INTOSAI WGEA research project

Land use and Land management practices in Environmental perspective

DRAFT

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1.1 Study objectives

Nowadays, the world knows increasingly severe environmental, social and economic problems challenging the current production systems and sustainability of all human activities. This result is particularly true because the resources on which these activities depend are significantly imbalanced; this is the case in particular for land resources. The land[1], being considered as one of the most essential natural resources both for the survival of mankind and for its prosperity, is the platform on which human activities take place and source of materials needed for these activities.

The challenges presented by the land degradation due to defaulting land management methods and its fatal consequences on all economic and social activities and on land future put pressure on the shoulders of SAIs that should be interested and focus on this area and implement an effective framework for the audit of land use and management, how crucial not only at the national level but also across the world.

With the ambition to achieve this aim, the WGEA decided to program this research project on "land use and management in environmental perspective" in order to improve SAIs members awareness of the importance of this issue and provide them with elements that can subsequently form the basis for developing an audit guide for land use. Thus, three main objectives were fixed for this study, namely:

- Provide comprehensive data and information to the user of the project output regarding the land use/land management practice specifically in environmental perspective;
- Spread, into SAIs, the interest to consider the environmental dimension in the audit of the programs and the projects connected to land use and land management;
- Provide, to SAIs, information regarding Land Use/Land Management Issue(s) that can be audited and introduce examples and case studies of best practices in this field.

1.2 Land use: concept definition and global statistics

Regarding these functions, land allows various uses and can satisfy diverse objectives. Land use is a basic element in human activity (Box 1.2.1: land use definition). A large part of things we did (production of goods, transportation, housing,...) require the land (Young, 1998).

Thus, the concept of land use refers to a series of activities undertaken to generate one or more products or services. The same land use can cover several parcels with

[1] See land definition in appendix n°1

a "land occupation" and reciprocally the same land occupation may have several land uses. The definition of land use (Box 1.2.1) provides a basis that allows a detailed quantitative analysis of both economic and environmental impact and also enables to distinguish clearly the different land uses, if necessary (FAO, 1998b).

Box 1.2.1 : Land use: Definition

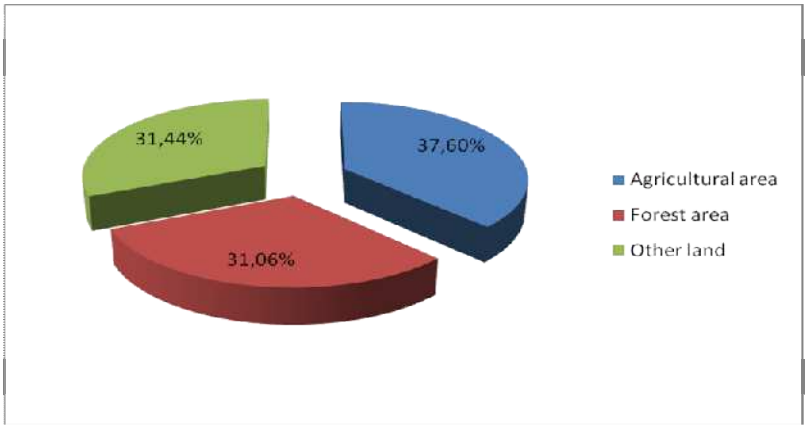
Land use: Land use is characterised by the arrangements, activities and inputs people undertake in a certain land cover type to produce, change or maintain it" (FAO/UNEP, 1999) (Adopted during the course of development of the Land Cover Classification System, LCCS). A more inclusive definition of land-use is often used in practice. 'Land use' actually includes near-surface water (see the definition of land). Any given area of land is usually used to satisfy multiple objectives or purposes.

In statistical terms, globally, the available land was 13 003 468,05Ha in 2009 broken down by different types of use. Agricultural land accounts for 37.6%, 31.06% for forests and other land[2] represent 31.44%.

Land use/world area in 2009 (1000Ha)[3]

Country area	Land area	Agricultural area	Forest area	Other land	Inland water
13 459 123,35	13 003 468,05	4 889 048,21	4 038 719,46	4 088 049,47	455 656,30

Source : FAOSTAT.



Therefore, land ensures a set of functions. Besides the main function of production, land is necessary for the regulation of the atmosphere, water cycles, mineral supply, conservation of nature, etc[4]. The land components interact in a kind of natural balance that humanity must preserve to allow land resources to support and ensure continuity of this human activity on a sustainable basis.

As a result, land is highly sought by various human activities. Such activities (current or future) depend, in some degree, on the surface of the earth, minerals, water and other renewable and nonrenewable. Generally, the same parcel of land can not be used for more than one object simultaneously, but this situation generates a

[2] Other land: Land used for aquaculture, land occupied by buildings, parks and ornamental gardens, built-up areas, roads or lanes, open spaces needed for storing equipment, …
[3] Detailed statistics per geographic region were presented in appendix 1.
[4] See land functions in appendix n°1.

competition between different activities that should be considered for land use (Young, 1998).

1.3 Land degradation: defining the concept and alarming figures

The land is a limited resource, more and more substantial demand makes it increasingly rare. The pressure on land resources becomes heavy and is manifested by the decline of agricultural production, the deterioration of the quantity and quality of land (Box 4: definition of land degradation) and by competition for the access to land (FAO/UNEP, 1999).

From a demographic perspective, the world's population is still on the increase, it was 2.5 billion in 1950 and is now 7 billion and could reach 9 billion by 2050[5], which means a corresponding increase of the use of land resources.
This pressure on land and overexploitation faced by land resources have resulted in many forms of degradation manifested by desertification, loss of biodiversity, deforestation, land degradation, water degradation, etc. The following diagram illustrates the relationship pressure-problem-symptom.

Figure: SYMPTOMS OF THE PROBLEM OF PRESSURE ON LAND AND RESOURCES

Source : (FAO/UNEP, 1999).

Land degradation is a global phenomenon[6]. It is estimated to reach over 2 billion hectares worldwide and threatens the livelihoods of over one billion people. Almost two-fifths of the land area is arid, inadequately supplied with fresh water and it is estimated that a large proportion of this land is, to some extent, degraded. About 65% of arable land may have already lost some of their biological and physical functions. (UN, 2001).

[5] Source : http://www.populationmondiale.com/
[6] See the definition of land degradation in appendix n°1.

According to the latest FAO report on the status of land resources and water for food and agriculture in the world, the degradation of land resources has reached worrying levels. The proportion of degraded land has reached 25%, the part of land moderately degraded is 8% (FAO, 2011). It should be noted that the proportion of degraded land was only 16% in 1997 (FAO, 1997) which explains a sustained rate of degradation processes. Indeed, in some areas entire systems are being threatened.

An impact also dangerous of land degradation concerns changes in land use such as deforestation and soil degradation, two devastating effects of unsustainable farming practices, emit large quantities of carbon in the atmosphere. Changes in land use are, by themselves, at the origin of about 20% of global emissions of carbon dioxide each year. (IISD, 2009).

1.4 From land Management to sustainable land management: concepts and definitions

This alarming situation undermines the policies and models of land planning and land management[7] that are currently implemented and which are based on the overexploitation of resources and on methods that have little concern about ecological balances. Therefore, proper management of land, of all their attributes and components is needed to a better rationalization of their use.

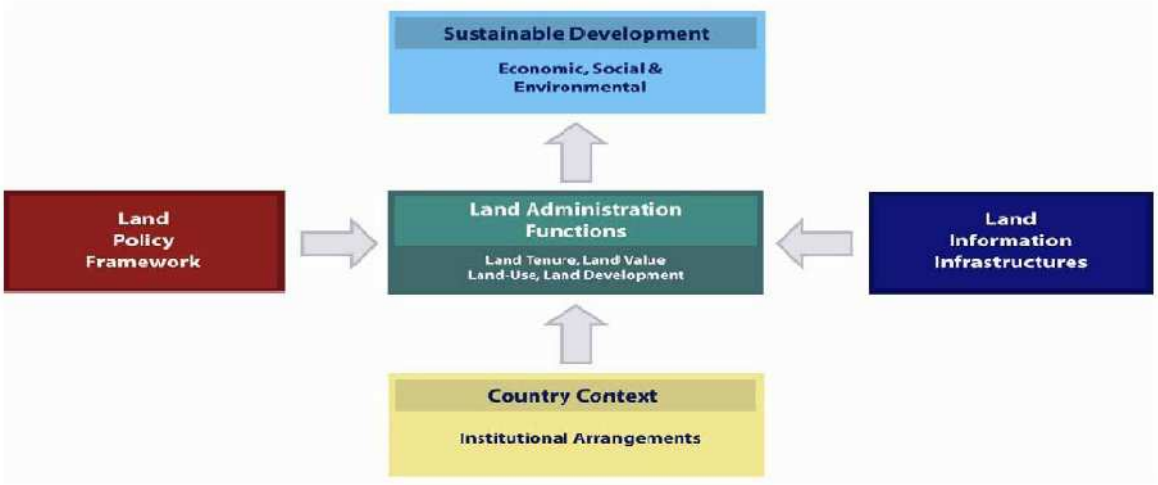
Moreover, it is quite possible to monitor and address land degradation or even reverse the trends, if land is used efficiently, if all functions are taken into account and if the long-term interest of all segments of the population is stronger than the short-term corporate interests of privileged groups at global, national and local levels (UN, 2005).

However, issues relating to land use are often complex and require a high degree of understanding of the ecological balance (EPA, 1974). The structure of political decision making should be organized to facilitate an integrated approach of land use management.

Thus, it is important to comprehend the dimensions and implications of land management as a paradigm in relation to the rights and restrictions and responsibilities related to land.

[7] See the definition of land management in appendix n°1

Figure n° : land management paradigm



Source: (Stig Enemark, 2007).

Therefore, a sustainable management of land resources (Box 1.4.2: definition of sustainable land management) requires sound policies and planning, based on the knowledge of these resources, on the requests for the use to which they are allocated and on interactions between land and use made of.

Box 1.4.2: Sustainable Land Management (SLM): Definition

Sustainable Land Management (SLM) is defined as a knowledge-based procedure that helps integrate land, water, biodiversity, and environmental management (including input and output externalities) to meet rising food and fiber demands while sustaining ecosystem services and livelihoods. SLM is necessary to meet the requirements of a growing population. Improper land management can lead to land degradation and a significant reduction in the productive and service functions. In layman's terms, SLM involves:

- Preserving and enhancing the productive capabilities of land in cropped and grazed areas- that is, upland areas, downslope areas, and flat and bottom lands; sustaining productive forest areas and potentially commercial and noncommercial forest reserves; and maintaining the integrity of watershed for water supply and hydropower generation needs and water conservation zones and the capability of aquifers to serve the needs of farm and other productive activities.
- Actions to stop and reverse degradation—or at least to mitigate the adverse effects of earlier misuse—which is increasingly important in uplands and watersheds, especially those where pressure from the resident populations are severe and where the destructive consequences of upland degradation are being felt in far more densely populated areas "downstream." (World Bank, 2006).

In this regard, the planning of land use[8] must be a decision process that "facilitates allocation of land to the uses that provide the greatest sustainable benefits and to promote the transition to a sustainable and integrated management of land resources" Agenda 21, parag 10.5).

It appears through the elements developed above, that the theme of land use is topical and presents one of the key areas for action to improve performance in global sustainable development.

[8] See land use planning definition in appendix n°1.

Chapter II: Environmental issues in Land use

Environmental issues in land use are related to a combination of many complex, natural and anthropogenic phenomena. The transformation of natural and semi-natural ecosystems by deforestation, cultivation, drying, urbanization, intensification and mechanization of agricultural practices, overexploitation of animal populations, global warming, desertification and general pollution are all direct and indirect causes of the accelerated environmental degradation and changes in land use.

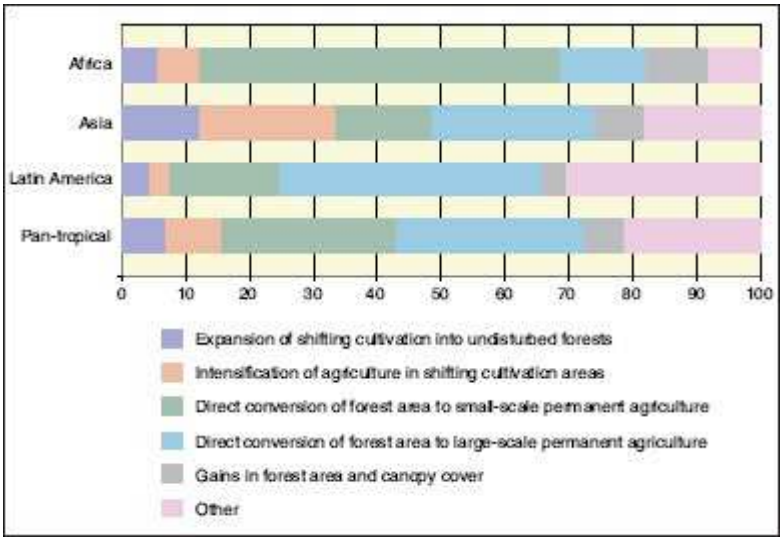
2.1. Deforestation

Forests cover slightly more than 4 billion hectares, which represent 31 percent of the total land area and corresponds to an average of 0.6 hectares per inhabitant.

During the past decade, about 13 million hectares of forests were converted annually to other uses or disappeared as a result of natural phenomena. *(FAO, 2010).*

Within this framework, deforestation is primarily due to the use of forested land for non forest, because of practices and processes resulting from social, economic and ecological pressures, as the extension of cultivation, overgrazing, collecting wood for energy, drought, fires, etc.

Figure 1: Percentage of total area change due to different causes, 1980–2000



Source: Based on FAO, 2001.

Since the early 1980s, there has been considerable concern that deforestation and forest degradation causes huge costs to society, measured in lost economic rents, inefficient allocation of resources, degradation of renewable resources (such as soil and forests), disruption of watershed services, social distress and conflict, massive loss of biodiversity, and emission of greenhouse gases. *(WGEA, 2010).*

Aware of this problem, more than 54% of SAIs surveyed as part of this research, said that deforestation is one of the most important forms of land degradation in their countries *(see Appendix 4).*

The impact of this disaster on the land use would be measured only through the loss of the great services provided by forests to the environment[9].

The Working Group on Environmental Auditing has developed a guide for auditing forest that provides, among other things, information on threats to this environmental issue in land use.

Box 2.1-1: Auditing Forests: Guidance for Supreme Audit Institutions

This guide is a resource for audit practitioners developed by the WGEA in the 2010. It provides guidance focused on the forestry sector and covers a range of management and public policy tools used by the government. It describes what forests are, why they are important, what the threats to forests are, and what action governments are taking. It suggests also a process for choosing and designing forest audits, and practical guidance, information, and case studies related to audits on forests

2.2 Degradation of biodiversity

Biodiversity is the main manifestation of the land use resulting in the diversity of ecosystems, species, breeds, varieties, and genomes. It is an important source of natural resources and economic wealth internationally and locally. Economic benefits of biodiversity can be direct (direct exploitation / monetary gain), indirect (resources generated by other resources), option (future potential use), or existence (subjective and moral value for humanity).

Box 2.2-1 : What Biological diversity means?
United Nations Convention on Biological Diversity

Article 2: Biological diversity "means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. "

However, the consequences of various human activities, as intensive agriculture, overgrazing, uncontrolled industry, unplanned urbanization, related to economic development and population growth, go often against preservation of biodiversity and natural resources management. In extreme cases, the negative impact of these activities leads to irreparable loss of animal and plant species.

About 40% of SAIs questioned in this research have considered the loss of biodiversity among the main manifestations of land degradation in their country. It should be noted that plant and animal species that inhabit our planet (of which only 1.4 million have been described so far on an estimated total of between 5 and 30 million) come from earlier species, now extinct.

However, if the "natural" extinctions does hardly affect biodiversity in a human time scale, those caused by current disruptions due to human cause significant quantitative and qualitative changes that reduce biodiversity.

The rate of species extinction, estimated at one species every two centuries before our era, has increased during the twentieth century, by at least 40 for Mammals (including marine species), or even by 1000 for birds (including seabirds).

[9] See Consequences of deforestation in appendix n°3.

Since 2007, the Working Group on Environmental Auditing has developed guidance on auditing biodiversity that provides information and practical advice for understanding the elements relating to the audit of this topic.

Box 2.2-2 : "Auditing Biodiversity: Guidance for Supreme Audit Institutions"

Is a paper developed by the WGEA in the 2005–07 work plan period. The guide was written to support this central theme. It is an indispensable resource for audit practitioners, describing: what biodiversity means, why it is important, what threatens it, and what action governments are taking; a suggested process for choosing and designing audits of biodiversity; and practical guidance, information, and case studies related to audits of biodiversity

2.3 Desertification and soil erosion

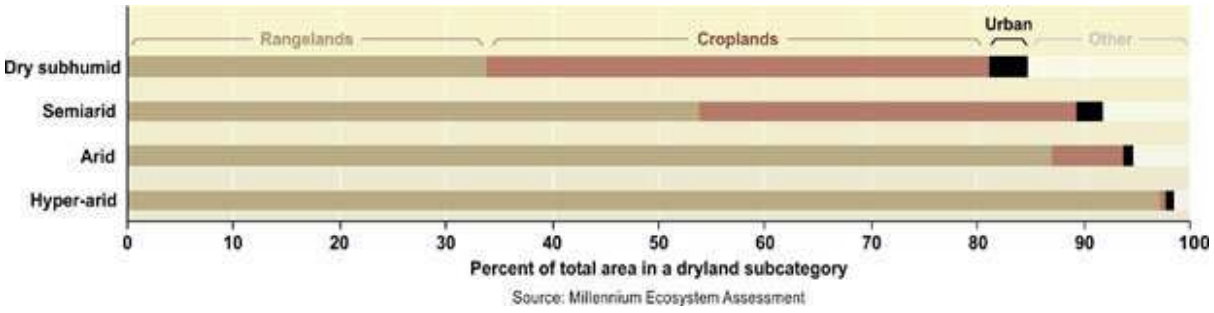
Desertification is not a natural expansion of existing deserts, but it is the soil degradation in arid, semi-arid and dry area. It is a process of progressive loss of soil productivity and depletion of vegetal cover due to human activities and climatic variations.

Box 2.3-1: What desertification means?
United Nations Convention to combat desertification

Article 1: "desertification" means land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities"

The land use has often a direct influence on desertification. It manifests itself through land overuse, poor management of grazing areas and livestock, mechanized agriculture, bad irrigation practices, mismanagement of the input and the omission of improve soil, deforestation, inadequate systems and land use policies, to which is added a series of natural factors that influence the process of land degradation (aridity throughout the years, uneven rainfall, recurrent drought, etc.).

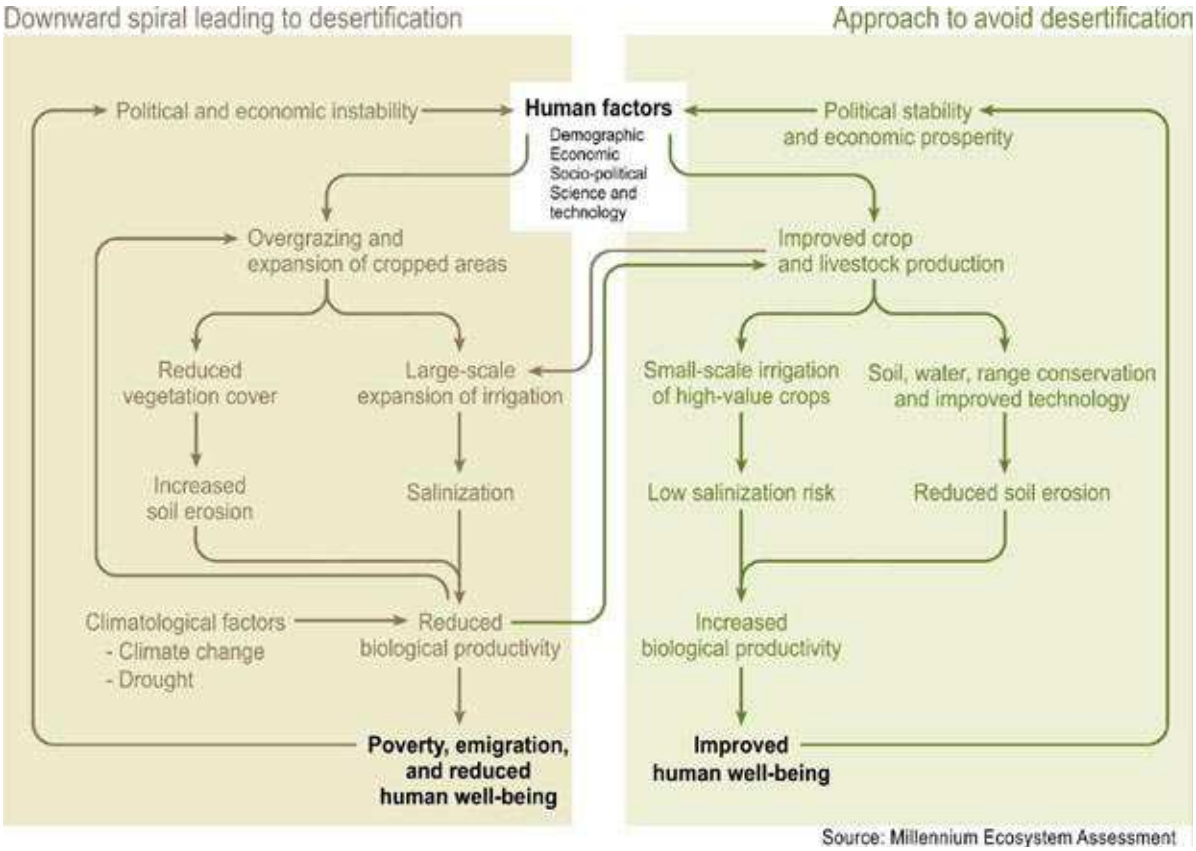
Figure 2: Land use in Dry lands



This scourge is one of the major concerns of SAI surveyed. Indeed, over 31% have considered desertification and soil erosion as the largest form of land use degradation in their country. In this regard, it should be noted that desertification threatens one third of the total land area of the globe, more than 4 billion hectares. It also threatens the livelihood of about one billion people in over 100 countries, which depend on the ground for most of their needs and are typically the poorest in the world.

The combination of indirect factors such as population pressure, socioeconomic factors and policies, and international exchanges, as well as direct factors as land use and use practices, as well as processes related to climate cause a downward spiral of degradation and poverty.

Figure 3: Schematic description of model development in arid areas



2.4 Degradation of water quality

Land use decisions can have significant impacts on water quality. This is particularly the case for development decisions, which make intensive use of land watersheds. The impact on water quality depends on the intensity of land use, which can be classified as low intensity (eg open spaces including woodlands, shrubs, grassland, farmland, and managed green spaces) or high intensity (eg residential, commercial and industrial land use).

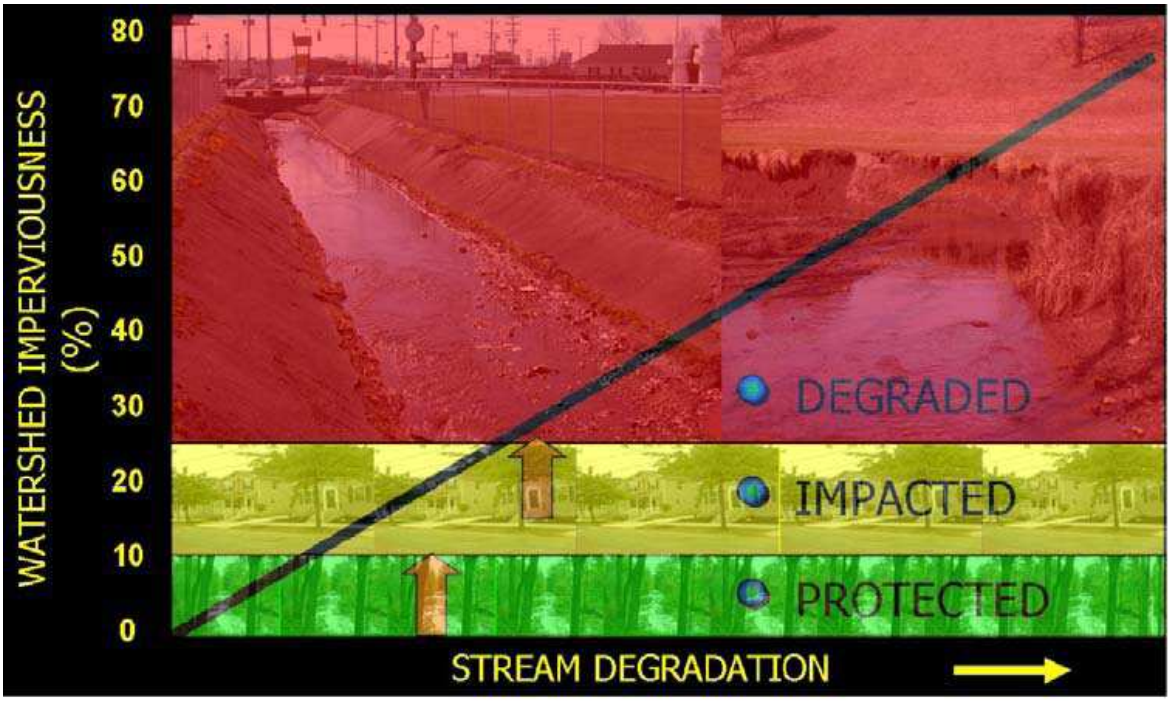
Box 2.4-1: What is aquatic pollution?

We talk about aquatic pollution when the balance has been altered permanently by the intake of excessive amounts of either more or less toxic substances, related to natural or human activities, as well by hot water. These pollutants can cause various types of pollution: increasing mortality of some animal or plant species; making them disappear sometimes, altering their physiological capacity and deteriorating the water quality at the point of making it unsuitable for certain uses, such as human consumption. There are various forms of water pollution including surface water by industrial and municipal wastes, and by agricultural practices, groundwater by over-pumping, dumping of household and industrial waste, as well as practices sewerage.

When development occurs, the manner of land use causes changes in the way water is transported and stored. The combination of constraints related to impervious surfaces (driveways, roads, sidewalks, roofs, etc.) and compacted land creates a barrier to water infiltration coming from rainfall and snowmelt. This causes the decrease of water quality, the increase of volume and velocity of runoff, the increase of the frequency and severity of floods, the loss of storage capacity and runoff water in natural vegetation etc.

Numerous studies have established a direct relationship between intensity of development in an area, indicated by the size of impervious surfaces, and the level of water pollution. These studies suggest that water quality begins to be degraded at levels of imperviousness from 12 to 15%, or even at lower levels for particularly sensitive streams.

Figure 4: relationship between imperviousness cover and stream quality



Since 1996, the Working Group on Environmental Auditing adopted issues related to water as a central theme in order to emphasize the ongoing concerns about the quantity and quality of water resources.

Box 2.4.2: "The audit of issues related to water"

This is a document prepared by the Working Group on Environmental Auditing, in March 2004. It covers the examination of issues related to water, and summarizes the collective experience of Supreme Audit Institutions (SAI) around the world, acquired through lessons learned from more than 350 audits, and contains useful advice for SAIs.

2.5 Degradation of air and atmosphere and global warming

Deforestation, urban sprawl, agriculture, and other human influences alter and fragment the natural landscape. This disturbance of the land use causes changes in the atmospheric concentration of some substances and materials such as carbon dioxide which can range from microscopic to macroscopic scale, and thus alters the energy flows balance on the surface of the Earth.

Box 2.5.1: What is the degradation of air?

This is the altered levels of quality and purity of air, usually caused by one or more elements (particles, substances, materials ...) whose degree of concentration and duration of presence are sufficient to produce a toxic or ecotoxic effect. The main types of pollution are the greenhouse effect, acidification, eutrophication, photochemical pollution, depletion of stratospheric ozone. The main sources of pollution are motor vehicles, power generation, industry, agriculture. To these problems may be added the problems of indoor air pollution, residential and workplace, due to ventilation problems.

Moreover, degradation of air quality, direct cause of global warming, represents one of the biggest environmental, social and economic factors that threaten the Earth. In this context, The Intergovernmental Panel on Climate Change (IPCC) says that global warming is unequivocally the cause of the increase observed in ocean temperatures, generalized melting of snow and ice, and rising mean sea level. The IPCC also states that it is very likely that global warming is caused by human activity. Mitigation and adaptation efforts are needed by all countries to fight against climate change.

Over than 25% of SAIs surveyed reported that the degradation of air is among the most important environmental threats in their countries. The Working Group on Environmental Auditing has approached this subject in 2010 by developing an audit guide (see box 2.5.2).

Box 2.5.2: "Auditing the Government Response to Climate Change"

This document was prepared by the Working Group on Environmental Auditing in 2010. The guide contains background information such as a description of the sources of greenhouse gases, international environmental agreements and national programs aiming to mitigate emissions of greenhouse gases; adaptation to climate change impacts and the extent of verification and reporting.

2.6 Contamination from waste

Contamination caused by waste is considered by the United Nations Environment Program (UNEP) as an extremely important issue in all areas of the planet. Poor management of waste presents enormous risks on the environment, welfare and health of humans and animals and determines the behavior of actors in the land use. The risks listed below are for illustrative purposes.

The presence of garbage dumps in urban and suburban areas hinders the development of economic and tourist activities and degrades the quality of living. The dumps and landfills misplaced in urban areas and poorly managed are unsightly and smelly and can contaminate soil, groundwater and streams. Waste incineration contributes to air pollution. Insufficient collection of solid waste clogs the sewerage of wastewater and stormwater and generates a lot of nuisance.

Toxic, hospital and hazardous waste untreated properly constitute a significant danger to soil, to population and to public health. In this way, radioactive waste can be lethal and pollute large areas for centuries to come. Medical waste are also dangerous as it may exacerbate the spread of diseases and infections.

Over than 40% of SAI surveyed stated that the waste contamination is one of the major threats of land degradation in their country.

In 2003, INTOSAI WGEA has developed an audit guide for waste management.

Box 2.6.1: "Toward Auditing Waste Management: Guidance for Supreme Audit Institutions"

This paper was developed by the WGEA in 2003. It gives an overview of waste management issues and provides supreme audit institutions (SAIs) with the information they need to conduct audits in this area.

2.7 Land use impacts of mining

The extraction and processing of minerals and metals can have dramatic consequences for the environment and land use. The most serious impacts of mining are:

- **Impacts on water resources**

The acid mine drainage and leaching of contaminants associated to the metal mining have devastating impacts on aquatic life, rivers and streams. It is the largest source of negative impacts on water quality.

Toxic substances can leach under settling ponds and mine tailings storage and filter through the soil and contaminate groundwater, particularly if the basis of these facilities is not equipped with a waterproof coating. Pumping and water discharges that invade mine shafts reduce or eliminate domestic supply wells and causes problems of quality and quantity of groundwater.

- **Impacts on air quality :**

Air emissions occur at each stage of mining, especially during the exploration, development, construction and operational activities. Mining operations mobilize large amounts of materials, and waste batteries containing small particles easily dispersed by wind.

- **Impacts on wildlife**

Mining affects the environment and associated biota through the removal of vegetation and soil cover, movement of wildlife, release of pollutants and generation of noise.

- **Impacts on soil quality :**

Mining operations change regularly the surrounding soils that were previously untouched. The erosion of exposed soils would involve substantial expenditure of sediment in surface water and drainage channels. In addition, spills and leaks of hazardous materials and deposition of contaminated dust whipped by the wind lead to soil contamination.

- **Impacts on social values:**

Mining is a risky activity. Health and integrity of the miners and their communities are subject to hazards from various sources, ranging from smoke inhalation, dust contamination of domestic water and poor safety regulations.

Certainly, mining projects can create jobs and increase demand for goods and services in remote and poor regions, but the benefits and consequences can be

unequally shared. If communities feel they are unfairly treated or inadequately compensated, mining projects can lead to social tensions and violent conflicts.

Box 2.7.1 : Auditing Mining: Guidance for Supreme Audit Institutions

The main objective of this guide, developed by the WGEA in 2010, is to increase SAIs' knowledge and awareness about auditing mining by surveying different approaches to the problem and to inspire more audits in this field. This guide will help SAIs audit mining activities by:
• Educating auditors on the nature of mining activities, their potential impacts on the environment;
• Describing the major role SAIs can play in auditing the actions of their governments and reminding them of their commitments,
• Providing a four step approach to help auditors to plan and conduct an audit of mining in their country; and
• Presenting case studies that will help SAIs learn how others have approached this audit topic.

2.7 Environmental risks related to the management of local public services

Management of public services has direct and indirect impacts on the conservation and sustainable land use. These impacts are much more visible at local areas (municipalities and local authorities) because of the nature of provided services (potable water, liquid waste disposal, domestic waste and assimilated waste from hospitals, transportation, energy, telecommunications, etc.) and proximity to the user.

Environmental performance of these services and control of private operators, when they are delegated, are part of the current concerns of SAIs and public managers.

As illustration, the quality of management of local services as transport has a significant impact on air pollution (through emissions of greenhouse gases), surface water pollution and noise pollution. It also conditions the use of urban and rural areas, which in turn influences people's health, safety, citizen's mobility and access to economic activities.

Management of sanitation and solid liquid influences the lives of people by means of the collection, evacuation and treatment conditions in existing or future neighborhoods. It also determines the quality of the environment and public health, including the presence or absence of residue upgrading processes downstream of discharges, as efficient recycling and reuse in agriculture or open spaces.

The area largely determines the possibility of efficient implementing of local services, particularly relating to public transport, green spaces, installation of potable water, electricity, energy, telecommunications, etc. Indeed, an urban community that wishes to establish such services in accordance with the principles of sustainable development should promote urban development focused on effective service, with forms of urban development particularly well chosen in terms of the density of land use, the configuration of the streets, etc.

About 23% of SAIs surveyed said that the environmental risks associated with the management of local public services are among the major forms of land degradation in their countries.

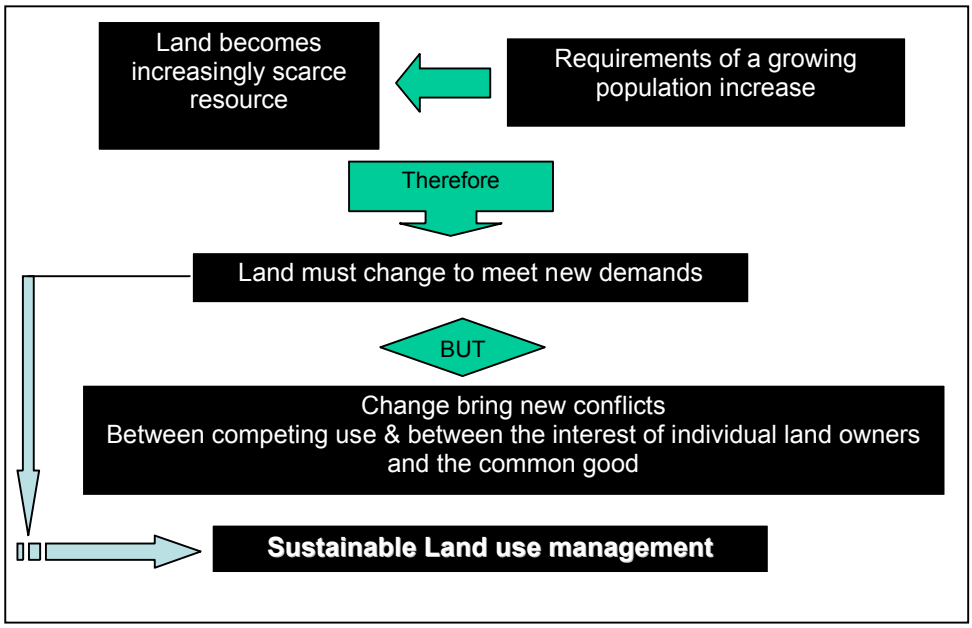
Chapter III: Sustainable land use management

Sustainable land use management (SLM) is defined previously (see Background Chapter). Therefore, SLM adopt an integrated approach to management of natural resources, taking into account various factors that influence decisions about land use at local, national and regional levels.

Box III : Sustainable land management and sustainable development

The notions of sustainable land management and sustainable development are inherently attractive as ways of reconciling human needs with the limits of the biosphere. Policymakers, however, struggle enormously to translate these concepts into reality. Part of the struggle results from the fact that managing for sustainability requires integrating a variety of values – from economic to ecological to cultural – that in some cases cannot be integrated without difficult trade-offs. Since economic values have traditionally dominated land use and development decisions, policymakers often feel able only to "add on" or "layer on" other values on top of economic considerations. This is why ecological, cultural, and social values are so often additional considerations tacked on at the margins of an economic land use or development plan. Sustainable land management and sustainable development require turning this model on its head. Land use decisions should begin by recognizing the limitations of the biosphere and then aim to maximize social, cultural, and economic uses on the basis of the best potential output of land and resources. While there will still inevitably be difficult trade-offs to make with this approach, it allows policymakers to make overt decisions about how to distribute the limited resources of the biosphere among members of society, aiming to minimize the trade-offs as much as possible. [10]

Thus, governments have a crucial role in the implementation of policies for judicious utilization of land taking into account the environmental dimension.



10 Ecological Economics, Sustainable Land Use, and Policy Choices pp. 526-554 By Nathalie J. Chalifour

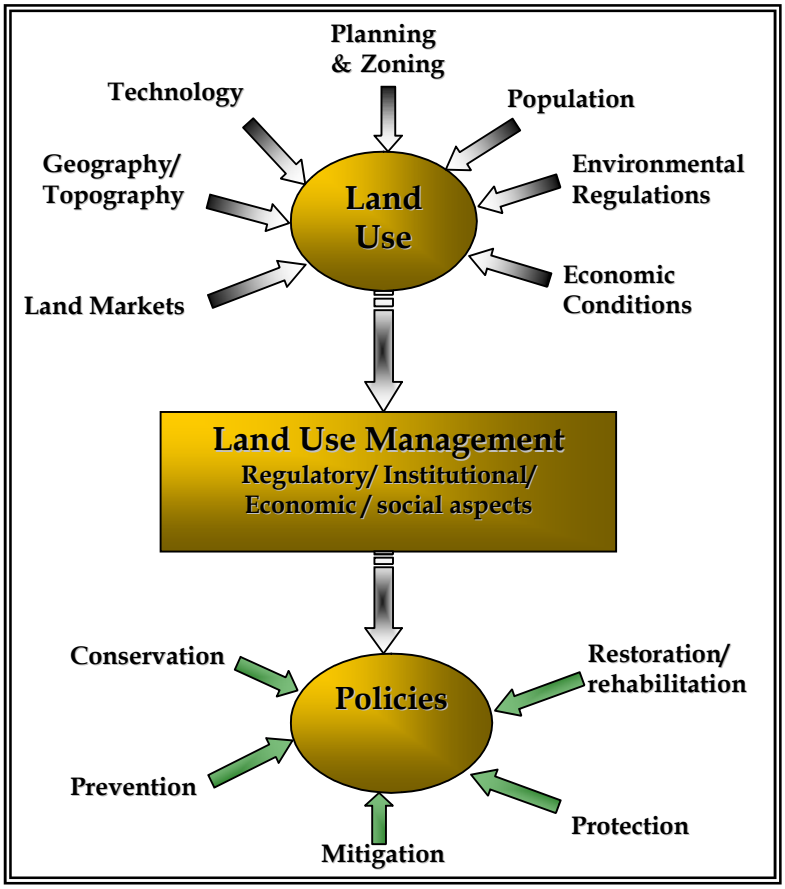
3.1 Regulatory, institutional and Economic Aspects

The land use are subject to human intervention and include a full range of management practices, through agriculture, urban sprawl, tourism or by changing the forms of use of rural areas etc… The magnitude of this artificial land in countries under strong natural constraint raises questions about the social value of land, and on the modes of public regulation that would protect them more effectively against human intervention.

The majority of countries have adopted policies for improved land management. Others countries have implemented land use practices, this takes many forms and can have negative effects on land management.

To limit the negative economic, social or environmental reactions induced by land use practices, the States have some tools related to:

- Regulatory instruments;
- Institutional instruments;
- Economic instruments;
- Social Instruments...



3.1.1 Regulatory aspects

Generally, public intervention in land use is defined by a legal framework comprising national laws which often delegated to local government bodies on the one hand and international conventions on the other hand. These are tools that organize the right of land and soil and associated uses. The privileged instrument is the zoning. Present in most countries, governments are directly implementing an action planning (acquisitions for infrastructure) or a localized sector policy (some environmental zoning).

Box 3.1.1.1

Land use legislation or planning law is a key component of any serious attempt to integrate environmental objectives into a comprehensive public policy aimed at achieving sustainable development. In most cases in which countries have been successful in implementing environmental policies, the effective use of planning tools and land use legislation appears as a common feature, in conjunction with a mix of traditional "command and control" pollution control legislation and incentives aimed at promoting and rewarding sustainable economic decisions.

In many developing countries, however, land use legislation is not fully integrated into the context of public policies aimed at promoting environmental quality and sustainable development. In some cases, this is due to the scant attention that has been paid at a conceptual level to the importance of land use regulation as a key instrument for implementing environmental policies. In other cases, where land use and planning laws do exist in theory, poor or nonexistent enforcement makes them a weak tool for the achievement of sustainable development goals.

However, the awareness of the importance of land use regulation as an instrument for environmental policy is growing throughout Latin America in general and Argentina in particular. This is evidenced by a growing body of academic papers, public policy documents, and studies carried out by multilateral aid agencies, and by the increasing amount and quality of legislation relating to land use and planning procedures involving public participation and long-term development strategies. 11

In terms of urban planning, regulatory instruments are created by laws of land and urban planning. These urban plans fulfill three functions: planning, programming and regulation. On this last point, there is a definition of rules that determine land use activities permitted or prohibited and which are applied obligatory by the administrative authorities and citizens.

Box 3.1.1.2

Land use planning and zoning laws are important in wildlife management since they direct the manner in which important areas are to be utilized and thus have the potential to ensure that resources are sustainably managed. General land use planning laws fall into two categories, namely, those dealing with urban land and those dealing with agricultural land. In addition to these, there are laws on wildlife and forest conservation, which prescribe rules specifically for these areas[12]. .

Almost in all countries, they use urban planning to organize a large public control of land. These plans are hierarchical, compatible with each other and constitute zoning and specialized territories; their type is determined by the State. They encourage an urban concentration, development of the city and the preservation of natural areas; they oppose the anarchical construction. Almost in all countries, they have a similar

11 Argentina's Constitution and General Environment Law as the Framework for Comprehensive Land Use Regulation pp. 503-525 By Juan Rodrigo Walsh

12 Land Use Law for Sustainable Development, Published in the United States of America by Cambridge University Press, New York, www.cambridge.org

arsenal of legal means defined by the State: urban planning, building permits, expropriation process, a legal system operations planning, property taxation ...

Moreover, the new technical possibilities of mapping, with satellite positioning systems and Remote Sensing are now powerful tools for planning. If we add to this the possibilities of the remote computer, there are new ways to solve problems of land systems.

3.1.2 Institutional aspects

Almost in all countries, specialized agencies support the management of land use. Their legal status is variable, the State itself, Agencies or public offices and private organizations with delegated public service through montages public/private.

Box 3.1.2.1

The purpose of environmental law is to restrict human activities so that the land can be used without inflicting adverse effects on the environment and good environmental conditions can be maintained. However, considering the wide range of stakeholders and the wide variety of human activities, the environmental law system should go beyond the conventional legal system of land use, which regulates only the activities of land users, which are mainly composed of landowners. Environmental law is a unique field of law in that it covers all stakeholders whose activities have impacts on the environment – these include national and local governments, businesses and companies, nongovernmental organizations (NGOs), and citizens. Environmental law can take appropriate legal measures to deal with actual impacts on the environment caused by the various activities of these stakeholders. As a legal system, environmental law should step over the concept of restricting land use to deal with such public property as air, quality of water, and ecosystems, or with such extensive and complex environmental conditions as climate change. As a result, environmental law is required to set up a new legal area with its own system and logic different from the conventional jurisprudence that has been dealing with individual human beings and property. 13

In terms of planning land use, several actors operate at several levels. The following diagram illustrates the different possible flows:

13 Land Use Law for Sustainable Development, Published in the United States of America by Cambridge University Press, New York, www.cambridge.org

3.1.3 Economic aspects

Currently, economic policies and environmental policies are not separable. It is necessary to achieve effective integration of the economy and the environment and to develop tools and strategies that meet the imperatives of sustainable development.

To achieve environmental objectives, the State act through various means: enact regulations with sanctions (for instance, set limits, impose bans on products), act by financial incentives (distribution of financial incentives or impose tax incentives), define objectives, which should be achieved through sector self-regulation.

The economic conception of the environment shows that the objective of a degree of environmental protection can be achieved at lower economic costs, using incentive instruments rather than regulations.

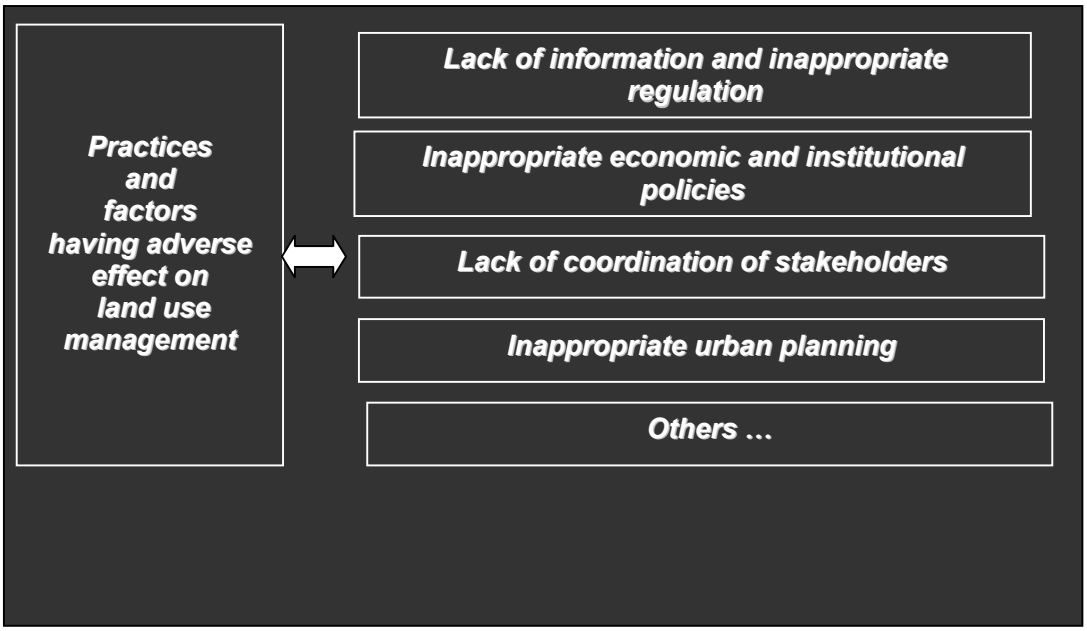
3.1.4 Social aspects

The tools developed for the use of land in different countries are similar. However, the concept of land use differs between countries and the impacts of the same policy can lead to different results depending on the country: society, the lifestyle and political systems are not the same. Some countries are not comparable because the land management practices depend on the behavior of the people, customs and beliefs.

3.2 Practices and factoring having adverse effect on land use management

Whatever the factors of the effectiveness of the institutional framework, control system countries can be affected adversely by the strategies and land use practices of public and private actors.

Indeed, various factors cause adverse effects on natural resources, including inadequate planning, incoherent policies and institutions and inappropriate management tools.



3.2.1 Lack of information and inappropriate regulation

Information on land use is often inadequate or nonexistent. Collecting data on land use is also an important tool for decision to support the control system. To manage properly land use, to be able to follow the process of valuation and devaluation of land, lack of both regulation and information are the major weaknesses. For example, it is the absence of a structure whose role is to provide reference points, possess comprehensive and reliable information on land uses, their types, and the flows between different actors, the mechanisms valuation and devaluation affecting the various spaces.

About regulations, States do not enact enough standards and rules. Sometimes, laws are created contradictory, too complex, and difficult to apply.

Also, many public initiatives have been taken in all countries to protect land. However, the frequency and magnitude of changes of land use reflect at least a relative ineffectiveness of current regulations, in view of the challenges of their protection. A proper analysis of the modes of regulation of land use is currently difficult, especially the lack of centralization and availability of aggregate or composite indicators on trends in land markets, the nature and location of pressure on land or on other aspects of land degradation.

Box 3.2.1.1

South Africa

Land use (excluding environmental issues) is currently regulated by various separate, yet interrelated acts, including the Physical Planning Act 125 of 1991, the Conservation of Agricultural Resources Act 43 of 1983, the Mountain Catchments Areas Act 63 of 1970, the Development Facilitation Act 15 of 1994, the Local Government Transition Act 209 of 1993, the Local Government Municipal Structures Act 117 of 1998, the Communal Property Associations Act 28 of 1996, and the Restitution of Land Rights Act 22 of 1994. Apart from these various national acts, land use and planning are furthermore regulated by a vast number of provincial ordinances and laws. Environmental issues are referred to in only some of the post-1994 legislation.

It is clear in this instance that environmental governance efforts relating to land use in South Africa are fragmented along various acts that either directly or indirectly influence land use issues. Consequently, the administration of these acts is also fragmented along the various spheres of government and different line functionaries in each sphere that are responsible for the execution of environmental governance mandates with responsibilities of these acts. It is proposed that this fragmented land use management regime may not sufficiently assist in addressing issues such as poverty alleviation, economic growth, environmental protection, and infrastructural development in a sustainable fashion.[14]

3.2.2 Economic and institutional Inappropriate Policies

For long time, the use of natural resources was not considered as major concern in the definition of development policies in general. For example, agricultural policies in some countries encourage the cultivation of new land and construction of dams as a means of increasing production. All these projects have in some way an impact on natural resources[15].

[14] Strategies for Integrated Environmental Governance in South Africa: Toward a More Sustainable Environmental Governance and Land Use Regime, Louis J. Kotze.

[15] Only in rare cases that conducts detailed studies of investment opportunities in the management and use of natural ecosystems, despite the declaration of 1980 on environmental policies and procedures related to economic development , and the explicit recognition of environmental issues in the Lomé III in 1984 confirmed

In most countries, institutions are responsible for the management of natural resources and land management, although few accomplish their mandate effectively. There are many reasons for this, but the main cause is the failure to appreciate the real economic and social importance of these various natural resources. Five main causes are listed :

- The sectoral organization of resource management; perception of the importance of resources varies depending on the types of users (farmers, fishermen, foresters, planners ...) and each user considers relevant areas such as systems unique product, excluding any other value;
- Inappropriate management methods;
- Lack of qualified staff in addition to the problem of sectoral organization, the personnel engaged in natural resource management has rarely received adequate training enabling him to better manage natural resources;
- Development experts generally regard as primitive and traditional practices to be changed, rather than adjusted to the capacity of the natural environment;
- Inadequate legislation and weak implementation;
- Limited resources.

3.2.3 Lack of coordination of stakeholders

Some systems are characterized by an abundance of regulatory tools shared between different levels of public authorities. This plurality of stakeholders damages the transparency and effectiveness of policies which take place in practice outside the regulatory framework (direct intervention in the market through public institutions, Agencies ...). The lack of consultation and coordination between different stakeholders is also a source of problem and obstruction for better land use.

3.2.4 Inappropriate urban planning

The comparative analyzing of different systems of land urban planning highlights both:

- Major issues common to all countries, such as urban sprawl, spatial segregation, the financing of public facilities;
- The diversity of policies and tools implemented to address these issues.

Inappropriate urban planning practices and policies (including institutional inefficiencies and lack of coordination among the key actors in urban development) are some of the underlying courses of urban environmental degradation.

Indeed, Urban sprawl refers to development on urban peripheries characterized by scattered low-density development, incomplete infrastructure, excavated ground, and vacant lots.

by the Cotonou. In many cases, these inconsistencies do not result from a lack of environmental awareness, but rather the inevitable consequence of division sectoral institutions and the lack of examples of integrated resource use as a model for future investments.

The problems associated with urban sprawl include inefficient use of land (that is, under-utilization of land or infrastructure); excessive energy consumption and air pollution due to greater use of motorized transport; and high costs for providing infrastructure. Critics of urban sprawl also cite its negative effect on aesthetic quality.

Although there is a general consensus among urban and environmental planners that urban sprawl is something to avoid, some view urban sprawl as a temporary phenomenon-the embryonic stage of an urban area before it becomes fully integrated into the surrounding urbanized zone. The size of the sprawl belt and rate of its transformation will depend on prevailing regulatory and land tenure systems as well as the proximity of infrastructure.[16]

3.3 Policies, methods and other tools to preserve land resources

Face to the alarming threats related to land degradation, the earth's resources has become a major challenge both for environmental reasons (stability of ecosystems, geochemical cycles) and socioeconomic (food, agriculture, fisheries, industrial application) that simply for ethical reasons, as to know the intrinsic value of life. The international community is gradually adopting an arsenal of legal and normative instruments designed primarily to regulate the exploitation of different forms of land use and preserving specifically elements of biodiversity. These policies seek to reconcile conservation of natural resources and economic development.

3.3.1 Conservation instruments

Conservative policies are aimed to protect natural and built resources, including built heritage, by limited access or by an outright denial of access. These policies usually lead to creation of conservation areas and spaces.

Box 3.3.1.1
What conservation area means?
African convention on the conservation of nature and natural resources

Article V. USE OF TERMS

6. **"Conservation area"** means

a) any protected area designated and managed mainly or wholly for one of the following purposes:
i) science or wilderness protection (Strict Nature Reserve/Wilderness Areas);
ii) ecosystem protection and recreation (National Parks);
iii) conservation of specific natural features (National Monuments);
iv) conservation through management interventions (Habitat/Species Management Areas);
v) landscape/seascape conservation and recreation (Protected Landscapes/Seascapes);
vi) the sustainable use of natural ecosystems (Managed Resource Protected Areas).

Governments take several steps and are equipped with various instruments relating to land use towards conservation of different forms of land use, including soil, water, vegetation and habitats.

a- Conservation of land and soil

By adopting land use plans based on scientific studies, as well as local knowledge and experience and capacity classifications of land use. In this context, agricultural policies and land reforms are essentially aimed to:

[16] Land use consideration in Urban Environmental Management, Janis D.Bernstein

- Improve soil conservation including the introduction of farming methods and sustainable forest in order to ensure land productivity in the long term;

- Fight against erosion caused by the misuse and mismanagement of land that can cause a loss of soils and vegetation surface;

- Fight against pollution caused by agricultural activities, including aquaculture and animal husbandry;

Conservation policies relating to non-agricultural forms of land use (relating to public works, mining, waste disposal, etc.) are establishing standards and practices that do not support the erosion, pollution or other forms of land degradation.

b- Conservation water resources

These policies include the rational management of water resources to ensure:

- Maintenance of essential ecological processes and hydro-protection of human health against pollutants and waterborne diseases;

- Prevention of damage that may have harmful effects on human health or natural resources by the discharge of pollutants;

- Prevent excessive abstraction, to the benefit of downstream communities;

- Implement planning policies, conservation, management, use and development of groundwater and surface water, as well as collection and use of rainwater, in order to ensure to people a sufficient and continuous supply of suitable water;

- Rational management and water conservation in irrigated agriculture, to ensure greater food security and durable agro-industrialization.

c- Conservation of vegetal cover

These policies aim adoption of plans scientifically established, based on judicious traditions in conservation, use and management of forests, woodlands, grasslands, wetlands and other areas of vegetation, taking into account social and economic needs of populations and importance of vegetation to maintain the water balance of an area. Other measures are taken to control fires, forest exploitation, land clearing, grazing by domestic animals and wildlife, and invasive species, and to create forest reserves and implement reforestation programs where they are needed.

d- Conservation of species and genetic diversity

Implementation of conservation policies of genetic diversity are made under land use plans and sustainable development, particularly the conservation of species and their habitats, with a social, economic and environmental value, or those found only in particular areas.

Box 3.3.1.2
What Threatened Species means?
African convention on the conservation of nature and natural resources
Article V. USE OF TERMS
5. **"Threatened Species"** means any species of fauna or flora which is considered critically endangered, endangered, or vulnerable.

Several governments adopt stricter laws regulating all forms of collection, including hunting, trapping and fishing and the collection of plants or plant parts and the regulation of trade, possession and transport of specimens and products.

Examples of conservation instruments in UK (response to the questionnaire)

Areas of Outstanding Natural Beauty (AONBs) (in England, Wales and Northern Ireland):

The primary purpose of the AONB designation is to conserve natural beauty – which by statute includes wildlife, physiographic features and cultural heritage as well as the more conventional concepts of landscape and scenery. Account is taken of the need to safeguard agriculture, forestry and other rural industries and the economic and social needs of local communities. AONBs have equivalent status to National Parks as far as conservation is concerned.
AONBs are designated under the National Parks and Access to the Countryside Act 1949, amended in theEnvironment Act 1995. The Countryside and Rights of Way Act 2000 clarifies the procedure and purpose of designating AONBs.

National Parks

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well being of those living within them.

The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales. In addition, the Environment Act 1995 requires relevant authorities to have regard for nature conservation. Special Acts of Parliament may be used to establish statutory authorities for their management (e.g. the Broads Authority was set up through the Norfolk and Suffolk Broads Act 1988).

The National Parks (Scotland) Act 2000 enabled the establishment of National Parks in Scotland. In addition to the two purposes described above, National Parks in Scotland are designated to promote the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. These purposes have equal weight and are to be pursued collectively unless conservation interests are threatened.

Further information on other relevant designations are available here can be found here http://jncc.defra.gov.uk/page-1527

The government published a 'White Paper' in June 2011 on the Natural Environment, which aims to improve the quality of the natural environment across England, halt the decline in habitats and species, and strengthen the connection between people and nature. Key measures in the White Paper include:

- Creating new Nature Improvement Areas (NIAs), transforming rural and urban areas and providing bigger, connected sites for wildlife to live in and adapt to climate change.
- Working with the horticulture industry to phase out peat use, which will help to protect and restore our peatlands, which are valuable carbon sinks, habitats and part of our ecological network.
- Creating Green Areas Designation that will give local people an opportunity to protect green spaces that have significant importance to their local communities
- Providing better urban green spaces for the benefit of cities and towns. Support for parks, gardens, and tree planting which benefit people and nature alike.

3.3.2 Restoration or rehabilitation

The Society for Ecological Restoration International[i] defined ecological restoration as the process of assisting the recovery of ecosystems that have been degraded, damaged or destroyed. It is an intentional activity that initiates or accelerates the recovery of an ecosystem with respect to its health, integrity; sustainability and its

physical capacity to support all living organisms and its connectivity with the surrounding landscape.

This requires a good knowledge of the functional and evolutionary ecology of targeted ecosystems, the history of anthropogenic degradation (due to man) and, finally, the choice of a reference ecosystem to guide planning, implementation, monitoring and evaluation of the restoration project

Like restoration, ecological rehabilitation uses historical or pre-existing ecosystems as models or references, but the two approaches differ at their goals and their strategies. Rehabilitation emphasizes the repair and recovery processes and, therefore, on productivity and ecosystem services, while the primary aims of restoration is to restore the pre-existing biotic integrity in terms of species composition and community structure.

Policies of restoration and rehabilitation aimed to limit and control access to space and resources in order to allow the natural processes to restore a balance that has been lost. They also focus on proactive practices to accelerate the process of restoring the balance of nature (such as watershed management, setting of dunes and fight against desertification, building dams, urban forestry, capture of ground carbon, etc.).

Box 3.3.2.1
National Action Program to fight against desertification
Kingdom of Morocco (response to the questionnaire)

Established in 2001, the National Action Program to Fight against Desertification (PANLCD) was created to overcome desertification, which threatens 90% of the country. It was designed with a view to promote a strong link and synergy between sectoral programs through actions driven upstream or downstream in the following areas:

- Support and accompaniment the process of fight against desertification;
- Support for initiatives to generate income;
- Support measures to fight against desertification and mitigating the effects of drought;
- Increase knowledge and monitoring systems;

The first group of actions is mainly the strengthening of the political, legislative and institutional capacities as well as actors.

The second group of actions relates to the testing of new models of participatory development and the development of micro credit to finance local investment.

The third group of actions includes, among others, integrated development of pilot forest areas, creation of village forests and windbreaks curtains and promotion of rainwater harvesting and renewable energy.

The fourth group of actions is oriented to the inventory of natural resources, strengthening the network of ecological monitoring, establishment of an observatory of drought and monitoring - evaluation of program impacts.

Within the framework of this program, 579,000 acres of watershed have been built, 36,000 acres for reforestation and dune stabilization. to place also to account for this program the creation of 10 national parks, 24 natural and biological reserves, 3 biosphere reserves and the construction of 130 dams.

However, despite the achievements of PANLCD since its launch, this program has suffered from some constraints, including lack of quantified objectives, and diagnosis and treatment of undifferentiated and non-compliance with vocations land.

For this reason, the PANLCD has been updated by the office for Water, Forests and fight against Desertification" to adapt its intervention to specific areas and meet the prerequisites for synergy and intersectoriel complementarily.

Concerned to adapt the PANLCD, the office, with the help of a panel of independent consultants, conducted an inventory of desertification in all regions of the Kingdom. It showed a particularly homogenous area mapping, analysis of strengths and weaknesses and strategic directions. The Kingdom has been divided into eight homogeneous areas.

3.3.3 Protection and Prevention instruments

These policies aim to minimize the impacts of development or to mitigate the impact on land use and limit or eliminate the negative impact of human activities on the environment. Most governments are developing strategies and actions for protecting environment whose main similarities are:

- Integration of environmental policy in regional and sectoral policies (industry, energy, transport, agriculture, tourism, urban planning, health, etc.);

- Implementation of development strategies, in the long run, in environmental fields and regenerative and non regenerative resources;

- Strengthen the institutional capacity in the environment area, ensuring the financial and human resources at central and local authorities responsible for the environment, and use of funds allocated transparently through national programs and international implementation of plans to protect the environment.

For example we can cite policies which aim to improve the quality of environmental factors in urban and rural areas that focus on:

- The quality of air (atmosphere protection, monitoring systems, inventory system of pollutant emissions);

- The implementation of integrated program management of waste (selective systems to reduce, reuse and recycle waste, proper handling of hazardous waste, adoption of legal provisions concerning hazardous waste in the industry, worn out vehicles, electrical and electronic equipment, etc.).

- Management of water resources in accordance with the regimes imposed by the national and international agreements, protocols and conventions (collection systems and treatment plants for wastewater).

- Control of industrial pollution, including the achievement of pollutant registers at national and local levels, finalization of the legislation on the limitation of organic emissions control of major accidents involving dangerous substances; introduction of management systems and environment self - monitoring of emissions.

- Urban land Management : In managing urban land so as to achieve environmental objectives, there are many crosscutting issues (i.e., managing development in hazardous areas requires, among other measures, provision of necessary infrastructure, and tenure security, special housing construction techniques, and effective disaster planning; protecting cultural heritage involves, inter alia, strengthening environmental institutions, improved property taxation, and effective

urban growth management). Therefore, one of the most important challenges is to achieve a proper balance between urban development and environmental protection, taking into account the inter-relationships among land use, poverty, and the environment. However, balancing environmental and urban development objectives will require a land management strategy that both protects sensitive resources and facilitates the urban land market. To implement this strategy, there is no one set of policies and policy instruments that will be effective under all conditions. Urban land managers will need to conduct an in-depth assessment of local land conditions (including natural features, land use, land conversion rates, land policies, land laws and regulations, land tenure, land institutions, land administration and formal and informall and market). To sum up, managing urban land to meet environmental and equity objectives requires a mix of policies and instruments to guide and motivate the behavior of actors causing the land-related problems and those responsible for managing urban land so as to avoid those problems. To implement the land management strategies discussed above, some of these instruments will influence market behavior (i.e., increasing supply by removing excessive land use controls, providing urban infrastructure, or by improving land titling systems); others will affect the land management process through improved regulation subsidies, or provision of critical information.[17]

Moreover, the process of environmental impact assessment is the primary tool for environmental protection.

Box 3.3.3.1
What is environmental impact assessment (EIA)
Business dictionary

Environmental impact assessment is a the detailed study based on environmental assessment (EA) to determine the type and level of effects an existing facility is having, or a proposed project would have, on its natural environment. Its objectives include (1) to help decide if the effects are acceptable or have to be reduced for continuation of the facility or proceeding with the proposed project, (2) to design/implement appropriate monitoring, mitigation, and management measures, (3) propose acceptable alternatives, and (4) to prepare an environmental impact report (EIR). The adequacy of an EIA is based on the extent to which the environmental impacts can be identified, evaluated, and mitigated. An EIA is a standard requirement where international agencies (such as World Bank) are involved, and is critically important for projects requiring a major change in land use or those which are to be located in environmentally sensitive areas.

Environmental impact assessment is adopted by many countries as an instrument of environmental protection[18]. Each country adapts to its needs, its specificities, its objectives and its means. However, everywhere the EIA has the same benefits and its definition does not change where it is used. Moreover, it occurs in a pattern essentially identical in all countries. It includes all procedures and documents for a project or facility, since the start of design, to the operating license, to assess the environmental impact of the project and its compatibility with requirements of environmental protection (ecosystem protection, forest conservation, landscape protection, water, hunting, fishing, etc.).

[17] Land use consideration in Urban Environmental Management, Janis D.Bernstein

[18] See Environmental impact Assessment in the RIO declaration on environment and development in appendix N°5

Generally, the planning documents of territorial planning and designate areas where impact assessments are mandatory for all applications for authorization of projects.

Concerning the prevention, it takes many forms because all the instruments of environmental protection without exception have preventive effects. The prevention principle was consecrated by the Rio Conference, in its Principle 2. It also extends on instruments that were originally a redistributive function. Such is the case of strict liability regimes and environmental taxation.

Box 3.3.3.2
Prevention principle in the RIO declaration on environment and development

PRINCIPLE 2
States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Prevention policies are generally proactive, and result in several ways by prohibitions, controlling harmful activities, information and incentives.

Prohibition:

It is the most drastic way to translate the principle of prevention. This may include:

- Prohibition of placing on the market a particular substance or product;

- Prohibition to implement or operate certain activities;

This is the case of prohibition to set up and operate a technical landfill, or a factory with radioactive effects, to accommodate a particular waste, etc.

Control of the harmful activity:

This is a reasonable and conciliatory approach of conflicting interests. We may allow, for example, activities for economic and social reasons, but it will be mastered (this is the case with the choice of location in a processing plant wastewater, a dump, etc.).

This is particularly based on the self purification capacity of ecosystems that we translate the principle of prevention. Some consider that the solution to pollution is dilution, it is not necessary to translate the discharge of pollutants to zero, but we need that the level of rejection is authorized depending on the capacity of environment to absorb it. This has led to the imposition of standards that can be general, sectoral (eg standard of wastewater discharge per sector) or specific (authorization, specific regulation to a product). Also, you can prevent injury by imposing standards that non-compliance must be punished.

Information:

As we cannot prevent that what we know, the investigations to have better information of the environmental impact must be increased. This leads to evaluations and studies of risk that is becoming widespread in particularly sensitive areas (such as GMOs or soil pollution). Investigations may also take place afterwards. This can be done through monitoring activity by an auditing system, supervisory control, monitoring etc.

Incitement:

The prevention principle is introduced in the policies of environmental protection by mechanisms that encourage the potential polluter to take preventive measures. Direct incentives usually take the form of public support for a prevention policy. Indirect incentives include, for example, the generalization of mechanisms such as strict liability that would normally encourage them to take any preventive measure to avoid condemnation.

Box 3.3.3.3
Examples of preventive policies (response to the questionnaire)

In United-Kingdom:

Agri-environment schemes have been set up to pay farmers to implement and maintain environmental land management measures (such as hedgerow management, low fertilizer treatment for grassland and woodland management)
There are a number of legislation in place to provide protection for designated **Sites of Specific Scientific Interest (SSSI)**. Natural England now has responsibility for identifying and protecting the SSSIs in England under the Wildlife and Countryside Act 1981.

The SSSI notification package includes a list of operations requiring Natural England's consent (formerly known as operations likely to damage the special interest). None of the listed operations can be carried out without Natural England's consent, or the consent of another public body (provided that the other body has formally consulted us).

If an SSSI is suffering as a result of a lack of positive management or neglect, and Natural England cannot reach a voluntary agreement with the owner, they may pursue more formal legal methods, such as serving management schemes and management notices. In the most extreme cases, powers of compulsory purchase may be used as a last resort.

It is an offence for any person to intentionally or recklessly damage or destroy any of the features of special interest of an SSSI, or to disturb wildlife for which the site was notified.

A standard of sustainable forest management certification covers 45% of the UK woodland (compromising of all state forests and 22% of other forests).

In Morocco

In Morocco, the laws were formed gradually in response to multiple violations and to ensure the protection of the environment: marine pollution, deforestation, coastal erosion, etc. As for the criminal law, it is in the process of updating to take into account, including water management and waste. Most of the legislation contains punitive provisions, which are sometimes dissuasive, sometimes very severe, because they can go up to the death penalty. These are the following laws:

Law No. 10-95 of August 16, 1995 on "water" with its Chapter XIII deals with the "water police";

Law No. 11-03 of May 12, 2003, on "the protection and enhancement of the environment," with chapters 5 and 6 provide a number of repressive measures (Articles 76-79); plus the provisions governing the special regime of civil liability (Articles 63 to 68), the rehabilitation of the environment (Articles 69 to 72) and financial and tax incentives aimed at encouraging investment and funding projects on the protection and enhancement of the environment (Articles 58 and 59).

Law No. 12-03 of May 12, 2003, concerning "Environmental Impact Assessment", which devotes its Chapter IV, the detection of offenses and the right to sue.

Law No. 28-00 on "waste management and disposal", which devotes its Title VIII, "control, offenses and penalties."

3.3.4 Mitigation instruments

The mitigation policies aimed at reducing the intensity of certain hazards and vulnerability issues to ensure that the damage costs associated with the occurrence of geological or climatological phenomena bearable. They are specific to the prevention of major natural hazards. They push state and local governments to involve institutions and individuals who must act to reduce the vulnerability of resources.

Box 3.3.4.1
Terminology Published by the United Nations International Strategy for Disaster Reduction (UNISDR), Genera, Switze Land, May 2009

Mitigation

Means the lessening or limitation of the adverse impacts of hazards and related disasters.

The adverse impacts of hazards often cannot be prevented fully, but their scale or severity can be substantially lessened by various strategies and actions. Mitigation measures encompass engineering techniques and hazard-resistant construction as well as improved environmental policies and public awareness. It should be noted that in climate change policy, “mitigation” is defined differently, being the term used for the reduction of greenhouse gas emissions that are the source of climate change.

These policies are aimed, in particular, heavy interventions, experimental and innovative in the territory so as to transform the environment based on the concerns and priorities of environmental (green belts, green plans agglomeration, urban forests, facilities pollution control, control of wind, pollution dispersion, etc..). They also reflect the ability of individuals, organizations and systems, to cope with and manage difficult conditions and emergencies caused by natural disasters.

3.4 International cooperation on sustainable land use

The alarming state of land degradation, presented above, especially with increased competition over natural resources, in a holistic manner, and climate change presents a major challenge for the international community regarding the management of these resources that extend beyond the national level.

Therefore, international cooperation in this area is becoming increasingly necessary. It is in this sense that the earth has become a main focus of global environmental diplomacy, like other natural resources.

Box 3.4.1: Rio Declaration on Environment and Development: Principle 7

States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit to sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

To meet the challenges of environment and development it is important to overcome confrontation and to foster a climate of genuine cooperation and solidarity. UNCED, Agenda 21

International cooperation in the field of sustainable land and water management is now the first priority for many institutions, because of concerns about food security, poverty reduction, protection of environment and climate change. Several international agreements invoking the principles of conservation of natural resources, especially land and water, but these principles have rarely been translated into actions, and no general agreement on the sustainable land and water management accompanied by a framework for action, has never emerged (FAO, 2011).

Since the United Nations Conference on Human Environment in Stockholm in 1972 by way the Rio Conference in 1992, global initiatives succeed to form a sort of world government environment.

Box 3.4.2: Global environmental governance

Global environmental governance can be defined as "the sum of organizations, policy instruments, financing mechanisms, rules, procedures and norms that regulate the processes of global environ mental protection"**. UNEP/WGEA, 2010).**

International cooperation for the land use management requires an environment conducive, particularly with support at national level. The key elements for the implementation of international cooperation in this area includes an inventory of supply and demand of land resources, a toolkit of approaches for sustainable management of these resources, and a shared vision, especially, a strategy and an implementation framework for investment, which must be supported by a strong monitoring and evaluation. (International cooperation for sustainable land and water management, FAO).

Several organizations and programs, including the Global Environment Facility (GEF), have conducted actions of awareness and demanded that measures be taken for the sustainable land and water management, and some organizations have strengthened institutions and governance. However, it often happens that different organizations working in the same area, leading to scattered efforts and limit the impact of actions, while the approaches remain largely sectoral rather than integrated. (International cooperation for sustainable land and water management, FAO).

Moreover, international cooperation allows countries to call the resources (financial and technological) and the knowledge to reduce the uncertainty facing the more and more important challenges burden on the land and water, control risks, and therefore manage and sustainably use the shared resources. (OECD, 2008).

In addition to international cooperation efforts, several regional programs have been developed, especially for Sub-Saharan Africa. Cooperation at regional and river basin was generally more active. (International cooperation for sustainable land and water management, FAO).

In 2009, the United Nations Environment Program has identified more than 280 agreements and multilateral environmental agreements (MEAs) that are fully dedicated to environmental protection (UNEP/WGEA, 2010).

Box 3.4.3 : The 11 major conventions regarding natural resources[19]

1) The Ramsar Convention on Wetlands
2) Convention on Trade of Endangered Species (CITES)
3) Convention on the Conservation of Migratory Species of Wild Animals
4) Convention on Biological Diversity
5) International Tropical Timber Agreement
6) Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa
7) Convention Concerning the Protection of the World Cultural and Natural Heritage
8) Inter-American Convention for the Protection and Conservation of Sea Turtles
9) International Plant Protection Convention
10) International Treaty on Plant Genetic Resources for Food and Agriculture
11) Convention on Access to Environmental Information, Public Participation in Environmental Decision-making and Access to Justice

[19] For more details, see UNEP, Auditing the implementation of MEAs, the Primer for Auditor, pp 25-34.

Chapter IV: Auditing Land Use/Land Management Issue(s)

As part of the exchange of experience in auditing and in order to help SAIs to learn from best practices enshrined in this area, this chapter is reserved to the presentation of different experiences in auditing land use and land management by collecting examples and case studies from SAIs experiences[20]. Whenever possible, the examples include information on the audit objectives, scope, criteria, findings and recommendations, follow-up or post-audit action by government or SAI, and the internet reference to the full report.

SAI of BRAZIL

Title of the Audit: Potential Effectiveness of Economic Ecological Zoning (ZEE) as a planning tool of the state.
Type of audit : Performance – Program Evaluation
Date of the report: 10/21/2009 (date of the Decision 2648/2009-TCU-Plenary)
Objectives of audit:
Evaluate conditions needed for Federal Government to implement ZEE as a state planning tool.
Scope (Lines of enquiry and methodology):
Performance Audit Manual. Planning was carried out based on stakeholder analysis, process and product mapping. During execution interviews and benchmarking were used with state zonings.
Audit criteria:
Decree 4297/2002. In addition, criteria created based on states whose zoning had effective intervention on policies and budgets were.
Audit findings (including audit evidence):
1. The role of ZEE as a tool for environmental policy is more important than its functionality as a state planning component, especially in the scope of the Federal Government;
2. The possibility of using guidelines to create public policies and indications of productive activities as a decisive criterion to grant environmental licenses, and not only as qualifying or conditioning factors of such analysis;
3. Lack of legal provisions regarding integration of zonings with budget cycles;
4. State planning for indigenous land and conservation units is dissociated from the state planning expressed by the ZEE;
5. The zoning process does not take into consideration the influence between interdependent areas in different states;

6. Lack of coordination in the ZEE Coordinating Committee – CCZEE
7. The structure of the decision making process does not allow appropriate assessment of the state ZEEs by the several CCZEE members
8. Lack of legislation dealing with the ZEE review process
Recommendations :
1) Balance ZEE so it can be a planning tool and give the Planning Ministry a special role in the zoning process.
2) Indicate a content model for ZEE:
- Suggestions: economic activities to be fomented by the State, whose environmental licensing process can be simplified, or recommendation for the creation of a protection zone with the pertinent activities. The suggestion itself does not bind the private parties, but it is binding for the state. Thus, the state must create guidelines for public policies.
- Environmental licensing criteria created in the ZEE: Conditioning clauses which the enterprise – whether or not it is indicated – must observe in the activities project. They can be restrictions or mitigation and compensation measures instituted by ZEE.
- Existing environmental licensing criteria that have been spatialized in the ZEE: Conditioning clauses which the enterprise – whether or not it is indicated – must observe in the activities project. They can be restrictions or mitigation and compensation measures, originated in provisions of a specific norm.

[20] See l**inks to other WGEA community case studies in appendix n°4.**

- Guidelines: Premises for formulation of public policies (binds the State, including as a criterion for budget planning and execution regarding spatializing activities) aimed at fomenting indications and which are able to adjust the diagnosis situation to the desired scenario, such as bank promotion lines for regularization and production, incentives for environmental protection, establishment of an adequate infrastructure, technical assistance and rural extension geared toward the indicated activities, as well as policies for reallocation of activities carried out in inappropriate areas, as per article 3, sole paragraph, of Decree nº 4.297/2002. In such cases, attention should be given to the hypotheses in which the State has the obligation to compensate the private party.
3) Indication of a model of collegiate and cyclic review of the ZEE;
4) Determination to carry out within ZEE diagnosis and prognosis for special areas (indigenous and environmental protection). It should be noted that such areas are not dealt with in the ZEE;
5) Indication of a way for the Zoning Committee (CCZEE), made up by several Ministries, to monitor the elaboration of state zonings, in order to approve national zoning. The following stages are suggested:
1. Validation of the diagnosis by the ZEE Brasil Consortium (CCZEE technical team, in order to approve the studies carried out for insertion in the National Infrastructure for Special Data - INDE;
2. Validation of alternative scenarios by CCZEE;

3. Validation of prognosis by CCZEE;
4. Examination of the final product, consolidated with the suggestions obtained in the public hearing, and examination of the respective draft bill to be submitted to the State Assembly (the ZEE must be the object of a State Law in order to be acknowledge by the Federal Government).
6) Recommend to the Planning Ministry that it include in the next draft bill of budget guidelines (LDO) a provision regulating the integration of the ZEE results in the planning/budget cycle.

Follow-up or post-audit action by government or SAI (if available) :
Monitoring was not determined. However, after the audit, the Environment Ministry hired a consulting firm to implement part of the recommendations.

Source reference to Audit report, including website link to full report. If possible :
http://portal2.tcu.gov.br/portal/page/portal/TCU/comunidades/programas_governo/areas_atuacao/meio_ambiente/ZEE%20-%20Relat%C3%B3rio%20de%20Auditoria.pdf (Available only in Portuguese)

SAI of ESTONIA

Title of the Audit: **Government activities relating to unreformed land**
Type of audit: performance
Date of the report: 6/12/2008
Objectives of audit:
In its action plan for 2007-2011, the Government of the Republic had set the goal to dispose of unreformed lands which were not necessary for the state under uniform and transparent criteria not later than by 2011, planning to spend EEK 682 million to this end. The report analysed how the objectives set by the government had been complied with. Furthermore, it addressed the set of problems relating to the municipalisation of land and assessed the government's capacity to manage the real rights established with regard to state land.
Scope (Lines of enquiry and methodology):
The land reform began in Estonia in 1991 with the aim of transforming the state ownership of land into private ownership. The reform had lasted for 17 years and by the beginning of 2008, still 17 % of the area of Estonia was unreformed. As to the completion of the land reform, relevant transactions concern 7 % or 300,000-370,000 hectares of land.

Effective land use is a precondition for the development of a country's economy. Since unreformed land is out of commerce, its economic potential remains unused and the state's possibilities of increasing its gross national product are diminished.

Every year, the central and local governments spend tens of millions of kroons on managing the land reform. Expediting the process would allow the public sector to save a considerable amount in expenses.

Audit criteria:

The audit criteria were largely derived from the Government action plan for 2007-2011

Audit findings (including audit evidence):

The goals of the land reform as regards the restitution and privatization of land have been largely accomplished. The NAO believes that the key to completing the land reform lies in forming a state land reserve, determining the land needs of local governments and putting in commerce the unreformed land not necessary for the state.

The land reserve includes extensive areas, but it is not known which lands the government needs in the future and which lands will be subject to municipalisation.

The NAO lacks the assurance that the unreformed land can be entered in the land cadastre and that the land not necessary for the state can be disposed of by the time limit set by the Government of the Republic – i.e. 2011. Given the current practice of completing the formalities relating to land, the process of entering vacant lands in the land cadastre and putting into commerce is likely to be much longer and more expensive.

The government's further operations with unreformed land need an in-depth analysis. According to the principles approved by the government, unreformed lands are registered as state-owned and included in the state land reserve – later, unnecessary land in that reserve will be disposed of under the Government Property Act. The principles were adopted without analysing the expenditure on the acquisition of land or the less time- and cost-intensive alternatives.

The need for state land reserve and the principles of its formation need to be reviewed. The land reserve has been formed without due regard to the state's future land needs, and the land reserve includes a lot of land not necessary for the state. Since the character of the land reserve and the principles of its maintenance are not laid down by law, it is not clear as to which lands will be subject to disposal and which will remain in the land reserve.

Many local governments lack the detailed plans and development strategies for determining the land necessary for local development. The local governments would like to have more than three times as much commercial, production and residential land as they have today, but the lack of their development strategies and general plans limits the central government's possibilities of estimating the effective land needs of local governments.

The local governments lack motivation to municipalise the land necessary for the performance of their tasks. In a number of cases, the local governments have not applied for the municipalisation of the land under the buildings and roads they own or the green areas located in densely populated areas. According to local governments, the applications have not been lodged because the preparations for applying for municipalisation are expensive.

Unreformed lands are not maintained and the corresponding forest lands are not subjected to the necessary forestry work. Since the legislation puts the responsibility for managing unreformed lands on the central government and the performance of these tasks is usually the duty of County Governors, funds for maintenance have not been allocated over the years. Therefore, unreformed lands and the forests thereon have been neglected and thus become the favourite targets of those disposing of garbage illegally.

The monitoring of rights and obligations imposed on state land is inadequate. There is still no functioning and comprehensive system for managing the contracts and financial claims related to the establishment of building rights, usufruct and mortgages. The government authorities have disagreed as regards the establishment of a single database as well as regards the authority responsible for its management.

Recommendations :

As the legislation did not provide for uniform principles for managing unreformed lands and forming the state land reserve, the NAO recommended the Government to initiate a broad discussion in the Parliament on the completion of the land reform to determine the future direction of the national land policy. To conduct further operations with unreformed land it is essential to:

- introduce uniform principles setting out whether, in which time and how the unreformed land not necessary for the state will be disposed of;
- appoint a specific authority for disposing of the land not necessary for the state;
- lay down by law the objectives of forming the state land reserve and the arrangements for managing that reserve;

- establish uniform principles for disposing of production, commercial and residential land not necessary for the state which would take into account the balanced spatial development needs of local governments and promote the land use envisaged in general plans;
- establish a single information system in order to get an overview of the real rights imposed on state land and the financial claims relating to the disposal of state land.

Follow-up or post-audit action by government or SAI (if available):

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Source reference to Audit report, including website link to full report. If possible:
http://www.riigikontroll.ee/tabid/206/Audit/2042/Area/15/language/en-US/Default.aspx

SAI of ESTONIA

Title of the Audit: **Exploitation of peat resources**
Type of audit: performance
Date of the report: 14/07/2005
Objectives of audit:
The objective was to assess whether the State ensures a sustainable use of peat reserves (from planning of the use of peat resources until managing their extraction).
Scope (Lines of enquiry and methodology):
The audit concentrated on the following spheres:
• **planning of peat reserves-** data on peat reserves and the activities of the State in planning the use of resources;
• **environmental impact and a management of water** - management of environmental impact assessment upon issuing extraction permits and permits for the special use of water;
• **extraction permits -** conditions of permits necessary for extraction of peat were reviewed and laying down requirements for reducing the environmental impact of extraction was analysed;
• **rehabilitation of peat production fields** - problems relating to management of peat fields and abandoned peat fields were treated.
Audit criteria:
The audit criteria were largely derived from legal acts (national acts and EU directives).
Audit findings (including audit evidence):
Among other audit finding the problem of abandoned peat excavations was discussed in the audit report.
In Estonia, there were approximately 8,000 to 15,000 ha of abandoned areas that had been used for peat extraction and which had not been rehabilitated after production. In general, peat moss does not begin to grow spontaneously in drained and extracted areas and therefore no increment of peat takes place there. The degraded peatlands are also a source of permanent environmental pollution and represent a great fire risk. Most of the abandoned production areas are owned by the State. Although the landowner must rehabilitate the abandoned areas, the State did not have an overview of the residual supply of peat in these areas and of environmental impact - whether these areas had to be reopened for completing the extraction or rehabilitated. The State had not assigned finances to rehabilitate abandoned areas.
As the abandoned areas have been drained, the remaining peat starts to decompose. During the first 10 years after draining about 15 to 20 tons of peat per ha will decompose annually. At the same time, releasing CO2, which is a significant factor of global climate warming. Upon approving the Long-term Public Fuel and Energy Sector Development Plan the Parliament had decided that the draining of new peatlands should be stopped until 2025 and only the peat of already drained production areas should be used until that date. But this position had not been fixed in laws and preparations for taking new peatlands into use had not been stopped.
Recommendations :
Main recommendations regarding land use issues:
• In case of the mechanized extraction of peat, always to demand the environmental impact assessment before issuing a new extraction permit, regardless of the size of the production area. To initiate accordingly amendments to the Environmental Impact Assessment and Environmental Management System Act.

• To initiate amendments to the Earth's Crust Act to provide authorities issuing extraction permits with a right to change terms in the permits, i.e. to re-establish the procedure that was in force in the Earth's Crust Act until 31 March 2005. Thereafter to ensure the establishment of environmental requirements and the purpose of rehabilitation of degraded peatlands in all peat extraction permits.
• In order to direct peat extraction to abandoned, non-exhausted production areas, to suspend, until 2025, issuing new extraction permits in case of peatlands and parts of peatlands, which have not been affected by extraction also on the basis of the objectives set up in the Long-term Public Fuel and Energy Sector Development Plan. To initiate necessary amendments to legal acts, including the Earth's Crust Act, in order to attain objectives of the development plan.
• To initiate rehabilitation of these degraded State-owned peatlands whose re-exploitation is not feasible.
• To develop a financing scheme to cover costs of rehabilitation in case a company becomes insolvent, e.g. by establishing a state guarantee fund or a sub-fund under some financial institution or requiring rehabilitation of the deposit from a company before issuing an extraction permit.

Follow-up or post-audit action by government or SAI (if available):
The issue of new excavation permits was ceased as a result of audit. The Ministry of Environment ordered an inventory of abandoned peat excavation areas to be able to decide, which of them should be reopened and which of them have to be rehabilitated. Initial rehabilitation activities have been conducted in couple of abandoned areas.

Source reference to Audit report, including website link to full report. If possible:
http://www.riigikontroll.ee/tabid/206/Audit/1850/Area/15/language/en-US/Default.aspx

SAI of Mexico

Title of Audit:
"Management Assessment of Protected Natural Areas"
Type of Audit: Performance
Date of Report: 2007
Audit Objectives:
Evaluate the compliance with the objectives and targets related to the conservation, preservation and restoration of natural protected areas; in order to achieve its sustainable use and exploitation; verify the processes in place to carry out its proper administration and verify the implementation of budgetary resources in these actions
Scope (Lines of Research and Methodology):
In the National Commission of Natural Protected Areas (CONANP), the review included:
the analysis of the indicators established in the Work Program 2001-2006 of the commission, the finding of the records of the activities planned and carried out in the Annual Operation Programs of 4 (2.5%) out of the 158 natural protected areas, verification of 28 (25.2%) out of 111 Opinion Rulings on Environmental Impact, revision of 119 (31.7%) out of the 375 Extensions for the Enforcement of Commercial and Tourist Activities, and; review of 20 (100.0%) Certificates of Recognition of Productive Areas dedicated to a function of Public Interest for Preservation, Protection and Restoration of Ecosystems, and the verification of 600,252.9 thousand pesos CONANP reported in the Public Account of 2006, out of 003 institutional activity "Conserving Natural Protected Areas, Other Ecosystems and its Species", based in the budget records and a sample of supporting documentation of the expense of 90,813.0 thousand pesos, which accounted for 15.1% of resources disbursed
In the Navy Secretariat (SEMAR) were checked the four reports prepared to meet environmental contingencies in natural protected areas in marine areas located in Mexico´s sea zones, and two reports of irregularities detected during monitoring runs in protected natural areas, as well as registration the 14.753 (100.0%) of journeys made through its naval command
For which corresponds to the Federal Environmental Protection (PROFEPA), they examined the 100.0% out of the 23.808 records of inspections, 1.635 monitoring runs and 159 raids in protected areas during 2001-2006
Audit Criteria:
This audit was linked to national priorities identified in the 2001-2006 National Development Plan to protect and conserve the country's representative ecosystems and biodiversity through the

establishment of provisions and reserves of land, water and forests, to meet with the constitutional mandate set forth in Article 4, fourth paragraph, that every person has access to an adequate environment for their development and well being.

In 2006, the CONANP recorded 158 natural protected areas, which meant an area of 22,038.8 thousand hectares, 11.2% of the national territory (196,437.5 thousand hectares).

Findings of the audit (including audit evidence):

In 2006, out of the 158 NPA, 68.4% (108) did not have the management program described in article 65 of the General Law of Ecological Balance and Environmental Protection, and 76 (48.1%) of annual operating programs, so in these cases was not possible to assess the compliance of the actions for conservation, protection, preservation and restoration provided for in Articles 5, Section I of the Rules of the General Law of Ecological Balance and Environmental Protection in the Field of Natural Protected Areas and 145, section V, the Internal Regulation of the Ministry of Environment and Natural Resources.

For the preservation of the 158 NPA, in 2006 the CONANP fulfilled 100.0% in the goal to make four conservation projects for as species listed as priority, 5.2% of the 77 species endangered or threatened. Of these 77 species, monitored 40.3% (31 species), so they turned on the programmed goal 103.3% (30 species). They also developed conservation actions and projects for 20 species identified in any of the risk categories, 26.0% of 77, which limited coverage pursuant to article 45, section II, of the General Law of Ecological Balance and Environmental Protection , to preserve endangered, threatened , endemic and rare species, as well as which are subject to special protection.

To protect the NPA, in 2006, under Article 5, Section I, paragraph c, of the Rules of the General Law of Ecological Balance and Environmental Protection in the Field of Natural Protected Areas, PROFEPA inspected, on average, 50.0% (12) of the 24 prioritized NPA´s, covering 38.9 percentage points lower than in 2001 (88.9%), as a result of the reduction of 45.4% of inspector staffing, from 930 in 2001 to 508 in 2006. For their part, SEMAR made 14.753 routes to monitor the marine environment, in accordance with Article 30, Section XXV of the Organic Law of Federal Public Administration.

In terms of restoration, CONANP did not defined targets and indicators to assess the provisions of Articles 1, first paragraph, of the General Law of Ecological Balance and Environmental Protection, and 5, Section I, paragraph a, of its regulation Area of Protected Natural Areas

In order to preserve the NPA, CONANP produced 12 studies programmed to measure the alteration of ecosystems (processing rate), which showed that in 11 NPA was negative alteration (between 0.740 and 0.027), mainly by clearing and deforestation, so that the actions were insufficient to achieve sustainable use and development and preserving ecosystems, the provisions of Article 45, Sections I and III of the General Law of Ecological Balance and Environmental Protection

In 2006, investment per hectare of NPA was 12.7 pesos, 3.2% more on average per year, compared to 2001 (3.4 pesos per hectare). Compared to Costa Rica, the cost per hectare was lower at 8.0% (1.1 pesos) and Spain at 77.0% (42.6 pesos).

In 2006, the SEMAR and CONANP did not performed coordination activities to identify areas of competence of SEMAR that allow to efficiently and effectively fulfill its monitoring functions, the SEMAR and PROFEPA did not established coverage targets of NPA with surveillance actions, in the terms set out in Article 3, second paragraph, of the Planning Act; the CONANP did not disposed of procedure manuals to regulate commercial and tourism activities in NPA, in violation of Article 19 of the Organic Law on the Federal Public Administration; PROFEPA did not had controls to ensure collection of fines imposed, and the SEMAR lackes of records in surveillance activities.

Recommendations:

41 observations were issued which generated 43 actions, which are: 20 to recommendations 1 to Request for Clarification-Recovery, 1 to the Statement of Observations and 21 to performance recommendations.

As a result of the review practiced, the Supreme Audit Office issued 43 actions, aimed primarily at promoting full compliance with the rules and legislation, ensuring the reliability of budgetary and accounting records; encourage deployment and use of performance measurement systems, strengthen the mechanisms of operation in terms of effectiveness, efficiency and economy, promote the development, updating or simplification of legislation, to recover funds to the federal public finances and strengthen the operation and control mechanisms.

Monitoring or government action as a result of the audit or the SAI (if applies)

CONANP:

-De veloped a mid-term program with objectives and goals for the creation of managing programs of the NPA´s.
-Developed, approved and disseminated procedure manuals regulating the actions of natural protected areas, as well as review management programs.
-Established strategies and conservation actions and monitoring of species considered endangered, threatened, probably extinct and related to some kind of special protection
-Strengthened control mechanisms and oversight of administration and management actions taken in protected areas.
-Developed annual operating programs in the total of the NPA´s in order to evaluate and measure its impact
PROFEPA:
-Strengthened monitoring and control mechanisms of the actions taken in protected natural areas on the status of complaints, procedures in place and the decisions issued
-Set targets for inspection visits and tours in the NPA, run monitoring verification visits carried out from the inspections that determined the breach of environmental regulations
-_Developed a program with objectives and targets to promote citizen participation in monitoring the NPA´s.
-SEMAR:
Included in monitoring programs actions to preserve natural marine areas and indicators and targets were designed to assess their impact
Implemented a program aimed at raising public awareness for the conservation of the NPA´s.

Coordination mechanisms were established with the CONANP to meet contingencies presented in the NPA
Reference/source of the audit report, include the website or the entire report if possible:
The consult and access to the performance audit report entitled "Evaluation of the Administration of Protected Natural Areas" can be done from the following websites
http://www.asf.gob.mx/Section/58_Informes_de_auditoria
http://www.asf.gob.mx/uploads/55_Informes_de_auditoria/Resumenejec06.pdf
http://www.incosai2007.org.mx/ASF/ir2006i/Indice/Auditorias.htm
Audit Code: 06-0-16F00-07-235
Public Account 2006

SAI of Morocco

Title of the Audit
Audit of the High Commissioner for Water, Forests and Combating Desertification (HCEFLCD)
Type of audit : Performance audit
Date of the report : 2008
Objectives of audit
Evaluate strategy in reforestation and protecting forest ecosystems.
Evaluate programs and plans to protect forests and fight against desertification.
Evaluate human and material resources to achieve HCEFLCD missions.
Evaluate if the management of the office meet the standards of efficiency, economy and efficiency.
Scope (Lines of enquiry and methodology)
Planning was carried out based on the analysis of the level of achieving the HCEFLCD tasks.
The HCEFLCD has the following tasks:
- Develop and implement government policy in the fields of conservation and sustainable development of forest resources, alfa, pastoral activities in the land under the forest regime,
- Coordinate the establishment of institutional mechanisms for the preparation, implementation, monitoring and evaluation of government policy in the fight against desertification;
- Participate in the development and implementation of government policy on rural development.
Audit criteria :
The audit criteria were largely derived from the reforestation plans for 1970, 1997; …
Audit findings (including audit evidence)
The annual cost of forest and ecosystems degradation is estimated at 2.9 billion dirhams, to mention

also the loss recorded on biodiversity and others environmental balances.
The objectives of the national reforestation plan were only partially completed. This plan was adopted in 1970, and was intended to reforest 662.000 hectares per year. However, the achievement of these objectives has known fluctuations, and was reinforced by others reforestation plans (1989-1991), who made the annual rate of reforestation up to 20,000 hectares per year.
Delay in achieving the objectives. Despite the reforestation of more than 500,000 hectares since 1970, the success rate did not exceed 60%.
Launch of a second scheme since 1997, extending over 30 years: by adopting a participatory approach, in order to plant 1,500,000 hectares. However, it was observed that the objective of planting 500.000 hectares during the first 10 years (1998-2009) was only partially completed.
Morocco does not cover its wood requirements; because of the inability of the HCEFLCD to plant 230.000 hectares dedicated to industrial exploitation.
The level of reforestation remains inadequate: the forest area is estimated at 8% of the area of Morocco. This ratio is not sufficient in view of the standard adopted to achieve ecological and environmental balance (set between 15 and 20%).
The forest management program is a sustainable management plan, designed to identify and to ensure ecological, economic, and social development. In order to achieve these aims, the office has tried to organize the population living near forests in cooperatives and associations. However, this program has not achieved this objective.
Inadequate procedures for monitoring the health of the forest, which increases the spread of diseases and reduces productivity and biodiversity
Some forest species are threatened with extinction, as is the case of the *Argan* tree and *Cedar* Tree
Non-allocation of part of forest incomes recovered by local government to reforestation.
In spite of the insufficient of staff in charge of litigation; the importance of forest offenses highlights the level of forest degradation. An average of 25 000 to 30 000 reports are drawn up annually by the Forest officers. However, only 10% of final judgments against violators are executed.

Recommendations

Establish a reliable information system allowing to have an update on the status and the rate of degradation of each forest ecosystem, to better target and steer programs.
Accelerate the progress of forest management plans.
Integrating economic and social dimensions of forest areas and populations perished in forest management programs.
Give more importance to the regeneration of Cedars and Argan trees
Give more importance to diversification of species, reforestation and regeneration programs and intensify natural essences;
Establish an internal system of control covering the whole process of raising plants in nurseries.
Adapt laws and regulations texts in order to protect Argan forests and its ecosystems.
Implement appropriate measures (watering, fencing, etc.) for successful regeneration programs of the Argan trees.
Establishing a system for evaluating the performance of managers in charge of reforestation programs.
Achieve an annual census of livestock in forests and suburban forest.
Enhance quality and quantity of actual units specialized in monitoring the state of forest health.
Strengthen the number of staff following litigation cases.

Follow-up or post-audit action by government or SAI (if available):

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Source reference to Audit report, including website link to full report if possible :

http://www.courdescomptes.ma

SAI of Poland

Title of the Audit: Protection of forest and agricultural areas in the urbanisation process in Lower Silesia in the years 2006-2009

Type of audit: Compliance, performance
Date of the report: 2010
Objectives of audit: Assessment concerning the implementation of statutory responsibilities of the government and local administration bodies of the Lower Silesia province, encompassing the protection of agricultural and forest land, in the process of architectural constructions, for reduction of negative impact on the rational management of these areas.
Scope (Lines of enquiry and methodology):
Audit included the following issues:
• Compliance with restrictions on the allocation of land for non-agricultural and non-forest purposes in the process of development and resolve of spatial management plans.
• Adequacy of procedures related to the exclusion of agricultural and forest lands from agricultural and forestry production.
• Calculation and collection of fees associated with exclusion of farm and forest areas.
Audit findings (including audit evidence):
• Irregularities were found concerning the elaboration and updating at the conditioning and orientation stage of spatial development and local development plans - some of the basic documents, which regulate the protection of agricultural and forest lands. Only the area of two (out of 8 examined) communities was entirely included in the local spatial development plans, and the remaining six included up to 52.1%. The indisposition of the local development plans for the entire area indicated an acceptance of the decision-making, authorizing the exclusion of agricultural and forest land from production.
• Decisions concerning the location of a public investment and decisions of establishing the conditions for development, compulsory in the absence of local development plans, in some cases have been issued without observing the statutory procedures, with a considerable delay of up to 7 months.
• There was a number of different sorts of irregularities encountered in the administrative proceedings related to the issuance of decisions allowing the exemption of agricultural or forestry lands from the production.
• Collaboration between organizational units responsible for the preparation of the decision of exclusion (decision to exclude land from agricultural production and forestry) and for keeping the land register was inappropriate. A land register was conducted unreliably - changes in use for agricultural and forestry lands were disclosed with long delays. Delays were also encountered in the transfer to municipalities of notices of change in the registration of land, which resulted in underestimation of the tax value deducted from the land property tax.
• Execution of fees and charges for illegal exclusion of land from agricultural production or forestry has been insufficient.
Findings led to a thesis that the law on protection of agricultural and forestry lands imprecisely governs the procedure for exclusion of land from agricultural production and forestry, and does not form a coherent system with other land protection regulations. Such situation impedes the implementation of procedures related to the allocation of land for non-agricultural and non-forest purposes.
Recommendations:
Applications addressed to the audited entities involved, among others.
• Organization of the spatial development area within the territory of municipalities (finalizing and updating the study of conditions and directions of spatial development of the municipality as well as elaboration of the local spatial development plans).
• Compliance with the rules for determining fees and charges for the exclusion of land from agricultural and forestry production and their execution after the actual exclusion of land
• Taking into account the obligation to notify change in the land records in decisions of exclusion of land from production.
Applications addressed to the Minister of Agriculture and Rural Development and the Minister of Internal Affairs and Administration to amend or supplement the existing legal status
Postulated:
• Identification in the official regulations of the events, which would be considered as the moment of exclusion of land from agricultural production and forestry and the start of other form of land use.
• Connection of the billing terms with the event recognized in the regulations as the moment of exclusion of land from agriculture or forestry use
• Indication of a list of documents required to obtain a decision allowing for the exclusion of land from agricultural production or forestry, and thus reducing its unrestricted expansion by individual agencies.

• Introduction of possible control measures of the investor after issuing a decision to exclude land from agricultural and forestry production in order to ensure fulfillment of his obligation to notify, within a specified time, any change included in the land records.

Follow up or post audit action by government or SAI (if available):

Most of the requests directed to the controlled entities have been completed.

Source reference to Audit report, including website link to full report. If possible:

http://www.nik.gov.pl/kontrole/wyniki-kontroli-nik/kontrole,6885.html

Appendices

Appendix n°1: Definitions

Definition of Land and Land Resources

Land and Land Resources refer to a delineable area of the earth's terrestrial surface, encompassing all attributes of the biosphere immediately above or below this surface, including those of the near-surface, climate, the soil and terrain forms, the surface hydrology (including shallow lakes, rivers, marshes and swamps), the near-surface sedimentary layers and associated groundwater and geohydrological reserve, the plant and animal populations, the human settlement pattern and physical results of past and present human activity (terracing, water storage or drainage structures, roads, buildings, etc.) (FAO/UNEP, 1997).

The functions of land

The functions of land : The land has many functions that must be considered in the planning of the development to ensure an efficient allocation of land resources :

Productive Function : land is the basis for many life support systems, through production of biomass that provides food, fodder, fibre, fuel, timber and other biotic materials for human use, either directly or through animal husbandry including aquaculture and inland and coastal fishery;

Biotic environmental Function : land is the basis of terrestrial biodiversity by providing the biological habitats and gene reserves for plants, animals and micro-organisms, above and below ground;

The climate regulative function: land and its use are a source and sink of greenhouse gases and form a co-determinant of the global energy balance - reflection, absorption and transformation of radioactive energy of the sun, and of the global hydrological cycle;

The hydrologic function: land regulates the storage and flow of surface and groundwater resources, and influences their quality;

The storage function: land is a storehouse of raw materials and minerals for human use;

The waste and pollution control function: land has a receptive, filtering, buffering and transforming function of hazardous compounds;

The living space function: land provides the physical basis for human settlements, industrial plants and social activities such as sports and recreation;

The archive or heritage function: land is a medium to store and protect the evidence of the cultural history of humankind, and source of information on past climatic conditions and past land uses

The connective space function: land provides space for the transport of people, inputs and produce, and for the movement of plants and animals between discrete areas of natural ecosystems. (FAO, 1995).

Definition of Land degradation

Land degradation is the reduction or loss of the biological or economic productivity and complexity of rain-fed cropland, irrigated cropland, or range, pasture, forest or woodlands resulting from natural processes, land uses or other human activities and habitation patterns such as land contamination, soil erosion and the destruction of the vegetation cover. (Glossary of Environment Statistics, Studies in Methods, Series F, No. 67, United Nations, New York, 1997).

Definition of land resources management

Land resources management is the actual practice of the use(s) of the land by the local human population, which should be sustainable (FAO/Netherlands, 1991). In a broader sense it includes land-use planning, as agreed between stakeholders; legal, administrative and institutional execution; demarcation on the ground; inspection and control of adherence to the decisions; solving of land tenure issues; settling of water rights; issuing of concessions for plant and animal extraction (timber, fuelwood, charcoal and peat, non-wood products, hunting); promotion of the role of women and [other] disadvantaged groups in agriculture and rural development in the area; and the safeguarding of traditional rights of indigenous peoples (FAO, 1995).

Definition of land use planning

Land-use planning has been defined as "the systematic assessment of land and water potential, alternative patterns of land use and other physical, social and economic conditions, for the purpose of selecting and adopting land-use options which are most beneficial to land users without degrading the resources or the environment, together with the selection of measures most likely to encourage such land uses" (FAO, 1999-b) (FAO, 1993).

Appendix 2 : Global land use area/region in 2009 (1000 Ha)

Region	Agricultural area	Country area	Land area	Forest area	Other land	Inland water
Africa (Total)	**1 161 062,10**	**3 031 568,60**	**2 964 678,60**	**677 898,08**	**1 138 040,62**	**66 890,00**
--Eastern Africa	305 094,10	636 166,60	605 628,60	182 666,49	127 763,41	30 538,00
--Middle Africa)	160 732,00	661 266,00	649 682,00	313 514,20	176 808,80	11 584,00
--Northern Africa	242 143,00	852 470,00	838 039,00	78 558,80	517 337,20	14 431,00
--Southern Africa	167 449,00	267 283,00	265 205,00	28 795,40	69 021,20	2 078,00
--Western Africa	285 644,00	614 383,00	606 124,00	74 363,19	247 110,01	8 259,00
Americas + (Total)	**1 193 648,04**	**4 075 051,00**	**3 889 231,20**	**1 573 315,40**	**1 122 267,76**	**185 819,80**
--Northern America + (Total)	471 289,74	2 022 692,00	1 865 166,00	613 777,34	780 098,92	157 526,00
--Central America + (Total)	121 290,00	248 666,00	245 227,00	84 715,00	39 222,00	3 439,00
--Caribbean + (Total)	11 862,40	23 412,40	22 599,00	6 890,66	3 845,94	813,40
--South America + (Total)	589 205,90	1 780 280,60	1 756 239,20	867 932,40	299 100,90	24 041,40
Asia + (Total)	**1 638 836,30**	**3 196 501,15**	**3 093 556,55**	**590 819,33**	**863 901,32**	**102 944,60**
--Central Asia + (Total)	283 108,30	400 289,90	392 679,00	12 067,90	97 502,80	7 610,90
--Eastern Asia + (Total)	649 489,00	1 176 250,75	1 146 305,95	252 068,66	244 748,29	29 944,80
--Southern Asia + (Total)	309 192,00	687 622,40	639 977,40	92 638,30	238 147,10	47 645,00
--South-Eastern Asia + (Total)	124 215,60	449 532,10	434 093,00	215 150,70	94 727,10	15 439,10
--Western Asia + (Total)	272 831,40	482 806,00	480 501,20	18 893,77	188 776,03	2 304,80
Europe + (Total)	**472 631,47**	**2 299 858,90**	**2 207 347,00**	**1 004 230,41**	**730 485,12**	**92 512,90**
--Eastern Europe + (Total)	314 860,00	1 882 625,00	1 805 059,00	854 007,20	636 191,80	77 566,00
--Northern Europe + (Total)	38 325,38	174 973,00	164 261,50	72 246,76	53 689,36	10 711,50
--Southern Europe + (Total)	65 181,79	131 632,00	129 480,00	44 741,64	19 556,57	2 153,00
--Western Europe + (Total)	54 264,30	110 628,90	108 546,50	33 234,81	21 047,39	2 082,40
Oceania + (Total)	**422 870,30**	**856 143,70**	**848 654,70**	**192 456,24**	**233 354,65**	**7 489,00**
--Australia and New Zealand + (Total)	420 520,00	800 897,00	794 565,00	158 501,86	215 543,14	6 332,00
--Melanesia + (Total)	2 090,00	54 078,00	52 959,00	33 376,52	17 492,48	1 119,00
--Micronesia + (Total)	96,40	317,00	317,00	185,55	58,79	
--Polynesia + (Total)	163,90	851,70	813,70	392,31	260,24	38,00

Appendix 3: Consequences of deforestation

Consequences of deforestation[II]

Deforestation has direct and indirect consequences on the soil, climate, environment and biodiversity:

Impact on soil stability

With their roots, forests are used for soil conservation, the fight against avalanches and landslides, stabilization of sand dunes and protect coastal areas.

Impact on global climate and pollution

Vegetation has a role for the purification of air and water. It permanently absorbs and releases CO_2. CO_2 is the main greenhouse gas emitted by forests, especially in case of fire. Forest fires also emit methane (10% of all methane linked to human activities comes from the burning of forest biomass) and nitrous oxide (N_2O). These two gases are also greenhouse gases.

Greenhouse gas emissions are known to cause global warming of the planet that currently leads to climate changes extremely important. Forests contribute about 80% in the exchange of carbon between vegetation, soil and atmosphere.

By their weight, their density and scale, forests represent a considerable biomass (carbon stocks): they contain about half of the carbon in terrestrial vegetation. How to manage them has a real impact on the amount of greenhouse gases emitted into the atmosphere.

Impact on biodiversity

Primary forests account for 80% of the land biodiversity.

Impact on erosion and local climate change

Deforestation has also an impact on runoff. Forests can slow water movement: the leaves and other organic matter found on the forest floor absorb water from heavy rains and release it slowly and carefully to the ground below. Deforestation leads to catastrophic flooding, as water runoff is no longer constrained by the plants, even landslides, which are no longer maintained by the tangle of roots.

Overgrazing and intensive farming destroy humus and vegetation that protect soil against erosion. On an eroded soil, the rain watered the earth, but not short flowing into streams. So, soil settles and becomes very absorbent during major rainfall.

Loss of soil fertility

Without tree cover, soil naturally poor, are exposed to wind, sun and rain. Topsoil is quickly replaced by a hard crust and unproductive.

Shifting cultivation such as coffee have left behind millions of acres that could not be used only for less demanding crops.

Impact on health

The destruction of forest habitats for many species facilitates the transmission of infectious diseases to humans through contact with said mosquitoes, monkeys, virus and bacteria -carrying rodents potentially hazardous to humans.

Appendix 4: The importance of Land degradation in INTOSAI community

Scale / Threaten	1	2	3	4	5	6	7
Deforestation	China, Azerbaidjan, Trinidad-Tobago, PapuaNewGuinea, Latvia, Albania, Ukraine, Zimbabwe, Honderas, Brazil, Canada, Madagascar, Bangladesh	Netherlands, Morocco, Paragway, Bulgaria, Botswana, Mexico	Cyprus	Estonia, Saudi Arabia, Bhutan	SouthKorea	Nexzealand	Poland, Hangary, France, Czech-Republic
Degradation of biodiversity	Azerbaidjan, Netherlands, Paragway, Estonia, Norway, Kuwait; Finland	China, Trinidad-Tobago, Brazil, Bangladesh, Saudi Arabia, Nexzealand, Czech-Republic	Albania, Canada, Botswana	Honderas, Madagascar, Mexico, France	PapuaNewGuinea, Latvia, Ukraine, Zimbabwe; Bulgaria; Cyprus, Hangary	SouthKorea, Poland	Morocco, Bhutan
Desertification and soil erosion	Kuwait, China, Botswana, Mexico, Cyprus, Morocco	Azerbaidjan, Netherlands, Norway, Trinidad-Tobago	Nexzealand, Madagascar, Bulgaria	Paragway, Brazil, Albania, Ukraine, Zimbabwe	Saudi Arabia, Honderas, Poland	Czech-Republic, Canada, France, PapuaNewGuinea, Latvia, Hangary, Bhutan	SouthKorea
Environmental risks related to the management of local public services	Netherlands, Poland, Norway	China, Azerbaidjan, Kuwait, Trinidad-Tobago, Estonia	Hangary, France, PapuaNewGuinea, Latvia	SouthKorea, Morocco	-	Albania, Paragway	Bulgaria, Saudi Arabia, Bhutan, Ukraine, Zimbabwe, Honderas, Brazil, Nexzealand, Cyprus, Botswana, Canada, Madagascar, Mexico, Czech-Republic
Degradation of water quality	Kuwait, Netherlands, China, Trinidad-Tobago,	Azerbaidjan, Canada, Madagascar, Cyprus, Honderas,	Norway, Poland, Mexico, Morocco, Paragway,	Bulgaria, Czech-Republic	France, Botswana, Brazil	Saudi Arabia, Albania	Latvia

	SouthKorea, Hangary, Nexzealand	PapuaNewGuinea, Finland	Bhutan, Ukraine, Zimbabwe, Estonia				
Contamination from waste	Netherlands, China, Azerbaidjan, Bulgaria, Saudi Arabia	Kuwait, Trinidad-Tobago, Hangary, Poland, Bhutan, Ukraine, Zimbabwe, France, Albania	SouthKorea, Honderas, Norway, Czech-Republic, Brazil	Nexzealand, Cyprus, PapuaNewGuinea, Finland, Botswana, Latvia, Morroco	Canada, Estonia,	Madagascar, Mexico	
Degradation of air and atmospheric	Kuwait, Azerbaidjan, Netherlands, Norway, France	China, Trinidad-Tobago, Latvia, SouthKorea	Saudi Arabia	Poland, Canada, Hangary	Mexico, Morocco, Nexzealand, Madagascar, Paragway, Bhutan	Botswana, Cyprus, Bulgaria, Brazil, Ukraine, Zimbabwe, Honderas, Estonia	Albania, PapuaNewGuinea, Czech-Republic

Appendix 5 : Environmental impact assessment in the RIO declaration on environment and development

Environmental impact assessment in the RIO declaration on environment and development

PRINCIPLE 17

Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

PRINCIPLE 15

In order to protect the environment, the precautionary approach shall be widely applied by

States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

ARTICLE 4: 1. All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall:

(f) Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example **impact assessments**, formulated and determined nationally, with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate

change;

CONVENTION ON BIOLOGICAL DIVERSITY

Article 14: Impact Assessment and Minimizing Adverse Impacts. 1. Each Contracting Party, as far as possible and as appropriate, shall:

(a) Introduce appropriate procedures requiring **environmental impact assessment** of its proposed projects that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures;

(b) Introduce appropriate arrangements to ensure that the environmental consequences of its programs and policies that are likely to have significant adverse impacts on biological diversity are duly taken into account;

(c) Promote, on the basis of reciprocity, notification, exchange of information and consultation on activities under their jurisdiction or control which are likely to significantly affect adversely the biological diversity of other States or areas beyond the limits of national jurisdiction, by encouraging the conclusion of bilateral, regional or multilateral arrangements, as appropriate;

(d) In the case of imminent or grave danger or damage, originating under its jurisdiction or control, to biological diversity within the area under jurisdiction of other States or in areas beyond the limits of national jurisdiction, notify immediately the potentially affected States of such danger or damage, as well as initiate action to prevent or minimize such danger or damage; and

(e) Promote national arrangements for emergency responses to activities or events, whether caused naturally or otherwise, which present a grave and imminent danger to biological diversity and encourage international cooperation to supplement such national efforts and, where appropriate and agreed by the States or regional economic integration organizations concerned, to establish joint contingency plans.

Appendix 6: Links to other WGEA community case studies:

Canada:

1. Land Management and Environmental Protection on Reserves – 2009 Fall Report http://www.oag-bvg.gc.ca/internet/docs/parl_oag_200911_06_e.pdf (English)
2. Sustaining Development in the Northwest Territories – 2010 Spring Report http://www.oag-bvg.gc.ca/internet/docs/parl_oag_201004_04_e.pdf (English)

Chile :

www.contraloria.cl AUD_SAM89_INFORME_FINAL_CORPORACIÓN_NACIONAL_FORESTAL_DICIEMBRE_2008.pdf ; AUD09 SAM69 INFORME FINAL SECRETARÍA REGIONAL MINISTERIAL DE SALUD REGIÓN METROPOLITANA-SEPTIEMBRE 2009; SUMMARY SYSTEM OF INCENTIVES FOR THE RECOVERY OF DEGRADED SOIL INDAP.doc;

Czech republic :

Name of Audit: Financial means provided for the improvement of nature and landscape
Type of audit: Compliance
Year of publication: 2011
Final report is available in Czech and English
www.nku.cz

Finland:

The state's role in increasing the supply of lots and creating more compact urban structure (2010). Published in Finnish, abstract in English: http://www.vtv.fi/files/2300/2082010_The_states_role_in_increasing_the_supply_of_lots.pdf

The preparation of Natura 2000 network. Published also in English: http://www.vtv.fi/files/18/Preparation_of_Natura_2000_network_netti.pdf

France :

"The public water and sanitation services: encouraging developments"… (Annual report 2011 February), French version**:** http://www.ccomptes.fr/fr/CC/documents/RPA/A_services_publics_eau_et_assainissement.pdf

Hungary :

Audit title: Summary study to the international parallel audit conducted by EUROSAI WGEA on the Natura 2000 network (In the framework of the audit on the operation of government tools for economic development)
Date of publication: 2008
Type of the audit: performance audit
Website: http://www.environmental-auditing.org/Portals/0/AuditFiles/report-implementation-NATURA-2000-NETWORK-in-Europe%5B1%5D.pdf

Audit title: Environmental Audit Report on the three-border area of Hungary, Slovenia and Austria
Date of publication: 2006
Type of the audit: performance audit

Website:
http://www.asz.hu/ASZ/nemzetk.nsf/0/75AF239595E72D4DC12578240038F2FC/$File/0542AR.pdf

Madagascar :

We are conducting this year (2011), Compliance and financial audits in accordance with the Finance law through auditing the funds used by the Ministry responsible of land use.

Netherland:

2010:

The Netherlands Court of Audit analyzed which areas of The Netherlands are part of the national spatial strategy. It also researched where the national money for spatial planning is spend en which instruments the National government uses to realize the national spatial strategy. In this research, geographic data was linked to financial data. The results were not published in a report, but on the NCA's website.

The audit is a performance audit, published in 2011 in Dutch, on http://www.rekenkamer.nl/Actueel/Dossiers/R/Ruimtelijke_inrichting

More information about this audit will be presented during the INTOSAI WGEA meeting in Buenos Aires, November 2011.

Other previous audits related to land use:

National Ecological Network (2009)
Audit findings on Weak Links in Coastal Defences Programme (2009)
The environmental impact of road transport (2009)
Sustainable intensive livestock farming (2008)
Restructuring industrial estates (2008)
Protection of Nature Areas (2007)
National Ecological Network (EHS) (2006)

More information about these and other reports is available on http://www.courtofaudit.com/english/Themes

New Zealand:

Department of Conservation: Planning for and managing publicly owned land (2006)
English
http://www.oag.govt.nz/2006/doc-landholdings.

Norway :

The Office of the Auditor General's investigation into the efforts of the authorities to limit flood and landslide hazards. Document 3:4 (2008-2009)
http://www.riksrevisjonen.no/SiteCollectionDocuments/Dokumentbasen/Document3/2009-2010/Documentbase_3_4_2009_2010.pdf

The Office of the Auditor General's investigation of sustainable land-use planning and land use in Norway Document no. 3:11 (2006–2007)

http://www.riksrevisjonen.no/en/Formedia/PressReleases/Pages/Press_Release_Doc_no_3_11_2006_2007.aspx

Paraguay:

Type: Performance Auditing to the Rural Welfare Institute and Ministry of Agriculture and Livestock about environmental status of the Department of Alto Paraguay.
Year:1997
Language: Spanish

Type: Special Exam for the management of the Direction of Environmental Zoning dependent of the Secretary of Environment and the Direction of General of Planning of the Ministry of Agriculture and Livestock, to assess the environmental situation of the lands affected the Department of Ñeembucú by DERMASUR Project.
Year: 2000
Language: Spanish

Type: Special Exam to the National Forest Service of the Ministry of Agriculture and Livestock and the Secretary of Environmental, to evaluate the legal, administrative and environmental resolutions applied for approval of plans for Land Use in restricted areas of forest use reserved, according to the Laws 816/96 and 1848/01.
Year: 2004
Language: Spanish

Type: Especial Exam to the Ministry of Agriculture and Livestock, to the Secretary of Environment, the National Institute of Rural and Land Development, to the Governance of the Municipalities of the Department of Alto Paraguay, to verify the fulfillment of the existing environmental laws and regulations of rural development in the territory.
Year:2005
Language: Spanish
Web: www.contraloria.gov.py

United Kingdom :

Natural England's Role in Improving Sites of Special Scientific Interest, November 2008, English,
http://www.nao.org.uk/publications/0708/natural_england_role.aspx

Tackling diffuse water pollution in England, July 2010, English

Defra's organic agri-environment scheme, March 2010, English,
http://www.nao.org.uk/publications/0910/organic_farming.aspx

Reducing the impact of Business Waste through the business resource efficiency and waste programme, March 2010, English, http://www.nao.org.uk/publications/0910/business_waste.aspx

Managing the waste PFI Programme, January 2009 English, http://www.nao.org.uk/publications/0809/managing_the_waste_pfi_program.aspx

Environmental Protection, Briefing for the Environmental Audit Committee, 2009, English, http://www.nao.org.uk/publications/1011/environmental_protection.aspx

Regenerating the English Coalfields, December 2009, English, http://www.nao.org.uk/publications/0910/coalfield_regeneration.aspx

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