and realising sustainable development is the province of International Law, from which national laws stem. Consequently, national laws are inevitably affected by the changes taking place in International Law, which are very important. International Law is no longer limited to the old conventional and customary rules. It is a manifestly dynamic system with numerous hierarchic levels which start with the statement of values and principles and end with clear and specific directives on how to implement the rules formulated at the intermediate levels of the said system. Modern International Law is systemic and national laws will necessarily become the same, since in order to realise the aims of sustainable development the executive mechanisms of International Law penetrate into the internal Law of every country on the planet.

We are therefore moving towards a kind of Law which is ***orientated towards objectives*** and which checks whether and to what extent the results of applying its rules realise those objectives. In that way, State and Law become cybernetic systems in the technical sense of the term and this fundamental change in both of them automatically and correspondingly brings about a change in the legal methodology of all those involved at the various levels at which law is produced by public decisions. Thus, rule making can no longer be the product of dogmatic or practical improvisation, but becomes the appropriate legal outcome of a systemically planned general public policy. Decisions by the administrative authorities can also not be practical solutions of an uncontrolled discretionary nature, but become products of the given scientific decision-making methods of Public Policy. The decisions of administrative courts which check the legitimacy of administrative decisions and the constitutionality of laws are not, as until now, simple applications of juridical syllogisms, but decisions that cover the need to check the consistency and

[8] See MICHAEL DECLERIS: "The Coming Systematised State of the 21st Century", in Tercera Escuela de Sistemas (Valencia, 1995).

efficacy of all acts of Public Policy, from its proclamation to the material acts that stem from it. In the still continuing establishment of the effective rule of law, much has been contributed by the problems of the environmental crisis, which are clearly objective and demand effective solutions.

We must dwell a little longer on the vital importance of the continuing transformation of State and Law to sustainable systems of effective control. Without such an updating of Western government, sustainable development is unattainable. Despite their much-discussed coercive character, States have remained weakly subservient to the market, sponsors of its failures and mere arbiters of social conflicts, even when cloaked in the mantle of Welfare States. Never have they striven to lead society in a particular direction in the long term. The so-termed social rights have never acquired the status of individual rights. The Welfare State has continued recognising the dominant role of society and especially the market in seeking and expressing the objectives of social action, and has simply provided certain directives to legislators in order to secure certain fundamental prerequisites for social peace and prosperity, for example the support of socially weak groups, concern for employment, health, the family, etc.

In other words the coercive Western state has remained a well-intentioned policeman who is even slightly concerned about the indigent. But even that role was never regarded by the old state as its *raison d'être* and its main mission. Neither has the fortuitous sum of its social policies from time to time ever amounted to a unitary whole that serves any particular fundamental aim. That did not even happen in the age of ruthless development. Even then, the State expected a developmental result mainly from the market and in any case it never rendered the validity of its other policies dependent on that result.

Matters, however, stand completely differently in the ***sustainable State***, if we can so term the already transforming States in the west that have assumed responsibility for sustainable development. For the first time, States in the west are faced with the task of reshaping the society in order to ensure its survival. For that to succeed, the State has to commit itself to certain values which it renders legitimate and obligatory for all, and on the basis of those values, it plans and implements substantive changes of society and its institutions. It is a fact that the State still prefers to be led or motivated by the market, but it does not shirk the responsibility for strategic planning. We have therefore come a long way from the liberal State which rejected governmental paternalism. Awareness of the danger that threatens the continuation of life on our planet is the necessary and sufficient explanation of the great responsibility undertaken by the State to realise sustainable development. In the past, society did not tolerate State dominance when it came to the distribution of wealth. Now, however, it cannot reject that dominance when its survival is at stake. Having accepted the leadership of the State in achieving the objective of survival, society must however accept a whole bundle of objectives whereby survival will be ensured. As we said in the brief analysis of Agenda '21, those objectives go far beyond mere economic policy and in fact aim to reform society so as to make it more just. So in our times, survival is impossible without justice, and the justice of sustainable development is not merely the social policy exercised until now. Thus, the coercive State in the west is ceding its place to a state which will not only guarantee but bring about the ideal of Justice. The conclusion, then, is that for western States to succeed in that task they must amend the Roman tradition by returning to the classical Greek notion of a just Polity , at whose disposal they will place the increased efficacy of the methods of scientific public policy. Power-games and persuasion are displaced to secondary status when not abandoned entirely. Justice, information, education and scientific management are the means of the new state policy. That strategy is the only way to overcome the current credibility crisis of the State and politics. That new trend already characterises the means deployed by the European Union to implement its policy for sustainable development.

Analogous comments must be made about conventional law's inability to contribute towards realising sustainable development. That Law is burdened by the centuries-old traditions of civil and penal law. It consists essentially of rules that regulate an external behaviour imposed with uniformity and by coercion. The Law is concerned to regulate relations between people, groups and organisations, to define the framework of interactions. It is interested in regulating behaviour, not in the results of that behaviour. This is because the regulatory rules are marginal. While remaining within the boundaries of the law, the subjects of Law, i.e. the people in society, are those who formulate objectives and achieve results. The success of individual and collective action that is not the responsibility of the State, but rather, the result of personal effort or social progress. The law remains the same in both good and bad times. There is no branch of Law which deals with the assessment of results. Neither at any time has a methodology been proposed for evaluating the Law itself. That is a sufficient explanation of why, according to the conventional view of Law, the totality of its science consists in interpreting its legal rules.

Obviously, the characteristics of such conventional Law do not respond to the demands of sustainable development. The statutes of sustainable development do not exist, they have to be created. Sustainable behaviour of society members is not given, but it will be brought about. Neither institutions nor the appropriate behaviour of citizens are yet known. All we know is the desired end-result, namely to ensure sustainability, towards which the legal provisions will tend. In other respects, as we shall see later on, the law of sustainable development consists primarily of general principles and directives which will allow for the shaping of statutes and behaviour. To that effect, however, there must be a new and broader perception of Law which will restore its unity on a global scale. That Law will not just consist of rules of internal law, but will be a continuum of statements, rules, decisions and acts. The full spectrum of Law will begin with the Declarations of International Law, include the rules of International, Constitutional, Administrative and Private Law, and end with the administrative decisions and material acts that comply with the Law. Legal action on any element of that system will have to harmonise with the system as a whole, and the constant reference to that very broad system of Law is exactly ***principle of the systemic nature of the new Law.***

A second feature of sustainable law will be its commitment to a greater moral purpose, namely that of ***sustainability and Justice.*** Under the conventional view of Law, this was juxtaposed with Ethics. In contrast, the Law of sustainable development consists precisely in the creation of a broader concept of Ethics, which recognises moral obligations to nature, future generations and the restoration of justice in relations between people and nations.

Another characteristic of sustainable Law will be its full ***rationalisation by the methods of science.*** In reality the law of sustainable development will largely consist in implementing the precepts of the appropriate science (interwoven with moral rules and governance principles). The old Law did not consider the origin of its rules to be part of its science. The construction of rules was the practical task of the state. As we have said, the lawyer's job was only to interpret those rules.

A further principle of sustainable Law is that it ***is dynamic and continuously formulated.*** Old Law was the interpretation of static rules. In contrast, new Law is a dynamic system with a continuous flow of information and decisions. It preserves the unchanging rules of Justice but must in addition shape the sustainable society, in other words change existing society. Progress towards sustainable development will be long and continuous. Thus, Law will move away from rules and towards decisions, because it has to discover the practical objectives of sustainable

society with the aid of fixed general principles. Legislators, judges and public officials will have to learn the Science of Decisions.

Finally, the new Law will be an ***open system in continual communication with society.*** The same cannot be said of old Law, which was almost closed since no provision at all was made for a feedback mechanism and the assessment of its results. A series of procedural principles will ensure the open character of the new Law system:

a) ***the principle of transparency*** will supplement the old principle of the publicity of Law, and will establish the trust of societies in the Law, thereby increasing its prestige,
b) ***the principle of information*** will empower participants to take a responsible part in the law-making process,
c) ***the principle of popular participation*** in defining the structure of public problems will bring about true democracy,
d) ***the principle of accountability*** will ensure continuous feedback for the necessary corrections and adaptations of the Law.

That is the new sustainable, systemic Law. The next question is what methodology is needed to produce and apply such Law. Conventional legal methodology is correctly described as dogmatic, since conventional Law is indeed a closed system of rules of Law and conventional legal methodology is no more than interpretation of the rules of that closed system, whose aspired virtue is the consistency of juridical syllogisms. That legal method is the true offspring of analytical logic and clearly has no place in an open system of Law, which is interested in producing real results. Systemic Law needs its own legal methodology, which is very different from the traditional juridical syllogism. With systemic methodology legal thinking moves away from closed dogmatic rules to legal values and objectives. For the achievement of which open systems of rules and practices are formed. Systemic legal methodology is basically cybernetic and is supported by the theory of decisions and by systems analysis.

The main phases of that methodology are: 1) Definition of the structure of a legal problem, 2) the design of a juridical system, 3) the design of a control system, 4) the design of a Law evaluation system, 5) the design of a legal communication system (see Diagram 6).

Definition of the structure of a legal problem is a method for recognising and formulating a legal problem by preparing a systemic model at two levels, namely a) a specific system which includes all factors of the problem, b) an abstract system which includes the legal values involved. The structure of a legal problem is determined when it is revealed what is wrong with the existing legal situation, and what change is needed.

The design of a juridical system is a method for the creation of a system of law at all the hierarchic levels, namely those of statutes, programmes, regulations, decisions, actions, etc., which reveals and clarifies the imperative hierarchy of legal values which are then converted to objectives and aims. The legal systems start with systemic value theory and end with systemic praxiology.

The design of control systems comprises methods for ascertaining and measuring the efficiency of the Law systems designed, and methods for the correction of faults in their operation.

The design of evaluation systems comprises methods for evaluating the final results of the Law systems in relation to the problems diagnosed.

The design of legal communication systems ensures a continual flow of information between the juridical systems being designed in each case, and society.

Distant ancestors of systemic law were the teleological school of the interpretation of Law and the school of the free interpretation of Law. But the kinship is limited only to the "teleological" dimension, because in other respects, in other words the all-important questions "from where and how is the objective derived", "from where does its objective validity stem", "how is it converted to aims and acts", the difference between the old teleological school and systemic law is enormous and qualitative, corresponding essentially to the difference between analytical and systemic thought.

Besides, systemic teleology has nothing to do with subjective rationality, much less with philosophical and legal scepticism. Systemic value theory and, more particularly, the systemic theory of legal values has firm objective bases provided by the science of systems. This is because systems, including systems of legal values, have objective foundations and order.

A full exposition of the new legal methodology is clearly beyond the scope of this book[9]. However, to mention certain examples from the jurisprudence of Section 5 may shed light on its utility. Let us take, for example, the case of a law which allows private urban building, i.e. the preparation of a town plan on private land and on the initiative of its owner. With the old legal methodology, the process of producing a Decree approving the plan would be limited to checking that the prerequisites required by the special law for the purpose, are satisfied. However, application of the new systemic methodology, starting from the fundamental question of whether the private urban construction method is sustainable, in other words whether it is compatible with the principle of sustainable urban development, then moves on to the structuring of the problem, during which, taking into account all the related spatial and town planning circumstances, it is found that in the absence of appropriate regional planning, already existing settlements are decaying without any change in the use of the corresponding settlement area and at the same time the use of other areas, both agricultural and not, is being changed so as to urbanise them. This analysis of the problem leads to the conclusion that the new method of town planning is in fact resulting in unacceptable consumption of natural capital. In this way, the simple application of law demonstrates incompatibility with the principle of sustainable development. Thus, designing an appropriate juridical system compels the Administration to examine whether there is really a need for urban development or whether it could be satisfied within existing settlements or by extending them within the limits of the carrying capacity of the region. The difference in the way the problem is dealt with by each of the two methods described is enormous, and clearly it is only the second which ensures sustainable urban development.

2. The legal meaning of Sustainable Development

After the above introductory remarks, let us now see what is the legal meaning of sustainable development. As presented in the Rio Declaration, the definition of sustainable development, which was first proposed by the Brundtland Report ("Our Common Future", 1987) is too general to satisfy the demands of legal semantics. Indeed, Principle 3 of the Declaration states that the right to development must be fulfilled so that it responds in a proper way to the developmental and environmental needs of present and future generations. This definition basically includes the ethical concept of justice between generations. That concept, which is self-evident in objective

[9] See, however, M. Decleris, "The Systems Design of Public Policy" in Systems Management (1989).

ethical systems, has until its proclamation been the victim both of the market's developmental trend and of the practical politics of the feasible. In fact, the rationale of the market consists in the short-term exploitation of opportunities. The prime axiom of empirical policy, whether administrative or developmental, is that every generation must solve its own problems. Before the ethical concept of sustainability was proclaimed, development had a precise legal definition since economic science had indicated its measure: according to pre-Rio logic, development was an increase in the gross income of a state. In that sense, what was literally involved was growth, because the term development clearly has a broader and more complex content. Without for the moment going into this meaning of development, it should be noted that the exact legal definition of growth was the one adopted by both the developed and the developing countries. For example, in claiming the right to development the developing countries primarily meant improvement of their living standards, in other words increase of their gross income. Apart from philosophers and heretical economists, who questioned that very narrow view of development, the communications of others showed no doubt or uncertainty about the fact that development was an increase of a country's material wealth.

A study of the Rio Declaration, Agenda '21, the Brundtland Report and all the debates and negotiations that took place while preparing to adopt those texts, is very helpful for the legal definition of Sustainable Development, if the factors that made it possible to move from the old notion of Development to the new notion of Sustainable Development are considered and assessed correctly. Those factors are given and are not subject to doubt: the International Organizations and all the countries on Earth agreed in Rio and accepted in common as an undisputed fact that development, as striven for until then in the aforesaid way, namely as the unrestricted increase of material wealth, has placed mankind's survival at risk because it exceeded the Earth's carrying capacity as an ecosystem. This technical statement, which is based on the science of ecology, can be expressed more simply by explaining that unrestricted development was consuming natural resources more quickly than they could be regenerated and burdening the natural environment with amounts of waste that exceeded its capacity to absorb them. In that way, such development has led to the destruction of ecosystems, which are defined technically as natural capital, and that is why it has rightly been termed ruthless or wild.

Beginning from the above, we can therefore define sustainable development first from a strictly technical standpoint which is more narrow than the ethical ideal expressed in Principle 3 of the Declaration but which provides a secure basis for the ultimate full definition of sustainable development. According to that technical definition, sustainable development is an increase of a country's wealth production, in other words of its gross income, which does not entail parallel reduction or degradation of its natural capital. That definition also ensures that the ideal of Justice between the generations will be realised, because it demands that a country's natural capital should be conserved and passed on to future generations unscathed. This exact legal definition of sustainable development is found in many decisions and proceedings of Section 5 of the Greek Council of State, and has *de facto* been shown to be especially useful in the legal scrutiny of public policies of the State which posed a threat to the natural environment. By invoking that definition, for example, the Court has prevented the ruthless urban development of the country's coasts attempted in recent decades in the context of policies on tourism, or town planning, or simply for land profiteering.

The position that conservation of natural capital is the nucleus of the notion of sustainable development is also reinforced by Principle 4 of the Rio Declaration, according to which "on the basis of the objective of achieving sustainable development, environmental protection shall form an inseparable part of the developmental process and cannot be dealt with separately therefrom".

This is the familiar principle of Protection which, of course, is understood as the protection of natural capital from the risk of reduction or degradation. Besides, procedurally, that protection consists in the incorporation of environmental criteria in the planning and implementation of any public policy. The same principle is also safeguarded by the obligation imposed on the private sector to prepare a study of environmental impact analysis before any important technical intervention in the environment.

The above narrow technical definition of the meaning of sustainable development is in some way directly necessary to curb the destructive results of the ruthless development striven for until now. However, a careful study of its consequences and, besides those, the need to realise the greater ethical ideal embodied in sustainable development allow the formulation of a broader legal definition for it. That broader definition is the answer to the pertinent question whether development is possible at all without making inroads into the natural capital. Adherence to the narrow legal definition necessarily leads to the conclusion that the only permissible and desirable increases of material wealth from now on are those which come from the more effective and efficient use of natural resources. That also seems to be the view of many who maintain that with better management of the Earth, we will be able to continue taking more natural resources from the ecosystems for many more years without violating their carrying capacity and destabilising them. The proponents of this idea rest their hopes on the improvement of technology, which, as they believe, will enable the more efficient management of ecosystems.

Yet, the narrow legal definition of sustainable development does not exhaust the full scope of the concept, especially because it takes no account of parameters which are prerequisites for the better management of natural resources. This is exactly why it was said earlier that the narrow definition is only a starting point, and that, because it is not systemic. It perceives sustainable development as a simple amalgam of economic and environmental policy, whereas by its very nature it clearly constitutes a broader social policy. So we need a systemic legal definition of sustainable development, towards which we must orientate ourselves for the future. In other words, the narrow legal definition of sustainable development is satisfactory only as a good start. By its very nature it cannot be the final solution. Exactly as has been demonstrated that no effective, valid and self-sufficient Environmental Law was attainable so long as the momentum of economic growth continued unabated, but that the said Law was fatally rendered "paper law", in the same way the simple incorporation of environmental criteria into developmental decisions will prove inadequate in the course of time unless it reveals its broader mission and utility, in other words unless it fuels an understanding of the need to harmonise and systematise all public policies around a system of legitimate values which completes the Rule of Law, in accordance with what is said below.

All that has been said above about the sustainable State and sustainable Law anticipates the content of this correct legal definition of sustainable development, since sustainable Law is systemic and the legal definition of sustainable development cannot but also be systemic. At the beginning of this chapter this definition was considered in a kind of historical way, in other words as the result of a certain evolution on the one hand in developmental policy and on the other hand in Environmental Law. However, historical review has only a limited value because it simply sheds light on the conditions under which a problem arises. In the case in question, historical review of sustainable development has shown that it arose from the failure of ruthless development, which the newly formulated Law of the environment could not check on its own. Accordingly, the definition indicated by the historical method is necessarily narrow, because it always remains within the framework of economic policy, which it simply corrects by incorporating environmental criteria. In that way, sustainable development is legally defined as

developmental policy which does not harm the environment. With that definition, not even moderate partisans of development policy will disagree, and it will in the future be embraced by all who do not really believe in sustainable development but who just want a formula that will reconcile the opposing views of entrepreneurs and environmentalists.

That narrow definition, however, is out of line with systemic methodology. According to that methodology, as it has been described in broad lines above, systemic diagnosis of a problem must always precede the choice of its solution to it. And as we saw in the last chapter when analysing Agenda '21, systemic analysis of sustainable development reveals its numerous links with the other sub-systems of the social mega-system besides the economy and the natural environment. Among them, the sub-system of social values, culture and social justice in particular have a manifest and direct effect on sustainable development. For example, if the members of society continue to be urged towards purposeless over-consumption by a non-sustainable advertising system, if their culture continues being orientated towards market needs and unless real justice is restored to the relations between rich and poor, it is unreasonable to expect the economy to become sustainable and cease harming the environment. It is therefore necessary to put the issue not simply from the standpoint of ethics but as a clearly legal matter. Unless sustainable development is legally defined in the correct, i.e. systemic way, it is *a priori* impossible to realise. Consequently, the Law cannot neglect this very important duty because otherwise it will be ineffective and become a simple pretext for continuing destructive ruthless development. Thus, the systemic definition of sustainable development is an absolute necessity and is the basis of the system of general principles for sustainable development. According to that definition, sustainable development is a restorative overall policy, i.e. an organic whole of public policies which, for the present, tends to restore equilibrium between all kinds of man-made systems and between these and the planet's ecosystems, while in the future ensuring the stable co-evolution of man-made systems and ecosystems. That equilibrium has been severely disturbed by the dominance of the market. More particularly, the system of the above restorative public policies strives: a) to exalt man's intangible legal values as against material values, b) to preserve cultural heritage, c) to render culture and science independent of the market, d) to establish social justice, and e) to preserve natural capital intact and avert its further degradation, in order to pass them on unscathed to future generations.

The explicit provisions which compel the incorporation of sustainability criteria in every public policy must be considered to relate to that definition. In this connection it must once more be stressed that it is not only environmental criteria in their narrow sense which must be incorporated in every public policy, because even if such one-sided incorporation is attempted, it will be ineffective and bring no real result. So according to this formulation, every public policy must incorporate not only criteria for the conservation of natural capital, but also criteria for the preservation and development of cultural and social capital. It is in the above, broader spirit that the explicit provisions aimed at the sustainability of respective public policies should be interpreted. This is because incorporation of those criteria really means a necessary interrelation of the corresponding public policies and any others brought into play. The use of systemic logic in that reform is manifest.

The legal definition of sustainable development has certain important practical consequences. In the first place, where the fundamental rule of sustainable development has taken the form of a statutory rule, as for example in the Maastricht and Amsterdam Treaties or, possibly, in a constitutional text containing an explicit provision or interpreted as embodying the said rule, as in the case with Greece, the aforementioned definition has increased formal validity. Consequently, legislation and government policy must comply with the definition. This means that the

obligation to interrelate public policies is a legal one, and its infringement renders the law or regulatory provision unconstitutional and the relevant public policy prone to abrogation, of course provided that the other conditions for control by abrogation apply. This means that the striving for sustainable development, as a legal obligation, has now been removed from the sphere of political will and the latter is bound by the above fundamental rule, whose custodians are the judiciary. Politicians of course retain the ability to choose sustainable solutions, but that choice is subject to the obvious limitations that stem from ethics and science, and especially from the spirit and directives of Agenda '21. In any case political solutions are also subject to judicial control.

Bearing in mind that the realisation of sustainable development presupposes systemic logic and that the organisation and operation of the transformed State are still far short of the desired degree of systemic cohesion, the difficulties that surround sustainable development are clear and reflect the contradictions even in the relevant policy of the European Union, which is characterised by a low level of coordination between its various branches. Besides, the legal definition of sustainable development stated above is provided at the highest level, and between that level and practice, which must be guided towards sustainability, are included many legal levels of specialisation. For example, between the level at which the need for sustainable energy policy is proclaimed and the specific measures by means of which it is to be implemented, legal measures may be intercalated which relate to the management of energy demand, the choice of sustainable energy systems, for example from renewable sources, etc., before we arrive at the sustainable use of energy by the consumer.

Precisely because of the complex systems interposed between the establishment of the fundamental rule of sustainable development and the specific measures for its implementation by citizens, organisations, etc., the fundamental rule cannot correctly be broken down into part-rules by the conventional method of precepts and prohibitions. On the contrary, according to systemic logic the entire system of sustainable development must be grasped directly from the start in all its unity and stated in the form of a system of interwoven general principles. This presupposes a certain fundamental starting hypothesis on the sustainable relationship between man-made systems and ecosystems, which can be described by a finite number of general principles. As we shall see in the appropriate section, this means that the principles of sustainable development cannot be procedural but must be substantive, because only then can they lead in a particular direction.

The fundamental hypothesis of this book, which also permeates the jurisprudence of Section 5 of the Council of State, draws its support from the well-grounded findings of international environmental law. According to this, since the given system of power over and unrestrained exploitation of the planet's ecosystems has been proved to be disastrous, not only for ecosystems but also for the man-made systems that manage man's civilisation, the power system must be replaced by some other sustainable system, according to which uncontested and superior control of the man-made systems is exercised to the benefit both of them and of ecosystems. As explained below, that position is intermediate between the extreme positions of ruthless development and deep ecology. That position prevailed in Rio and is now the golden rule of our civilisation in the 21st century. It can be expressed as the outcome of a strict logical system of general principles that will from now on constitute the supreme reference programme of sustainable development (see Diagram7).

CHAPTER 4

THE ENVIRONMENT AND THE CRISIS OF TODAY: GLOBAL ENVIRONMENTAL CHANGES

As has been said, the concept of environment has nowadays been absorbed by that of sustainability. That is the new, greater legal value. The Law requires sustainability in every public policy, but also in the behaviour of society's members. Yet, although the old self-sufficient Environmental Law belongs to the past, the term "natural environment" is still in use since, in any case, it is at least an element of sustainability. Something must therefore be said about that and especially about the way systems science deals with it.

The "environment" is not just a new word for nature. It is the deepest and so far the most complete conceptual perception of the field upon which the human adventure is unfolding. Nature was conceived as "environment" when it had already undergone significant changes due to man and had formed complex relationships with his creations, the man-made systems. A scientific metalanguage was henceforth needed to describe those relationships, which were the province of many sciences. That metalanguage was offered by systems science, which is the science of complexity and therefore the most appropriate for the environment.

Science, Politics and Law nowadays draw the definition of environment, knowingly or unknowingly, from systems science. Only when the environment is perceived as a "system" can it be semantically expressed. International Law, Constitution and Law, when they speak of the environment, refer to its systemic meaning even if they sometimes do so incorrectly, because that is the broadest possible and at the same time full and exact meaning.

According to systems science the "environment" is a mega-system comprising ecosystems and man-made systems which share complex relationships of dynamic interaction. The ecosystems are organised wholes of living and natural systems (biotopes), while man-made systems are systems converting matter/energy and information, which are designed, created and managed by man during his dynamic interaction with the ecosystems. The attached Diagram 8 depicts the systemic definition of environment. According to that definition, the environment is a hierarchical system. The supreme (planetary) hypersystem, i.e. the one with greatest content, is that of **Gaia**, which is assumed to be self-regulatory and subject to the control of the solar system which also provides it with energy. ***Man-made*** systems, though they came into existence as local systems, are already developing into planetary ones and at least some of them (communications and the capital markets) have already become global. ***Ecosystems*** are usually thought of as local and their dynamic interaction with man-made systems is subjecting them to continual degradation, change, replacement or destruction. Hierarchically, they are superior and more inclusive than the living and natural systems from whose composition they derive. Living systems are ones that can process information, which is the main feature of life, and in that sense they are above the natural ones. Among living systems there is a hierarchy according to complexity, with fauna superior to flora and primates at the top of the fauna. Natural systems are the lower orders of the environmental hierarchy and consist of physical/chemical factors organised into the greater sub-systems of atmosphere, climate, hydrosphere and lithosphere.

According to this systemic description of the environment, man as a biological organism is a living system. Owing, however, to his moral personality, he emerges at the top of the living systems and constitutes an entirely special system which, from the standpoint of environmental law, is of interest as the creator and manager of complex systems, the man-made ones, within

which he lives and is active. Man himself, as a biological organism, is influenced in two ways by man-made systems: on the one hand by the quality of their structure (e.g. working and urban environments, etc.), and on the other hand by the effects that inputs to and outputs from them have upon man himself and the natural environment (e.g. the mining of raw materials, agricultural and industrial products, wastes, pollution etc.).

Since man-made systems necessarily have ecosystems as the basis of their material structure, they are created and develop ***at the expense of the latter***. They therefore depend on them in two ways: a) to the extent that they convert the elements of ecosystems into ***natural resources*** for mankind, and b) to the extent that man-made systems discharge into them the results of their operation (e.g. generation of thermal energy, pollution, etc.). This results in a double feedback reaction since a) natural resources are finite and subject to exhaustion, and b) the carrying capacity of ecosystems is also finite. The present environmental crisis arose when man-made systems became capable of producing global changes, in other words an appreciable disturbance of the planetary ecosystem of Gaia. That disturbance is manifested in particular by the breakdown of the ozone layer, the increase in temperature (greenhouse effect) and climate change. According to evolutionary theory, major disturbances and destructions of Gaia's ecosystem have taken place repeatedly in the distant past due to other causes as well, when species disappeared. What distinguishes the present environmental crisis is that it is the result of man's activities. Although efforts are made by some (see Chapter 5) to play down the severity and acuteness of the crisis, it must be stressed that this is not a matter for subjective assessment, because the present environmental crisis has been officially evaluated by International Law as serious and dangerous. Thus, already at the time of the Stockholm Declaration (1972) it was stated that "We see around us accumulating evidence of the damage created by mankind in many parts of the earth: dangerous levels of pollution in waters, the atmosphere, the soil and living organisms, large and undesirable disturbances of the environmental equilibrium of the biosphere, the destruction and depletion of irreplaceable sources of wealth, major deficiencies harmful to the physical, intellectual and social health of man, in the environment created by man and more particularly in the environment where we live and work". Such warnings become more emphatic with the Rio Declaration, in which it is stated that mankind is at a critical time in its history: "We are faced by the perpetuation of inequalities between and within nations, poor health and illiteracy, and the continuing deterioration of the ecosystems upon which we depend for our prosperity..." (UN General Assembly, Resolution No 44/228/22.12.1989). The Convention on Biodiversity also "expresses concern about the fact that biodiversity is being significantly reduced because of certain activities" (1992). After Rio, control of the global environmental crisis is the official goal of a global strategic plan of management.

The global environmental crisis, then, must be regarded as a plain fact and its denial is simply used as a pretext for non-compliance with the principles of the new environmental law. Besides, the extent of the crisis gives special priority to implementation of the principle of obligatory restoration of the balance between ecosystems and man-made systems, where this has already been disturbed.

According to systemic logic, "global change" will inevitably extend beyond changes in the planetary ecosystem and into the lives of people, whose health, employment, living and survival in general will be affected. Already, the first population shifts have started to take place. Because of "global changes" international environmental law, having overview of the problem, will also take precedence over national laws in formulating the necessary rules of behaviour. For that reason its Declarations, which clarify and express the aspirations and objectives of the new environmental law, must on the one hand energise national legislators and on the other hand, and in particular, guide governments, the judiciary and citizens in the interpretation and

implementation of the new law's principles. From that point of view, as we have seen, Agenda '21 is an important and irreplaceable aid which must be regarded as the blueprint for the 21st century and the manual for every public functionary and citizen. Being a systemic work, Agenda '21 is the global plan for the management of the environmental crisis by means of detailed programmes for all man-made systems. Every country has its own environmental problems. However, those who deal with them must understand their nature and have a grasp of global policy well before looking further into the special features of their own problems and seeking ways to come into line with the orientation of Agenda '21. In the diagrams (7.1 and 7.2) referred to above it is made clear that the principles of new environmental law constitute in the technical sense a cybernetic control system whose objectives are: a) to restore the balance of the Gaia mega-system and b) to control the interaction of ecosystems and man-made systems in order to enable their co-evolution.

The systemic definition of "environment" correctly draws attention to the interaction of its elements that exists at all the hierarchic levels. Thus, between ecosystems there is both interdependence and interaction: pollution of a land-based ecosystem affects the equilibrium of an adjacent lake or marine ecosystem, the filling in of a river bed affects an adjacent settlement, the erosion of a mountain and the draining of a wetland affect the distribution of surface waters, etc. but between the living and physical elements of ecosystems too the interaction is close: reduction in the number of species disturbs the equilibrium of the ecosystem, etc. The vital importance of interdependence and interaction of the elements of the environment has been ignored or underestimated until now, both by conventional (analytical) science and by politics. The result of this is inadequate knowledge of how ecosystems operate and blind intervention in them by man. It is downright tragic that existing ecosystems are already disappearing even before their workings are understood. Systems science has illuminated the importance of interactions between the elements of the environment and, be it only *in extremis*, has rendered the planning of man's intervention in ecosystems more careful and more responsible.

With its protection under law the environment has become a "legal value", as man's "life" and "person" had already become (see Article 2 of the Constitution) along with his freedom (Article 5) and his health (Article 21). It is mistaken to believe that the environment became a legal value for man's sake or in order to protect his other values more effectively. Such a view starts from the same analytical thinking that compares man to nature and simply ennobles his motives. It is also, however, a mistake to regard nature as having its own rights which may go against man's rights, because law is the province only of rational beings, and only man and his man-made systems can be subject of law. The correct position is that the environment is protected as a legal value in its aforesaid systemic unity, which includes man-made systems. The environment is protected because man is inconceivable and cannot exist without it, in other words because the interests of man and the environment are identical.

Since the environment has become a legal value, its constitutional protection must be complete. This is because the purpose of that protection is to ensure its "homeostasis", i.e. equilibrium, so that ecosystems and man-made systems can evolve conjointly. If the protection is incomplete, unsuccessful or ineffective, that purpose will not be achieved and instead of homeostasis there will be disturbance and degradation which may well become irreversible. That protection must therefore be provided for all elements of the environment and throughout the domain indicated by science. This means that the judiciary must set aside rules which do not satisfy the demands of constitutional legislators. In other words, not only when the adoption of a protection law has been omitted entirely, but also when the laws adopted are imperfect, the judiciary are obliged to do what is necessary for full protection of the environment. And this, by direct application on the one hand of Article 24 of the Constitution, and on the other hand of the supra-legislative rule of

sustainable development which demands that damage to the environment must be prevented. In other respects, the correct harmonisation of man-made and ecosystems is also the responsibility of the judiciary. It is understood that the judiciary have the support of science, whose arguments they must use via expert appraisals. Pressed by many and heterogeneous interests acting under the acquired impetus of the old, ruthless "development", legislators may either do nothing or provide incomplete protection. It is also possible for the law to arrive at the same result by adopting empirical or compromise solutions, or even by bowing to the demands of patronage. It is the responsibility of an independent judiciary to ensure the completeness of constitutional protection, because that protection is not envisaged as incomplete but as complete, and is not even conceivable in any other sense. In our country the Council of State has consistently kept ahead of the legislature and improved the protection of the environment, since the adoption of the Constitution in 1975.

CHAPTER 5

THE ENVIRONMENT AND PROGRESS: THE CURRENT PHILOSOPHY

To the above fundamental issue of the relationship between man-made systems and ecosystems, modern philosophy, especially after the Enlightenment, had responded with the idea of progress. Thus, faith in man's continuing progress is main characteristic of "modernism". To begin with, "progress" was correctly identified with the development of "civilisation", in other words all man's material and intangible values. The philosophers of "Enlightenment" had walked out from the spiritual realm of the church, but they strove to maintain a balance between spiritual and material values. Gradually, however, "progress" was losing that integrated meaning and, under the influence of subjective materialist theories, was constantly becoming narrower in scope until in our times it was finally identified with one-dimensional economic growth.

In front of the destruction caused to the planetary environment by the predatory plundering of its resources for the sake of ruthless development, the reaction of public opinion after the 1970s was almost universal. The sensitivity of public opinion had become more acute during the previous decades, when people were living under the threat of nuclear catastrophe. The industrial culture in the West had been shown to be insensitive and indifferent towards the enormous deterioration of its natural environment: numerous species were annihilated, forests disappeared, seas and rivers were polluted, all without any official reaction. However, popular discontent smouldered. It sufficed that reactions came from an enlightened number of systems scientists, who were first to pose the problem of the "limits of development", and other sensitive people who denounced the progressive destruction of Nature, to arouse a vast wave of public indignation, first in America and later in Europe. The "philosophy" of growth was challenged, lost its credibility, and since then philosophical preoccupation has returned to the age-old problem of the relationship between man-made civilisation and nature.

Notwithstanding their enormous variety theories proposed about the Mankind-Gaia relationship can be summarised in three categories: a) the school of economic growth, b) the school of "deep" ecology and c) the school of sustainable development.

a) Economic Growth

The first category comprises theories of "development" which simply correct or rephrase the philosophy of economic growth. In their extreme form these theories are variations of a shallow and vulgar hedonism which promises the "affluent society". Based on reductionist thinking, they start off from the simplistic principle according to which man has power over the Earth and is entitled to use and exploit it to his own benefit. From that principle the following views follow:

* Man, who also comes from nature and is its peak achievement, is entitled as dominant constructor to transform the lithosphere and biosphere at will into a man-made world that promises an abundance of material goods.

* There is no natural obstacle to this: although the population will stabilise in times to come, it can meanwhile multiply without fear because Earth can support an unlimited number of people.

* There are sufficient natural resources and in any case technology will discover new ones if the existing ones run out.

* There is no environmental crisis and the alleged dangers are scientific myths. All environmental problems will be dealt with successfully with the aid of technology.

* Consequently, production and consumption can increase indefinitely and there is no good reason to restrict them.

Each and every one of the above views of the extreme developmental position has been refuted scientifically. They are all entirely unsupported appraisals, and the arrogant assumption is put forward that their potentially appalling consequences will in fact be averted by technological development. Thus:

* Man does not dominate nature but is interdependent with it, since all man's intervention have a feedback into man-made systems, which affects their stability.

* All natural resources are finite and measurable, and unlimited consumption can not last for a long time.

* No matter how developed and sophisticated technology will always depend on finite natural resources.

* Mankind's population explosion is an acknowledged problem which is already under management by the United Nations.

* The global environmental crisis is a proven fact and its main manifestations (e.g. ozone depletion, etc.) are already the objects of action plans.

* Unlimited economic growth is logically incompatible with finite natural resources.

In contrast, development theories based on the right of poor peoples to improve their living standards are entitled to critical analysis. The development rights of the poor are based on moral theories (e.g. Rawls) which advocate the priority of equalising the living standards of all people as a principle of justice. In any case, that right has been recognised by the United Nations Declaration of 4 December 1986, which states that "the right to development is an inalienable human right by virtue of which every person and all peoples are entitled to participate in, contribute to and enjoy economic, social, cultural and political development, in which all human rights and basic freedoms can be fully realised" (Article 1).

Besides moral principles and Declarations, however, the right to development has been claimed in practice successfully by the peoples of the said "third world" with organised political action, again under China's leadership, in the period between the Declarations of Stockholm (1972) and Rio (1992). As an argument those peoples invoked the "environmental debt" owed by the West, which *in extremis* has been transformed from the destroyer to the protector of nature.

Although it is expressed in the old vocabulary of developmental philosophy, the aspiration of the poor to improve their lot has nothing to do with the right of the wealthy to prosper. Neither do Agenda '21 and the dogma of sustainable development constitute a diplomatic compromise between those two demands. The need to improve the lot of the poor is a necessity for the

restoration of equilibrium to man-made systems at this time in our planet's history, without which one cannot hope for balance in the planetary ecosystem that it depends on. The Principle of the Just World proclaimed by Agenda '21 breaks down, *inter alia* and in particular, to: a) the obligation of wealthy countries to revise their consumer models and restrict the consumption of resources and goods, and b) the right of developing countries to attain the level of sustainable development. In that way, the rule of sustainable development has a different content depending on the living standards of those to whom it is applied: for the wealthy, it means restricting wastage, for the poor it means improving living standards. There is no doubt that this entails the restoration of just order from two diametrically opposed directions. In that sense, theories on the development of poor countries, regardless of their argumentation, differ radically from the theory of economic growth in wealthy countries. They are, moreover, only acceptable in the sense that they defend the right of the poor to reach **sustainable** standards, which at present they have not. To the question what are sustainable standards, various answers have been given, but Agenda '21 leaves no doubt that they are far below the present excessive levels of consumption.

b) "Deep" ecology

At the opposite extreme from the schools of economic development are the schools of "pure" or "deep" ecology, which advocate a return to simple ways of managing nature. At the focus of attention and interest of these schools are evolution, ecosystems, and in particular the conservation of species, without placing any special weight on man. From that standpoint they stress the disastrous impact of industrial civilisation on nature and recommend abandoning it, because any kind of development inevitably leads to depletion of natural resources, while the problems of the environment are indeed unsolved. Such schools censure the anthropocentric approach to the man-Gaia relationship and, extending morality and justice, proclaim the rights of nature. It is not man alone who has rights but animals too, plants, even nature's inorganic elements. Nothing legitimises man's ambitions to exploit nature. On the contrary, he owes his respect to nature and all its creatures. The schools of ecology are right about the critical importance of ecosystems for mankind's survival. However, they underestimate man's particular characteristics and especially the role of technological development in man's evolution. Consequently, they are pessimistic about the future: some propose scenarios of wholesale catastrophe while others believe that nature will ultimately be rid of the arrogant species of man, eliminating only him, while almighty evolution will continue along other branches.

The schools of ecology have offered positive service to public policy and environmental law by extending the structuring of the problem, so as to include the ecosystems which had been completely ignored by the schools of economic development, immersed as they were in the error of market autonomy. They have also extended the scope of ethics. For that reason their value consists not in their extreme conclusions that they advocate, but in highlighting the vitally important role played by ecosystems as the irreplaceable basis for man-made systems. That emphasis led to the correct ideal of **sustainability** which has given a new dimension to the concept of development and revived it. In other respects, man-made systems are one thing and ecosystems another.

c) Sustainable Development

The schools of development and ecology are extreme because they are one-sided. Thus, both suffer from deficient logical method. The first, which is purely analytical, isolates man from his environment and examines his economic action in its own right and over a relatively short time scale (4 to 30 years). The second is indeed holistic, but is in reality pseudo-systemic because

while it focuses on ecosystems, it cuts short the hierarchy of systems and completely ignores the unique qualities which distinguish mankind from all other living systems. It does indeed have a long-term perspective, but does not correctly grasp the dynamics of ecosystems since it rejects *a priori* the possibility of harmonising ecosystems and man-made systems, in other words the coexistence of natural and cultural development. Yet, that is the main problem since man is different from other living systems and man-made systems have special characteristics and potentialities which must be taken into account. Thanks to those characteristics and especially man's rationality and creativity, co-evolution of man-made and ecosystems is attainable and depends mainly on the harmonisation of decisions in two different time scales, since man-made systems have a shorter relaxation time than ecosystems. That correct and vital perception gave birth to the school which was to prevail, in other words that of ***sustainable development.***

The school of sustainable development is the correct approach to the fundamental problem of relations between man-made and ecosystems, not because it is between two extremes but because it is based on integral systemic logic. Systems science grasps the whole without losing sight of its parts, and takes into account all the elements of the Gaia mega-system without ignoring their hierarchical order. Finally, it understands that the dynamics of the mega-system are not simple, as assumed by the environmentalists, but stem from the interaction of different time scales owing to the inherent hierarchy of the systems. From this correct rationale, namely sustainability, it introduces the hitherto ignored **long-term criterion** into man's decisions in place of opportunistic or simply short-term adaptation to the rationale of the market.

The prevalence of the systemic school of sustainable development also means the end of classical economic science. Already the most conservative tendency of the new "Environmental Economics" aspires to bring environmental parameters (externalities) into economic models. The systems approach of man-made systems, however, goes far further. It proposes a new interdisciplinary approach to the aforesaid fundamental issue and, in place of simplistic "laws", is orientated towards the problems of the desired stable co-evolution of civilisation and nature. The systems science of sustainable development is developing rapidly and has a great future. It uses combined qualitative and quantitative methods and the accuracy of its models is checked by simulations and broad utilisation of the new information technology. Under its influence, outdated views about the meaning of economic goods are already being reviewed, the concept of Natural Capital is being introduced, the state and especially the reduction of such capital is being measured, and the elements of the "green accounts are being redefined. The science of sustainable development does not reject the market", but denies its autonomy and of course unlimited power, since by their nature the new criteria of man's decisions, in other words a long-term horizon and breadth of perspective, presuppose other, better designed forms of control than the self-regulation of the market. Thus, the designing of "soft" systems with the respective appropriate complexity is under consideration and is truly a higher form of control.

CHAPTER 6

RULES FOR CONTROL SUSTAINABLE DEVELOPMENT

a) General

The idea that sustainable development can emerge spontaneously from self-regulation of the market once the parameters of environmental protection have been incorporated in production costs, can be rejected out of hand. This is because it preserves intact the disastrous errors of the developmental school. Also mistaken is the idea that sustainable development will be achieved by policing the environment, because this alone is not enough to relieve market pressures. So the control system for sustainable development is based on a new philosophy and a different design.

The developmental school had based itself on the following erroneous control assumptions: a) that the production and consumption process is autonomous with respect both to other man-made systems and to the environment, b) that with appropriate technology the said process is entirely controllable, and c) that the natural environment is also absolutely controllable. Those views stem from simplistic (reductionist) thinking, mainly because they ignore the complexity of both man-made systems and ecosystems. That is exactly why the school in question failed flagrantly and induced the global environmental crisis. In contrast, systems science has revealed and conceptualised the complexity of living systems, which is both static (hierarchic) and dynamic (a stochastic and irreversible system path). Consequently, the control system for sustainable development must be based on other essential positions and especially:

a) Rejection of the absolute autonomy and precedence of the production system among man-made systems. At best, it is simply one sub-system among many others which process the large variety of human values. Its autonomy is relative and fully subject to the limitations of its hierarchical order. Above it are the regulatory systems of values, communication and law.

b) Emphasis on the "soft" character of all living systems, especially man-made ones, for which mechanical control is inappropriate.

c) Recognition that the Gaia mega-system is the habitat of the human species, which is not an object for the exercise of power but of careful management. "Control" - if it can be so termed - of the complex living systems presupposes respect for the information processing mechanism they contain. Consequently, the only possible form of control is **information** and this indeed within the complex structure of theoretical and applied scientific knowledge. Thus the control system for sustainable development must incorporate and bring together the scientific rules of combination and management applicable to man-made systems and ecosystems. Those rules are based on knowledge of such systems, their dynamic interaction and the methods and techniques for monitoring and regulating that relationship. Because of the stochastic behaviour of living systems, they are essentially general guidelines with a plasticity which allows them to be applied to a large variety of control problems, which are of interest to the science of sustainable development. The recipients of those guidelines are the State itself, members of society, organisations, enterprises, etc. All are required to develop "sustainable" behaviour on the basis of those rules. Of course, however, the ultimate responsibility for implementing the rules falls to the State and especially to the judiciary, because the said rules embody higher ethical criteria such as identification with greater systems and respect for the rights of future generations, which manifestly are very different from the selfish and short-sighted motives of the market. The rules of sustainable development express and promote the dynamic order of living systems, contrasted

against the inevitable entropy of natural systems accelerated by the irrational "developmental" activity of industrial man. Those rules, then, constitute the new ethos of post-industrial man, in other words the obligatory ethics of the 21st century, and contain the hope that man will survive in a world that is deteriorating headlong.

b) Brief review of the historical development of the relation between man-made systems and ecosystems

For a better understanding of the enormous change engendered by the rules of sustainable development as a strategy for the control of man-made systems and ecosystems, a synoptic overview of the relationship between these two kinds of systems must be presented.

That relationship has existed since the times of the **primitive** man-made systems of food gathering, hunting and fishing. The impact of those systems on ecosystems was small and localised, though limited environmental disasters did take place, mainly due to fires. For that reason man-made systems were included among the ecosystems and man followed the pace of nature (see Diagram 9).

When the agricultural revolution arrived **traditional** man-made systems came into being, which developed an actual relationship of power over ecosystems. Their impact was considerable and sometimes far-reaching, but still local. The clearance of forests initiated the age of destruction of natural habitats and the reduction of biodiversity. The first settlements appeared, and as agricultural technology advanced, man-made systems became capable of causing considerable damage to ecosystems. Soil erosion sometimes went as far as desertification, while waters were often polluted and people's health came under the threat of various diseases. In other respects, the power relationship between man-made and ecosystems was still subject to serious limitations, but acquired regularity and stability within a broader system of traditional religious culture and achieved a notable level of energy recycling. The population became stable. Compared with industrial man-made systems, agricultural systems were a more stable way of symbiosis with ecosystems (see Diagram 10).

The **industrial** revolution maximised the power relationship of man-made systems over ecosystems, because between them were now intercalated the technological systems by means of which the destructive power of the former to the cost of the latter was increased. Ecosystems were significantly restricted. Roads and major technical projects were constructed, large cities multiplied and the population increased dramatically. The systematic plundering of natural reserves formed over the course of billions of years nurtured the unthinking industrial processes of "development" for some time, until "global changes" showed up the limits of power thinking in the relations between man-made systems and ecosystems. The global environmental crisis coincides with the collapse of controls by the industrial State. The world had now come to an impasse (Diagrams 11 and 12).

However, thanks to information technology and the "new sciences" (systemic, cybernetic), post-industrial man has become able for the first time in history to grasp the **overall relationship** between man-made systems. The ideal of "symbiosis with" has replaced that of "power over". Blind selective intervention in the environment has been abandoned and the attempt is in progress to steer the entire relationship between man-made systems and ecosystems by means of elastic rules of "sustainable development". The aim is no longer to develop man-made systems but to achieve their **stable co-evolution** with ecosystems. That objective is deemed attainable because of the elastic stability (resilience) of ecosystems, which can tolerate a certain degree of

combination with man-made systems. At bottom, the problem is mainly to harmonise paths operating on a different time scale, the longer one of ecosystems and the shorter one of man-made systems. The rules of sustainable development also constitute a learning curve: man must learn to coexist and co-evolve with ecosystems (Diagram 13).

This steady co-evolution, as the supreme public goal of law and politics in the post-industrial state, clearly differs both from the ephemeral "social and economic" equilibrium and from the economic "development" which were the successive objectives of the industrial "welfare State".

CHAPTER 7

GENERAL PRINCIPLES OF THE LAW OF SUSTAINABLE DEVELOPMENT

The legal definition given for sustainable development is in accordance with the aforementioned systemic view of Law according to which Law is not a given and static sum of legal rules, but a dynamic system of legal decisions and acts at numerous and interwoven hierarchical levels, the supreme among which comprises the authoritative decisions of the International Community (in conventional, customary or regulatory form), next the statutory decisions (constitutional rules), and thereafter, on a descending scale, legislative, regulatory and individual decisions, and finally material acts. The mega-system of Law described is defined as dynamic because it is in constant motion and development thanks to a continual flow of information and decisions. The rate at which the system moves varies depending on the hierarchical level and is faster at the lower levels and slower at the higher ones. In that way **systemic legal theory transfers the emphasis from legal rules to the making of legal decisions**.

But sustainable development too is clearly a dynamic system, defined as a sum of public policies since, as has been said, it is really equivalent to a profound social reform. So by its very nature, the Law of Sustainable Development cannot be conceived as a sum of static rules but as a continual process of decision-making at all the hierarchical levels of Law, the said decisions tending to realise sustainable development. This Law is not in place today unless only in rudimentary form, and it must be created.

For that, the Law of Sustainable Development, which succeeds the old environmental Law, inherits the rules of the latter and incorporates them in its appropriate hierarchic layers. For example, the international conventions which protect the environment, constitutional clauses, special legislation, etc., are retained. But all of them are brought within the system of Sustainable Law so that they can be used as authoritative programmes to support and facilitate the making of decisions for sustainable development. Within the new system all such programmes will be harmonised and will acquire the meaning imposed by their fundamental objective. In particular, however, those programmes will be supplemented by others which will provide for the incorporation of sustainability criteria in the making of public decisions. On its own as it stands today, the old environmental Law cannot provide the legal base for the Law of Sustainable Development. As has been said, the latter is already coming into being. Consequently, the characteristic of the New Law in general, in other words its dynamic nature, will be the distinguishing feature of the Law of Sustainable Development more than any other branch of law. Furthermore indeed, the Law of Sustainable Development will influence all other branches of law because the ideal of sustainability it strives to realise will permeate every public policy and therefore, correspondingly, every branch of both Public and Private Law.

The vital question, then, is how, in other words by what legal method is the New Law of Sustainable Development to be formed? The answer is that the initial impetus for its formation has already been given and has taken on the aspect of so-termed "soft" or "loose" law. An entire system of "principles" has been proclaimed by the Stockholm and Rio declarations. Those principles must be interpreted:

a) as the proclamation of a system of legal values, in other words values officially sanctioned by Law and so rendered valid and obligatory for all, regardless of their moral preferences,
b) as a system of general directives for the realisation of those ideals.

In that way, at the highest hierarchical level of the law, i.e. in the so-termed Law of the International Community, the ***legal form of the General Principles*** from which the new Law of Sustainable Development will be formed has been chosen.

And rightly so. In the first place, since at the level of International Law, both hard and soft, sustainable development has been conceived and proclaimed as a whole, in other words as a system, its initial approximate description was impossible without the help of very general principles. Then, a review of the interesting history of General Principles in Law shows convincingly that these have consistently been used by teachers of law, legislators and the judiciary whenever the system of law has needed to be extended. Thus, first to appear were the General Principles of Civil Law, the work of jurists who were looking for regular patterns in the variously termed relations of private Law. The formulation of those principles cannot be explained alone by theoretical interest. On the contrary, the wise jurists of the past were trying with an intelligently conceived system of General Principles to harmonise heterogeneous provisions in different branches of Law, so that they would constitute and enrich a uniform system. A study of the content of the General Principles of Civil Law shows how successfully those jurists in fact managed to combine into a single system the provisions concerning primary groups (family, kinship, etc.), with those concerning the small market systems (contracts, etc.), the larger social systems (corporations, foundations) and, after all those, the State and Law.

The enduring value of the General Principles of Civil Law is proved by their subsequent legislative codification, which means that once those principles had fulfilled their purpose, in other words to unify the legal system at the relevant level, they have since become fixed provisions to secure the identity and unity of the system.

Whereas in that way the General Principles of Civil Law had fulfilled their destiny, the continuing extension of Law at other hierarchical levels, higher than the levels of private Law, could no longer be served more than very little by the system of General Principles of Civil Law that had been created. The baton was passed to the General Principles of Administrative Law, in countries (especially France) where Public Law was being extended more rapidly under the supervision of special judges. Indeed, whereas the whole of Administrative Law was created by French administrative judges, its General Principles, also the product of jurisprudence, succeeded in unifying into a system an exceptionally large number of state interventions in society, subjecting those interventions to a notable system of new legal values. The purpose of that system was to **tame political power** at the hierarchical level of State administration and to establish order in the State's behaviour within a system of the Rule of Law. This was a very difficult and for that reason admirable enterprise. The General Principles of Administrative Law succeeded essentially in organising power relations into a harmonious legal system around the fundamental legal value of the general interest, and extending Law into an area of naked and dangerous power. The General Principles of Administrative Law wove the connective tissue between the State, the Administration and Society.

What was then missing was the immediately higher hierarchic level of a regulation of the State and Society, by the Constitution, to crown the political system. That was something which concerned not just the States themselves but the international community as well. Which political systems would be recognised as "civilised" States among a small club of modern states, was the issue successfully resolved by the early history of Constitutional Law. To the extent, however, that this theory was shown to be insufficient to cope with the full complexity of social life and especially the autonomy of individuals against the State, it proved necessary to extend this system

as well by the formulation of general principles. That role was indeed fulfilled by the numerous Declarations on the Rights of Man, from the American Declaration (1776) to the Declaration by the UNO (1948). The Declarations on the rights of man constitute an integral system of General Principles which today serve as a system for the recognition of civilised states and a condition for their inclusion in a system transcending the State itself (e.g. Europe, etc.). That system of individual rights or liberties was supplemented during the 19th and 20th centuries by the sub-system of social rights, to realise a minimum programme of social justice.

All this venerable history of General Principles of Law provides an adequate explanation of the preference of the drafters of the Stockholm and Rio Declarations for the proclamation of principles to regulate the problems of sustainable development. This again has proved the correct choice: the greatest legal problem of our times is to ensure uniform the behaviour of the planet's States in regard to fundamental issues of justice towards one another, to future generations, and to the planet's ecosystems. This is an unprecedented attempt of extending Ethics and Law to a global scale. It is therefore worthwhile to review the gradual extension of the system of legal values until now by the method of General Principles. In essence, this constitutes the history of our legal civilisation, which shows convincingly that: a) the method of General Principles is not simply an expedient one, but **the only** method of establishing the Law of sustainable development, and b) the development of legal concepts has placed at our disposal the means for successful legal regulation of sustainable development.

The General Principles of Civil Law express traditional society's system of legal values. The values of **kinship** and **family** combine with those of **property** and **heritage** to organise a closed, local and essentially territorial system whose cohesion is based on biological links and whose survival depends on control of the land and its resources. Under that system people lived for millennia at every longitude and latitude of the world. In essence this involved the parallel coexistence of systems each almost closed with respect to the others, whose interactions inevitably provoked conflicts over rights and land use.

However, where such systems developed into the open "city-state" societies (Greece, Rome), new legal values emerged to enable society to become organised in a more complex way by the creation of trade networks and the provision of services. This led to the formation of the legal values of the **person**, **right** and **obligation**, and especially that of **contract** and even of the **legal person**, which made it possible to form small man-made systems no longer based on kinship connections but on the free choice of the contracting parties. This was truly a revolution in Law. Besides, at a higher hierarchic level, the value of the **State** is detached from the bundle of property values and, in Greek legal culture, it was combined with the value of **justice**, and in Rome with the value of **public authority (imperium)**. The bundle of new legitimate values made it possible to organise large territorial man-made systems, characteristic examples of which were the Hellenistic kingdoms and the Roman empire. Law and order, then, spread in the privileged parts of the planet, though not without fluctuations and regressions. The most important developments took place in the Hellenistic kingdoms and in Greek Byzantium, where the value of **higher moral law** (a reincarnation of the value of Justice) appeared and in the Medieval West, where in addition to the latter value, the value of the **feudal relationship** was formed as a kind of artificial kinship.

Although the first modern state was Greek Byzantium, where the legal values of **sovereignty**, the **general interest**, the **public** and the **bureaucratic system** were formulated, owing to incomplete knowledge of the related sources later theory in the West supposed that the above legal values, were characteristic of the modern state in the West, especially France. It is true such states

invoked sovereignty as the supreme value, but their higher complexity as man-made systems consists in the fact that they managed to administer a secular system of interventions and public policies in society, a thing which differentiated them significantly from the simple power structures of the previous stage.

The legal culture of the West, however, is represented by another cluster of legal values by which: a) on the one hand state power was weakened, while b) on the other hand it became possible to form autonomous and open social systems which, within the modern State, created polyarchy while in parallel making it possible to cross the boundaries of national States and to form supra-national private systems. That role was fulfilled by the legal values of the **constitution** or otherwise the **rule of law, of individual and social rights**, and finally, the value of **development** which succeeded the classical philosophical value of prosperity.

The constitutional states of the West formed a closed club of "civilised" States, each jealously guarding its sovereignty. For that reason, the possibilities for forming supra-national systems, provided by the new values, rapidly degenerated into colonial systems competing with one another for world dominance.

The legal prerequisites for the formation of a genuine global system only emerged when the failure of the colonial experiments became apparent and **peace, international cooperation** and the **peaceful resolution of international disputes** were recognised as legal values.

Since then, the values of many new supra-national public or private systems have been based on those fundamental values. It soon became apparent, however, that this was not enough for the establishment of a global system since the relation of all those man-made systems to the planet's ecosystems had not been defined and evaluated. That evaluation could not in fact be achieved under the sway of the old values of property, rights, etc. As explained earlier, however, the global environmental crisis which resulted because the problem was ignored, brought to the surface the links between the old values and the new values of **environment** and **"Gaia"**, now related to a global scale. From that association emerged the legal value of **sustainability as the cornerstone for the formation of a global system.**

That, then, is where we are today. In this last phase of the development of the system of legal values (see Diagram 14), the practical question is which general principles can lead to the now necessary organisation of global law and order. It has already been said that the deeper meaning of sustainability is the interlinking of man-made systems with one another and with the ecosystems. In that sense, sustainability is the fundamental criterion both of public policy and of the private policy of organisations and individuals. In application of that criterion, everyone is obliged to pre-examine and interrelate their decisions and actions so that the equilibrium of the systems will not be disturbed in ways that result in further loss of natural, cultural or social capital. In fact, what the criterion of sustainability aspires to is common-sense in this age of complexity, though this is rare because the market and the dominance of analytical thought in the life of industrial man has really cut him off from his fellow man and from nature. **Sustainability**, then, is really **systemicity**, in other words the restoration of the world's unity and cohesion, which have been seriously upset by the western industrial experiment. This restoration, however, must be real, i.e. it must include our view of the world, our politics and our actions. So if sustainability is in fact equivalent to systemicity, then the most general principles of sustainable development are as follows:

1) Awareness of the unity of the world.

2) The supremacy of ethical and cultural systems over other man-made systems and especially the man-made productive system. The main responsibility for the environmental crisis is borne by the market's unreasonable ambition to be society's leading system. A systemic world, however, means a world with a correct hierarchy in which the larger systems logically occupy higher positions than those which, being smaller, are parts of them. The market, even when considered on a global scale, is simply a system of activity which is within and consequently subject to the control of inherently greater information processing systems, such as the ethical and cultural systems.

3) Human stewardship over nature. The concept of that stewardship is innate in man since, as Plato perceived, more complex systems necessarily care for simpler ones. But industrial man in the West interpreted man's respect for nature, which had existed until his times, supposedly as superstition and fear of the blind forces of nature. In reality, traditional man had a more correct view of his relationship with nature. Under the mythical thought of traditional societies or of the poetical symbolism of the Greeks, nature retained its unity and respectability alongside man. It was the foolish use of unrelated scientific discoveries which led to industrial man's arrogant aspiration to regard himself as nature's absolute master. So recognition of the principle of stewardship is indeed the restoration of the correct man-nature relationship, which is fully in line with restoration of the world's unity.

The principle of stewardship is therefore opposed to man's hitherto predatory exploitation of nature. Does it, however, include the management of ecosystems? The answer is positive, provided that their carrying capacity is not exceeded. Analysed in that way, the fundamental principle of sustainability can be the guide to planning a system of general principles for sustainability. In contrast to the general principles of the past, which stemmed from particular provisions, the general principles of sustainability start from the system as a whole in order to define its parts, in other words the respective prerequisites for sustainability. In the present work twelve basic principles are considered to be the general principles of sustainability.

In summary, it should be noted that while there is a corresponding legal base for each of the said general principles, the common and primary foundation for all these principles is the basic rule of sustainability as explained earlier. The fundamental rule of sustainability was proclaimed globally as "soft" law, but for the countries of the European Union it has become a legal rule by virtue of the Maastricht and Amsterdam Treaties. A start on the analysis of that fundamental rule is made in these treaties, with provisions that require development policy to be combined with environmental protection and the harmonisation of other public policies, so that the desired development of the European Union's peoples will be stable and continuous. Accordingly, the legal meaning of sustainability is the full integration of various public policies, corresponding branches of Law, and private relations as well, in the direction of conserving and increasing the cultural and natural capital of each society and of the European Union as a whole. In that sense the bare minimum of sustainability is to conserve the acquired natural and cultural capital, to which must be added the so-called social capital, namely institutions and social practices beyond the sphere of economic activity, which promote the values of social solidarity, cooperation and fraternity.

This legal interpretation of the rule of sustainability is based not only on the logical and scientific meaning of the term, but also on the proceedings of the Stockholm and Rio conferences, the related reports and other material preparatory to the Declarations of the same conferences, and especially Agenda '21. So a critical matter for the legal formulation of the fundamental rule of

sustainability, both theoretical and practical, is to propose a model for the necessary harmonisation of public policies, so that they may become sustainable. It is right to speak of a sustainable public policy and sustainable law in the above sense. According to the systemic position proposed in this book, the necessary theoretical model of sustainability must be an overall model and must be expressed in general principles, in a way that makes it complete and fertile, in other words allowing the genesis and formulation of other special principles. To put it differently, the proposed method is a transition from the whole towards its parts, because in that way there will be direction without excluding the flexibility and adaptability of any further principles that may become necessary. Otherwise, the search for special rules and practices from the respective issues of sustainable development, deprived of the connective tissue of the theoretical model, could easily degenerate into opportunistic solutions, practical compromises, and ultimately an adulteration or even distortion of the rule of sustainability.

In this book the construction of the overall model is attempted at the highest level, in other words by clarifying the relationship between man-made, living and geophysical systems. The basic idea is that those systems cannot be interlinked in any other way, than in the right hierarchical order their complexity and under the stewardship of the man-made systems as the most complex among them. The notion of stewardship conflicts both with the outdated concept of dominance and with that of the simple coexistence of man-made systems and ecosystems. In the current phase of the environmental crisis the notion of stewardship is expressed by a series of general principles whose application is an urgent need. In the proposed model those principles are the **protection of biodiversity**, that of **carrying capacity** and that of **restoration**. Those principles are preventive measures for the conservation of natural capital, whose destruction or degradation is certainly continuing. Another bundle of general principles, which also stems from the notion of stewardship, includes the directives by means of which the said stewardship is to be planned and organised in the long term, so as to allow the transition to a sustainable society. The principles concerned are those of **spatial planning, natural heritage, the sustainable urban environment** and the **mild development of sensitive ecosystems**. The last bundle comprises the principles by means of which the requisite cultural change presupposed by the sustainable society will be brought about, in other words the restoration of balance between intangible and material legal values. As has been said, that relationship has been seriously disturbed under the sway of ruthless development policy and the restoration of the right order will take a long time. So the said principles will be, so to speak, the pole star of the enterprise of sustainable development. The principle of **sustainable state** as the leading moral force for the transition to a sustainable society, will restore its true mission misinterpreted in industrial society. The principles of **sustainability** and **respect of cultural heritage** will integrate human activities, both public and private, and regulate their intensity so as to ensure continuity of our civilisation. The principle of **environmental awareness** is in reality a recent synoptic statement of the classical Greek values of moderation, frugality and justice. In that way, the terms environmental awareness or sustainable behaviour of the citizens in a sustainable society do not merely express concern for the natural environment, but go beyond that and express a higher morality in the sense of justice between peoples and generations and between man and nature. Finally, the principle of **aesthetic value of nature** aims to elevate spirituality, which was nearly annihilated by the "industrial civilisation".

All the above principles which make up the model of the sustainable society are interdependent and interactive, in other words they constitute a system or, otherwise stated, a reference programme for the creation of the desired sustainable society. Their hierarchic level enables the safe formulation of additional principles related to the respective public policies, which will realise the specific institutions of the sustainable society. In that sense, the proposed principles

make up the charter of the sustainable society and occupy the position held by individual rights in the urban and industrial society of the past. Consequently, jurists who show due sensitivity towards individual and social rights must bear in mind that in our time those concepts are meaningless unless they coexist with the above equivalent principles of the sustainable society.

First Principle:

Principle of Public Environmental Order

We saw earlier that sustainable development consists in: a) the conservation and recovery where necessary of the adequate natural capital to support a qualitative development policy, and b) the inclusion of environmental, cultural, social and economic criteria in the planning and implementation of developmental decisions, both public and private. That is the ecological order of the sustainable society. It does not mean either the equalisation of man-made systems and ecosystems, or man's regression to some kind of self-regulating natural order. But nor is it a self-regulation of the social system. By its very nature the above composite policy is **public** and is the province and responsibility of the state. That is what we mean by saying that the basis and first principle of sustainable development is **public environmental order**. In other words, all the members of society, the Administration, groups, organisations, businesses and citizens are called upon to collaborate in sustainable development, but under the strategic control and supervision of the state.

Recognition of the state's pre-eminent role in sustainable development is the natural follow-up of the initiative taken by the Organizations Bodies (especially the UNO and the EU) and International Law, institutionalise to protect the environment (Stockholm Conference), and then to institutionalise sustainable development (Rio Conference). In other words, the foundation of sustainable development was political and legal from the beginning. The International Organizations formed by the sovereign natural states laid the bases of sustainable development in the Declarations on the Environment and on Development (1972-1992) and issued Directives for their realisation, but in parallel they established implementation and monitoring mechanisms (CSD: Council for Sustainable Development), to which the national States refer regularly for provision of the necessary information or to assess their progress towards sustainable development. In that way a global political and juridical system for sustainable development has been set up and is in operation, from which (but also from their own sovereignty) the national States derive their leading role in the regulation of public environmental order.

The legal structure of the said system is not interpreted in the same way by all. Those who adhere to the conventional dogmatic method of Law maintain that from the Declarations and Agenda '21 there arises a political commitment of the States to exercise their leading role and enact sustainable development which, in any case, is made Law by the constitutional acts of each State. However, the correct interpretation of the world-wide agreement expressed by the Declarations and Agenda '21 is obtained by considering it to express the legal consensus by the signatory countries. In any event, where there is no "hard" legal base in a Convention (e.g. Maastricht, Amsterdam), there is at least the "soft" International Law on the Environment which establishes the State's leading role in sustained development. Hence the irresistible impulse towards the global spread of the principles of sustainable development. From that standpoint, important from the very start were Principle 17 of the Stockholm Declaration and Principles 4, 5, 7, 8, 9 and 11 of the Rio Declaration. Especially for the EU countries, Articles B, Z, 130P and 130Y of the Maastricht Treaty and the related articles of the Amsterdam Treaty are critical in this respect.

How should the State fulfil its responsibilities in planning and realising sustainable development? First of all by a form of control appropriate to the case, namely by authoritative and effective reform of the Law (***command control***). That Law, however, is no long the old Law of orders and prohibitions. There are of course still rules, but they are now accompanied and supplemented by a series of other "means" so as to be rendered effective. In reality the new Law has a systemic

fabric, since citizens, groups, businesses and organisations are not simply commanded but also informed and educated, to participate in the making of public decisions. Moreover they are encouraged and empowered to develop initiatives and adopt sustainable behaviour. There is therefore a systemic interdependence and interaction between State and citizens: the citizens are motivated by the State and this in turn benefits from their own correct initiatives. Among the state acts for the planning and realisation of sustainable development, pride of place belongs to the **national strategic plan for sustainable development**, which is the strategic and long-term programme of each country for its sustainable development. Every country **is obliged** to draw up such a plan, which is the only way to harmonise the time scales of man's decisions with the long reaction times of ecosystems and the perenniality of cultural values. It is also the plan which must harmonise all the country's public policies so that they will converge towards sustainable development, but must also coordinate that development with all of the country's international obligations, including those related to international trade. In that sense, each country's strategic plan for sustainable development is second only to its Constitution. The national spatial planning, which as we will see under the appropriate principle (8) is also an important source of rules for sustainable development, must comply with the said plan

From the above it follows that a country's sustainable development is not to be contained (and probably rendered unattainable) in order to comply with the proviso of free trade and global extension of the market, but on the contrary, freedom of trade must accept such restrictions as may be necessary for the realisation of a country's sustainable development. For example, if a country's sustainable development demands that indigenous populations, traditional settlements, agricultural practices, handicrafts etc. should be preserved and this is stipulated in its national strategic plan, freedom of international trade must rank below the ensuring of whatever restrictions are necessary to realise the above objectives of the national plan. Under the opposite interpretation, in other words that of untrammelled globalisation, sustainable development of the national states is manifestly rendered unattainable. Sustainable development and free trade are not equivalent principles, because the former is the fundamental comprehensive rule, while free trade is one of the policies which must also be made sustainable like all other policies. Accordingly, free trade can only be understood as sustainable trade, namely trade which respects the sustainable development of the countries it involves.

So much applies to the international market. There is, however, the internal market in each country. From the principle according to which the State bears responsibility for sustainable development, it follows that the market too is subject to necessary State regulation, and must become sustainable in the sense that its initiatives and practices must lie within the limits and provisions of the national strategic plan, the national spatial plan etc. In that sense, the market and its factors have a supplementary role in sustainable development. This is explicitly stated in Agenda '21. In the same sense the elements of the market are only euphemistically called "partners" of the State in sustainable development. In reality they must be under its supervision and this has serious practical consequences for all the measures proposed so far by the market as incentives for sustainable behaviour. Most of those measures are characterised as measures of environmental economics and include ways to put a monetary value on intangible and environmental goods, trade, pollution permits, etc. From the principle of the market's supplementary role it emerges that its practices for the shaping of sustainable behaviour are governed by the hypothesis that they do not conflict with the legal rules of sustainable development and its general principles. For example, the idea of trading in pollution permits (!) must be regarded as wholly unacceptable and immoral, since the banning of pollution is imposed upon everyone and exception from the general rule cannot become the object of transactions. Besides, the self-evident principle "the polluter pays" means that the one who damages the

environment shall be obliged to make good the damage, and not of course that he who pays is allowed to pollute!

The first general principle, according to which the State is responsible and competent for ensuring public environmental order, does not mean that this responsibility can be fulfilled by the state just as it likes. In other words, sustainable development is not subject to the discretion and choice of the State. The State has the responsibility but is obliged to fulfil it. In that way, this obligation of the State is consonant with the individual right of citizens to protection of the environment and sustainable development. That right is explicitly recognised in Article 1 of the Earth Charter (1992) and has always been supported in relation to environmental protection. The Charter's abandonment does not mean that the individual's right to environmental protection and sustainable development has been revoked, nor is it really necessary to proclaim the right to sustainable development, as happened in the past when recognising the right of peoples and individuals to economic development. According to the narrow legal interpretation, the right to sustainable development stems from a combination of the right to life and health, and the right to develop. According to the right systems view, from the organic interdependence of natural environment, society and humans, it follows that neither may the State strive for, nor may the citizens aspire to any form of development other than one which ensures the survival and co-evolution of all the factors of mutual interdependence and interaction, namely man-made systems, ecosystems and individuals. At bottom, sustainable development is a process of sanitising the State and society from all the legal and economic obstacles which distort the full identity of interests between the State, society and the individual. As things are at the present, the maligned over-growth of the market combined with the incapacity of the State often lead to conflict between general and private interests, economic and governmental interests, and those of civilisation in general as against nature.

From the first principle of public environmental order also stems the State's obligation: a) to increase its own government ability so as to become **effective**, i.e. to enact effective legislation, adopt effective administrative measures, and implement them; that obligation, fulfilled with international technical aid and cooperation, is more important in developing countries and ones with ineffective system of government, b) to upgrade the role of Ministers for the Environment in governmental schemes, in order to provide a institutional guarantee that environmental criteria will be incorporated in public decisions, c) to reformulate the national accounts so as to present a credible picture of progress towards sustainable development; this means in particular that "sustainability indicators" and "green accounts" should be included in the calculations of the financial results, d) the use of **reliable environmental indicators** to monitor the condition of the natural environment, e) the **empowering** of the State's law enforcement mechanism; increased cooperation between the State and private individuals on the road towards sustainable development emerges in parallel with the reinforcement of its executive powers; in an effective State the Administration has the right to take autonomous action to protect the natural environment, which is compensated by the authority of the courts and especially the Council of State to order the suspension of public policy implementation and to adopt preventive measures to protect those it governs, f) final responsibility for the realisation of sustainable development rests with the Courts; with its constitutional or supra-legislative safeguards, sustainable development is exempt from political manipulation and becomes the supreme issue of Law, whose natural custodians are the judiciary. Correctly understood, the fundamental problem of sustainability is the coordination in time of the operation of ecosystems and man-made systems. Ecosystems function with time scales far longer than the time horizon of political decisions. All the issues of sustainable development require a long-term perspective, exempt from the compromises and

expediencies of current politics. So although everyone must pull together for sustainable development, its natural guarantors are the judiciary.

Public environmental order ("protection of the environment", according to conventional terminology) is proclaimed as an "important public interest" (see **C.o.S. 1784/1993**), because it serves the general interest not only of the present generation but of future ones as well. So the first principle expresses a higher morality and for that reason it is the pre-eminent public objective when outlining and implementing any public policy.

In particular, public environmental order sets the limits even of national economic behaviour which has incorporated private incentives for environmental protection. In other words, so-termed "environmental economics" cannot act as a substitute for public environmental order, but is fully subservient to the rules of sustainable development. Environmental economics seeks to create economic incentives in people for environmental protection, and as such it has inherent limits since it takes man's selfish nature for granted and therefore proposes crude methods which go as far as the trading of "environmental services" and "pollution rights". Leaving aside the question of the scientific validity of such proposals, many of which conflict with the nature of the rules of sustainable development which are inspired by an altruistic ethic and belong in a long-term time horizon of decisions, in any case regardless of where other institutions or agreements relevant to environmental protection may spring from, they are acceptable provided that they are consonant with the above obligatory principles and do not deviate from their letter and spirit. Otherwise they are unacceptable and any private agreements are void, as well as the corresponding administrative acts.

Among all the objectives of public policy, that of protecting the environment is pre-eminent because its value is mainly preventive. The obligatory admixture of that preventive purpose with all the objectives of public policy and with each of them separately, means that in the long term absolutely no State expediency counts for more than the need to protect the Environment in its aforesaid wide sense (natural-cultural-social Capital), and therefore, any public policy can only be pursued if it is compatible with that need and this in the right way. For that reason every public policy must be examined in advance to see if it is compatible with the Environment, and must then be designed so that it will not harm the Environment. The Minister with responsibility for the Environment should therefore have the status today which the Minister for Finance once had when approving state expenditure, in other words he should contribute to the planning and execution of any sustainable development policy. Institutionally this can be ensured in many ways: committees of ministers, an environmental service in each Ministry, etc.

In contrast, it is an illegitimate political action and unacceptable adherence to the mentality of economic growth, the practice of the "accomplished facts" following which a policy is first decided - especially the construction of major technical projects - and only later is a study made of its impact on the environment, as if this were an administrative formality! An even more severe infringement of the Constitution and the Maastricht Treaty is the similar practice whereby the above mentioned study becomes the text of a statute, in order clearly to prevent the project from being challenged before the Council of State and especially to forestall an injunction. However, since legislation too is subject to constitutional constraints, this abuse of the law is an unconstitutional usurpation of technical administrative competence by the legislator, who must be neutralised by the judiciary as the custodian of constitutional order. Sustainable development is a long-term choice at constitutional level and legislators cannot go against it, no matter what the "political" motives may be.

This pre-eminent status of environmental law should not be mistakenly regarded as "environmental imperialism" or as the "environmentalisation of law and politics", because precisely the opposite is true: that is to say, the priority of environmental law today is the last-minute effort to restore equilibrium between man-made systems and natural ecosystems, which has been severely disturbed to the cost of the latter. In that way, appropriate care for the prevention of **further** damage to the environment expresses the effort not to cross the threshold of irreversible developments, which we have already approached, and to **retain the possibility of restoring** things to their natural equilibrium.

The methodology of planning public environmental order includes institutions of public law more complex than the market transactions and contracts of private law. Those institutions have long-term perspective and harmonise the course of man-made systems and ecosystems. Such are in particular the planning of large-scale spatial systems, systems for the uses of land and resources, zoning systems, operational regulations etc. In general they are institutions adapted towards ethics and long-term environmental protection needs, and are successfully reconciled with the needs of man-made systems and are therefore irreplaceable. In planning the institutions by which the general principles of sustainable development will be realised, it must be borne in mind that the contract is the legal instrument of the production/consumption behaviour of man-made systems, but the aforesaid more complex statutes for forming systems, zones, regulations, etc. belong to a hierarchically superior juridical level which strives for the co-evolution of those systems and the environment.

Besides, in providing legal protection for the environment, of great importance is the judicial review of the administrative actions, which can invalidate the illegal act and so avert the threat of damage to the environment. In particular the injunction is very effective indeed, and this should be imposed as soon as the probability of damage to the environment has been confirmed. The damage must be diagnosed by the judge himself on the basis of appropriate evidence (expert opinion, etc.). An abrogation order once the damage has been done loses its main purpose and is only valuable in the context of liability. Effective environmental law is unattainable without prompt application of the injunction. Also important is the role of penal suppression, which can and must be combined with the abrogation order in the event that public authorities neglect their duty to protect the environment in accordance with judgements reached by decisions of the Council of State.

Public interest as the legal foundation of environmental protection in the above sense has been consistently declared by the jurisprudence of the Council of State and its Section 5. As we shall see in the appropriate parts of this book, because of that the Court has approved serious restrictions, on the one hand of the individual rights of citizens, in particular such as ownership or business activity, and on the other hand of the legislative, regulatory and administrative activity of the state, the Administration and local government authorities in all sectors of public policy. The Court has also consistently made wide use of injunctions in respect of disputed administrative decisions in order to ensure the efficacy of its own decisions and to forestall damage to the environment in practice. Thus, *inter alia*, the Court has issued injunction orders banning crop spraying from the air to combat olive-tree blight in order to prevent damage to human health and the reduction of biodiversity (Injunction Committee [hereinafter IC] 470/1993), hunting in order to prevent the annihilation of endangered bird-life species (IC 744/1993), the construction of a technical project in a river bed (IC 473/1994), the filling in of a stream (IC 473/1993), the construction of projects which threatened the beauty of coastlines (IC 739/1994, 54/1994), the construction of tanks for liquid fuels to prevent marine pollution (IC 444/1994), the erection of

aerial masts to prevent aesthetic damage to the natural environment of a monastery (IC 51/1995), the transfer of a building coefficient to prevent deterioration of the urban environment, and so on.

Recent jurisprudence of the Court of the European Union seems to move in the same direction. Thus, in the Diego Cali & Figli S.R.L. case (17.03.1997), during the debate on which the above principle of Public Environmental Order was drawn to the Court's attention (see the proposals by the Prosecutor General (10.02.1999)), the Court accepted that monitoring in order to prevent pollution, which was the duty of the Italian public service (SEPG) for the port of Genoa, is a decision in the general interest which falls within the essential functions of the State where the protection of the marine environment is concerned (paragraph 22). Consequently, by its very nature, its object and the rules to which it is subject, such an activity is linked to the exercise of prerogatives relating to environmental protection, which constitute formal prerogatives of public authority. The said activity has no economic aspect which would justify the application of the treaty's rules regarding competition (paragraph 23).

In connection with the State's obligation to establish the requisite environmental order where this is absent or has been disturbed, the Court has taken action in a number of characteristic cases in which it had to deal with the question of what to do in the event that the State was slow or reluctant to take the appropriate measures to establish environmental order. In the first place, the Court explained that protection of the most sensitive natural capital such as lakes, wetlands and other fragile ecosystems stems directly from the constitutional clause of Article 24 and that its provision does not require the enactment of any special statute. There are no margins of political will in that protection. On the contrary, the relevant science has the defining role, both in recognising the object to be protected and in respect of the appropriate measures to be adopted. Action by the Administration is mandatory. According to the explicit statement of the decision relating to a wetland on the large island of Evvia:

"Administrative intervention for the protection of particularly fragile ecosystems, as described, is limited to the obligatory identification of natural situations and to the enacting of prohibitive measures dictated by the standards of common and scientific experience, with no room left for valuations and assessments which presuppose regulatory or discretionary powers that require the prior enactment of an administrative process." **(C.o.S. 1183/96)**.

Another characteristic instance in which the Court reconfirmed its position that the Administration must adopt measures to protect natural capital, concerns more particularly the protection of forests. Greece, a pre-eminently mountainous country, has a great wealth of forests much of which consists of Mediterranean maquis-type vegetation. Effective protection of those forests is essentially deficient because neither has a land register of such forests been prepared, nor have they even been mapped systematically. A Provision of the Forestry Code authorised the Administration to map the forests, but it neglected that important duty. The scourge of clientelism which afflicts the Administration in Greece favoured the practice of the circumstantial confirmation of whether certain disputed areas were or were not forests, a process which both deprived forests of protection and promoted corruption. At the request of an environment organisation interested in the protection of forests, the Court pronounced that the preparation of a register of forests is obligatory for the Administration, and added the following interesting thoughts:

"Whereas the constitutional legislation, being aware of the environmental problem, has upgraded the natural environment to an object for protection under the law. Within the meaning of Article 24 of the present Constitution, that protection must be complete and effective. Consequently, the

constitutional clause renders it obligatory for the common legislator and the Administration to adopt the preventive and suppressive measures necessary for this, whether regulatory or specific ones, and for the courts to provide effective protection for the natural environment. From this it follows that failure by the Administration to adopt such measures (regulatory or specific ones) is a failure to take due action subject to annulment by the Council of State, according to the necessary broad interpretation of Article 45 (4) of Presidential Decree [hereinafter PD] *code 18/1989, since otherwise the constitutional precept would become a simple theoretical declaration of principle, while the natural environment would remain unprotected and exposed to irreversible destruction, contrary to the clear intention of the constitutional legislator*... ...
Whereas it emerges clearly from the above that effective protection of forests and forest areas is inseparably linked to the preparation of a specific register of forests, in the sense explained above, and when the said protection is required by virtue of a constitutional provision, as in this case by Article 24 (2) of the Constitution, the said provision, interpreted in light of the aforesaid rules, renders it obligatory the utilisation of the relevant legislative authorisation, which provides for the preparation of a register of forests through a governmental decree. Indeed, accurate knowledge of the natural capital to be protected is obviously a necessary condition for the adoption of protective measures and for their efficacy. Thus, a valid inventory of forests in accordance with the rules and techniques of forestry science, and its consequential binding nature, both upon the Administration and upon those affected, eradicates any doubt concerning the nature of an area as a forest or not, enables forestry agencies to take prompt action to prevent illegal incursion in a forest or forest area, and allows the immediate restoration of its nature as a forest wherever it has been altered or converted by human activity or in any other way. In parallel, an inventory of the country's forests serves as the basis and starting point for the planning and adoption of protective measures, for determining their form and extent and in general for the organised, systematic and integrated protection of forests in accordance with the constitutional precept." (**C.o.S. 2818/97**).

It should be noted that the Court was not satisfied just to note the Administration's neglect to prepare the register of forests, but in order to render its decision effective, it added a clause according to which if the necessary and reasonable time went by without the required register of forests having been prepared, the validity of the circumstantial certificates, which by their nature constituted transitional measures, would lapse.

Another form of reluctance by the Administration to adopt the measures necessary for environmental protection occurs when draft regional or town planning orders undergo major corrections or profound modification during their processing by the Council of State. What happens in such cases is that the Administration, faced by the conflict between urbanisation interests and the environmental protection ordered by the Court, takes an unduly long time or even declines to issue the order as instructed by the Council of State. This delay clearly favours the creation of *faits accomplis* which largely neutralise the protection intended. To correct this absurdity, the Court deemed it invalid the omission by the administrative to issue an order, whose preparation process had already begun as required by the Constitution according to the Court's interpretation for the sake of the environment. Thus, in the case of the island of Cos, where an issue of the protection of a wetland had arisen, the Court judged that:

1. "... where a biotope exists, the Administration is obliged to establish a special regime for the management thereof which embodies the necessary and appropriate constitutional protection. This must be done within a reasonable time from the confirmation that the biotope

exists, failing which the biotope shall become subject to the strictest regime of protection provided under Law 1650/86 (Article 19 (1)) pursuant to which no activity at all is permitted.

Otherwise, in other words if the special protection regime were not established, the biotope would be exposed to certain destruction. From this it follows that a Settlement Control Zone (SCZ), as defined by the application of Article 21 (1 and 2) of Law 1650/86 and Article 29 of Law 1337/83, must provide the appropriate protection throughout the extent of the biotope, and until the publication of the decree defining the SCZ and containing the said special protection, the entire biotope is subject to the strictest protective regime under Article 19 (1) of Law 1650/86, which prohibits directly, i.e. without the need to issue any special administrative act, any form of intervention thereon, such as the granting of building permits, the construction of roads, etc.

In light of the above, in the case in question, the Administration's failure or delay in issuing the proposed draft Presidential Decree (PD), whose purpose is to protect and conserve the important wetland Alikis-Tingakiou Cos, in fact constitutes a failure to take due action and is subject to an application for annulment before the Council of State in accordance with the necessary broad interpretation of Article 45 (4) of PD code 18/1989. Otherwise, the constitutional precept would become a simple declaration of principle, while the natural environment would remain unprotected and exposed to irreversible destruction. Until the proposed PD has been issued, the entire biotope Alikis-Tingakiou Cos is subject de jure *to the greatest level of protection provided under Article 19 (1) of Law 1650/86."* **(Council of State Proceedings [hereinafter CSP] 185/1997).**

2) And in another case, where:

"... almost all the built-up area is in part an area of absolute protection for a shoreline ecosystem of sandy beaches, and in part an area of agricultural land, which according to the Court's fixed jurisprudence (prov. PR 609/96) is a substantive part of the natural capital to be conserved, and has been compulsorily delimited for that purpose (PR 16/96 etc). From this it follows that the preservation of both these Zones is obligatory, directly pursuant to Article 24 of the Constitution and regardless of the already much delayed regional planning of the island. It should be noted that independently of the above special reasons, which in this case preclude the urbanisation of the area in question, at any rate after the process of preparing the special regional plan for the island has commenced, approval of the said plan being an obligatory requirement under Article 24 of the Constitution (for whose implementation, besides, the Community Programme ENVIREG was drawn up and is in course of development), the Administration is obliged to ensure that the published special regional plan has supremacy over faits accomplis. *Consequently, the Administration must not only suspend approval of building permits in the area of the study awaiting approval (see PE 16/96), but all the more, must not further urbanisation of the same area through the creation of new settlements which nullify or alter the planning."* **(CSP 61/1998).**

In the similar case of Lavreotiki, i.e. the southern part of the Attica Peninsula, during whose regional planning process many conflicts of land use had emerged, the Court decided that:

"... the issue and publication of this decree after deliberation by the C.o.S. and compliance with the instructions of the present text are obligatory, by direct application of Article 24 of the Constitution, whose intention is that environmental protection and the regional planning of the country must be complete and effective. Consequently, Article 24 renders it obligatory for the common legislator and the Administration to adopt preventive and suppressive measures required

for this, whether regulatory or individual, and for the courts to provide effective protection for the natural environment." (**CSP 265/97**).

Second Principle:

Principle of Sustainability

The principle of public environmental order is the basic organisational principle of sustainable development. The principle of ***sustainability*** is its broadest conceivable statutory principle and is consequently the source of all the other general principles. It summarises the whole concept of sustainable development.

The question "what is sustainability" is nowadays met by another question, "sustainability of what system?" According to the systemic view, which proclaims complete identity between the interests of man and nature, sustainability is the self-evident term for the dynamic equilibrium between man and nature and for the co-evolution of both within the Gaia mega-system. If one begins, however, with the classical definition given in the Brundtland report, sustainability concerns the earth's ecosystem, and this indeed, regarded as a source of natural resources for man. According to that definition, sustainability is identified with conservation of the planetary ecosystem as a perpetual source of natural resources for man. In other words, the report says that it must remain possible not only for the present generation to draw resources from that ecosystem, but future generations of mankind as well. What is sought, therefore, is sustainability of the ecosystem by virtue of its restrained and reasoned exploitation by man.

In the last analysis this means that sustainable management by man is that which will ensure a sustainable planetary ecosystem. The initial conceptualisation of sustainability is therefore permeated by a direct utilitarian relationship between man-made systems and ecosystems. This is usually the basis both of the way the framework of that relationship is described empirically, and of the way it is regulated by Law. That is indicated in particular by the practical precept that environmental criteria should be incorporated in all public or private decisions.

This is a very simple, even perhaps simplistic view of the whole problem. That is because in post-industrial society the relationship between man-made systems and ecosystems is developed via complex system networks in which direct interaction between man and the ecosystem is the last phase of a series of other, previous and interlinked plans, rules, decisions and acts which are made and implemented at many hierarchical levels. In this way, the question arises whether the decisions and acts at the final level (the man-environment interface) are so independent that they can be regulated in their own right and regardless of what happens at higher levels.

The answer is negative, because: a) the higher man-made systems (e.g. ethical or cultural systems) are largely of value in their own right and independently of ecosystems, while in parallel they have an indirect influence on relations between man and ecosystems. b) In a complex system of relations between man-made institutions and ecosystems, preventive measures must usually be taken long before we get to man's direct intervention in nature. Otherwise, if the earlier levels are neglected, later intervention may prove ineffective if it is neutralised by contrary acts stemming from the stages neglected. For example what initiates the destruction of a forest may not be arbitrary wood-cutting that contravenes all prohibitive measures, but a trade policy which encourages people in such acts; besides, arson is not encouraged by the fact that the fire-fighting system is deficient, but may in reality be motivated by uncontrolled profiteering from urban development; pollution of the soil, waters and seas by means of transport is not so much the result of the engines and fuels themselves or of accidents, as of a transport policy which favours the multiplication of transports instead of their limitation. c) Those who think in this way realise correctly that the deeper meaning of sustainability is in fact ***systemicity***, i.e. the harmonisation of

all public policies and social practices and their convergence towards ensuring the co-evolution of man-made systems and ecosystems. In that great enterprise sustainability is the sure indicator that we are following the correct path. For that reason it is important to abolish water-tight sectorial policies and obligatory to harmonise them convergently towards the desired ultimate aim of harmonious relations between man-made systems and ecosystems. All the more necessary, of course, is it to bring private decisions and acts in line with public decisions.

If the meaning of sustainability is grasped correctly in that way, it can be understood why sustainability is not exhausted by the environmental criterion alone but is really a modern term in place of justice. Justice is a classical Greek value which has been neglected in modern Western states, where the idea of power has become dominant. According to Cicero's classical definition, borrowed from Plato, Justice is *suum cuique tribuere*, in other words to take only one's due, with social harmony and environmental good order as the end result. As explained elsewhere, however, (*Decleris, 1997*), the application of systemic thinking greatly facilitates the realisation of Justice because it is identified with the optimal structure of a system each of whose elements is in its rightful place, with all those elements interdependent, interactive, and making their own contribution to the function of the system as a whole. In that sense, the equation: Sustainability = Systemicity = Justice holds good. So today, Justice means: a) full harmonisation of all the State's public policies towards the elimination of national and social inequalities (social justice), b) convergence and alignment of all policies towards the reclamation of destroyed natural capital and the construction of the environment for the future (justice towards nature and future generations), and c) the regulation and guidance of private relations towards directions a and b (justice between individuals). As things stand today, sustainability is partially provided only by factor b, while where factors a and c are involved, public policies are either in conflict or unrelated. Except for environmental policy, most public policies are still orientated towards economic growth and affluent society. Here, therefore, is where the greatest effort must be made to render the state's public policies truly sustainable, if there is to be any hope for a sustainable society.

According to this modern conception of justice, sustainable development is the obligation not only of the State but all kinds of organisations and the citizens too. Sustainability does not only concern the harmonisation of public policies, but requires the members of society to be brought into line with those policies. To put it more clearly, sustainability is identical to the Just World, because in the last analysis only a Just World will be sustainable. In that Just World the State is the source of the Justice which governs its policies, each one separately and all of them interdependent and in harmony, but this justice goes beyond public policies and, through them, extends to the relations between people and between people and ecosystems. This broad substantive meaning of sustainability excludes other, narrow or formal interpretations of it. Thus: a) sustainability is not just good "management" of the planetary ecosystem, b) sustainability is not zero growth. It is of course pre-eminently "qualitative" growth, but it does not preclude the attainable and scientifically correctly guided manipulation of at least certain ecosystems towards improved efficiency and yield. Without that improvement the goal of raising the living standards of poor peoples would be unattainable. According to the Agenda'21, it is within a prosperous world that sustainability will take its full meaning. c) Sustainability is not "equality of consumption" between the earth's peoples. Convergence of the living standards of people all over the world is indeed demanded by justice, but in other respects the best level of material prosperity for any nation is determined by the system of its social values and capabilities. d) Sustainability is not the abundance of material goods supposedly to be brought about automatically by "globalisation". That view is an ingredient of the economic myth of "globalisation". By definition, sustainability is opposed to the ideal of material wealth.

So much, then, for the substantive meaning of sustainability. But for the purposes of law, the most exact possible definition is required. The definition given by the Brundtland report and the Rio Declaration is not a legal one. We need more specific criteria of sustainability. From that standpoint, more useful are the concepts of **natural capital, cultural capital,** and **social capital.** In other words, sustainability exists when those three kinds of capital are not diminished by the decisions and acts of States and citizens, but increase with the passage of time. Both man-made and ecosystems are understood as dynamic, and progress towards sustainable development is therefore understood as development of those assets, which can be controlled and measured if necessary. As will be explained, Natural capital is the sum of all the kinds of ecosystems into which living and physical systems organise themselves. Cultural capital can otherwise be called cultural heritage, and this has already been defined in law by the Granada Convention. Finally, Social capital is understood as the legal values of humanitarianism and solidarity, and the institutions based upon those values (for example, social care, security, etc.), and upon which monetary value cannot be placed.

All three of these types of capital must be listed and their progress monitored. Only when they increase by virtue of every public policy adopted are we on the right road to the sustainable society. If these capital are reduced, as has been happening until now, we are regressing. If they remain static, society's situation too is static. Thus, it is by virtue of the legal meaning of those capital that our progress towards sustainable development can and must be regulated. Consequently, of critical importance is the review of the so-termed **national accounts.** It is imprudent for the State to be interested only in economic parameters and to be indifferent to the question whether these are achieved at the cost of other kinds of capital, since by acting in that way it may produce temporary material wealth, but in parallel it is destroying the other capital without which, ultimately, not even material wealth can exist. In that the global environmental crisis has not yet been overcome, it is critically important to conserve natural capital, any further reduction or degradation of which is absolutely banned in accordance with the principle of sustainability. This gives sufficient explanation of the present pre-eminent importance of ecosystem sustainability.

By definition Natural Capital is irreplaceable and the banning of even their its further reduction is dictated by its unthinking destruction until now, which has brought mankind close to the threshold of irreversible developments. Consequently, the principle requires: a) that the natural capital to be saved should be listed and transferred **intact** to the next generation, b) that **development** should change from quantitative to **qualitative** (quality of life), and c) that national **green accounts** should be reviewed so as to include, besides economic parameters, the critical parameters of natural capital which constitute the real wealth of every country. It is not right for the "green accounts", which reflect those parameters, to be reckoned in monetary terms as some economists are trying to do, because the value of ecosystems is not determined by the subjective evaluation of mankind as users of them, but by their inestimable function (still unknown in many cases) within the Gaia mega-system. Certainly, however, the green accounts must be related to some form of **balance** and **use accounts.**

Unpersuaded advocates of ruthless development try to circumvent the principle using the sophistry of **artificial capital.** In other words, they maintain that artefacts produced by the processing of natural capital must be counted as such capital and are obtained as their "substitutes". Consequently, determination of the magnitude of natural capital should include its processed products as well. There is no denying that most artefact assets are valuable and should be counted, but the view that an increase of artificial assets compensates for loss of natural assets

is untenable. This is because natural assets are by definition irreplaceable, since man-made systems differ in essence from ecosystems, from whose transformation they arise. So the principle of sustainability requires a clear distinction to be made between those two kinds of assets. It is self-evident that since natural assets include the **natural resources** taken from them (e.g. minerals, petroleum, etc.), the ban on reducing them extends to such resources, at least in regard to a certain **critical quantity** of non-renewable resources which constitute, as it were, the safety reserve until its replacement by renewable resources becomes possible.

Accordingly, since at present sustainability mainly concerns ecosystems, neither is it correct to suppose that it can be measured in terms of *per capita* prosperity, which must consequently not be reduced. That opinion, as indeed the view which identifies sustainability with the necessary greater efficiency, are inspired by economic considerations and tend to safeguard a certain level of consumption. There are some, indeed, who regard that level as non-negotiable, because it is of course preferential. Yet, the broader principle of the restoration of balance between man-made systems and ecosystems already requires a review of consumer models in the developed industrial countries in order to suppress excessive consumption. In other words, it really concerns not consumption but the capital upon which consumption depends and the just distribution of the resources that can be drawn from them. The ban on reducing natural assets by virtue of the principle of sustainability means in practice that a ban must be imposed on further reduction of wildlife, forests, biotopes, wetlands and all the other ecosystems, and that those still left must not be degraded further. Nor is it permissible to compensate for the reduction/degradation of ecosystems within any system of cost-benefit analysis, since no monetary value can be placed on natural assets.

Besides, all man's activities, whether productive or not, must be sustainable, in other words they must not involve any reduction or degradation of ecosystems. For example, in the above sense agriculture, industry, trade, advertising, transport and tourism should all be sustainable. The procedural application of the principle of sustainability is the institution of Environmental Impact Analysis (EIA), which should precede any intervention by man in the environment. This is required both by Community law (Directive (EEC) No 85/337/1985) and by Greek law (Law 1650/1986 and Joint Ministerial Decision [hereinafter JMD] No 69269/5387/1990).

Besides the explicit provisions, through direct application of the principle of sustainability, the following also apply: a) the need for an EIA must be accepted by the Administration and the Courts where such a study becomes necessary by the existence of special conditions, for example the construction even of a small project close to a fragile ecosystem, c) the EIA must take as its starting point the so-termed "zero" option, namely the question whether the intervention should take place at all, c) the EIA must be strategic in nature, i.e. it must relate to the whole of the greater ecosystem influenced in each case, d) the EIA must precede not the implementation of the intervention but the decision to proceed with it at all, to ensure that there is a real "zero" option and prevent its circumvention. This tendency, namely for the EIA to be downgraded to a mere statement of conditions for implementation without any discussion in depth of the Administration's choice, has been averted by the C.o.S. by rejecting the artificial distinction between a rudimentary EIA submitted during the critical stage of site determination for a project, and the detailed EIA which is prepared during its implementation (**C.o.S. 1520/1993**). e) The EIA cannot be prepared or sanctioned by law, because it is an administrative and scientific act subject to rebuttal under the supervision of the judiciary. Any contrary law is unconstitutional and should be rejected out of hand.

The Court accepted the principle of sustainability for the first time in the PETROLA case, an oil refinery in Eleusis, when environmental organisations opposed the addition of a desulphurisation unit. Even though in its own right the new plant was developmental and would improve the quality of fuels, the Court decided that it should be investigated in advance whether its operation was sustainable or, on the contrary, would exacerbate the atmospheric pollution of Eleusis. For that purpose indeed, it ordered a special investigation during the stage of the injunction it granted immediately. The investigation's conclusions proved negative, and the importance of the decision therefore lies in the proclamation of the principle of sustainability, which was a turning point in the jurisprudence of the Council of State and also in obtaining expert opinion already at the stage of injunction (**C.o.S. 53/1993, IC 4/1992**). Fifteen years earlier the Council of State had unanimously accepted exactly the opposite in the case of an industrial installation for dismantling old vessels in the historical place of Pylos, namely that the need for economic development could be deemed to outweigh environmental protection (**C.o.S. 810/1977**). Since PETROLA the Section has consistently adhered to the principle of sustainability, its most characteristic confirmation of which was the case of the Acheloos river diversion. This was part of a complex developmental technical project that included the opening of a tunnel in Pindos and the construction of four dams to divert some of the Acheloos waters into the river Peneos for the irrigation of the plain of Thessaly. Despite the fact that the project was regarded as developmentally extremely important and was included in the financial "Delors package", the Court decided that it should be preceded by an investigation to see whether it was sustainable in view of the transformation of the hydrological balance in Western Greece and Thessaly that would result. In fact, the Court judged that the issue had not been illuminated by the EIAs carried out for the tunnel and dams, because the overall cumulative result of disturbing a large number of ecosystems and their interactions had not received due investigative attention (**C.o.S. 2760/1994**).

The principle of sustainability has been consistently applied by the Court to impose the harmonisation of public policies, when these conflicted in practice with the making of certain decisions. Thus, in the sector of **energy policy**, the Court decided that in the context of small islands, which constitute a vital part of the Greek State, energy policy must be harmonised with policies for the protection of the cultural and social capital created on those islands during their age-old history. The reason for this was provided by a plan for an electric power supply complex between certain islands among the north-eastern Cyclades (Andros, Tinos, Syros, Mikonos) via a high-voltage electric current network established on the mainland. The Court judged that the energy dependence upon the mainland which this would create for these small islands, would really render them simple extensions of the mainland, because it demonstrably provided the infrastructure for ruthless development. Indeed, the main need for energy-intensive policy stemmed from the island of Mikonos, whose touristic development had long since exceeded its carrying capacity. The Court decided that small islands constitute isolated ecosystems and cultural microcosms with a history thousands of years old and enormous cultural capital. All these qualities are protected by the Constitution in order to conserve their historical and traditional character. That conservation, however, presupposes that energy demand and not its supply must be managed correctly. Consequently, energy-intensive policy threatens to destabilise islands as self-sufficient man-made systems and in that sense conflicts directly with the constitutional protection of their cultural heritage provided under Article 24 of the Greek Constitution. The Court also invoked the international trend towards the protection of small islands, as inaugurated by Agenda '21 and the related UNESCO and European Union programmes, and also did not omit to point out the vulnerability of small islands as isolated ecosystems that could only tolerate mild development, by definition denied by an energy-intensive policy which, in contrast, encourages ruthless development. It should also be noted that the Court, in commenting on the meaning of sustainable energy policy in its decision, explained that in the case of small Greek islands, which

are in fact located in the sun-bathed and windy Aegean, energy supply should be based on local sources and renewable resources, especially wind and solar energy (**C.o.S. 2805/1997**).

In other decisions, the Court has imposed the harmonisation of energy policy with other public policies of the state and in particular the protection of public health. A characteristic case was that in which the issue of health protection arose in relation to electric power transfer by ultra high-voltage lines. The residents of Krioneri, a small suburb of Athens, appealed to the Court complaining that the routing of an overhead ultra high-voltage electric power transmission line above their homes would expose those living beneath to a risk of cancer. The Administration invoked on the one hand the public interest for the need to supply the city of Athens with electricity, and on the other hand the fact that the project would be constructed in accordance with the specifications of international regulations, in particular the provisions imposing upper limits on exposure to electromagnetic radiation. After a full investigation of the issue, the Court found that the facts were scientifically in dispute and, in formulating its judgement, was greatly influenced by a European Parliament resolution recommending the governments of European Union countries to dissuade people from living under ultra high-voltage power transmission lines. It also took into account the well-known rule according to which any measure about whose harmlessness science cannot be absolutely certain, should not be taken. The Court therefore concluded that in this matter both the Minister for the Environment and the Minister for Health should fulfil their responsibility by signing the related approval of an Environmental Impact Analysis to be prepared in this case by doctors specialised in the effects of electromagnetic radiation on the human organism (**C.o.S. 4503/97**). The Court also called for a harmonisation of environmental policy with health policy in a case involving the construction of biological urban sewage treatment stations (**C.o.S. 1873/1994**).

The Court also called for harmonisation between a broad spectrum of public policies when considering the public policy on mining. Greece is a country with large deposits of bauxite, most of which are in the bays of the sacred mountain Parnassus which holds an eminent position in Greece's myths and history. During the times of ruthless development, the State had granted mineral rights over the deposits in that mountain to a subsidiary of the well-known aluminium producer PECHINEY, because as is known, bauxite is the raw material for the production of alumina. The State was implementing its mining policy on the basis of a Mining Code which had not in any way been harmonised with the principles of sustainable development. For the first time the Court, reacting to the appeal of a mountain community which complained that the mining activities were harming the natural environment, went far beyond the issue and found the opportunity to dictate the harmonisation required by the Constitution between the policy on mining and the long-term sustainable management of the country's mineral wealth, especially by protecting irreplaceable natural resources such as bauxite. In parallel, however, the Court ordered that those policies should be harmonised with forestry policy, the mountain protection policy with particular reference to Parnassus, and cultural policy. Thus, its judgement was that no matter how important a mineral deposit might be, the destruction of an oak forest and the damage to the mountain Parnassus could not be justified. Where mining activity is absolutely essential, moreover, it must from the start be subject to all the EIA restrictions in order to ensure the above harmonisation. (**C.o.S. 772/98**).

Another major issue of sustainability, and indeed one which is relevant on the global scale, as is known, is the management of water resources. In the past water was managed in Greece in an empirical and opportunistic way. A systematic water policy was designed by virtue of Law 1739/87 but the application of that law fell far short of satisfying the requirements of sustainable water management. The Court, reacting to disputes arising from conflicts concerning the uses of

water, in which the needs for urban water supply conflicted with irrigation needs and both conflicted with needs associated with commercial exploitation, went to the heart of the problem and pronounced that sustainable water management entails first the preparation of a systemic management plan, whose priority must be the conservation of ecosystems to which the existence and enrichment of water deposits is directly linked. So instead of the previous empirical policy, the Court ordered that such plans must be drawn up and that any supply of water to their beneficiaries must be dependent upon them. Concerning the use of water by industries too, the Court requires a systematic utilisation plan which includes water recycling. **(C.o.S. 2990/98)**.

Another aspect of sustainability in the exercise of public policy emerges from the need to harmonise tourism policy with the cultural policy of protecting traditional Greek islands. The very well known island in the Cyclades, Mikonos, provided the Court with the opportunity to determine this aspect of sustainability when the relevant authorities decided to construct a large and luxurious marina at the end of the traditional residential area of Mikonos. The case of Mikonos is typical of other Greek islands too, whose historical or traditional features act as a pole that attracts a continually increasing stream of tourists whose presence exerts pressures on the natural and cultural environment. The allure of income from tourism is so strong that those pressures often result in serious alterations or damage to the island environment. When residents of Mikonos challenged the siting of the marina, the Court examined whether the public project in question was compatible with the increased legal protection of Mikonos as an archaeological area and a traditional island, and arrived at the judgement that:

"... the protection of traditional coastal settlements, especially on small islands, involves not only town planning and architectural features but also the traditional ports of those islands and especially the morphology of their shores, which are manifestly related to and interdependent upon the traditional character of the settlements, so that any substantial change of the shoreline and landscape resulting from new technical interventions constitutes a direct and impermissible alteration of the traditional character of the settlement. Indeed, an inseparable element of traditional coastal settlements, especially on small islands, is also their traditional harbour, and the construction of a new harbour on the shore of the settlement or adjacent thereto, which would involve a substantial and manifest alteration of its cultural (traditional) environment in the above sense besides affecting the marine environment, cannot be regarded as a mild form of development. Thus, the construction of a modern recreational harbour intended for the reception of touristic craft, in parallel with an existing traditional harbour, is not compatible with the character of a traditional coastal settlement that must be protected." **(C.o.S. 637/98)**.

Finally, the need for sustainable policy also arises when cultural policy conflicts with the policy on public health protection. The siting of the plant for a composite waste disposal system in an area of Crete raised the question whether it constituted an impermissible violation of a monastic area that included a complex of old monasteries, retreats and caves. The Court was divided over this. Some of its members maintained that the project, which was to be built some distance away from the main monasteries, did not infringe upon their protection under law. Other members of the Court accepted that Greek cultural heritage includes monastic areas which are protected throughout their extent, within which no other human activity is permitted. Thus, the construction of the disputed waste treatment stations would be an impermissible trespass upon those areas. The second opinion clearly gives preference to the cultural policy of absolute protection for characteristic caves of the Greek Orthodox cultural tradition, in other words the absolute protection of monastic areas. **(C.o.S. 2596/1998)**.

Another important issue of sustainability in its narrow sense concerning the conservation of natural capital, is whether the meaning of the said natural capital includes agricultural land. Indeed, the preservation and conservation of farmland must be regarded as a basic aspect of the State's sustainable agricultural policy. Strictly speaking of course, farmlands are not the same thing as nature in the wild, but they are certainly areas of mild energy utilisation which substantively enrich the biosphere man needs for the support of life and for his development. Also they are an important element of the landscape. Nowadays farmlands are threatened by many dangers, especially by the destructive effect of substances used in chemical agriculture, the shortage of water and salification of waters, desertification, etc. A major threat, however, stems from man-made systems and in particular from ruthless urban development which favours the conversion of farmlands to building plots. In our country this is a major and acute problem. Repeatedly, in judging regional or town planning cases, the Court has encountered the question whether a change in the legally sanctioned use of land from agriculture to building would be permissible. The law protected only high-productivity land. The Court has ignored that restriction, directly invoking the constitutional principle of environmental protection and judging that the natural capital to be conserved included farmlands (see **C.o.S. 330/1999**). A characteristic case was one in which the extension of an urban settlement threatened age-old and fine olive groves in the area of Kiparissia on the Peloponnese. The Court judged that those groves constituted artificial ecosystems which should be protected:

"As the Court has repeatedly determined, the provision of Article 24 of the Constitution which protects the natural environment, interpreted in light of the principles embodied in the Declarations of Stockholm (1972) and Rio (1992) and of the detailed directives and guidelines of Agenda '21, requires the conservation of natural capital so that it can be passed on intact to future generations, and without such care no legitimate and effective environmental protection is conceivable. Consequently, only in the above sense can sustainable development be understood, which by its very nature embodies the protection of the natural environment in its various manifestations. Furthermore, the meaning of protected natural capital includes not only natural but artificial ecosystems, among which in Mediterranean countries such as Greece a pre-eminent position is held by olive groves, which are, besides, a valuable form of sustainable farming which does not exhaust natural resources but on the contrary preserves them and contributes towards their renewal. In our country in particular they constitute a prominent element of agricultural tradition and a peculiar element of Greece's aesthetic landscape that must be protected. Under these circumstances, olive groves must in principle not be sacrificed for urban development, which would in any event not be sustainable. Only if it is found impossible in any other way to extend a legitimately established settlement surrounded by olive groves, would it be acceptable to sacrifice the least important part thereof in order to satisfy an urgent need, and then only to the extent that proves absolutely necessary." (**CSP 609/1996**).

A related issue is the regulation of relations between sustainable agriculture and urban development. This presupposes the definition of priorities when harmonising the policies concerned. The Court looked into the matter in connection with the construction of reservoirs on islands to combat drought and support sustainable farming. The construction of the reservoirs was opposed by the residents of a nearby settlement, who maintained that this would impede their residential and touristic development. The Court judged that:

"... the conservation of farming land, assisted by the construction of water reservoirs where drought is a problem, is part and parcel of the conservation of the country's natural capital as required by the principle of sustainability which stems from Article 24 of the Constitution and from the Maastricht Treaty. Consequently, aspirations for urban or tourist development of nearby

settlements cannot stand in opposition to the construction of such reservoirs, because as explained earlier this is in any case excluded by the need to conserve agricultural land." **(C.o.S. 6210/1996)**.

Third Principle:

Principle of Carrying Capacity

In its narrow scientific sense, carrying capacity is the number of species or units of a species which can be maintained indefinitely by an ecosystem without degradation of that system. According to its systemic meaning, the carrying capacity of any particular system or sub-system is the optimum size thereof which will maintain the equilibrium of the whole (greater) system. At any rate, the notion contained by that definition where living systems are concerned, that is to say the **finite capacity** and **finite tolerance** of ecosystems, clearly has more general value and is therefore adopted as the fundamental criterion for ensuring the desired balance of both ecosystems and man-made systems, a factor that constitutes another measure of their sustainability.

With its broader content, then, the principle of carrying capacity says that the construction and management of man-made systems must not transcend their own carrying capacity or that of the ecosystems (land or water based, or marine) influenced by them. This is because all man-made systems are constructed and developed at the cost of ecosystems, but together with the latter they constitute greater composite systems within the Gaia mega-system. Because of the inherent adaptability (resilience) of both, their balanced co-existence and co-evolution is possible in principle. Thus, for example, the man-made systems of agricultural civilisation operated in a stable way for several thousand years. But carrying capacity places inviolable limits on the development of man-made systems. Beyond it, there is no development but only destabilisation and entropy, first of the ecosystem and later of the man-made system.

The purpose of sustainable development is to allow co-evolution of both man-made systems and ecosystems. For that to be achieved, the said systems must maintain their equilibrium. This is considered attainable, because the said equilibrium is dynamic and has "elasticity" (resilience), in other words the tendency to recover its position after an initial disturbance. Consequently, there is a margin for mutual adaptations during the process of constant change. However, if the limit of carrying capacity is exceeded, the systems become destabilised because this results in irreversible developments. Thus, that limit is the "threshold" beyond which there is no possibility of recovery but destruction is unavoidable.

The above makes apparent the enormous importance of carrying capacity, which has until now been ignored by hypertrophic industrial systems with the result that the continuing environmental crisis emerged. Respect for this principle means in practice that: a) a distinction must be made between **ordinary** and **fragile** ecosystems, the latter being able to tolerate only restrained development (see also the Seventh Principle), b) it is necessary to establish measures and methods for determining the carrying capacity of man-made systems, which have a tendency to develop to excess, as for example the number and acceptable size of settlements, the number of motor vehicles, or the number of tourists in sensitive ecosystems (coasts, small islands, etc), and c) there must be a **steady state** principle for the natural atmosphere, hydrosphere and lithosphere systems, whose elements must remain at appropriate values. This, in fact, is the main problem of pollution.

The principle of carrying capacity, which was established explicitly by Principles (3) and (6) of the Stockholm Declaration[10] and is accepted indirectly by the relevant provisions which refer in

[10] *The Principle of Carrying Capacity is proclaimed in the STOCKHOLM DECLARATION (1972) first in relation to the earth's productive capacity, where it is combined with the Principle of Obligatory Restoration of the disturbance in question:*

an abstract way to **biological equilibrium**, was explicitly recognised for the first time by Section 5 of the Council of State as applicable to the **founding of settlements**, which were spreading headlong to the cost of the countryside because of unrestrained land profiteering and the absence of regional planning. The Court recognised correctly that ruthless urban development is the main threat against the environment. It also judged that the founding of settlements could only be permitted within a broader spatial plan extending at least to Prefectural level, after taking into account the **carrying capacity** of the entire structure of urban development and of the local ecosystems and, in general, the regional planning order of the area (PR 246, 586/1992). Besides, the headlong and unplanned multiplication of profitable **fish-farming enterprises** gave the Court the opportunity to require investigation of the carrying capacity of the relevant marine ecosystems and then to require planning at Prefectural level (**C.o.S. 2844/1993**).

The now widespread tendency for hotel units to grow because of profitable tourism also gave Section 5 the opportunity to raise the issue of sustainable tourism for the first time, by requiring "a rational **distribution of tourism activity** in Greece ... without exceeding the **saturation limits of each area** ... according to its vulnerability and characteristics", "bearing in mind the ability of each area to receive tourists" and considering the size, form, disposition and in general adaptation of the hotel to the area around it (**C.o.S. 50/1993**). In defence of sustainable urban environment (see below and the Tenth Principle), the Court also imposed limits on the institution of **building coefficient transfer**, prohibiting any excess over the receiving area's settlement density coefficient, whether accumulated directly or indirectly, and requiring that the transfer should not violate the **building coefficient "optimum" for the area in question (CSP 441/1991)**.

Also characteristic, however, is the Court's jurisprudence concerning small islands, which it regards as "fragile" ecosystems. Small islands are the ornament of Greece's natural and cultural environment. In parallel, dozens of such islands in Greece's seas are focuses of age-old civilisation. These small islands had remained isolated microcosms until the tourism explosion and worsening living conditions in Greece's cities made them the targets of a real invasion. Tourism, the demand for a second home, investment in land or flagrant land profiteering converged to create increasing pressure for land development which, in many areas, soon exceed their carrying capacity. The Court raised the issue of the carrying capacity of small islands directly in relation to the development of settlements on them, and because of the investment plans of private urban development enterprises, and pronounced the following interesting judgements:

"Fragile ecosystems include coasts and small islands. The latter are characterised in particular by their pre-eminent quality as isolated ecosystems with increased or unique biodiversity, long shorelines in relation to their area, consequent dependence on the marine environment, and consequently an interlinking of the man-made systems (demographic, cultural, socio-economic, etc.) on them with one another and with their limited physical basis, so that they constitute "microcosms" with self-sufficiency and unity but also a manifestly fragile equilibrium. The same vulnerability is shown by the other characteristic of small islands, whose aesthetic value is very

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Principle (3): The earth's capacity to produce vital and reproducible assets must be preserved and where possible restored or improved.

The same principle is confirmed in relation to pollution.
Principle (6): The disposal of toxic or other substances and the release of heat in quantities that exceed the environment's capacity to absorb them harmlessly, must stop in order to avoid serious and irreparable damage to ecosystems.

great, namely the unity and simple symmetry of their natural landscape. Because of this vulnerability small islands can easily become destabilised by outside interventions, and the need to protect them and ensure their survival is a concern of International Environmental Law. Thus, the provisions of Agenda '21 concerning the sustainable development of small islands (Chapter 6, § 17.124ff) take as their starting point the finding that they are "environmentally sensitive and fragile" and that they have "limited options for development", which must be combined with the conservation of their biodiversity and with improvement of the quality of life of their residents (§ 17.128). ***Small islands must determine and monitor their carrying capacity*** *(§ 17.129) and must prepare long-term plans for sustainable development, which emphasise the multiple utilisation of their indigenous resources and incorporate environmental protection in their economic planning. In particular, they must define the measure of the conservation of their biodiversity, revise non-sustainable practices, promote environmentally sound technology for their sustainable development, and ban technologies which threaten their ecosystems (§ 17.129). It should be noted that besides these general precepts of Agenda '21, a series of UNO programmes relate to the special problems of sustainable development on small islands (see the Declaration of the Barbados International Conference 1994, the INSULA Programme, etc.)." (see* ***C.o.S. 2805/97****).*

It is in the light of the above provisions of International and domestic Environmental Law, that one must judge the issue of permissible, namely sustainable urban development on small islands, which must indeed be regarded as the main threat to their sustainability, since as is generally known, it is on small islands that the greatest settlement pressures are exerted, both for the building of second homes and for touristic development.

Thus, the issue of sustainable urban development on small islands must be regarded as a vital problem for their sustainability.

In accordance with the rules which stem from that notion of sustainability, urban development on small islands must always be mild and directly related to the conservation of their traditional character and the island man-made and natural environment and landscape. Above all, urban development must not exceed the carrying capacity of islands as traditional man-made systems and sensitive ecosystems. This means that settlement pressures for the acquisition of first and second homes must in principle be absorbed within the existing network of settlements, and only if the latter has not exceeded the limits of its carrying capacity. Should that be possible, the founding of new settlements of any kind (first or second homes) is impermissible. If that possibility has been exhausted, it must be examined whether, in light of the development of the local demographic system, there is still room for the extension of existing settlements, always provided that the limits of their carrying capacity are not exceeded. In such a case the settlement pressures must be absorbed by means of extension, where this is acceptable, but not by the founding of new settlements via the institution of land cooperatives or private-sector town planning." **(CSP 273/1998)**. (See also **C.o.S. 1588/1999)**.

The carrying capacity of small islands is threatened in particular by the assault of mass tourism. Those small islands which are regarded as most attractive to tourists have already succumbed to the temptation of ruthless touristic development, manifested as unthinking proliferation of tourist beds in hotels, hostels, rented rooms, etc. The Court, on the basis of estimates by the relevant public services, has not hesitated to ban the founding of still more hotel units wherever it has deemed the carrying capacity of a small island to have been exhausted. That, for example, was the case on the well-known cosmopolitan island of Mikonos, where it was judged that:

"From the facts and figures in the dossier submitted, it is evident that Mikonos, a small island in the Cyclades, has over the past ten years suffered the consequences of many years of intense tourism and urban development, making it apparent to all that it is ***an area saturated*** *from both those points of view. Urban development has taken place on the one hand by actual extension of the traditional settlements, and on the other hand by scattered building outside urban limits all over the island. The demand for second homes is high, as also is tourist traffic granted that Mikonos, apart from the interest it presents in its own right, is the convenient port for visiting the nearby archaeological areas on the islands of Delos and Rinia. Recently tourism has developed to a massive extent and signs of the island environment's degradation are evident. It can be said that Mikonos has gone beyond the mild development that is the only development permissible for it as a small island, making any further stress on its island environment due to tourism or investment in second homes illegitimate and dangerous. Consequently "developmental" town planning provisions, new tourism installations and the construction of peripheral roads, harbours and other projects that would involve alteration of the morphology of its shores would constitute an impermissible deterioration of the island's natural and urban environment.*

Since the proposed extension is only legal for first homes, the use of hotels and tourist installations other than those which already exist legally is banned. Consequently, the provision of Article 3 (b) of the plan, part of which permits the founding of category-A tourist establishments, is illegitimate and must be reworded as follows: "Tourist installations are banned." **(CSP 228/1996)**.

In the case of another, larger island, Zakinthos, the carrying capacity was estimated for a region adjacent to the marine sanctuary for the rare species of turtle Caretta-caretta and it was judged that:

"The Special Environmental study on Lagana Bay, Zakinthos, gives a lengthy and detailed description and analysis of the characteristics of tourist development in the area studied and of tourism's effect on the object protected, by explicit mention, inter alia, *in the Special Regional Planning Study of Zakinthos currently in preparation. In this connection, the proposed plan defines a Regional Zone of the National Environmental Plan (NEP) (Article 5), which includes areas of eco-development and areas of controlled tourism with special conditions and building restrictions. The aim of those restrictions is "to secure the prerequisites for the protection of neighbouring NEP areas and that of the natural and agricultural landscape of the NEP Regional Zone. More particular management objectives are the conservation and reinforcement of cultural values, the restrained development of tourism and eco-tourism, the upgrading of coastal settlements and the maintenance of high environmental standards." Under the above circumstances in the areas of eco-development in the NEP Regional Zone (01, 02, 03, 04) and in the areas of controlled tourism (T1, T2 and T3), the provisions for building furnished tourist villas and houses, furnished apartments, refreshment centres, taverns, restaurants and even organised tourist campsites and recreation centres are not legal, because common experience shows that the disturbance of the land-based and marine ecosystems caused by the construction and use of such installations is great and certainly incompatible with the protection of the sea turtle. The only installations compatible with the permitted uses of eco-tourism and controlled tourism are small capacity hostels, always provided that the influx of new tourists does not demonstrably exceed the area's carrying capacity (which according to the EIA, has already long been exceeded).* **(CSP 68/99)**.

The issue of carrying capacity was raised in particular in relation to the country's capital, Athens, whose development, which has been rapid and ill-considered, has obviously gone far beyond any

reasonable limit, since 60% of the country's industry and 40% of its population are concentrated there. The Court has backed the Regulatory Plan for Athens which, since 1985 (unfortunately, already too late), has set itself the basic aim of preventing any further expansion of the city. However, while it became evident that the aim in question was mere wishful thinking in the face of the Administration's stubborn insistence on the further spread of industry into the small peninsula of Attica, the Court systematically blocked the founding of new industries in that area, judging that:

"In application of the above constitutional principles, and to control the excessive stress on the natural and urban environment in the Attica basin caused by the concentration therein of a large part of the country's population and most of its economic activity, the legislature drew up a regulatory (regional planning) scheme and environmental protection programme for the said area, which is embodied in Law 1515/1985 (sh. 18). The aims of that law, inter alia, *are to restore the ecosystems of the Athens area and restrict the pollution of the elements of its environment (Article 2 (a and d)). Those aims will be achieved more particularly by "curbing the spread of economic activities in the capital" (Article 3 (2), indent b), by "distancing objectionable installations and operations from residential areas" (Article 3 (3), indent c) and by a series of other measures. Besides, the earlier PD 84/1984 (sh. 33) had already banned the founding and establishment of new industries and handicrafts in the mainland portion of the Prefecture of Attica (Article 2), with an exclusive listing of exceptions in an annexed table. Accordingly, the legislature, understanding that the basin's carrying capacity would not allow it to be burdened with new secondary sector units, and correctly applying the aforesaid constitutional provision, no longer regards as sustainable the establishment of any activities in the said area which are not listed among the permitted exceptions.*

The disputed provision was enacted on the basis of Article 4 of Law 1360/1983 (sh. 65), which stipulates that "pursuant to an act of the Cabinet (and by a joint decision of the Ministers for Economic Affairs and for the Environment, Regional Planning and Public Works in accordance with Article 1 (21) of Law 2412/1996) an establishment permit may be granted by derogation from the provisions of the said law or other laws, in the case of particularly important productive investments and especially for the establishment of industries that contribute towards accelerating the development rate of the national economy". But this provision relates to economic development in the constitutional sense thereof explained above, that is to say, sustainable development. According to what has been said, such development cannot include the establishment of new industrial units not included among the legal exceptions in the area of the Attica basin. Consequently, if it is interpreted in terms of its compliance with the Constitution, the said provision cannot be applied in Attica. Accordingly, the disputed act relating to the establishment of an industrial refrigeration unit and the associated storage areas in Konopi in Attica (which are not included in the list of exceptions of Article 2 of PD 84/1984) is not legal and must be abrogated for the well-grounded and relevant reason of invalidity." **(C.o.S. 4207/1997).**

However, pressures to exceed the carrying capacity in Attica do not arise from industry alone. Despite the monstrous expansion of the city, there are still pressures for residential expansion and elimination even of the last remnants of agricultural land on the Attica peninsula. Faced with that situation, and inferring the principle directly from the constitutional clause, the Court then judged that the related provision of the Regulatory Plan for Athens does in fact respect that principle and bans the spread of settlements, with no possibility at all of being amended. This judgement of the Court clearly meant to discourage the already debated amendment of the Regulatory Plan in order to lift its restrictions. The Court, then, judged that:

"... Article 24 (2) of the Constitution guarantees a sustainable urban environment, which according to the conclusions of the relevant sciences and the lessons of common experience, cannot be secured if the city develops beyond certain limits which coincide with the carrying capacity limits of the relevant life support systems, namely the ecosystems which ensure the continual cleansing of the atmosphere, recycling of water, management of wastes, etc. From this it follows that according to the Constitution those limits must not be transcended by the enlargement of the city in area or in height, or by the intensification of land uses therein. In line with that view and acting in the knowledge that the city of Athens had already reached the upper critical limits during the period in question, the legislator of the Regulatory Plan for Athens (Law 1515/1985 A '18) determined that the Regulatory Plan's basic objective should be "to stop the expansion of the city", by means of the particular measures listed in the said law (see Article 15 (2)), and that the said objective should not be frustrated in any way by later economic or other estimates, since this would clearly conflict with Article 24 of the Constitution." (**C.o.S. 1027/99**).

Fourth Principle:

Principle of the Obligatory Restoration of Disturbed Ecosystems

Sustainable development, understood as the balanced co-evolution of man-made systems and ecosystems, has become obligatory in Law when that balance has already been seriously disturbed to the detriment of the ecosystems. During the ruthless development so far, many ecosystems have been destroyed owing to ignorance of their value: forests have been burned or cleared, wetlands have been drained, coasts and seas have been polluted, etc. Thus, today it is futile to strive for balance between man-made systems and ecosystems unless, in parallel, immediate action is taken to restore ecosystems destroyed illegally, i.e. after having come under the protection of the law, and eventually also all those which may be deemed essential for the full re-establishment of the disturbed equilibrium, provided of course that such restoration is still physically possible.

The restoration of ecosystems involves deliberate human intervention and includes all the activities needed to restore things to their initial condition. Thus, forests are restored by reforestation, wetlands by removal of the harmful technical projects and revival of their flora and fauna, quarries by filling in with earth and planting trees, etc. The technology for restoration is quite advanced and provides ultimate hope, especially where industrialisation has laid nature waste.

In law, the obligation to restore ecosystems stems from Article 24 of the Constitution which, correctly interpreted, provides **full** protection for the environment, namely both preventive and suppressive, and therefore also restorative for all ecosystems destroyed since it came into force (1975). As a fundamental principle restoration is proclaimed by Principle (3) of the Stockholm Declaration, but it also derives from the principle of biodiversity (see also the Fifth Principle). The principle is also established explicitly both by the Draft Standard Law on Environmental Protection and by the Draft Standard Law on the Protection of Coasts.

With this legal base and its own jurisprudence, Section 5 has made it clear that law and order, and in particular public environmental order, do not accept *faits accomplis* which go against the principle. Any damage to ecosystems must be made good as appropriate. The principle applies all the more since unrepentant destroyers of ecosystems try to take advantage of the slowness with which judicial protection is provided, by promoting *faits accomplis* in the meantime. In the characteristic case of the wetland of Georgioupolis in Crete, where the Administration was inclined to accept *faits accomplis* in the form of spreading adjacent building activity by the method of successive boundary shifts which affected the wetland adversely, the Court demanded that the ecosystem should be restored completely (**CSP 306/1992, 296/1993**).

The principle that the disturbed balance between man-made systems and ecosystems must be restored goes far beyond specific ecosystems and is part of the dogma of the "Just World", in other words it extends to the sub-system of Agenda '21 measures which aim to restore the global environmental balance a) by curbing excessive consumption in the development industrial countries, b) by systematically combating poverty in poor countries, c) by demographic control, and d) by the protection of human health. On the same basis and at national level, the principle is more widely applicable in the context of regional and town planning, where priority is given to improving the condition of degraded areas or settlements. Besides, being concerned to heal the gaping wounds inflicted upon nature in Greece by ruthless quarrying, the Court, interpreting a

law which extended the operation of quarries, restricted the application of the related order to no more than the obligatory restoration of the quarried area (**IC 761/1993 C.o.S.**).

The Court also abrogated the legislature's ability to revoke the obligation to restore a quarried area and to extend the operation of actual and unlicensed quarrying in quarry areas by five years, and declared a related law null and void (**C.o.S. 1897/97**).

Where the obligation to restore a destroyed ecosystem is an immediate and urgent need, that obligation has been established by the Constitution itself. This concerns forest ecosystems which have always faced many threats of destruction. The destruction of forests in Greece by extensive fires, deliberate clearing and trespass, and especially by arbitrary conversion to building plots and land development, has become very widespread in recent years and has compelled the constitutional legislature to enact obligatory reforestation in a special article (117). With its interpretations, the Court has made that obligation very strict indeed. "No other public interest can abolish the obligation to reforest" is the intention of the jurisprudence which, for example, precluded the extension of a harbour area to the detriment of an aesthetic forest area in Kavala which was to be reforested, in connection with which it was specifically stated that:

*"The proposed plan involves shifting the boundaries of the Aesthetic Forest of "Amigdaleon" in Kavala by exempting an area of approximately 16.7 hectares located in the position known as "Aspra Homata Akrotiri Spathi" (*White Sands of Spathi Promontory*) for the purpose of creating the new, greater harbour of Kavala. However, apart from and independently of the concurrent issue of whether shifting the boundaries of an aesthetic forest is permissible under the constitution, in this case the pre-eminent issue is whether the area in question has been designated for reforestation, so that by its very nature the boundary shift is precluded by Article 117 of the Constitution. More particularly, as explicitly mentioned in the minutes of the third meeting of the Technical Council for Forests on 23 June 1998, the area in question has indeed been designated for reforestation, and for that reason the members of the Council could not see how the requirement of reforestation could be satisfied once the boundaries of the aesthetic forest had been shifted. Under these circumstances, the plan is not a legal proposal since priority must go to the reforestation of the disputed area, which cannot therefore be made available for any purpose other than reforestation."* (**CSP 40/1999**).

Besides, the Court banned the economic "development" of an area on Pendeli Attica owned by church and designated for reforestation since such a development would impede its reforestation (**C.o.S. 2006/1997**).

The Court also feels the need to remind the Administration about obligatory reforestation whenever the latter assumes that a disturbance of an ecosystem that has already taken place somehow mitigates the importance of new disturbances. For example, in the case of the Pagasitikos gulf, a well-known marine ecosystem polluted by land-based sources, the Court judged that:

"... from the fundamental rule of sustainable development, which is safeguarded both by the Constitution (Article 24) and by the Maastricht Treaty (Articles B, 2 and P) and has been ratified by Law 2077/92, namely development which satisfies the reasonable needs of the present generation without placing at risk the satisfaction of the needs of future generations, it follows that the most important consideration is to conserve the country's natural capital so that it may be passed on intact to the coming generations, to ensure the necessary equal satisfaction of needs between generations. Therefore, the construction and operation of industrial and in general

technical installations in the coastal zone and near the sea is only permitted subject to the essential condition that they will not give rise to any form of disturbance of the marine ecosystem and especially to its pollution. This is because the country's natural capital comprise, inter alia, *the system of shorelines and marine ecosystems, particularly gulfs, which are fragile ecosystems that can easily be destabilised. From this it also follows that the operation of such installations is not permitted in the country's gulfs which already show increased pollution, because not only is additional stressing of these prohibited, but on the contrary, the above principle requires them to be restored to a condition of stable equilibrium."* **(C.o.S. 5235/1996)**.

Furthermore, to confirm the position that coasts can tolerate only mild development, the Court explained that any deviation from the situation of restrained management creates the obligation to restore it. It is worth noting that this was said in connection with Hellenicon airport and Poseidon Avenue, in relation to the coast at Agios Kosmas **(C.o.S. 1790/1999)**.

Finally, the Court suspended the works to extend the port of Preveza at the mouth of the Amvrakikos Gulf because of the probable serious effects of those works on the already greatly stressed environment of the said gulf, which is in need of restoration and which is a protected area under RAMSAR and NATURA 2000 **(IC 134/99)**.

Fifth Principle:

Principle of Biodiversity

The principle of biodiversity recognises the inherent value of all wild flora and fauna species, and provides legal protection for all the variety of these species and for their habitats. The innate value of species is in particular that they are biogenetic reserves and constituents of the ecosystems. In that sense, biodiversity is protected as the pre-eminent criterion of the stability and vigour of ecosystems, according to the rationale that the greater an ecosystem's biodiversity, the greater is its stability.

Law and Science were unfortunately slow to arrive at this correct understanding of biodiversity, and only did so when the elimination of species by savage "growth" had already assumed unprecedented dimensions and was indeed proceeding at an annihilating rate. From the beginning too, this protection was tinged by anthropocentric self-interest stemming from the discovery of how useful the lower species and micro-organisms are for the production of drugs and natural health products. Legal protection began with International Law, with the protection of isolated species and later with the compilation of lists of species threatened by extinction or already exposed to risk, before eventually assuming its present form of protection for the "natural heritage" and "biological diversity" which entails the following: a) The State is obliged to recognise and systematically monitor its biodiversity, which embodies valuable parameters of its green accounts. b) The State is obliged to formulate a strategy, plans and programmes for the conservation and sustainable treatment of biological diversity (Article 6 of the Rio Convention of 5 June 1992, ratified by Law 2204/94). c) The State must incorporate that objective in all its policies. d) It must establish a system of specially protected areas for the conservation of biodiversity. e) It must promote the protection of ecosystems, natural ecotopes, and the conservation of sustainable populations of species in the natural environment. f) It must permit only sustainable development in adjacent areas. g) It must make good and restore degraded ecosystems and promote the recovery of endangered species.

Besides, according to the special provisions of the Berne Treaty of 19 September 1979: a) wild flora and fauna constitute ***natural heritage*** and the State has a general obligation to care for the conservation of all those species; b) the above obligation extends to the formulation and implementation of any public policy, especially regional planning and developmental policy; c) the State must also protect the natural habitats of species; d) the State must devote special attention to species threatened by extinction or already endangered, especially endemic species and endangered ecosystems; e) the State must also devote special attention to migratory species and cooperate with other states to protect areas which are migration routes, overwintering areas, and areas of concentration, feeding and reproduction; f) the intentional harvesting, collection, cutting or uprooting of protected plants are prohibited, as also are their ownership or trading; g) the intentional trapping, ownership, trading or killing of protected animals are prohibited, as also is the disturbance thereof especially during periods of reproduction, dependence or overwintering and the degradation or destruction of their habitats.

The legal base of the principle is on the one hand Article 24 of the Constitution, since as explained there can be no protection of an ecosystem's balance unless its biodiversity is protected, and on the other hand the supra-legislative Law of international conventions in particular such as Law 1355/1983 ratifying the International Treaty of Berne (19 September 1979) on the conservation of wildlife and the natural environment in Europe, and Law 2204//1994 ratifying the

International Convention of Rio (5 June 1992) on biological diversity (see also Article 20 of Law 1650/86).

The principle of biodiversity protection is already extremely important if not critical, in view of the clearly apparent tendency of the processing sector to move from the transformation of inorganic substances to the modification and transformation of life itself. This is exactly where man is behaving like a *sorcier apprenti* with the aid of so-termed genetic engineering. The interventions being attempted include modifications of the DNA of living systems, arbitrary combinations of the DNA of living systems, and other changes aiming to produce living systems with certain desirable characteristics. Besides the major issue of sustainability - strictly speaking bioethics - raised by such attempts to intervene in living systems, this conflicts directly with the principle of biodiversity, which is clearly threatened by the danger that some species may be directly or indirectly eliminated.

The principle of biodiversity has been repeatedly applied by the Council of State either to preserve rare species of fauna in Greece threatened by extinction, such as the sea turtle Caretta-caretta, the Monachus seal, the golden eagle, etc. (but more common species as well, such as wolves and foxes), or more generally to protect the exceptional diversity of flora and fauna in Greece. Thus, invoking the principle explicitly, Section 5 banned air crop-spraying with phytochemicals to eliminate blight (**C.o.S. 2162/1994**). It also set a deadline for the banning of fishing with "looms" (**CSP 641/1994**).

In almost all cases where the need arises to protect biodiversity, the difficulties in finding a legal solution stem from unresolved conflicts over land use, and from the Administration's slowness or even reluctance to enact the appropriate protective measures in time. The creation of *faits accomplis* by resolute private interests as a rule compels the Administration to make concessions and settle for incomplete protection. The story of the sea turtle Caretta-caretta is instructive in this context: according to the relevant rationale of a recent minute (**CSP 68/1999**) in which the Court established the obligatory framework for the protection of the turtle in the Lagana gulf of the island of Zakinthos, which is its main breeding ground in Greece:

"Greece's obligation to provide effective protection of the above important biotope stems directly from Article 24 of the Constitution, the relevant provisions of Law 1650/1980, and the Maastricht Treaty (Articles B, 2 and 130P) ratified by Law 2077/1992 and the International Conventions of Berne (Law 1335/83, A 32), Barcelona (Law 1634/86, A 104), the Ramsar Convention, and Council Directives (EC) Nos 79/409 on the protection of wild avian fauna and 92/43 on the protection of ecotopes, flora and fauna, To fulfil the country's above obligations, various protective regulations have been enacted from time to time for Lagana Gulf on Zakinthos, whose main objective was to lay down strict conditions and restrictions for building activity and to restrict the permitted uses of land. Thus, a Presidential Decree (D 260) was issued on 19 March 1984 to determine protection zones on the egg-laying beaches of Dafni, Sekania, Geraka and Kalamaki, with strict conditions and restrictions for building and land use (e.g. in Zone I a minimum building plot size of 4 hectares and a maximum building 'footprint' of 60 square metres). The above measure was judged legal and constitutional by virtue of Decision No 695/1986 of the Plenary of the Court. This was followed by Decision No 88208/3723/1987 by the Minister for the Environment, Regional Planning and Public Works (D 37) on the designation of a Settlement Control Zone (SCZ) in the wider Lagana area, and by a PD (D 347) of 15 June 1990 on the designation of a SCZ in the same area. The strict protective measures enacted by the above decisions were judged legal and constitutional by a series of Court decisions (see PR 499/99, C.o.S 2301/1995 (Plenary) and others). The above measures, however, did not prove sufficient

when implemented to ensure a sufficient level of effective protection for the precious marine and land-based ecosystems of the Lagana gulf. On the contrary, as analysed and documented in detail in a Special Environmental Study (SES) of the Lagana Gulf on Zakinthos, prepared by the Directorate of Environmental Planning of the Ministry of the Environment, Regional Planning and Public Works (MERPPW) and approved by MERPPW Ministerial Decision No 55319/2434/17.7 1997, "... the biotopes of the endangered species and the important ecotopes in the Lagana gulf, as well as the sum of species and biotopes in the study area, are subject to considerable pressures by man's activities in the study area and in particular by activities related directly or indirectly to the development of tourism" (see SES, p. 355 ff). The proposed plan already attempts to establish the first National Marine Park in order to ensure, in accordance with the country's constitutional and international obligations, effective "... protection of endangered species of flora and fauna by the conservation of their populations and biotopes, and the conservation of endangered ecotopes in the area." Broader aims of that protection are to maintain the essential environmental interactions and the natural resources in the area, and to ensure sustainable treatment of the ecosystems in it."

Thus, the establishment of the indicated form of protection, i.e. the marine park, fifteen and more years after the issue of legal protection had first been raised, demonstrated the drawbacks that go together with the Administration's submissive behaviour. How can the Park coexist with parallel man-made activities, especially ones that aim to "develop" it for tourism? How can activities in the area of absolute protection be regarded as permissible? What is the situation in adjacent areas? On these critical questions the Court adopted a clear position and banned any falsification of the protective situation by legitimisation of *faits accomplis*. Thus, the following were judged incompatible with absolute protection for the turtles: amateur fishing, extension of infrastructure works (port installations, etc.), the construction of large-area, multiple-purpose installations, the setting up of parasols and deck chairs on the egg-laying beaches, and the construction of tourist installations in the adjacent zone, which was adjudged touristically saturated.

A special position in the Court's rich jurisprudence in applying the principle of biodiversity is held by its decision on the protection of the brown bear in Greece. The brown bear is an internationally endangered species but in Greece it has retained two of its most important habitats, namely on the Pindos and Rodopi mountain ranges. The declining population of brown bears on the Pindos range numbers around 120 animals, which far exceeds the population in the Pyrenees but is still close to unavoidable extinction. Because of its manifest important the species is protected and there are special programmes for its sustainable treatment. The need for legal protection arose when the Administration, during the construction of the Egnatian road, an important national motorway, decided that it should pass through the Pindos habitat which, in that way, would be divided into two parts. The Administration invoked on the one hand the public interest arising from the need for the motorway to be effective, and on the other hand the fact that it took some very expensive measures to avert its unfavourable consequences (tunnels, cut-and-covers, etc). But the Administration's arguments did not persuade the Court, which very clearly decided the issue of the conflict between legitimate assets in favour of life: first the species, then the traffic. According to the Court's more specific thoughts on the matter:

"... since from the combination of all the above it follows that the construction of roads intersecting biotopes of the brown bear, a species that is under strict legal protection and demands protective treatment, must be done in a way which completely excludes the disturbance of its biotopes and the risk arising from such disturbance that even very few individuals of the species might be lost. All the more so, the splitting of their biotope by constructing the road through it is banned because that would certainly result not only in the prohibited disturbance of

the ecosystem, but in its actual division which would be catastrophic for the biotope and its brown bears, whose population would certainly be reduced further and below its critical value, so endangering the sustainability of the species as explained in particular below. This dominant criterion cannot be gainsaid by other criteria relating to technical characteristics of the road or to the construction costs, etc., because however noteworthy those criteria may be, they do not belong to the same hierarchical order, whereas the preservation of the brown bear is the preservation of life, which is the essence of sustainable development." **(C.o.S. 2731/97)**.

Also noteworthy and creative was the application of the principle to regulate hunting, when the Court, going beyond the narrow definitions of law, required that: a) before the annual regulatory decision is issued, the views not only of hunting associations but also those of environmental organisations should be heard, b) for each species of fauna whose hunting is permitted, there should be scientific evidence of the condition of its population, and c) the breeding period should be defined individually for each species. **(C.o.S. 366/1993, 1174/1994)**.

In addition, despite the lack of specific provisions, the Court pointed out that "streams, namely the folds in the earth's surface through which the draining of most land waters towards the sea takes place", are ecosystems whose fauna, flora and microclimate contribute in many ways to the balance of the environment. Opposing the prevalent practice of including streams within town planning schemes, so that they are covered up and built upon, the Court a) required them to be depicted on any town plan, b) prohibited them from being covered up or built upon, or any other intervention that would affect their function, and c) ordered their preservation and common use.

A start was made with the direct ban on the destruction of flora and fauna in the "Podonifti" stream in Filothei **(IC 43/1993, C.o.S. 1801/1995)** and the insistence that streams must be mapped and used in common **(CSP 124/1994, C.o.S. 2163/1994)**. How can a stream be included in an urban building plan? What will its legal status be after inclusion? The Court's jurisprudence answers these questions with a manifestly systemic approach to the problem:

"Granted the existence of a stream, before the Administration proceeds with town planning measures it must consider the consequences of its inclusion for the wider environment to which it is organically linked and determine the necessary environmental conditions for the town planning measure to be harmonised with the function of the stream, in accordance with the above provision of Law 1650/1986. From the constitutional protection of the natural environment it clearly follows that the area occupied by the stream, once its location has been established as above, cannot be designated for building purposes or as an area intended for the construction of public buildings, but exclusively as a common area and excluding any work that fills in or covers up the streams. Absolutely necessary technical work for the channelling of the bed and banks of the watercourse is permitted only to ensure the free flow of the water." **(C.o.S. 2163/1994)**.

The jurisprudence of the Court for the protection of "streams" was destined to see dramatic justification when extreme weather conditions, especially flooding, caused loss of life and damage where watercourses had been filled in. The same results were produced by earthquakes which destroyed buildings constructed over buried watercourses.

Finally, the Court banned urban building in an area adjacent to a biotope which had not yet been properly delineated, with the following thoughts:

"Among the elements of the natural environment protected under Article 24 of the Constitution are included biotopes, which by their natural qualities constitute an inseparable part of the local ecosystem with their flora and fauna. Owing to the need to protect biotopes, it is forbidden to found or extend a settlement close to a biotope, whose boundaries must be drawn a suitable distance away to ensure the inviolability of the biotope from the consequences of operating the settlement. A self-evidence prerequisite for this is that the boundaries of the biotope and any necessary protection zones associated therewith must have been previously established according to law." (**CSP 84/1999**).

Sixth Principle:

Principle of Common Natural Heritage

Long before the need to protect natural assets and preserve them unscathed was recognised (see Principle 2), the value of their most sensitive nucleus had been acknowledged and characterised as mankind's "natural heritage", and was considered the equal of "cultural heritage", and entitled to the same protection. At that time there was talk of ***natural monuments*** of global value. This evaluation was based on both aesthetic and scientific criteria. The initial nucleus of that "natural heritage" included, besides the "natural monuments", also "geological and physiographical formations and areas which are the habitats of endangered species" and "landscapes" (International Convention of Paris, 23 November 1972). Gradually, that nucleus developed and took in other areas of nature in the wild, such as ones with exceptionally sensitive ecosystems, areas of great ecological or biological value, ecosystems with a rich biodiversity, areas untouched by human activity, natural or geomorphological formations with special ecological or aesthetic value such as waterfalls, wells, ravines, beaches, caves, reefs, rocks, bank and shoreline vegetation, coral formations, etc.

Now that in law natural capital must be preserved **intact** and not just its valuable nucleus as described above, the particular protection of the latter continues to have great practical value. This is because the sense of that protection is that it establishes: a) common natural assets, in other words ones not subject to appropriation, which must be devoted to the use of all. Securing the common "natural heritage" of man is a primary aim of justice. Roman law had recognised that the air, the sea, coasts, rivers, lakes, etc. were "the common property of all" or for the general enjoyment, and in imitation of them the public areas of settlements were recognised as such later. By so prohibiting the conversion of common things into economic benefits, i.e. objects subject to private rights, Roman law in fact established imperatives for the protection of the environment which secured a balance between man and nature. Since then, however, and as a result of developmental economic activity, the common natural capital have been exposed to many pressures which have allowed those imperatives to be circumvented either openly or covertly (for example, by the recognition of rights of ownership or "private use") or which have led to the plundering and destabilisation of the associated ecosystems (for example, over-fishing and pollution of the seas). Under such conditions the protection of common natural capital is the prime objective of the new law of the environment, because it secures quality of life for all and not just those who can purchase it. Consequently, common natural capital (natural landscapes, the sea, lakes, rivers, public forests, beaches, coasts, rocky outcrops, etc.) cannot be allowed to become objects of appropriation, and neither can their common use be in any way revoked, restricted or degraded. On the contrary, the State must preserve them and facilitate access to them. b) The same principle safeguards an inviolable part of wild nature which must not only be conserved, but is also exempt from any human intervention, such as the "sacred forests or groves" of ancient times. The inviolable part of nature can be visited, but must be left unchanged. Its protection is not at the discretion of the State but, granted the above conditions, is obligatory and the judiciary will provide it in full whether or not the related legal provision has been enacted. In other words, the character of ecosystems as part of natural heritage which must enjoy absolute protection is objective and the judiciary will check whether it is fully covered by the protective regime and whether that regime has in any way been weakened by impermissible uses. The current view is that this "reserve" of wild nature must remain unscathed not just for the sake of man's aesthetic or scientific interests, but also to preserve the balance between man-made systems and ecosystems, granted indeed that the critical mass of biogenetic material survives within that reserve and that this, therefore, is where the source of life is located. The principle's legal base is

provided by Article 24 of the Constitution, Principle (4) of the Stockholm Declaration, International Law and especially Law 1126/1981 ratifying the RAMSAR Convention of Paris (23 November 1982) and Articles 18 and 20 of Law 1650/1985. On the basis of that principle the Council of State protected the wetlands of the delta of the river Nestos (**C.o.S. 2343/1987**) and the Amvrakikos gulf (**C.o.S. 1342/1992, 2153/1994**) when they were threatened by industrial development, and other parts of Greece's natural heritage which had not been formally brought under any special regime, such as the Georgioupolis wetland in Crete (**CSP 112/1992, 296/1993**), the natural formations of the Kalamaria Forest (**C.o.S. 2164/1994**) when threatened by residential development etc., the lake of Vouliagmeni (PR 369/1995) and the fossilised forest on Lesvos (**IC 479/1992**).

Seventh Principle:

Principle of the Mild Development of Fragile Ecosystems

Between inviolable nature and ecosystems which can bear the stress of man-made systems, there is the intermediate category of "fragile" or "sensitive" ecosystems, which as their designation implies, can tolerate coexistence with man-made systems but are easily disturbed by any unfavourable effects of the latter. This category includes in particular forests, coastal ecosystems, mountains and small islands, and areas of special natural beauty. Thus, **forest ecosystems** are easily destabilised by fires, clearance, thinning out or overgrazing, since once forest vegetation has gone, this is followed by soil erosion and destruction of the forest biocommunity of consumers and decomposers.

Coasts, with their closely interdependent land and marine ecosystems, are easily destabilised by pollution which destroys their biocommunity.

Mountains are vulnerable because they undergo soil erosion due to the alteration of their morphology that results from human intervention (technical works, road construction, etc.) and due to rain, wind and ice, while in parallel their underground waters can be polluted, etc.

Small islands have the same vulnerability as coasts and in addition, as isolated ecosystems with small energy and water reserves, they cannot tolerate intensification of the productive exploitation of their natural resources.

Finally, **areas of natural beauty** are obviously vulnerable, since the elements of their symmetry can easily be altered.

While the importance of inviolable nature has been recognised, many States, Greece among them, have not yet realised that fragile ecosystems must be brought under a special regulatory scheme, even though those ecosystems are affected by continually increasing pressures. More and more people enter forests, come to the seaside and travel to islands, bringing with them pollution and destruction due to uncontrolled, mutually incompatible or dangerous practices. Science and practical experience concur that sensitive ecosystems can only tolerate mild development, and must constantly be the subject of strict spatial planning with exactly defined the permissible mild land uses.

This conclusion is embodied in the principle under discussion, which requires provision of the special protection regardless of whether or not such protection has been enshrined in statute. If it has, the judiciary must check that the regime provides the desired degree of protection, while if it has not, the judiciary must apply the principle directly, with the aid of "soft" international environmental law and science. Elsewhere, there has at least been legislation on forests and less often on mountains and small islands. But even where legislation exists, there is always a need to purge it from the distorting provisions which can creep into it. So the judiciary must remain alert.

"Mild" development is regarded as development which does not involve great disturbance and stressing of the environment, either by the mining of natural resources, or due to use, or because of waste disposal. In other respects, the "restraint" of the intervention is judged according to the type of fragile ecosystem. For example, in forests a few uses compatible with this purpose are permitted, along coasts a few and zonally separated ones (e.g. no quarries or heavy industry), on small islands productive activity that can be supplied by local energy and water sources, etc. The

judgement whether a particular human intervention in the area of a fragile ecosystem is mild and compatible with its sensitivity, is clearly a juridical one and the judiciary's decision is final in cases of doubt. The issue is usually raised in the form of the question whether a particular use is compatible with the fragile ecosystem, whereas in jurisprudence lists of permitted uses are gradually being compiled according to the category of the fragile ecosystems. Needless to say, the judiciary are assisted by science and expert opinion.

The principle's legal base is Article 24 of the Constitution, interpreted in light of the conclusions of environmental science and of any special legislative provisions such as the Forest Code.

The Council of State has developed considerable jurisprudence concerning the protection of fragile ecosystems, indeed from quite early on where forest ecosystems are concerned, for which it has repeatedly purged forest legislation from unfortunate provisions. The more extensive the destruction of Greece's forests, the stricter that jurisprudence becomes. In the recent jurisprudence of the Court, the special clause of Article 24 (2) of the Constitution is interpreted so strictly that intervention in forests or forested areas is permitted only in the national interest, and then only if it demonstrably cannot take place elsewhere (**C.o.S. 2453/1993**). Thus, the creation of settlements, graveyards, industries, public foundations, etc. have all been banned (**CSP 314/1995, 105/1993**).

The Court's jurisprudence on the protection of **coasts** is also pioneering. As a rule, coastal countries enact a special regime of restrained management for their coasts and protect their aesthetic value (see for example the cases of Portugal, the USA, Australia, etc.). In the absence of related law, responsibility is transferred to jurisprudence by direct application of Article 24 of the Constitution. Thus, the Court accepted that settlement regulations in coastal areas are a state issue of national importance which is in the province of the executive and not the local Prefect, and that technical projects on coasts are only permitted for reasons of public interest, and always within wider planning. It also judged that the aesthetic beauty of coasts must be protected (**C.o.S. 3818/1995, IC 523, 621/1992**).

The protection of traditional settlements extends to their traditional harbours and the morphology of their shorelines (**C.o.S. 637/98**).

A major coast management issue is conflict between competitive uses thereof. The Court has had the opportunity to regulate some basic aspects of the issue with interesting thoughts, in which the utilisation of coasts is linked to their nature as fragile ecosystems and to their direct protection under the Constitution. In the first place, this involved the ardent issue of the coexistence of people and machines, which in the case of coasts takes the form of the conflict between the recreational needs on the one hand of those who use speedboats and on the other hand of bathers, when the Court concluded that those uses should be entirely separated and their boundaries delimited in order to protect the life and safety of bathers. According to the relevant rationale:

"Whereas coasts and especially those of small islands are fragile ecosystems whose land and marine zones with their respective flora and fauna are in close functional interdependence, and which at the same time are precious visual assets because of the aesthetic beauty of their geomorphology. For these reasons they are an important element of the natural environment and fall under the direct protection of Article 24 of the Constitution, pursuant to which they must be covered by a special regime of strict protection and restrained management and development. Technical installations and activities on coasts, whether permanent or temporary and whether on the land or the sea side, constitute alterations of the coastline and the coastal landscape, and

result in serious disturbance of the local ecosystems and dangerous conflicts regarding its uses. For that reason they are not permissible unless only for reasons of public interest and provided that on the one hand they are sustainable, in other words compatible with the local ecosystem and other legal uses of the coast, and on the other hand they have been included in an overall or broader planning of coastal technical interventions (e.g. networks of ports).

Whereas in this connection, the disputed acts allows the construction of a platform and wooden store-shed on a rocky part (Diakofti) of the small and particularly naturally beautiful coast of Angathopon on the island of Syros, in a recreational area used by bathers. This platform leads to another, floating platform used for the mooring of a speedboat. The business activity served by the said platform and speedboat consists in the rental of water skis, water sledges and towed float-rings. However, the above permitted installations and activities are not legal for the following reasons: a) the construction of a platform on the shore for the sake of private business activity directly contravenes the aforesaid fundamental rule according to which only reasons of public interest justify constructions or installations of any kind on coasts, b) the permitted activity of using a speedboat anywhere along the small beach in question is not compatible and cannot coexist with the legal use of the beach as intended by bathers, nor can it be restricted to any part thereof, on the one hand because of the evident danger to the life and health of the bathers and on the other hand because of the noise, pollution and general nuisance created by the speedboat, which result in unacceptable disturbance of the bathers in an area of recreation and calm. In application of the fundamental rule of compatibility of uses on coasts, the use of boats with motors in general is only allowed in coastal areas specially and exclusively designated for such boats, and this invalidates any contrary provisions of the General Regulation on Ports concerning speedboats and other motorised boats (No. 3131/1.5.94, Government Gazette 579), c) the activity described above is also an unacceptable disturbance of the marine ecosystem in the sensitive rocky portion thereof." **(C.o.S. 2993/98).**

The Court has also imposed its control on the type of use attempted on coasts and has banned any that it did not regard as mild, as necessary for fragile ecosystems. Thus, the construction of a Go-carting track near a coast was banned as essentially interfering with the proper use of the coast:

"Under these conditions, the disputed acts approving the construction and operation of a Go-cart racing track on the land zone of the coast of Agios Kosmas, namely an activity incompatible with the nature of the coast as a fragile ecosystem and with its main intended use as a place for bathing and enjoying nature, are invalid mainly because they contravene Article 24 (1) of the Constitution and the regulations in force regarding land use in the area. Moreover, the fact that the area in which the Go-carting piste was established is already stressed because of the nearby Poseidon Avenue and Hellenikon airport has no bearing on the legitimacy of the disputed acts, as maintained by the arguments put forward, because this does not legitimise further stress due to the approval of additional impermissible uses, especially in an area constituting a natural outlet from the capital's land basin towards the sea, but on the contrary, it creates an obligation to reconsider those other uses which go against the rule of mild treatment for coasts, with a view to restoring a legal range of uses." **(C.o.S. 1790/99).**

Even more strict is the Court's attitude when the coast is assessed as a marine ecosystem of great value and particular beauty. That was the case with the bay of Gera on Lesvos, which had been included in the CORINE BIOTOPES list because of the high aesthetic value of the natural area and because of the endangered species in it. In the said bay, the Court banned the construction and operation of tanks for the storage and movement of liquid fuels:

"... since the bay of Gera is a sensitive land and marine ecosystem with great ecological value, and also combines the value of great aesthetic beauty, it can tolerate only gentle management, with which the construction and operate of tanks for the storage and movement of liquid fuels is obviously incompatible, especially since the said tanks in their own right create manifest stress and danger for the environment." **(C.o.S. 4633/97)**.

In the same bay, the Court had banned the creation of fuel tanks to serve the armed forces:

"The said tanks are directly related to the fuel storage installations operating near them, owned by the company MAMIDAKI. From the facts in the dossier, however, and especially from the Minute No 48/91/10-6-1991 of the Prefectural Council of Lesvos and study No 03 (AT/LES01-EN) "on the ecological situation and management of the area of the Dipi-Lardou wetland around the Bay of Gera", it emerges that the disputed place where the planned metal fuel storage tank is to be located is in the Gera bay area, which besides its well-known natural beauty, includes the aforesaid wetland and which, having undergone serious degradation owing to the operation of industrial installations and the loading and unloading of petroleum products, then became the object of a special ecological study by the National Centre for Marine Research and of the Special Regional Planning Study carried out by the Ministry of the Environment, Regional Planning and Public Works, in order to restore its natural environment and conserve its natural beauty by defining appropriate uses of the land." **(C.o.S. 3165/93)**.

Of great interest is to the Court's jurisprudence on the protection of small islands, of which there are very many in the seas around Greece. According to the related decisions, that protection includes: a) the obligation to prepare a spatial plan for each island. In this context the principle of protection of fragile systems merges with the principle of spatial planning. To ensure this spatial planning, the Court has banned isolated extensions of urban zones:

"According to the fixed jurisprudence of the Court (PR 16/96), the only development permitted on small islands is sustainable development, namely that which incorporates environmental protection and the conservation of natural capital, and respects the carrying capacity of small islands as fragile ecosystems. In that sense only mild development can be considered sustainable on small islands. Besides, sustainable (mild) urban development must always take place on the basis of the small island's overall spatial plan, which also constitutes the strategy for the development of human activities, whether productive or not, on the limited area of the small island. Only by the use of such a strategic plan, which must be binding in nature, can the limited natural capital of the island be conserved and can acceptable land uses, including settlement, be rationally controlled. Without any such spatial plan sustainable development is manifestly unattainable, in the first case because chance and random market pressures may encourage ruthless development and the consumption of natural assets and resources, and in the second case because uncontrolled land use brings catastrophic conflicts that result in the loss of natural capital. Spatial planning for small islands, like general and area planning, has been required by the Constitution in force since 1975 but has still not been carried out. To be sure, a reasonable amount of time had to be allowed since then for the plans to be prepared, but since 1992 the Court has been pointing out that the said time is long past and for that reason it recognised the necessity of using even unofficial regional planning data provisionally. Since then another five years have gone by without completion even of the Settlement Control Zones (SCZ) for small islands worked out within the framework of the Community programme ENVIREG. Meanwhile, however, under the pressure of blind market forces, the real situation on small islands is changing very rapidly, the natural capital is being wasted and the traditional island environment is undergoing irreversible destruction. Pressures, especially from ruthless touristic development,

and demands for second and country homes, have exposed small islands to unprecedented urban development which takes place unimpeded and critically on the basis on the provisions governing building beyond the town plan boundaries. Thereafter, in practice, the said pressures ultimately lead to expansion of the existing settlement which, since it takes place without any strategic plan, results in alteration of the features of settlements and in the destruction of the traditional island landscape. In that sense, there is a direct and urgent need to protect small island settlements, an attempt to establish the boundaries of which was made for the same reason by the PD (D 181) of 24 April 1985. In view of the above, pursuant to the true meaning of Article 24 of the Constitution and the principle of sustainable urban development, it is prohibited to extend the town plan of small settlements unless this is allowed for in the island's approved spatial plan. In other words, extension of those settlements presupposes the prior preparation, completion and publication of the island's spatial plan, and is otherwise impermissible." (**CSP 292, 293/97**).

b) Strict control of urban development, which is only permitted if sustainable. According to a characteristic decision of the Court, which defined with precision the criteria of sustainable urban development on small islands:

"Whereas it is in light of the above provisions of International and internal Environmental Law that the issue of permissible, namely sustainable urban development on small islands must also be judged, which must indeed be regarded as the main threat to their sustainability since it is common knowledge that on small islands there are very great pressures for urbanisation both for the creation of settlements of second homes and for touristic development. Thus, the issue of sustainable urban development on small islands must be regarded as a vital problem for their sustainability. In accordance with the rules that stem from this concept of sustainability, urban development on small islands must always be mild and must be directly linked with conservation of their traditional character and with the island man-made and natural environment and landscape. Above all, urban development must not go beyond the carrying capacity of the islands as traditional man-made systems and fragile ecosystems. This means that urbanisation pressures for the acquisition of first and second homes must in principle be absorbed within the existing network of settlements, unless this has exceeded the limit of its carrying capacity. If that is still possible, the founding of new settlements of any type (first or second homes) is impermissible. If that possibility has been exhausted, it must be considered whether, in view of the evolution of the local demographic system, there is still room for the expansion of existing settlements, always provided that the limits of their carrying capacity are respected. In that case, urbanisation pressures must be absorbed by the extension of town planning, where this is permissible, and in any case the founding of new settlements by Co-operatives on private building projects must be excluded (see CSP 273/98)." (**C.o.S. 1588/99** and **CSP 541/98**).

As regards areas of special natural beauty, the Court has accepted that if these are of limited area, no human intervention at all should be permitted, while if they cover a large area they can tolerate mild urban development such as the normal demographic evolution of pre-existing settlements but not the creation of new ones (**CSP 307/1999**).

Eighth Principle:
Principle of Spatial Planning

"Spatial planning", i.e. the functional division and distribution of land in accordance with its characteristics and utility, is a term that means the same as "regional planning", which also expresses the notion, more generally, of the orderly use of land. The order referred to is, of course, that of man-made systems, their coordination and adaptation within a given area. In developing his many activities, whether productive or not, man must distribute them and define their boundaries within the area according to their characteristics so that they will be sustainable and non-conflicting: farming in one place, building in another, conservation of forests elsewhere, etc. This self-evidently necessary order becomes difficult in an industrial civilisation in which competing land uses multiply and the intensity with which natural resources are used increases, while large numbers of people are concentrated in the land space and settlements spread everywhere. The need clearly becomes greater, nobody denies it, but the question is who will impose the necessary order. The present generalised destruction and environmental crisis is the result of the silly hope that the said order might be created automatically by the "invisible hand" of the market. But the "invisible hand" is only interested in economic benefits, while the environment has always been outside the realm of such benefits so that it was entirely natural that it should only suffer the harmful effects of an economic order founded in a vacuum and on the basis of selfish criteria. Besides, the market's automatic choices, dictated by the pursuit of profit, take no account of the environment's characteristics and needs and so have a destabilising effect. Today therefore, nobody doubts that "spatial planning" must be a rational decision, but the late or rather *in extremis* recognition of the need for it is reminiscent of a profligate heir who finds himself compelled to put his financial affairs in some sort of order, only after he has squandered the family fortune.

Whence this imprudent neglect of spatial planning? One view is that it has been the victim of the "free market's" competition with "socialism" since, by ill intention or ignorance, it is confused with the failed "socialistic" planning of the economy. But that planning was as harmful as the "invisible hand", since it too was only interested in economic benefits and laid waste the environment in countries that experienced it. Modern spatial planning, however, is a different kind of planning, based on the ***objective potential*** of the environment, in other words on the ***carrying capacity of ecosystems***. As already mentioned, that capacity is finite and it can and must be calculated and measured by science. So for the efficient use of finite natural resources, upon which the sustainability of development is based, it is essential to apply ***overall*** design and planning, in other words regional planning.

Spatial planning is precisely a scientific activity, not because it is accompanied by elegant and arbitrary mathematical models (such as the market-orientated models which led to the destruction of the environment), but because it is based on the conclusions of the ecological and systems sciences concerning the finite tolerance of ecosystems and on a sustainable system of values. The rationale of such planning is accessible to the ordinary mind. In principle, some rudimentary regional planning necessarily arises from the respective provisions of environmental law enacted to correct the evils of the market: the "heritage" of wild nature (exceptionally sensitive ecosystems, wetlands, biotopes, oak forests, areas of natural beauty, etc.) must have its boundaries defined, forest boundaries must be defined, the same for land uses, coasts, settlements, etc. So apart from this, what is still needed if we are to have the desired integral spatial planning? In the first place, distribution and coordination of the productive and non-productive activities of man-made systems, and in the second place, regulation of the intensity with which they operate

(in terms of the use of natural resources), so that the reduction of natural capital prohibited by the principle of sustainability will not take place.

In that sense, spatial planning is a logical imperative of the principle of sustainability, and is therefore the main expression of public environmental order, which constitutes the generally obligatory framework within which the development of private initiative can be permitted. To outline that framework in accordance with the dictates of the science of dynamic systems is the responsibility of the State, because it aims to secure the general interest as a fundamental guarantee of the carrying capacity of Greece's environment. As such, it must neither be handed over nor carried out in any other way than that dictated by science. This means that while local or area spatial plans are conceivable, they must harmonise with the ***national spatial plan*** and not emerge as the result of negotiations on agreements between interested parties.

The national spatial plan is obligatory, non-negotiable and irreplaceable. It is not only a mistaken but even a downright dangerous idea to replace it or make it superfluous by extending market methods to the environment. It has been explained above (Principle 2) why it is neither necessary nor possible to place a monetary value on environmental "services". So "spontaneous" spatial planning cannot take place automatically if the environment is regarded as an economic benefit with figurative prices for its services. Whenever such a thing is proposed, this is really because of the *de facto* prevalence of powerful interests to the detriment of the environment. Spatial planning is the fundamental planning of environmental order, in other words the most important general decision of public policy that combines man-made systems and ecosystems. It is an act of public control which enshrines the findings of science in law and, as such, is not only *extra commercium* but *supra commercium*. The market starts where regional planning ends.

In other respects, modern scientific spatial planning differs markedly from the conventional planning of regional development, which is itself governed in principle by narrow economic thinking. It is served by the methodology used for the design of dynamic spatial systems (Spatial Systems Design), in which recording the existing situation and analysing the facts constitute the initial phase of a complex procedure which contemplates alternative future scenarios and chooses the best, i.e. the ***sustainable*** model. During that process the optimum choice is governed by the limitations, in particular, of a) the dependencies/links of the desired system with the overlying mega-system, and b) the inviolable rules of sustainable development.

Thus, planning begins with the (descriptive and evaluative) delineation of the natural and cultural capital to be conserved, and moves on to the description and analysis of fragile ecosystems and other geosystems and ecosystems, in relation to which the existing and desired productive sub-system and settlement network are correlated and appraised. Great importance attaches to the design of the energy, communication and water resources sub-systems. The optimum design strives to make the most of the comparative advantages that determine the particular identity of the spatial system being planned. In the analysis and appraisal of the geosystems and ecosystems, it is critically important to evaluate their carrying capacity, which as explained earlier, is the limiting parameter for the planning. As for the rest, once the design has established the framework of security for the protection of the natural capital to be conserved, for the carrying capacity of the other ecosystems and for the desired orientation of the productive sub-system, it preserves the freedom of the latter. The strict method of planning an optimum spatial system can be supported by mathematical models.

Since Greece's accession to the European Union, spatial planning has acquired external orientation as well, in other words it must adapt the ordering of the country's man-made systems

and the management of its ecosystems to the obligations and opportunities stemming from its accession.

The legal base for spatial planning is provided by Article 24 of the Constitution, Principle (2) of the Stockholm Declaration and Chapter (10) of Agenda '21.

In this context, the problem in Greece, as with the clause on environmental protection, is the legislature's failure to comply with the constitutional imperative to prepare spatial plans. Twenty years have passed since the 1975 Constitution came into force and no plan, whether national or regional, has yet seen the light of day. No court, however, much less the Council of State, is disposed to accept any enfeeblement of the constitutional imperative on obligatory spatial planning. Accordingly, the way jurisprudence has compelled the Administration to comply with its constitutional obligation is noteworthy. The incentive to formulate the principle of spatial planning was imparted to the jurisprudence of the Court by ruthless urban development, which has been the scourge of Greece's environment for the last four decades. First the numerous and variously named building partnerships, and later private builders, have been responsible for a real invasion of the Greek countryside, choosing coastlines and especially areas of natural beauty at will for conversion to building plots. In many cases even the forested nature of areas developed as settlements was ignored. The town plans prepared took the greatest possible advantage of the profiteering potential offered by the land, and were as a rule approved by the Administration. There was no substantive thought of relating the new settlements to existing settlement networks, and it was precisely that omission which motivated the Court's jurisprudence.

The Court has stressed the interdependence between protection for the natural environment and rational spatial planning, in the sense that neither is effective environmental protection attainable without proper spatial planning, nor can spatial planning be meaningful without protection of the natural environment.

It is obligatory to prepare both a national spatial plan and local spatial plans. The definition of the content of spatial planning by jurisprudence is worth of note: the content of spatial plans is rational ordering of man's activities within the geographical area involved, bearing in mind above all the protection of the natural environment in accordance with the precept of Article 24 (1) of the Constitution. Only within this broader rational plan is it permissible to found new settlements, and this must take into account and assess criteria such as the morphology of the land and its already existing uses, the position of the area in relation to existing urban centres, ports, industrial centres or other installations, the existing population and settlement situation and the prospective demographic evolution and emergent settlement needs over the coming thirty years at least, the proposed ways and conditions for the area's development in relation to the above needs, the ordering of productive and other activities in the wider area, the communication systems in it and in the greater area of which it is part, and especially the upper limits to growth of the area that can be tolerated without changing its features or degrading the quality of life in it, the saturated sectors etc. Until the wider regional and national plans have been prepared, the above data can be taken from other regional or town planning documents, which as described earlier may be General Town Planning Schemes (GTPS), Settlement Control Zones (SCZ), etc.

With the above content, spatial planning is understood in a long-term and strategic sense. Until the regional plan has been prepared, however, the Court will accept provisional substitutes for that plan, in particular such as SCZ, GTPS, etc. But for these limited regional plans it specifies a suitable period of validity beyond which changes are not permitted.

The Court has gradually extended the principle of spatial planning considerably, so that it includes the obligatory ***sectorial*** planning of certain projects or activities in the country. In other words, it was deemed that certain projects ought not to be implemented independently and in isolation, but only within the framework of an overall plan covering the country as a whole. Such, for example, is the case with ***quarries***, which are only permitted in certain zones. Quarries were in fact covered by legislative provisions, but the jurisprudential principle was broader. The Court also required it to be applied in the case of ***fish farms***, whose alluring profitability led to their multiplication along Greece's coasts in a very short time. There, the Court judged that:

"... the operation of a fish farming enterprise is an activity whose very nature involves intense intervention in the marine environment, which is why JMD No 69269/5387/90 designates it as a category-A activity (group II) in accordance with the criteria of Law 1650/86 (Article 3). The establishment of a fish farm in Greece is all the more serious from the standpoint of its environmental effects if the fact is borne in mind that this happens in fragile coastal areas, while account should also be taken of the great length of Greece's coastlines to which must also be added the large number of island coastlines. In view of this particular feature of our country, it may be that fish farming enterprises are a noteworthy factor for the development of the national economy on account of the evidently increased demand for their products, but they can harm the marine environment near fragile coastal ecosystems, which under the Constitution and Law 1650/86 which implements it, must have special protection. For these reasons, the development of the said activity must be planned in advance. Consequently, the sites of fish farms may not be determined before the publication of the decrees of Article 24, using the procedure of previously approved siting, depending on the case, as specified in Article 4 (6) of Law 1650/86 and Article 8 of JMD No 69269/5387/1990 published to implement the latter, a procedure which must in any case be delayed according to the explicit stipulations of the law until the boundaries of the zones mentioned in Article 24 have been determined, even if the prior approval of the siting is in each case given after opportune appraisal of the wider regional planning policy for the desirable development of an area, in other words it has been granted after also taking into account the criteria that would have been taken into account for the preparation of spatial plans required by the Constitution (compatibility of uses, conflicts of uses, carrying capacity of the area, areas under protection, etc.). However, as can be concluded from the provisions of Law 1650/86, the non-existence of zones whose boundaries have been defined as above is covered only when the siting of a fish farm is envisaged within a SCZ (see Article 24 (5) of the law) or by an approved regional planning, town planning or regulatory scheme." **(C.o.S. 2844/1993)**.

Of great importance, however, is the confirmation of the principle in connection with the construction of ports and the execution of port projects, where the Court judged that:

"... the construction of any category of port anywhere on the country's coast cannot be decided opportunistically and in a fragmentary way, but must be the subject of broader spatial planning within the country's national or greater regional network of ports. Granted, moreover, that the planning of the country's national or regional network of ports must substantively express the strategy of their sustainable development, the planning of every port, regardless of scale, must also be based on a fully documented study which must take into account on the one hand the public interest which motivates the construction of the port, but on the other hand the principles of protection applicable to the coastal and marine ecosystems influenced by the port, namely the principles of conserving the necessary natural capital, avoiding damage to any cultural assets that may be present, such as marine antiquities, respecting the geomorphology and natural profile of the shoreline, and minimising disturbance of the local ecosystems and hydrodynamics of the shores, including respect for the aesthetic value of the coast which is a precious visual

resource. Only when the appropriate technical study confirms that the said principles have been embodied in the planning of the port can its construction be regarded as sustainable and therefore be permitted by law, otherwise it is illicit and must be banned." **(C.o.S. 5168/97, 1434/98)**.

Particularly noteworthy is the Court's jurisprudence which requires sectorial planning of the ***road network*** in combination with the other elements of national regional planning. This is an extremely important jurisprudential development. While urban development must be controlled by spatial planning because the spread of settlements is the greatest threat to biodiversity, resulting as it does in the destruction of the natural habitats of species, the unthinking extension of the road network in Greece, a predominantly mountainous country, besides having proved to be the precursor of ruthless urban development in the countryside, constitutes a threat to mountains and forests, both of which are fragile ecosystems, not to mention the loss of soil. The Court, then, judged that:

"Whereas the first of the aforesaid provisions protects the natural environment and in connection with that protection rational regional planning is required, an essential element of which is the road network, which owing to the links between its respective sub-systems and their hierarchy, must come under overall planning on the basis of the relevant legal criteria, so that it too will be sustainable. From this it follows that the road network is subject to overall planning and management both at the level of the national or provincial routes and at that of local government units concerned with municipal or community roads. Management includes the constant adaptation of the road network, that is to say, among other things its modification by opening new roads or closing down existing ones in order to adapt it to new needs and demands. In every case, however, the criteria for the planning and management of the road network must be clear, specialised and consonant with the other elements of the regional plan. They must also embody the protection of the natural environment, so that the road network becomes a sustainable communication system in that respect according to the above provisions of JMD No 69269/1990 which, being harmonised with the preventive protection of the environment required by Article 24 of the Constitution and by law 1650/1086 (Government Gazette 160 A) to implement which it was published, require that for the design and management of the sustainable road network of any Local Government Organisation unit, a study should be carried out to determine its siting and to approve its environmental conditions. That study must be animated by an integrated approach to the problem and must take a long-term view. In cases when a road is closed down or when the hierarchy of parts of the local road network is modified, account must be taken of the change in land use, the stress on other parts of the network, and the possible resultant need to open a new road or widen existing ones, when account must in addition be taken of the overall natural profile of the area and the geosystems that could be influenced by the said opening or widening, so that these will not disturb functions related to the geomorphology of the area and the land uses entailed thereby. From this it follows that fragmentary and unplanned acts of road network management must be excluded, such as the opening or closure of roads on the basis of local appraisals which deviate from the aforesaid legal criteria. This too is the correct interpretation of the also aforesaid provision of the Municipal and Community Code, whose intention is that the topical Local Government Organisation should propose the opening or closure of a municipal or community road in its area, setting the process in motion by submitting a technical and environmental study prepared on the basis of the above criteria, but that thereafter the procedure should be followed for prior approval of the siting and of the approval of environmental conditions, after which the LGO may go ahead with the execution of the work. And this, because in the sense explained, a LGO's road network is not just its own local concern since it is connected with the rest of the country's network and is relevant to the protection of the

geosystems in the natural area, which form part of the nation's natural heritage." (**C.o.S. 4033/98**).

Also important is the extension of the principle to the building of **prisons**, a public problem upon which the principles of sustainability and spatial planning clearly have a bearing. According to the Court's related rationale:

"Among the spatial plans, the national sectorial ones relate to projects and activities which must be planned so that the related needs are assessed and covered globally at national level, while the appropriate spatial distribution of the said projects and activities that stems from those assessments takes place also in a way that is global and adapted to the capabilities of the national territory and to the ordering of other projects and activities. An object of national sectorial planning is also the country's system of prisons and penitentiary establishments. This is because the said system, being based on a blend of criteria belonging to numerous public policies such as justice, public order and security, environmental protection, social policy, etc., must achieve the overall siting of the prisons throughout the national territory. This, because the said siting is in reality a rational distribution of prisons throughout the country which satisfies many legal criteria, such as fulfilment of the objectives of penitentiary policy, the security of prisons and their inmates, protection of the natural environment and of adjacent settlements, the safeguarding of prisoners' rights and legal communications, etc. Consequently, the siting of a new prison, even if this is a re-siting and extension of an old one, cannot take place in an independent and fragmentary way, because that would make it impossible to judge whether or not this complied with the above legal criteria of obligatory spatial planning. The siting of a prison other than in accordance with the above rules not only contributes nothing towards achieving the objectives of the penitentiary system, but can on the contrary lead to the frustration of other public objectives or put their realisation at risk, in particular public objectives such as those of maintaining public order and security in nearby settlements, protection of the natural and cultural environment, ensuring sustainable tourism, etc. Accordingly, a new prison should not be founded with the approval of a limited local town plan which is not part of an overall regional plan." (**CSP 108/99**).

Finally, application of the principle of sectorial planning to the siting of ***waste disposal sites*** has been facilitated by the existence of a Community directive whose obligatory validity was confirmed by the Court (**C.o.S. 2597/98**).

This rich jurisprudence of the Court could not but have a beneficial impact on the behaviour of the Administration, which finally (1999) made a draft law on spatial planning, whose value depends on the incorporation of substantive spatial planning criteria such as those established by the Court. At the time of writing, however, official spatial plans have not seen the light of day. The inflexible application of the principle of spatial planning to town plans would make it impossible to draw up town plans before the spatial plans had been prepared. This would create a manifest anomaly. The Court's jurisprudence, however, has shown flexibility on that point, accepting the possibility that town plans can be amended on the basis of informal spatial plans provided that the circumstances are shown on an official map submitted to the Council of State.

In principle, that jurisprudence gave the Administration a suitable "grace-and-favour" time limit when it allowed town plans to be drawn up before the preparation of the spatial plan (**CSP 304/1994**). The Court's patience was gradually being exhausted and just before the passing of the Law on spatial planning the Court a) was no longer accepting opportunistic ("spot"(!), as they are known) sitings of man-made systems (settlements, fish farms, quarries, etc.), but required spatial

planning at the Prefectural level. Technically, this was achieved by showing the Administration's spatial planning circumstances and options on a map submitted to the Council of State (**CSP 586/1992, IC 2844/1993, 2435/1993**), b) it scrutinised "substitutes" for the missing spatial plan (SCZ, GTPS etc.) very strictly, c) it warned that the said substitutes too have a deadline beyond which they will not be accepted, and d) it banned the enlargement of settlements on small islands which do not have a spatial plan. Thus, by its insistence, it can be said that the Council of State has resurrected spatial planning in our country and has eventually helped in practice to establish the basic law on spatial planning.

Ninth Principle:

Principle of Cultural Heritage

Just as the purpose of the principle of natural heritage is to conserve and perpetuate the most important natural ecosystems, namely those with the most valuable biogenetic reserves, so the principle of cultural heritage aims to conserve the most important man-made systems, namely the most precious monuments, architectural complexes and sites. At the level of mankind cultural development is more important than natural development, since it is by means of the former that man achieves his adaptation to the natural environment. The principle of the conservation of cultural heritage aims to ensure the stability and historical continuity of the man-made environment and, through it, the cultural identity of peoples, which would otherwise be at risk from continual change. Thus, both the principle of natural heritage and the principle of cultural heritage are conditions for the dynamic stability (equilibrium) and interdependence of ecosystems and man-made systems in their perennial development through time. It is therefore no matter of chance that at the level of International Law the two principles have been linked and safeguarded by a single legal text, namely the Paris Convention of 16 November 1972 on the protection of global natural and cultural heritage (ratified by Law 1126/1981).

Awareness of the relationship between the two principles is relatively recent, while man's interest in preserving the memory of his historic past clearly awoke much earlier at national and international level. In our country, which has an extremely rich cultural heritage going back many thousands of years, the Charter of Athens (1931) and Law 5351/1932 on ancient monuments were the first legal base for the principle, which has since been elaborated and extended by the also rich jurisprudence of the Council of State. In the 1975 Constitution the principle was enshrined in a special clause of Article 24. Meanwhile, however, there have been considerable developments in International Law and these are still continuing. Thus, since the European Cultural Convention of Paris, of 19 December 1954, we have had the Charter of Venice (1964), the European Convention (1969), the Convention on the Protection of Global Cultural and Natural Heritage, Paris (1972), the European Charter on Architectural Heritage, Strasbourg (1975) and the Amsterdam Declaration (1975). This intense fermentation and elaboration of the principle at European and world-wide level led to its integral proclamation in the Granada Convention (1986) on the protection of architectural heritage in Europe (ratified by Law 2039/1992). In parallel, however, in our country the principle was taken further by Law 1469/1950 on more recent (1830) artistic monuments.

What is the main significance of the principle of cultural heritage in practice? a) That the protection of cultural heritage (monuments, architectural complexes, sites) must be complete and must be an important objective of spatial and town planning, b) that the legal protection regime must be effective, i.e. embodying the appropriate checks and balances to ensure that the protected monuments etc. will not be altered, ruined or demolished, c) that the cultural heritage must be recorded, d) that monuments etc. must be protected from the great danger of environmental pollution, e) that there is an obligation to restore buildings covered by a preservation order and to maintain protected monuments, f) that a high quality environment must be maintained in the area around monuments and within architectural complexes and sites.

The Council of State's jurisprudence has made very great contributions to the conservation of Greece' cultural heritage: a) The Court has defined a hierarchy of the objectives of the regulatory plan for Athens and judged that the most basic aim is to preserve the city's historical features (PR 37/1991), b) the Court judged that the protection of Delphi, which comprises monuments of

global cultural value, requires a high quality environment in the area and therefore an extensive clear zone around it (**C.o.S. 2182/1994**), c) to protect the sacred island of Patmos, the Court judged that the conservation of the entire township as a monumental complex meant that building was only allowed on plots where it could be shown that previous buildings had stood (**C.o.S. 1529/1993**), d) the Court also considered that as products of popular architecture, traditional settlements are an important part of Greece's cultural heritage and that their protection is not just limited to the preservation of their character, but extends to the area around them which is essential for the preservation and restoration of their features (PR 703/1994: Settlements of Rethimnon).

The more recent jurisprudence of the Court on the protection of cultural heritage is marked by a systemic approach to the question. The inseparable unity of the archaeological site with the natural morphology of the area where an important historical event came to pass is recognised. A characteristic case is that of Marathon, where it was judged that:

"... the disputed fishing marina is within the designated archaeological area of Marathon, whose great importance in the history of the Greek nation is well-known to all. For that reason, protection must cover not only the ancient monuments and relics within the area itself, but also the natural characteristics of the area and especially its shoreline, which is a substantive feature of the historical location because of the part it played in the conditions of that historic battle. As shown by the information in the dossier, however, the construction of the disputed fishing marina would in itself entail a clear, direct and certain danger of changing this historic shoreline." **(C.o.S. 1474/96)**.

It is also recognised that forms of cultural communication whose memory and continuity it is sought to preserve, render the area where they take place historic. This broad interpretation led to the preservation of summertime cinemas, which were under threat of disappearance:

"The area of an old summertime cinema is a characteristic site of cultural communication for the inhabitants of an industrial town. Such areas are already decaying and tending to disappear, and can therefore fall within the meaning of historical sites according to the provisions of Law 1469/1950, understood broadly, because areas where historical events of national or political importance took place are regarded as such, and the memory of cultural events or customs should be preserved." **(C.o.S. 4663/1996)**.

In another case the protection of a traditional settlement extended beyond the buildings and the new constructions related to them. For example, the protection of traditional settlements on Pilion, a mountain linked to legends of Greece's mythology and history, is expressed by strict building conditions which, in the Court's judgement, preclude the construction of private swimming pools:

"According to Article 24 of the Constitution fragile ecosystems must be protected, and these include mountains which, indeed, require even greater protection when in parallel they possess cultural significance. More particularly in the case of the mountain concerned, Pilion, a venerable mountain with great cultural significance for Hellenism, the sustainable regulation and development of settlements allows only restricted and simple building consonant with the traditional architecture, and this must be applied with strict criteria. Consequently, building conditions and restrictions that conflict with this fundamental principle are contrary to the requirements of Article 24 of the Constitution and must be revoked. Accordingly, the construction of swimming pools in private villas is clearly incompatible with the requirement to protect the

traditional character of settlements on Pilion and with its features. Consequently, the related prohibition, which was in any case proposed in the relevant recommendation, must be added explicitly to this plan." (**CSP 301/1996**).

Even more intense was the Court's reaction to the planned installation of a large ventilation grid for the underground railway (Metro) in Athens, in the courtyard of the Metropolitan Cathedral of Athens and close to the monument of the national martyr Chrisostomos of Smyrna. The Court informed the Administration very sternly that:

"... according to the above the Metropolitan Cathedral of Athens is a designated historical and artistic structure subject to special state protection, while in the likewise protected square surrounding the church, where it is planned to carry out the work, a statue has been erected to honour the memory of the national martyr Chrisostomos, Archbishop of Smyrna, who has been proclaimed a Saint. The manifest and great religious importance of the said church and its surroundings and the respect that is their due, combined with the need to provide space for the attendant worshippers, make it inappropriate in relation to the sacred character of the cathedral and its surrounding area to construct and operate an air exhaust system such as the ventilation system for the "Metro" with its associated disagreeable emissions and side effects. Besides, the above designation of the cathedral building is related to the also protected aesthetic value of the whole complex as an integrated architectural whole, whose value, which was the very reason why it was so designated, would clearly be adversely affected according to the well-grounded reasons propounded, by the above ground structures in question which are inappropriate and unrelated to the protected aesthetic whole, the said structures moreover being relatively of considerable size compared with the scale of the square to the east of the cathedral, which according to the data in the dossier is rather small. In these circumstances, the permit granted by the disputed act for the implementation of a project near the above protected more recent monument is, as properly argued, not legal since it conflicts with the provisions mentioned in the previous consideration, granted that in this case, and as already explained, the said permit does not provide the protection of the monument demanded by law." (**C.o.S. 2073/1997**).

Also important is the jurisprudential clarification that the protection of designated buildings extends beyond them and to more recent additions to them. Where special building conditions are imposed for such additions, the Court has made it clear that to ensure the protection of the designated portion, these conditions must never be less favourable than those applicable to the area in general:

"Such building conditions and restrictions are imposed and serve exclusively the purposes of the statute, in other words the preservation of the building deemed worthy of protection, and do not therefore have a compensatory character nor can they be more lenient for the owner than the building and utilisation conditions applicable to the area in general. Such conditions merely adapt the interventions permitted for the protected building and its surroundings to the protected character thereof, so that the protected structure and the interventions will constitute a harmonious whole." (**C.o.S. 2987/1998**).

Finally, an important position is that stated by the Court in a recent decision on the strict protection of the "monastic" areas of our Orthodox tradition (**C.o.S. 2895, 2596/99**).

Tenth Principle:

Principle of the Sustainable Urban Environment

The trend that characterises the development of settlements in the post-industrial age consists in: a) the multiplication and further growth of cities, and b) the uncontrolled spread of settlements and building activity, to the cost of sensitive ecosystems such as forests, coasts, small islands and mountains. Of these two trends, the second is up to a point related to the first: the worse the urban environment of constantly growing cities becomes, the larger is the number of people who escape temporarily from it in search of a pleasant environment. But the multiplication of settlements is also fed by the also continually expanding tourism services. As people become accustomed to ungovernability and increased entropy of social systems, cities escape state control, their infrastructural system (security, energy, communications etc.) deteriorates and the conditions of life get worse. So long as the unreasonable vision of the affluent society is not abandoned, desperate escape from the nightmarish city environment can only be achieved by the incursion of ever-increasing numbers of settlers into sensitive ecosystems, resulting in the destruction of the latter. So far, little has been done to control either of these destructive trends. Very few people have raised the vital issue of the growth limits of cities (most go no further than the ominous forecast that in the near future 50% of the population will be living in cities - especially in the developing countries!) and very few are aware of the danger from the headlong shrinkage of sensitive ecosystems (most people take it for granted that settlements will continue to grow, and go no further than the forecast that in the near future 60% of the population will be living in coastal areas!). Yet, cities have long ago exceeded their own carrying capacity and that of the ecosystems which support them, while man's widespread incursion into sensitive ecosystems and the technological support required for this have started giving rise to the inevitable and extensive destruction (fires, flooding, etc.).

Settlements are among the most complex man-made systems. In the post-industrial age they are changing their character and becoming mainly enormous consumer markets and centres for the provision of services (largely parasitic). This sufficiently explains the conspiracy of silence about the above fundamental problems. Yet, the appalling conditions of life in large cities where vast masses of people have concentrated cannot be ignored. Inevitably therefore, this raises the issue of their ***sustainability***, which is the successor of the earlier demand for ***quality of life***. The environmental dimension is a recent feature of town planning, while that of public health is much older. Today, both these dimensions have been subsumed by the broader principle of the ***sustainable urban environment*** (sustainable urban living), by means of which new environmental Law is trying to control the contemporary problems of town planning.

The principle of sustainable urban environment means that in settlements too the way people live must be sustainable, the settlements themselves must be sustainable, and the ecosystems that support them must also be sustainable. All three are interrelated and interdependent. How is this to be achieved?

The general principle of ***sustainable urban environment*** can be broken down into respective practical rules, the most important among which are the following:

a) The founding of new settlements anywhere within the country by private initiative (partnerships or private individuals) is banned unless existing settlements have become saturated and their legal enlargement is also impossible. The Court regards as unnecessary or even destructive the consumption of natural capital that takes place when land profiteering motivates

the creation of new settlements while others are decaying. In some cases indeed, such as on small islands, the ban on new settlements is absolute:

"It is in light of the above provisions of International and internal Environmental Law, that the issue of permissible, namely sustainable urban development on small islands should also be judged, and urban development should in fact be regarded as the greatest threat to the sustainability of islands, since it is common knowledge that small islands are subject to very great settlement pressures both for the creation of second homes and for touristic development.

Thus, the issue of sustainable urban development on small islands must be regarded as a vital problem for their sustainability.

In accordance with the rules that stem from this concept of sustainability, urban development on small islands must always be mild and must be directly related to the conservation of their traditional character and of the island's man-made and natural environment and landscape. Above all, urban development must not go beyond the carrying capacity of islands as traditional man-made systems and fragile ecosystems. This means that settlement pressures for the acquisition of first and second homes must, in principle, be absorbed within the existing network of settlements, and only if this has not exceeded the limits of its carrying capacity. If the said possibility has been exhausted, it must be examined whether in view of the development of the local demographic system there is any room for extending the existing settlements, always subject to the proviso of respect for their carrying capacity. In that case the urbanisation pressures must be absorbed by using the option of enlargement, where this is permissible, but in any case the founding of new settlements by virtue of partnerships or private building is excluded." **(CSP 273/98).**

b) In no case is it permitted to create settlements within fragile ecosystems such as forests and forested areas. Neither may parts of forests be incorporated in a settlement to form its necessary biosphere:

"... the protection of forests and forested areas provided under Article 24 of the Constitution is intended to protect forest ecosystems as such, in other words to ensure that they can operate unscathed and unimpededly as self-regulated systems that contribute towards environmental balance. Thus, the equalisation of the forest ecosystems referred to in Article 3 (1, 2 and 3) of Law 998/79, from the standpoint of purpose and use, with areas within towns and settlements covered by forest vegetation and entitled to analogous protection as substitutes for them (tree-lined alleys, parks, avenues, etc.) is constitutionally impermissible, because it exposes forest ecosystems to the increased pressure of utilisation by the residents of the settlement, resulting in inevitable disturbance of their operation as ecosystems. For that reason, it is not permitted to include a forest ecosystem within the area of a settlement or general town plan or building plan for a settlement, even if this is done on the plea of creating common areas that preserve its forest character. Consequently, the aforesaid provisions of Article 49 (2) of Law 998/79 and Article 2 of Law 1512/85, which permit the inclusion of a public forest or forested area within the area of a settlement and approve a town plan for the creation of a settlement within a public forested area, cannot stand since they are directly in conflict with Article 24 (2) of the Constitution." **(C.o.S. 1589/99).**

c) The founding and extension of settlements cannot be permitted haphazardly, nor can it be left to the initiative of land development enterprises. On the contrary, it must be included in the planning of the settlement sub-system of the corresponding regional plan. Destructive land

profiteering and anarchic building must be suppressed. The jurisprudence of the Court is very strict on this point, which is a national affliction. Thus, the founding of settlements by private partnerships and companies is only deemed legal if it has demonstrably been included in the local regional plan on the basis of an official map, submitted to the Court, and subject to the principles of sustainability and carrying capacity (see earlier, Principles 2 and 3).

d) Town plans must be rational, so that they combine the functionality of the settlement with the best possible ***living conditions*** for people. The Court has banned deviations from the minimal size of plots within a settlement by the method of exemptions (**C.o.S. 286/1993**). Previous divisions of land or arbitrary building (all too common in our country!) do not constitute reasons for deviating from this rule, which must also govern the regulation of the problem of arbitrary acts (see Article 2 of Law 2242/1994, and Article 1 (5)), which express the Council of State's jurisprudence). Statutes which are not compatible with rational town planning, for example the transfer of building coefficients, must be repealed or adapted appropriately (**C.o.S. 1310/1993**).

e) Building conditions must not be made worse. The urban environment is already severely degraded and can only tolerate measures that improve it. For example, the following are not permitted: replacement of the building system with freedom on all sides by another, less favourable system (**C.o.S. 10/1989**), increase of the building coefficient (**C.o.S. 1310/1993**), and others.

f) The further development of cities must be checked (see also Article 3 (2) of Law 1515/85), and consequently any kind of extension of the relevant town plans must be banned (see also PR 2/1966). The case of Athens in particular has occupied the Court. The enlargement of Greece's capital has gone beyond every appropriate limit, and the legislature was already aware of this when the Regulatory Plan for Athens (Law 1515/85) was drawn up. Neither the Administration, however, nor the Municipalities, nor private individuals have respected the general principle established by that plan to check the further expansion of Athens. The Court, therefore, stood up for the principle and related it to the principle of the protection of sustainable urban environment, which it derived directly from Article 24 of the Constitution. Nor did it limit itself to theoretical declarations, but then explicitly banned the further extension of a suburb of Athens, such as Amarousi (see **C.o.S. 1027/99**), the founding of settlements beyond the extension of already existing ones, etc. It has also shown similar sensitivity in checking the expansion of Greece's second-largest city, where once again the Court only permitted extensions of settlements allowed for in the Regulatory Plan for Thessaloniki (Law 1516/85). In **PR 89/97** it was judged that:

"... in contrast to the Regulatory Plan for Athens (Law 1515/85), the Regulatory Plan for Thessaloniki tolerates very limited urban development that does not conflict with the principle of checking the spread of the urban web. Consequently, that development must take place under the following restrictions: a) it must from the start be subject to overall planning, so that it has been decided in advance how much urban development is to take place and where, b) it must be restricted exclusively to within the outer city zone, c) it must take place in specially selected and appropriate locations within the outer city zone, and finally d) the total urban development planned must not essentially conflict with the basic objective of checking the spread of the urban web. The above requirements may be fulfilled in any legal way, and especially either by defining within the outer city zone Settlement Control Zones (SCZ) which specify exactly and in an overall way the specific points where new settlements are to be created, or by the General Town Planning Schemes themselves, if what is essentially involved is the extension of existing settlements, etc. From this it follows that the direct siting of a new settlement and its approval as suitable is impermissible unless this has been provided for in the Regulatory Plan." (**CSP 89/97**).

g) Priority must be given to improving degraded areas in cities.

h) Protection is accorded to natural life-supporting systems in the cities. The Court has declared clearly that the absolute limit of city expansion are the life-supporting systems (see **C.o.S. 1027/99**). Furthermore, however, in many cases the Court has been very strict in its protection of the mountains Parnis, Pendeli, Ymittos, Pikilon Oros and Egaleo around Athens, for exactly that reason, namely that they are systems which support life in Athens. Accordingly, it has banned the creation of settlements there (**CSP 67/98**), as well as graveyards and industrial or light industrial parks (**CSP 314/95**).

i) Strict protection is accorded to cultural monuments and antiquities in general, and to archaeological sites within the web of Athens itself. During the reconstruction of historic parts of Athens, for example the Metaxurgion and Psirri areas, the Court showed sensitivity and strictness over the protection of historical monuments in those areas. Thus, for example, because of the Sacred Way it banned the land uses of a town planning centre, because of the Sima (an ancient road leading past the graves of distinguished persons) it banned the exacerbation of building conditions, because of the footpaths of Psirri it banned the concentration of amusement centres (**PR 151/97**), and finally, it banned urban building in part of the designated archaeological site of Topoliani in the district of Litohoros Pierias, with the following thoughts:

"Article 24 (1) of the Constitution requires the protection of cultural heritage, of which archaeological sites are a substantial element. Besides, the same article (Paragraph 1), combined with Articles 2 and 130P of the Maastricht Treaty (Law 2077/92), both interpreted in the light of Agenda '21, require urban development to be sustainable in the sense that it must not damage the environment, both natural and cultural. Thus, the founding of new settlements within the framework of the country's public settlement policy, if it is to be sustainable, must take place in areas that are appropriate in the above sense. These clearly cannot be archaeological sites because of the fundamental change in the land uses involved when a new settlement is founded outside the city boundaries. Turning such a land outside town planning whose purpose is not reconstruction and urban building into an area within the town plan subject to urban development, is manifestly contrary to the constitutional demand for the protection and highlighting of the archaeological site, which besides, apart from monuments, also contains the essential, vital free environment that allows the saved monuments to constitute a historic, aesthetic and functional whole. This is already recognised by current legislation, which on the one hand bans the determination of settlement boundaries within areas designated as archaeological sites (Article 4 (2A), indent b of PD No D181 of 24.4/3.5.1985), and on the other hand provides for the establishment of A- and B-type protection zones for archaeological sites outside the boundaries of legally existing settlements, within which building is respectively absolutely banned or only permitted to a restricted extent and under strict conditions (Article 91 of Law 1892/90, Government Gazette 101, Vol. A)." (**CSP 632/98**).

j) It is vitally important for the quality of life in settlements to ensure that there are enough free public areas (squares, roads, etc.). Such areas are constantly threatened by overt or covert circumvention of the law, in cities because of the construction of public or private buildings and because of the huge cost of appropriation, and in new settlements because of insatiable land profiteering. The jurisprudence of the Court prohibits even the slightest reduction of public areas and painstakingly scrutinises any reorganisation and restructuring in those areas, so that there will be no covert loss of those areas (**CSP 442/1991**). In new private settlements, the Court will not accept a free area proportion smaller than 50% of the built-up area (**CSP 114/1994**).

k) In the jurisprudence of the Court, it is also considered vitally important for the quality of the urban environment to conserve ***urban green areas*** as the minimum biosphere that is essential for maintaining the health of city dwellers. The jurisprudence favours the supplementing of insufficient green areas by residual, small and isolated forest areas with parallel maintenance of the strict forest regime (**CSP 667/1994**), bans any use, even public, of forested areas around the town (see **C.o.S. 8197/1993** on Pendeli, **PR 444/1993** on Ymittos and **CSP 314/1995** on Egaleo), and also bans any disturbance of the use of green urban areas by other uses, for example public underground stations (see **C.o.S. 2242/1994, CSP 102/1994**).

l) Finally, sustainable traffic in towns means the use of public transport and not private cars. The basic operation of the road network in cities must take place unobstructedly. This does not happen when major road arteries connecting the city centre with the suburbs are burdened by road usage that results in heavier and obstructed traffic. For that reason, in the area near the Municipality of Nea Makri the Court prohibited:

"... any change in the present purely residential use of land along Marathon Avenue, which mainly serves non-local traffic needs, since residential use is by its nature the most compatible with the normal operation of the said network, to less favourable uses such as those of general residence and a town-planning centre, which by their nature conflict with or impede the normal flow of traffic as intended." (**CSP 135/1997**).

The legal base for the protection of sustainable urban environment is a special clause in Article 24 of the Constitution, Principle (15) of the Stockholm Declaration, and Chapter (7) of Agenda '21.

Eleventh Principle:

Principle of the Aesthetic Value of Nature

Industrial culture has alienated mankind from nature and blunted man's sensitivity to its beauty. This is the only explanation for his tolerance of, if not complicity in the extensive destruction and alteration of the natural landscape. In Greece that tolerance has assumed the proportions of a national affliction and cultural degradation. In vain have architects of the stature of Piccioni lamented the "degradation" of Greece's wonderful land. The desecration of Greece's landscape in thousands of ways, from the gaping wounds of quarries to monstrous structures, is continuing uncontrolled and unpunished. Until recently, appreciation of the natural landscape was regarded as the province of aesthetics. However, its deliberate destruction was eventually bound to bring the beauty of nature under the protection of the law. The meaning of "landscape" is no longer either philosophical or subjective. With the help of the new sciences of "landscape ecology", "landscape architecture" and systemic methodology, the "landscape" becomes the responsibility of environmental law and calls for precise legal definition. The "landscape" is an aesthetic system whose element are certain geomorphological characteristics of the area which are interdependent and have unity. The legal ownership situation of the landscape's elements is irrelevant to its meaning, while the form, uses and functions of those elements are of vital importance.

The protection of the natural environment also includes that of the landscape. Legal texts usually speak of protection for "natural" or "geomorphological formations", but this must not be understood in the narrow sense of protection for the functionality of those "formations" (for examples, ravines, mountain masses, etc.). What is of interest here is the natural beauty of the landscape, and in law, aesthetic need is not less important than physical need. In practice, protection of the environment requires that man's interventions must not spoil the landscape but harmonise with it. In the first place, the physical morphology of the landscape must be respected. Architectural interventions must be restricted to the strictly necessary, and must "tie in" with the landscape. For example, the skylines of mountains must in no way be altered by crude structures. Nor, when buildings are put up, must the natural ground level be changed. Roads in coastal areas must not be made parallel, but perpendicular to the shoreline, settlements must be nodal and not linear, etc. No-one is entitled to change the landscape: owners have rights within their own property, but the "landscape" does not belong to them. The landscape does not belong to anyone, it is a common asset like the air and the sea, and anyone who spoils it is violating the rights of other people. Only the spatial plan, applying criteria of public interest, can determine where interventions are to take place for the creation of settlements, ports, etc., but it too must select its options with parallel respect for the natural landscape. The rule is that man-made systems must ***adapt*** to nature, not violate it. Major technical projects (dams, etc.) must be executed as sparingly as possible and must provide replacement landscapes (for example lakes, etc.).

The legal base for the protection of the landscape is Article 24 of the Constitution and Law 1650/1986.

Older legislation (see for example ***Law 1469/1950***) was only interested in ***"locations of particular natural beauty"*** and did not specify the protection provided. The jurisprudence of the Council of State shows greater sensitivity in that respect. Where classical locations of particular natural beauty are concerned, it accepts that if they are of limited area they cannot tolerate any interference at all, while if they are extensive they can tolerate only mild urban development, that is to say, what is absolutely necessary for demographic reasons. This rationale led to the protection of a large area of 10 000 hectares near the Holy Mountain (**CSP 307/1995**). To protect

the natural beauty of Lefkas, moreover, the requisite restrictions on processing activity were imposed (**C.o.S. 376/1988**). To conserve the natural beauty of Vouliagmeni Lake, a rare natural monument, only the operation of an old hydrotherapy unit near it was allowed owing to the curative nature of its waters, while all other constructions were banned (**CSP 369/1995**). Strict building conditions were imposed at Caldera on Santorini because of its beauty (**CSP 663/1990, 517/1991**). And to protect the beauty of the shorelines, the construction of a wave-break system on Rhodes (**C.o.S. 3818/1995**) and a water tank on Syros (**C.o.S. 1536/1993**) were also banned. Because of the aesthetic forest at Kesariani, drilling for water to serve the needs of the municipality of the same name was not permitted (**C.o.S. 3557/1994**), and the inclusion of the forest of Kalamaria in the town plan of Thessaloniki was prohibited (**C.o.S. 2164/1994**). Because of the particular natural beauty of the bay of Gera in Lesvos, the construction of fuel tanks there was banned (**C.o.S. 3165/93**). Besides, as we have seen, the strict jurisprudence on the protection of coasts and small islands is dictated, *inter alia*, by their aesthetic value.

Twelfth Principle:

Principle of Environmental Awareness

The natural environment cannot be saved by Law and the Court alone. Its protectors must be the citizens themselves, by virtue of their responsible behaviour in man-made systems, which is the most effective way to prevent any damage to the environment. Nowadays, however, citizens are the victims of endless consumerist propaganda and the State must intervene to awaken their environmental awareness and motivate them to play a more noble part. This has been realised by New Environmental Law, which has formulated the present principle to that end. The principle says that enlightened citizens should take an active part in protecting the environment, in collaboration with the state.

For that purpose, the principle can be broken down into a number of respective rights: a) First, it is established that ***citizens are entitled to receive information*** from the Administration on all environmental matters, even if they do not concern them personally. This acknowledges their general interest in environmental protection, with the obvious rationale that only by virtue of appropriate information can that interest prove useful. With this content, the right of citizens to be informed about the environment goes far beyond their legitimate interest in other public affairs, where the principle of transparency of the Administration has several limitations. For that reason, despite the existence of general provisions on the legal right of citizens to be informed about the relationship between the Administration and the governed, the Council of State's jurisprudence accepted the direct application of the special Community Directive which provides for this broader right to be informed about environmental issues, in a characteristic case in which private organisations were asking for information and data about the ecosystems of the river Akheloos, in connection with a technical project planned there. Indeed, the Court censured the Administration's failure to supply the information requested (**C.o.S. 3943/1995**). b) Besides simple information for citizens, however, the principle requires the provision of systematic education and training for citizens on environmental issues, and the support of scientific research on such matters. In other words, the principle insists that environmental information should be generated and disseminated to the citizens. c) The same principle recognises the ***legitimate interest*** of citizens in setting in motion the mechanism of judicial protection of the environment when this is under threat. For that purpose the legitimate interest in abrogation judgements has been broadened by the jurisprudence so that it is not only economic but ethical as well. Thus, for example, the jurisprudence of the Council of State accepts that following damage to the forest at Sounion, not only the owner affected but also the residents of Athens are entitled to have recourse to law (**C.o.S. 2281-2/1992**), for the coasts of an island any of its LGOs (Local Government Organisations) or inhabitants (**C.o.S. 3818/1995**), etc. The same rationale encourages not only environmental organisations which are legal persons, but also informal companies (**C.o.S. 366/1993**). d) The principle also recognises the right of citizens to participate in the process of making public decisions concerning the environment, either by expressing their opinion or by having recourse to law, or by participating in collective advisory bodies, etc.

The legal base for the principle is Article 24 of the Constitution interpreted in the light of the relevant provisions of Agenda '21, the Community Directive, and special legislative provisions.

All the above are of course important, but the scope of the principle of environmental awareness would be limited if it were confined to the aforesaid legal rights. Not only the basis for those rights, but also their purpose have profounder logical prerequisites. What the principle really strives for is not simply to secure legal rights, but something more substantive, namely to create a

new ethos among citizens. The point is to convert the affluent society's consumers into responsible members of a sustainable society. It is hoped that with a bundle of inter-related public policies, it will be possible to ensure that citizens will behave in sustainable ways, in other words that their behaviour will be animated by the principles of sustainability. Citizens will be expected to limit the purposeless consumption of natural resources, to avoid any acts which pollute the environment, and on the contrary, to embrace the values of frugality, moderation and responsible stewardship of the environment. In reality, the attempt is to create a new archetype of citizen, something that in itself implies a long-term policy of social reform. The quest for a sustainable society is not realistic without systematic cultivation of this new ethos among citizens. It is a very great enterprise which will demand the activation not just of very many public policies, but beyond that, the mobilisation of social groups and organisations as well. It is within that framework that the support of non-governmental organisations by the international community, in accordance with substantive Agenda '21 directives, should be interpreted. This is a programme whose implementation has begun, but one for which there must be parallel control of the market. One cannot expect citizens to behave in sustainable ways unless, in parallel, all the market's functions are also made sustainable. It is also impossible to create the new ethos unless, in parallel, citizens participate in the process of public decision-making. In reality, the development of the new ethos among citizens entails transforming them from selfish individuals lured by hedonistic and utilitarian motives into responsible people who are organically involved in the social and public systems and who play their part with a sense of responsibility and mission.

Diagrams

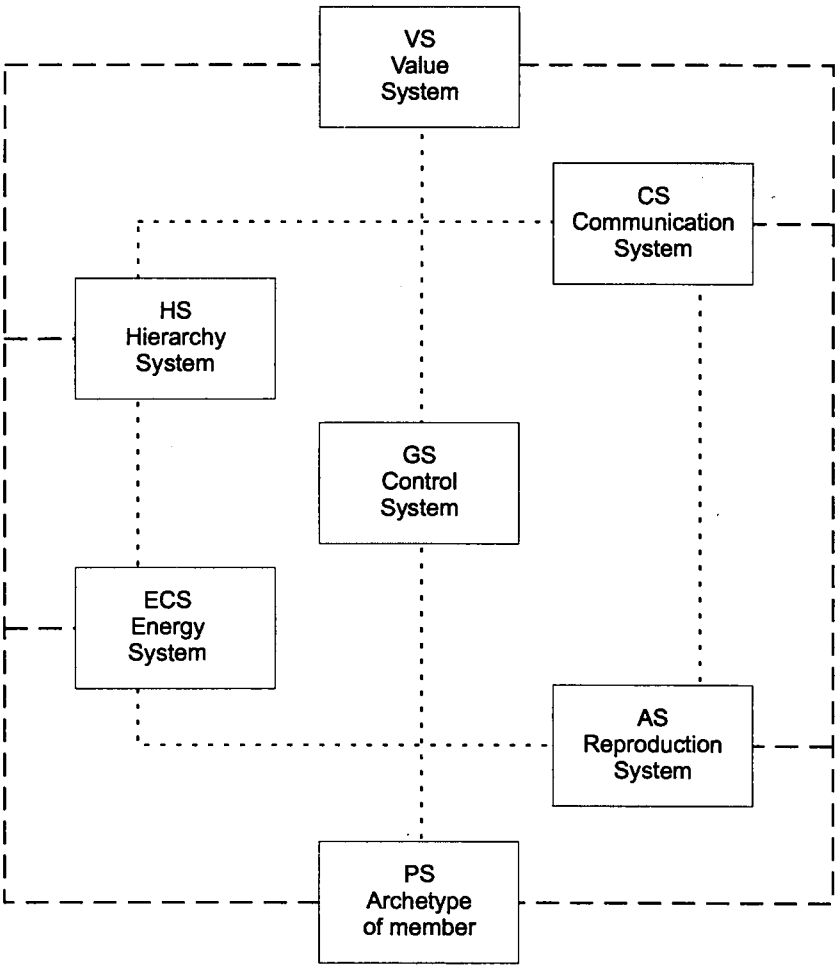


Diagram 1
Theoretical Model of Large Scale System (LSS)

Systemic Model of Global Change
(I: Social Complex)

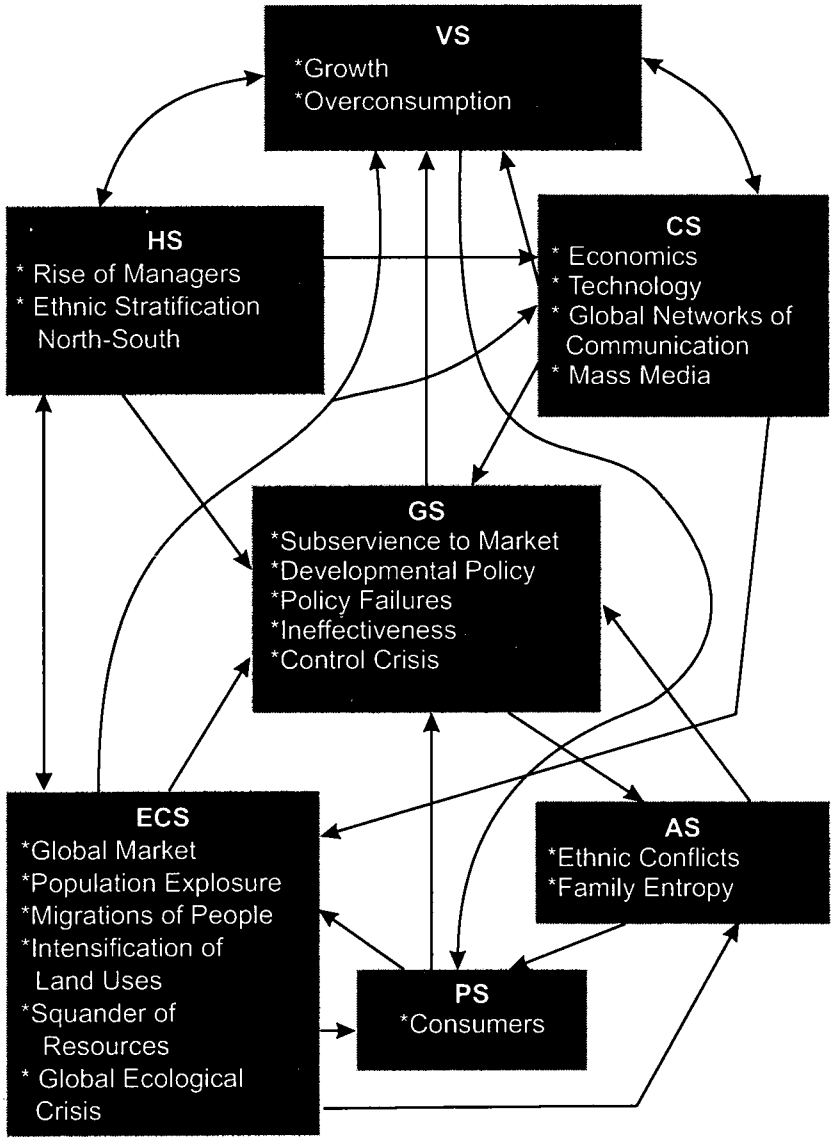


Diagram 2.1

Systemic Model of Global Change I

System Model of Global Change
(II: Bio-Geo-Chemical Systems)

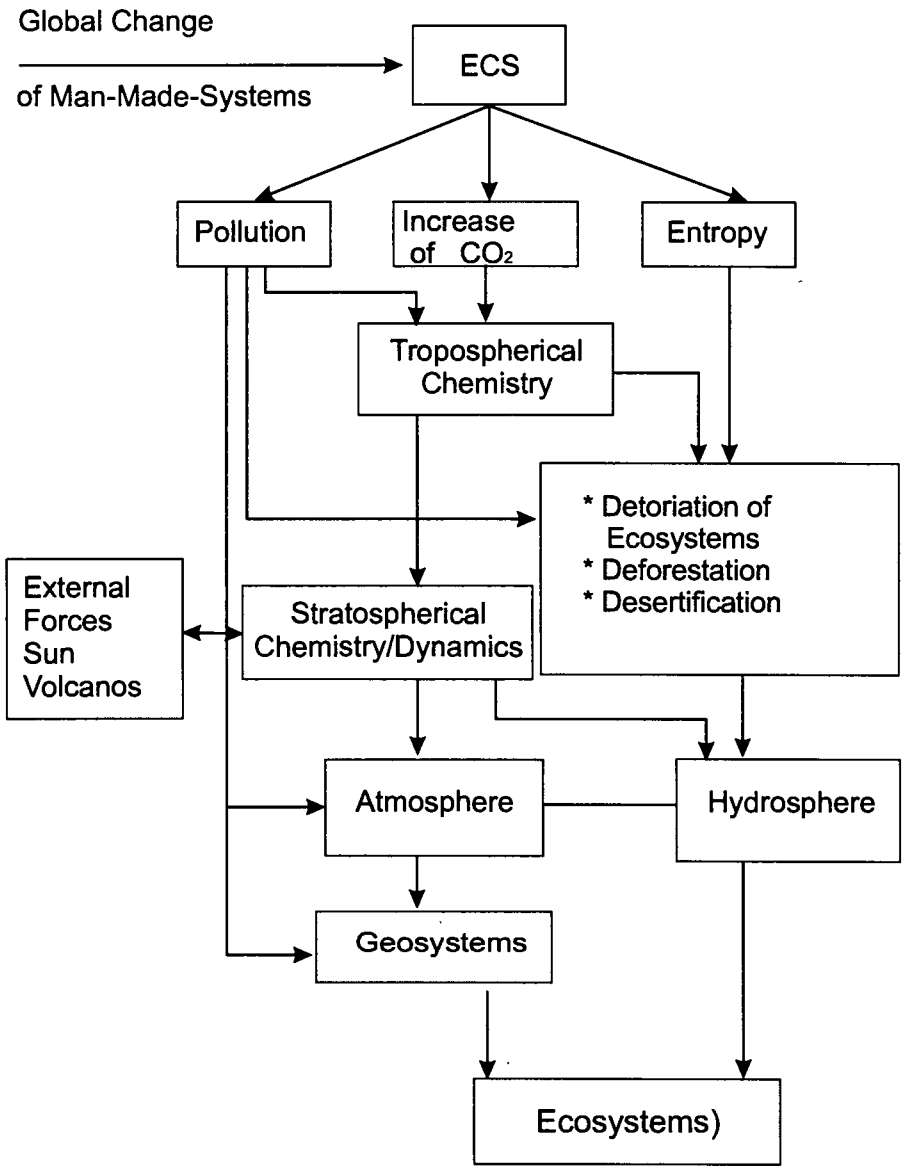


Diagram 2.2

Systemic Model of Global Change

Sustainability I:
(Practical System of Agenda '21)

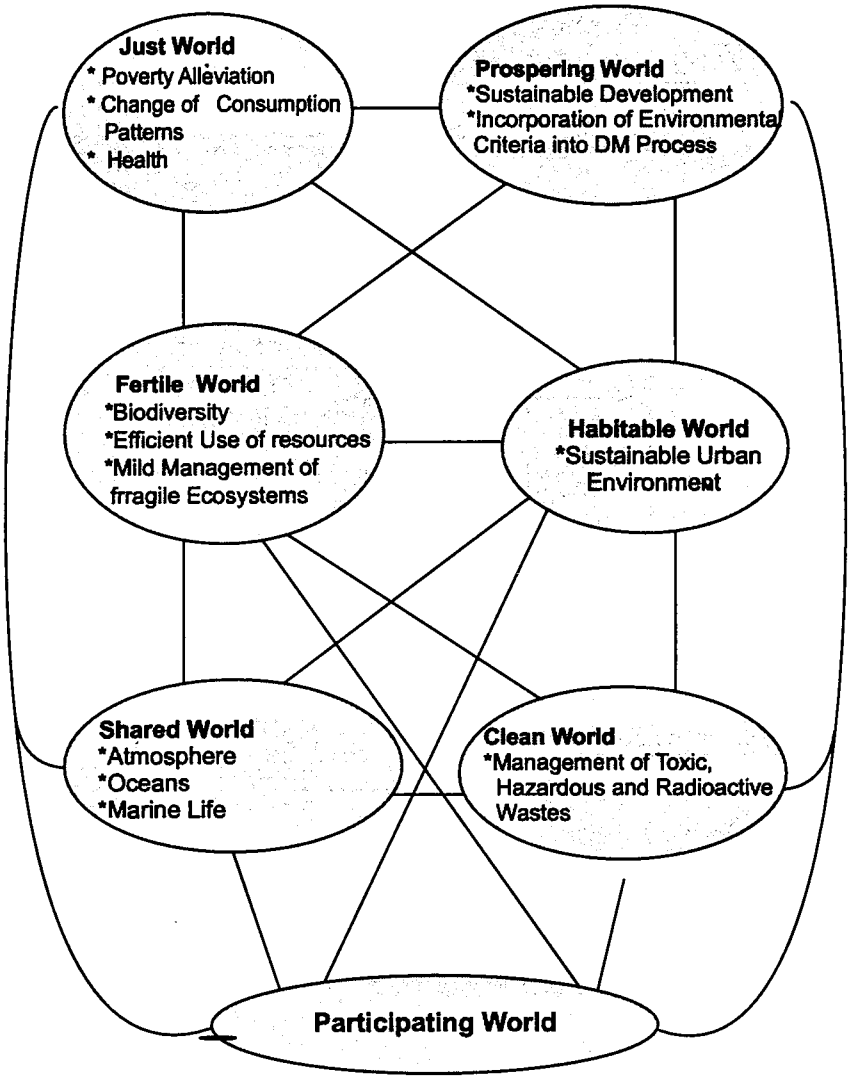


Diagram 3
Agenda '21

Sustainability II:
(Logical Prerequisites of Agenda '21)

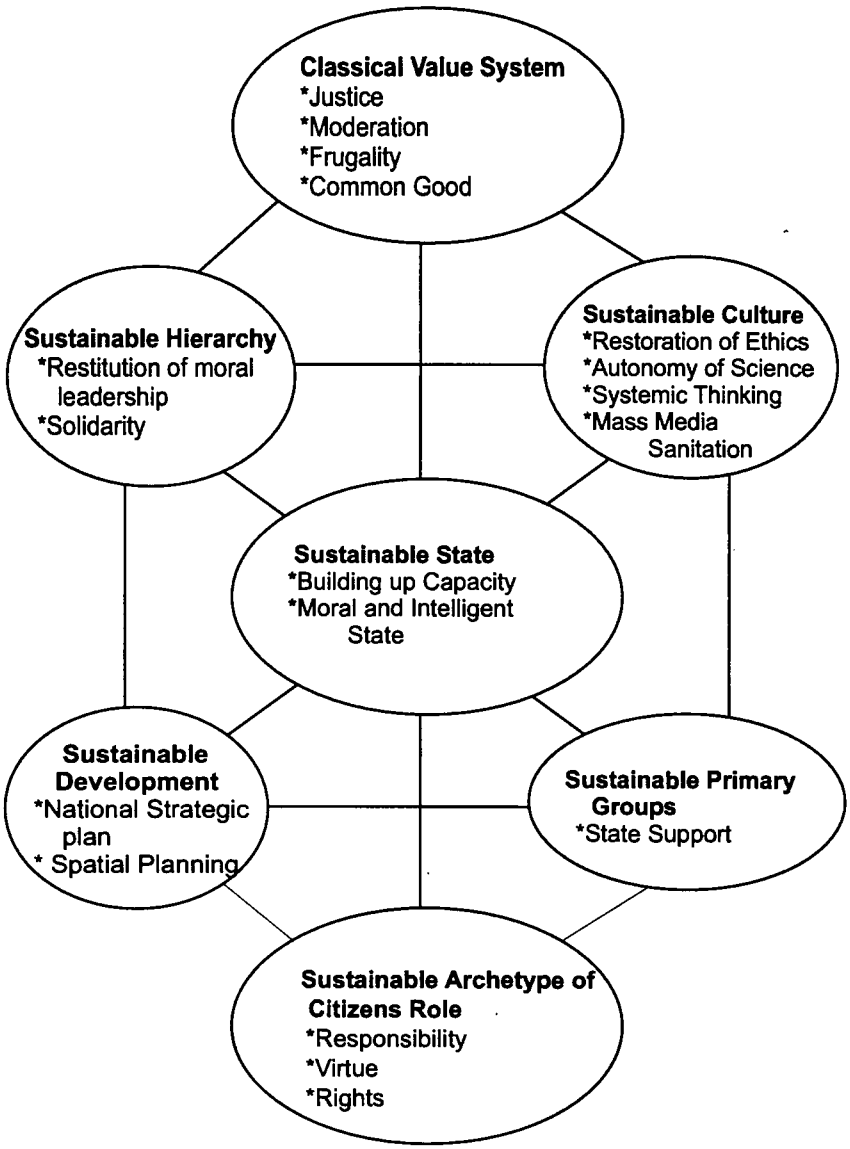


Diagram 4

Logical Requisites of Agenda '21

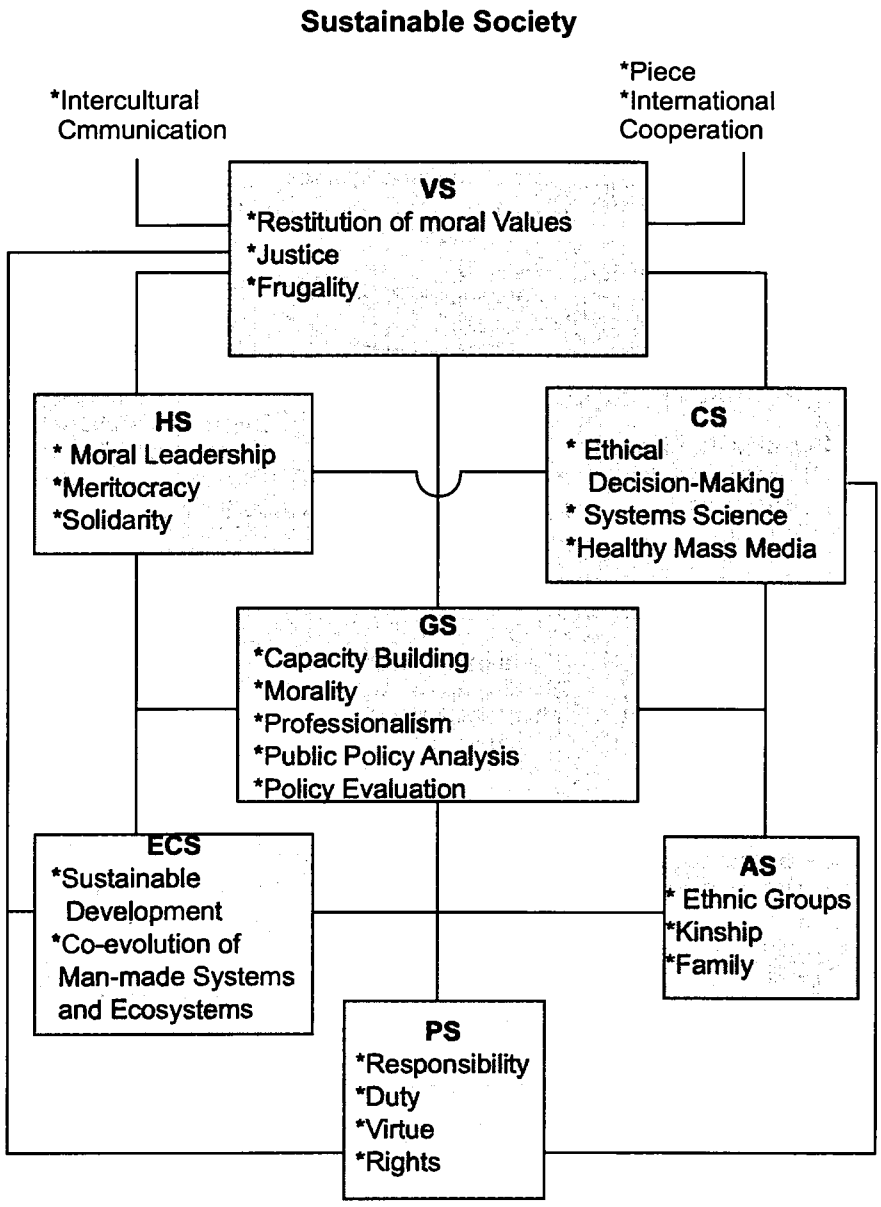


Diagram 5

Sustainable Society

Systemic Legal Methodology

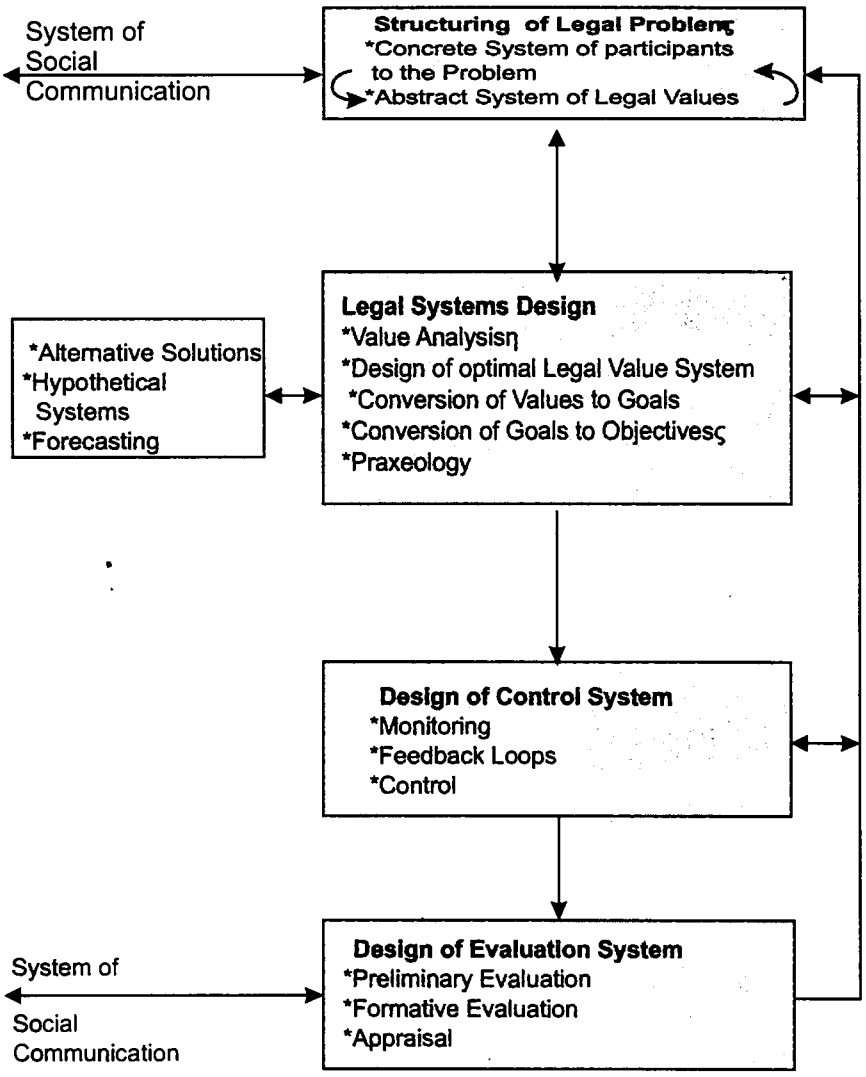


Diagram 6

Systemic Legal Methodology

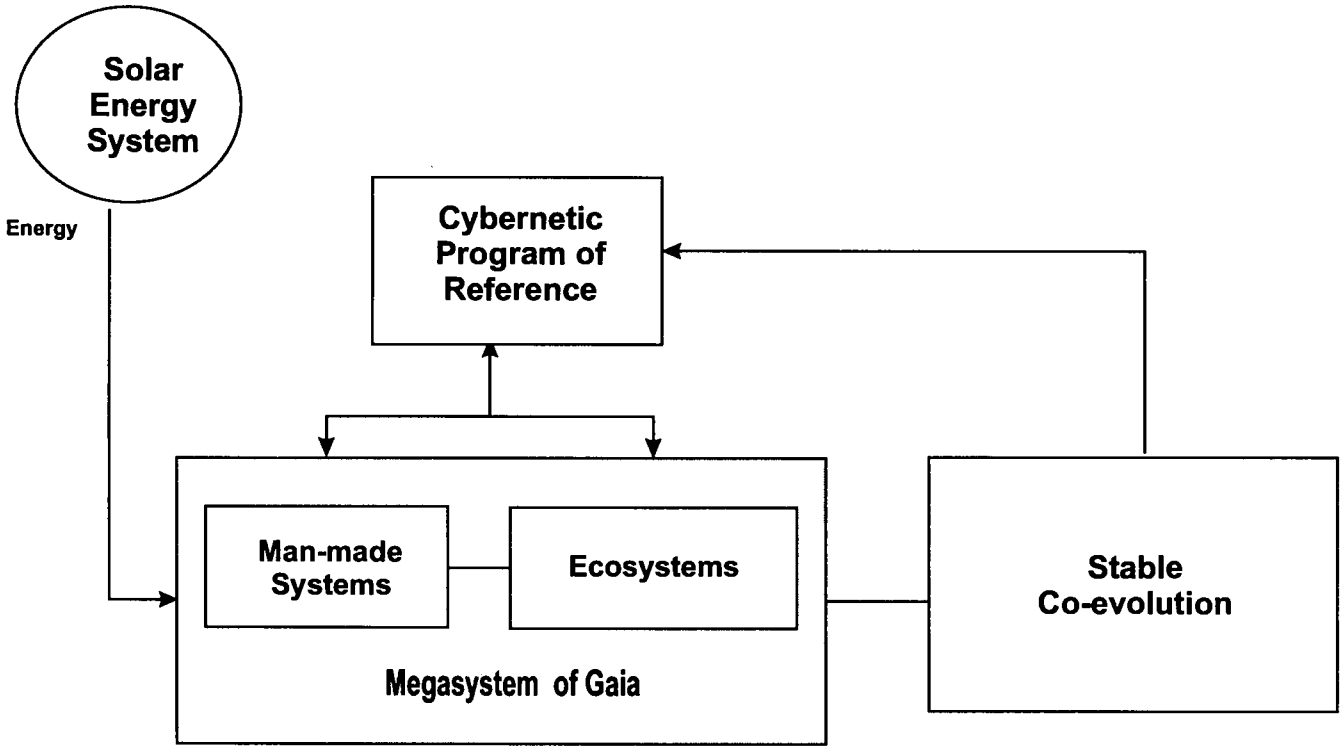
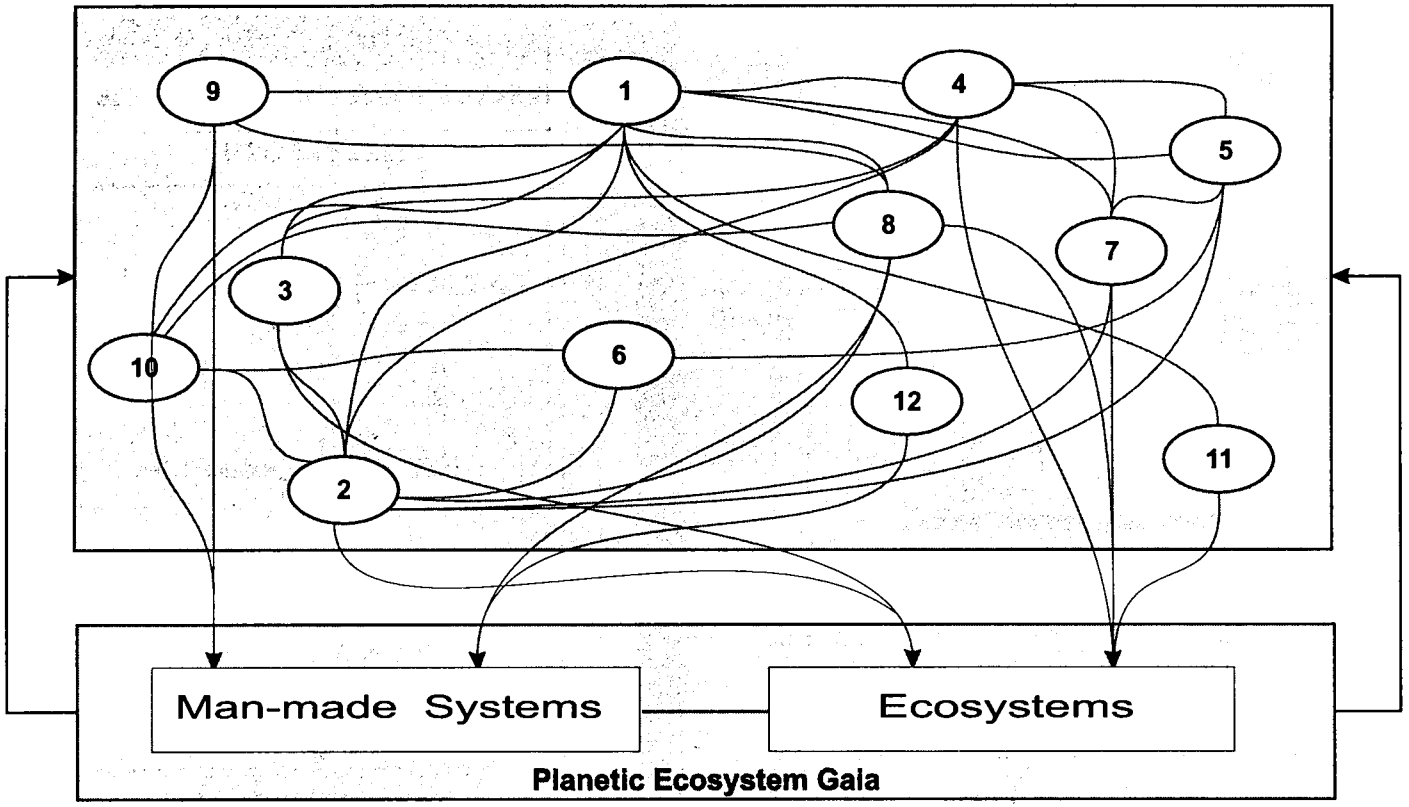


Diagram 7.1

The General Principles of Sustainable Development as Cybernetic Control System



O Diagram 7.2

The General Principles of Sustainable Development as Cybernetic Control System

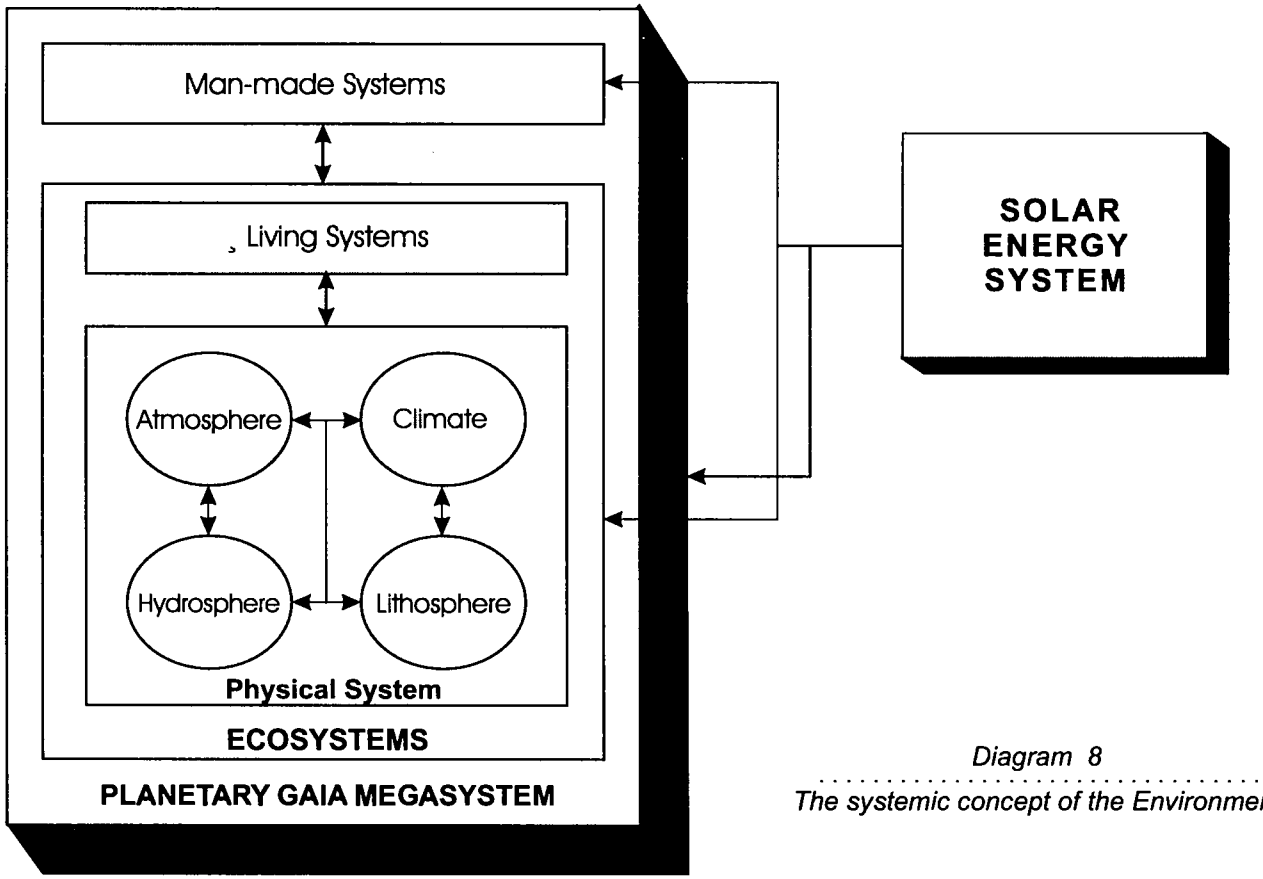


Diagram 8

The systemic concept of the Environment

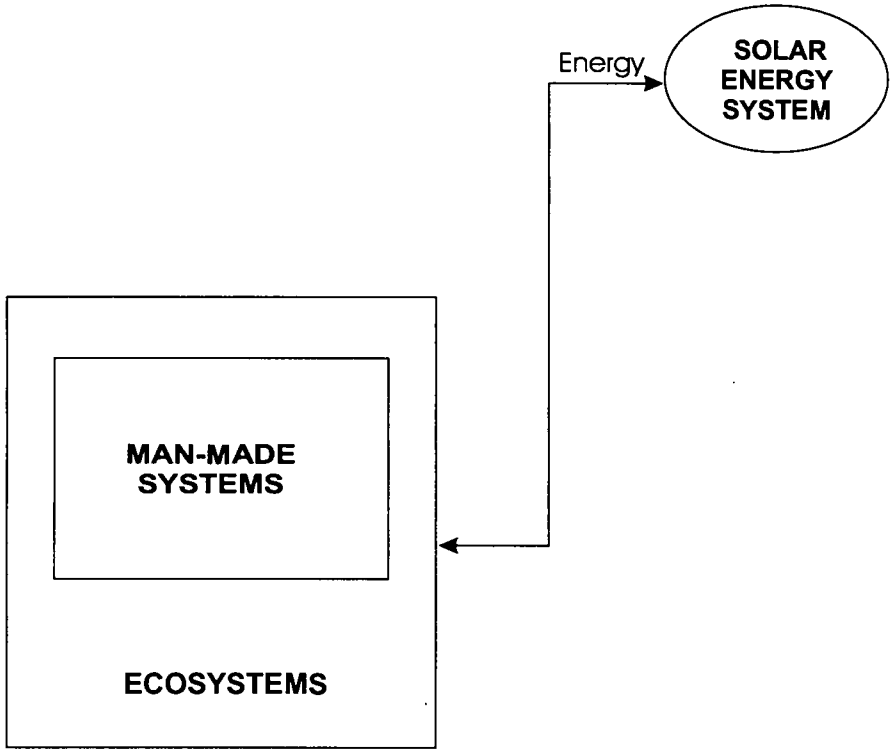


Diagram 9

Phase 1. Primitive System of Food Gatherers and Hunters incorporated into the Environment

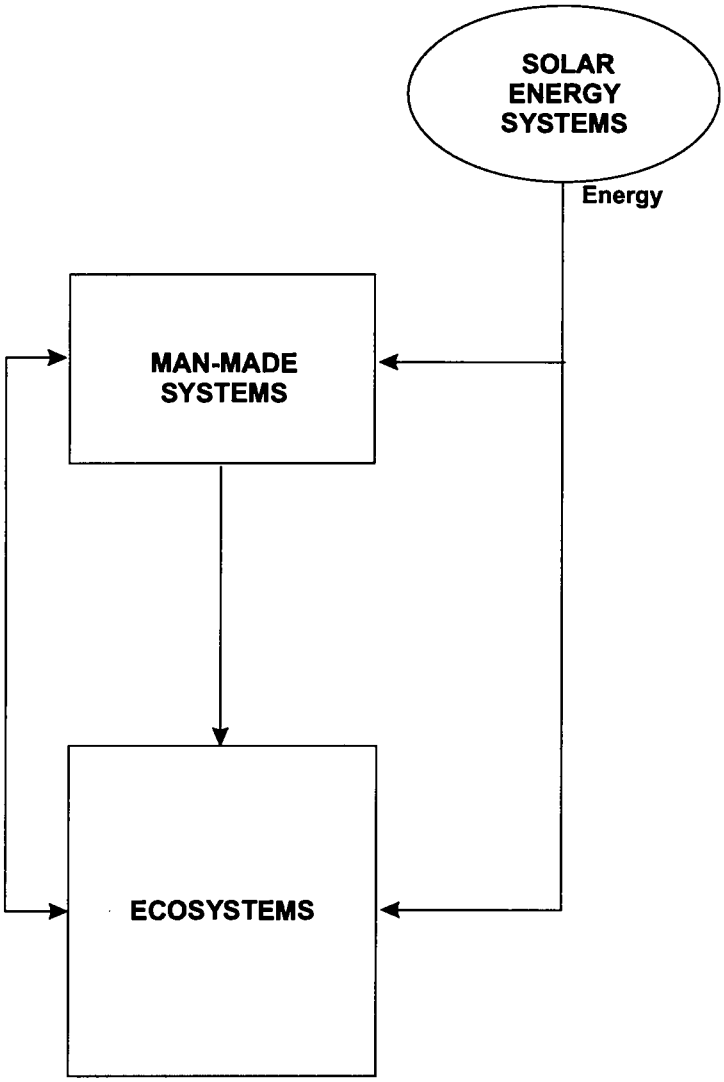


Diagram 10

Phase 2. Traditional (Agricultural) System of Environmental Control

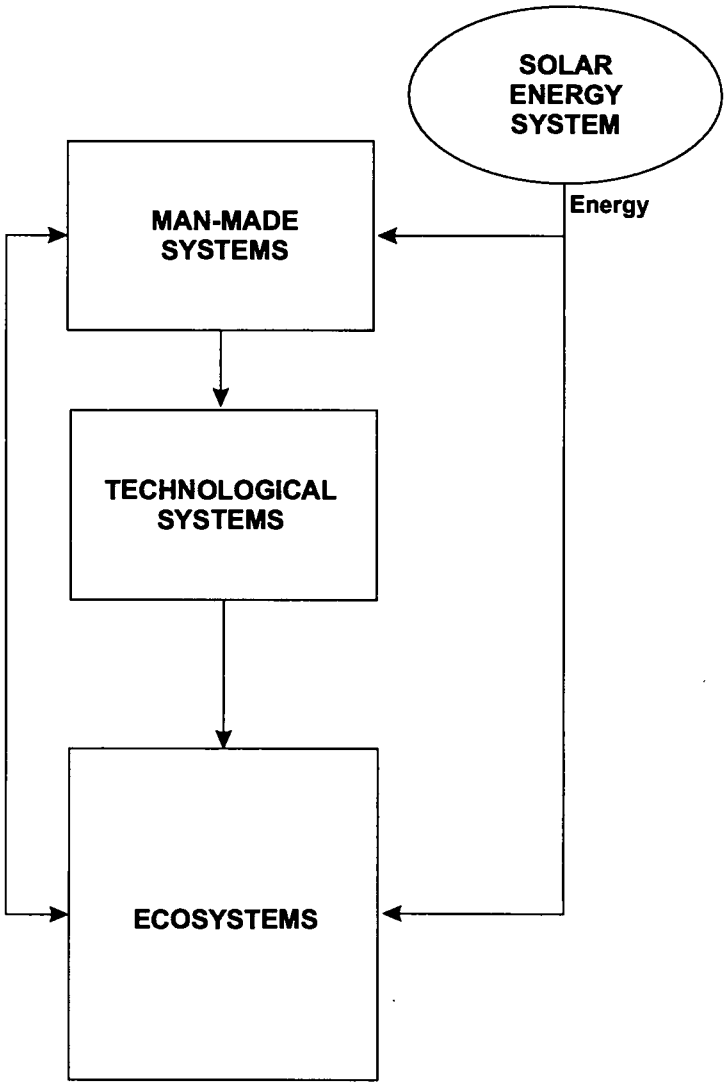


Diagram 11

Phase 3. Industrial Environment

Control System

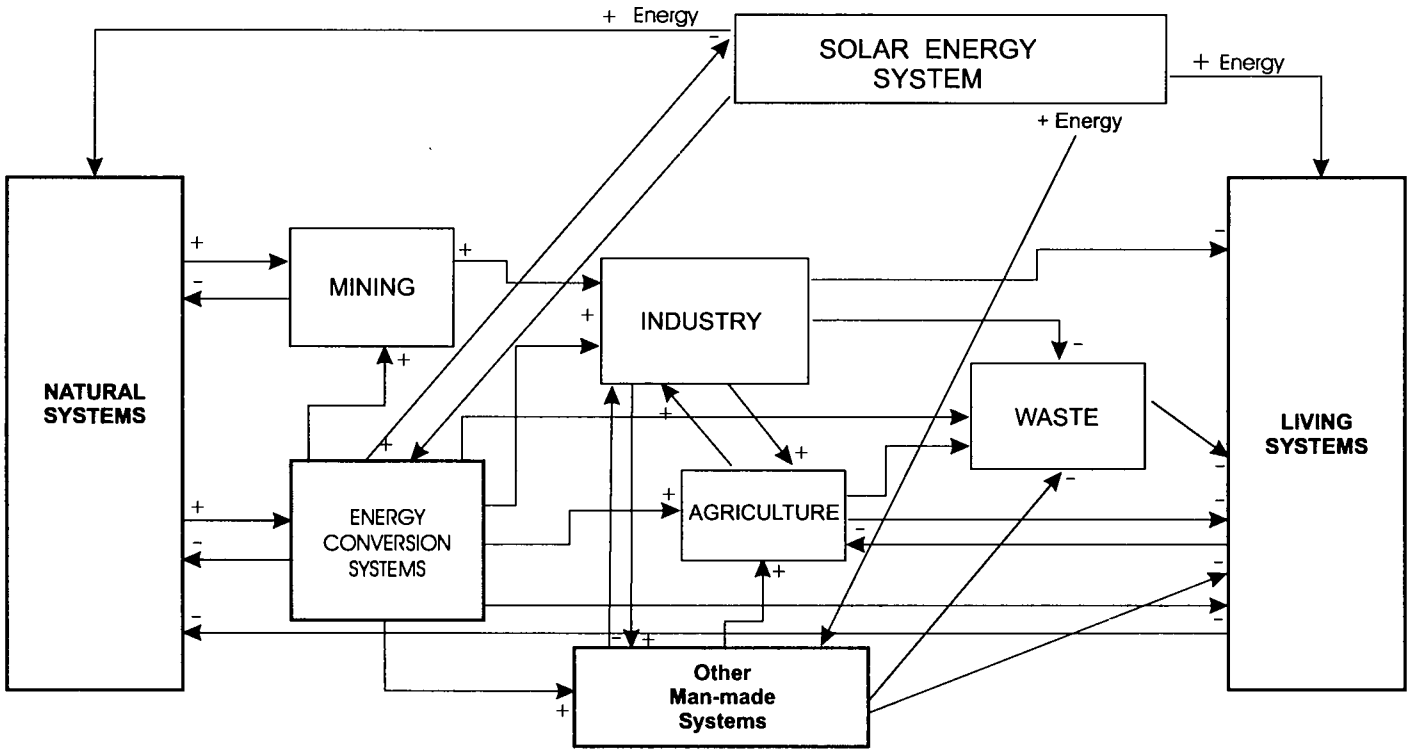


Diagram 12

Industrial System

Analysis of Interactions

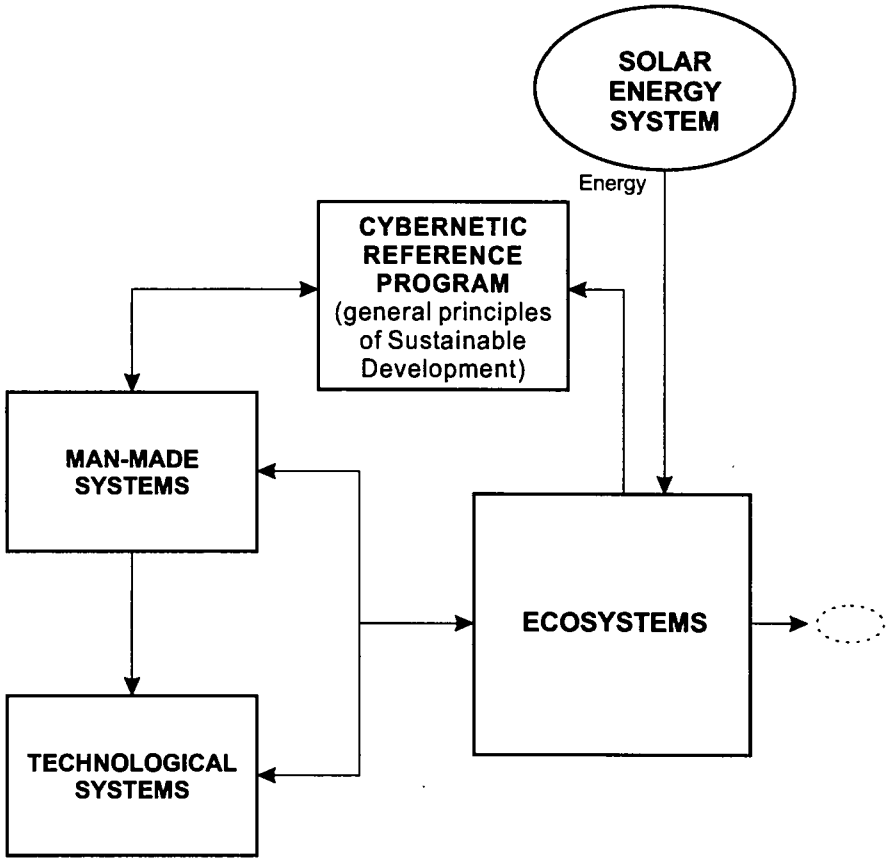


Diagram 13

Phase 4. Post- Industrial System of Stewardship

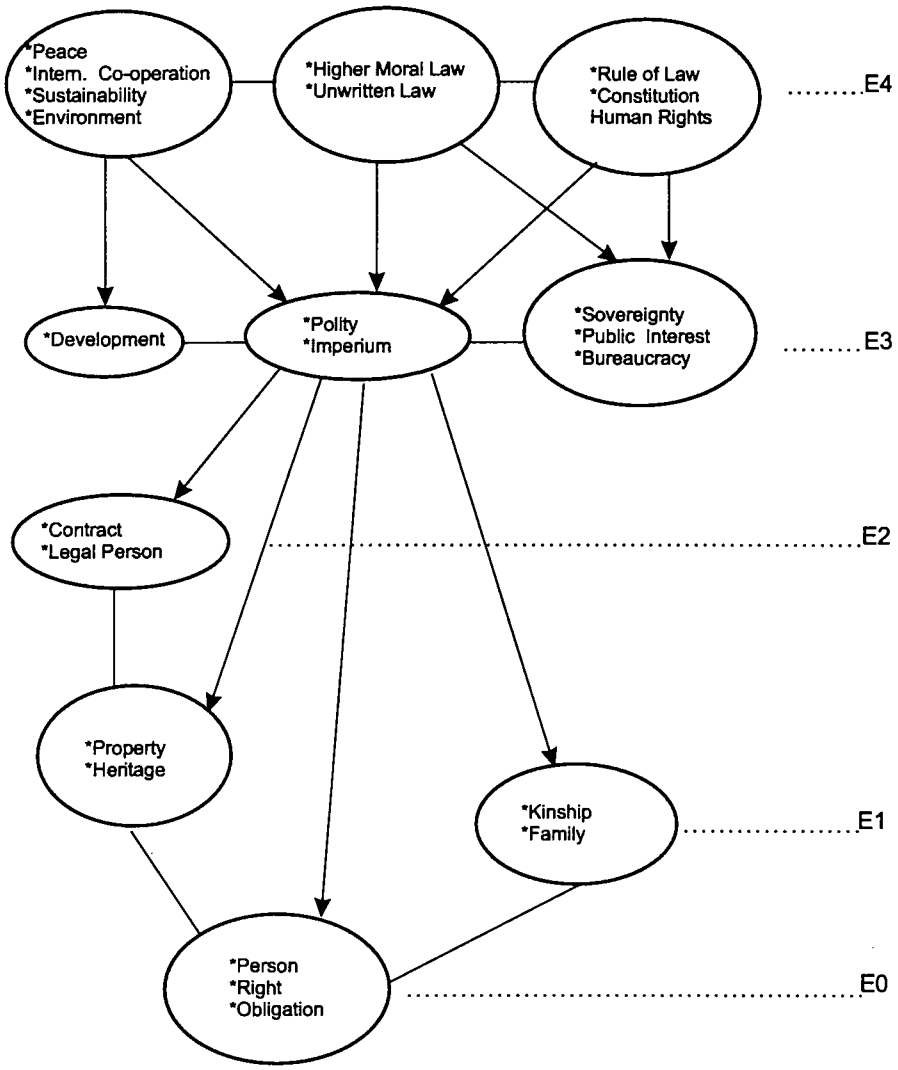


Diagram 14

System of Basic Legal Values

Bibliographical Notes

1. Knowledge of environmental problems begins with familiarity with systemic science. The aids to popularisation published by the Greek Systems Group [M. DECLERIS: Systemic Theory (1986) and Systems Management (1989)] are a good introduction to that science, while the HANDBOOK OF SYSTEMS SCIENCE (DECLERIS, M. 1991), published under the aegis of UNESCO, and TOWARDS EXPERT GOVERNMENT (DECLERIS M., 1997) give an account of contemporary systemic thought.

2. The systems science of the environment is propounded either in books dealing with strict methodology, such as the book by R.J. BENETT and R.J. CHORLEY "Environmental Systems" (Methuen, 1980), or in more practical manuals of Environmental Science, such as those by T. MILLER (Wadsworth, 1995), ENGER & SMITH (Brown, 1995), D. CHIRAS (Benjamin Cumming, 1994), N. WRIGHT (Prentice Hall, 1993), and others.

3. The road towards sustainable development is landmarked by the report on systemic sciences by D. MEADOWS et al. to the Club of Rome: "The Limits to Growth" (Pan Books, 1972), the STOCKHOLM DECLARATION on the Environment (1972), the Report by the BRUNDTLAND Commission on the Environment and Development: "Our Common Future" (1987), the RIO DECLARATION (1992), and AGENDA '21 (1992).

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5. The jurisprudence of the Council of State on environmental issues is rich, and is accessible via the Indexes of the Court.

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