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**STRATEGIES FOR THE COMMUNICATION OF INFORMATION AND ITS USE
TO GENERATE BEST PRACTICES FOR COMBATING DESERTIFICATION AND
MITIGATING THE EFFECTS OF DROUGHT**

Note by the secretariat

1. According to decision 16/COP.4, as part of its work programme, the Committee on Science and Technology will examine at its fifth session "strategies for the communication of information and its use to generate best practices for combating desertification and mitigating the effects of drought".
2. By this same decision, Parties and observers were invited to contribute case studies illustrating the communication of best practices relating to the above theme, which should not exceed ten pages in length, and which should be transmitted to the UNCCD secretariat no later than 30 June 2001.
3. Parties and observers were encouraged in their reports to include short accounts of traditional and scientific knowledge produced in various thematic fields relative to the issue of combating desertification, and strategies or mechanisms used for the communication and evaluation of the process, if available.
4. According to this decision, the secretariat was requested to prepare a synthesis of such reports for consideration at the fifth session of the CST.
5. As described in the annex to decision 16/COP.4, these strategies should include concepts of collection, analysis, synthesis and exchange of traditional and scientific knowledge, as given below:
 - (a) The objective should be to establish specific effective communication procedures to combat desertification.

(b) Communication procedures involve at least a two-way flow of information. Therefore, information should not only be transferred from scientists to the grassroots level, but also from local communities to scientists, extension workers, policy makers and other users of information.

(c) Use implies the acceptance, interpretation, adaptation and utilization of such knowledge for the specific local environment or situation.

(d) Best practices refer to those procedures that are successful. The goal is to make use of those experiences as well as the information that flows from them, by sharing them with other similarly affected or interested Parties. This refers to all best practices from a very specific situation, such as erosion control or catchment management, to wider issues such as land-use planning and policy formulation.

(e) It is recommended that case studies on best practices, taking into account both traditional and scientific knowledge, should be produced in various thematic fields relative to the issue of combating desertification.

6. Two submissions were received from Parties and observers, respectively Canada and the Sahara and Sahel Observatory (OSS) and are annexed to this document.

SYNTHESIS OF SUBMISSIONS

7. According to one submission, although a sizeable body of data, information and products relating to the environment exists, the information is difficult to utilize for three main reasons: (i) the results of data collection and processing are disseminated among only a limited number of users, (ii) the products generated are not transformed into information that can be directly used by decision-makers, and (iii) the information is dispersed, restricted, and difficult to access by users, at both the national and international levels, owing to a lack of suitable mechanisms for the circulation of information.

8. This same submission, which focuses on environmental information systems in general, rather than being specific to desertification, promotes the concept of an "Environmental Information Circulation and Monitoring System on the Internet (SISEI)", which is defined as "an environmental information management tool to assist in implementing the legal instruments relating to the environment in Africa". The SISEI takes the form of a web site which serves as an environmental gateway at the national, subregional and regional levels, comprising several specialized gateways such as an institutional gateway, a thematic gateway, a virtual library, and a virtual map library.

9. The SISEI concept consists of three components, taken in parallel, namely institutional, technical and scientific components. The first is based on a participative approach through partnership between the different players and information generators. It aims to foster the establishment of an institutional framework linking the various levels and conducive to the circulation and exchange of information. The technical component is primarily aimed at strengthening capacities at various levels for the development of communication infrastructure. The scientific

component aims to update, adapt and transfer new methods and products, harmonize tools and formats, and avoid a further widening of the digital divide.

10. An assessment of five SISEI pilot projects was conducted, and a number of obstacles identified. It is important to note that the SISEI projects were integrated into an existing institutional framework, in order to reinforce the established mechanisms. The findings identified a lack of infrastructure and technical capacity within the countries (limited bandwidth) and difficulties in accessing such capacities, insufficient funds for the purchase of equipment, which limited the participation of players and the dissemination of SISEI products, and difficulties in updating of the SISEI by the partner institutions.

11. In the second submission, the Party "is careful to identify its main audiences (both domestic and international) and their needs, and to target appropriate communication messages in a format that ensures delivery". As an example, the more appropriate medium of radio was selected to communicate information to farmers in developing countries about desertification.

12. This same submission recommends the development of communication plans which are updated regularly; it also outlines the main messages to be conveyed, and identifies planned actions to be undertaken by partners for a specific period of time. Communication plans help to ensure the coordination of relevant activities.

13. The submission also notes the importance of synchronizing the communication messages of governmental and non-governmental organizations involved in combating desertification, in order to ensure that the messages are heard and understood. This is particularly practical when budgetary constraints exist.

14. The Party also recognizes that communication strategies evolve over time, and must be modified and updated accordingly. For example, initially the Party embarked on a variety of public awareness activities to promote the UNCCD, and to highlight the problem of desertification in developing countries, and the Party's response to it in the context of its official development assistance programme. As the issue of desertification and the Convention became better known, communication efforts shifted towards dealing more with the substantive issues related to desertification, and to illustrating how people and communities could make a difference.

15. The submission also recognizes the need for diverse approaches within communication strategies over time. Rather than focusing on the negative "disaster appeal" typically associated with the devastation of desertification, which may be appropriate at a certain time, the Party adopted a communication strategy which promoted success stories; the Party also developed material which attempted to "popularize the science" of combating desertification.

16. This submission notes the variety of communication products which have been created, promoted and distributed, including: publications, fact sheets, tool kits, media information, classroom materials, videos, a film and a CD-ROM. Other activities cited are Parliamentary and Ministerial briefings, the establishment of web sites, and the organization of special events, such as celebrations on June 17 to mark the World Day to Combat Desertification.

17. Based on lessons learned from field experience in the Sahel, the submission identifies as critical to success the need to ensure the participation of the local population, not only in concrete actions on the ground, but also in the decision-making process concerning the choice and the implementation of communication interventions. Communication is the tool which can facilitate this participation. While noting that the majority of the communication strategies on desertification used to date stress the diffusion of information and messages of persuasion and mobilization, the Party suggests that these actions have had little real impact on the participation in and implementation of concrete actions by the community, and recommends the development of an experimental communications strategy which supports and reinforces community participation.

Annex

COMPILATION OF SUBMISSIONS

1. Canada

Strategies for the communication of information and its use to generate best practices for combating desertification and mitigating the effects of drought

Introduction

This paper is Canada's input as per decision 16/COP.4 on the programme of work of the Committee on Science and Technology, which provides that the CST will, at its fifth session, give particular attention to strategies for the communication of information and its use to generate best practices. Parties are required to provide input, including examples, to the secretariat.

As mentioned in the annex to the above-mentioned decision, these strategies include concepts of collection, analysis, synthesis and exchange of information, including traditional and scientific knowledge. Their objective should be to establish specific communication procedures to combat desertification, and to involve at least a two-way flow of information between stakeholders.

This submission to the CST will summarize Canada's approach to communications, highlighting main messages and some of the key communications activities used to date to combat desertification both domestically (in terms of Canada's affected country status) and in partnership with developing countries, undertaken with the support of official development assistance (in response to our status as a donor country).

Background

The Government of Canada mandated the Canadian International Development Agency (CIDA) to serve as the lead agency for the implementation of the Convention, along with the International Development Research Centre (IDRC). As the lead, CIDA is recognized as the focal point for the channelling of all information relating to the Convention, and is responsible for developing communication systems in order to ensure that Canadians (the public, non-governmental organizations (NGOs), industry and the private sector and the scientific and research community, as well as other federal and provincial government departments) are informed of the Convention and, more generally, about the problem of desertification and possible solutions.

Strategy

In order to meet its communications obligations and objectives effectively, and to ensure that communication-related activities are undertaken in a coordinated way, CIDA has developed a series of Communications Plans. These Communications Plans, which are updated regularly, detail the main messages to be conveyed and planned actions to be undertaken (for a specific period) by the Government of Canada (particularly CIDA and IDRC), and in cooperation with its partners. They have proven to be an effective tool

in systematically guiding the approach to communications and appropriate activities to be undertaken.

An important component of Canada's strategy is to synchronize the communication messages of governmental and non-governmental organizations to ensure that the messages are heard. To do so, the Government of Canada works closely with the Solidarité Canada Sahel (SCS), an umbrella organization representing over 30 development and NGO partners involved in combating desertification. SCS was recently selected by the NGO community to host the International NGO Network on Desertification (RIOD) secretariat.

The evolution of Canadian communication messages

Canada's early communications efforts (prior to and immediately following the Convention's entering into force) focused largely on making the Convention known and explaining the national obligations involved. Canada embarked on a variety of public awareness activities on the problems of desertification in developing countries, and promoting the Convention. Communication efforts were designed to advance clear messages about the Convention and Canada's response in the context of its official development assistance programme.

As the problem of desertification and the Convention became more well known, Canada's communications efforts shifted towards dealing with more of the substantive issues of desertification and how people and communities affected by it can make a difference. The strategy adopted in the 1999/2000 Communications Plan was to try to put a positive spin on success stories, rather than focusing on the negative "disaster appeal" typically associated with the devastation of desertification. Under this plan, CIDA committed to using a positive educational approach (supporting projects targeting youth and contributing to building awareness in civil society), and IDRC worked with the media to "popularize the science" of combating desertification through the creation of a variety of video, media-briefing and Internet material. The thrusts were to focus on the impact that science can have on combating desertification, and to emphasize the need to target and focus concern, inform decision-makers and raise awareness about what can be done.

In developing its communications strategies, Canada is careful to identify its main audiences (both domestic and international) and their needs, and to target appropriate communication messages in a format that ensures delivery. For example, the more appropriate medium of radio is used to communicate information to farmers in developing countries (Canada worked with the Developing Countries Farm Radio Networks to prepare a series of scripts on sustainable agriculture, desertification and the Convention, which were distributed to broadcasters in 120 countries (described below).

Communications activities

To build public awareness and raise the profile of desertification, a broad array of communications activities have been carried out over the years by CIDA, IDRC, the Prairie Farm Rehabilitation Administration (PFRA) and their partners in the voluntary sector. Products created, promoted and distributed for use at home and overseas have included: publications, fact sheets, tool kits, media information, classroom materials,

videos, a film and a CD-ROM presentation. Other activities have included Parliamentary and Cabinet briefings, web sites, and holding special events to mark June 17 - World Day to Combat Desertification. A summary of some of the main communication pieces created by CIDA and its partners is provided below, and details of activities carried out can be found in the Appendix.

Canada also responds to its reporting obligations under the Convention through the preparation of various communication pieces such as its National Report (*Desertification: A Canadian Perspective* (Aug. 1999)), its first domestic report on its activities relevant to the Convention to Combat Desertification (*Desertification: A Perspective on Canada* (Nov. 2000)), and by responding to additional ad hoc requests such as the Early Warning Systems Report to the CST. These important communication pieces are available on CIDA's desertification web site, as well as the UNCCD site.

Examples of Canada's communications-related activities

CIDA

CIDA, through its Official Development Assistant Program (ODA), has an important role to play in assisting developing countries to address the problem of desertification and implement the Convention. To do so, it works bilaterally with affected countries, supports a variety of NGO partners, and supports the activities of numerous international institutions which are key actors in the global effort to combat desertification. The following are some examples of some of CIDA's communication-related activities:

- CIDA maintains a bilingual (English and French) web site dedicated to desertification (<http://www.acdi-cida.gc.ca/desertification-e.htm>) which provides general information on desertification and on Canada's role in the global fight against it. The site contains a variety of documents on the Convention, offers answers to a series of questions indicating how the private and public sectors can get involved in the Convention, and provides links to other interesting sites.
- CIDA is in the process of developing an internal web site as a tool to enhance communications within CIDA and between CIDA staff at headquarters and those at various posts around the world. The goal of this site is to increase awareness of the Convention and the issues of desertification, and to provide CIDA programmers with access to key reference materials, tools and guidelines for developing and/or integrating effective desertification components into their programmes, as well as to provide a forum for Agency-wide discussions for the sharing of ideas and information on best practices and lessons learned.
- With relevant stakeholders, CIDA produced Canada's first domestic report on its activities relevant to the Convention to Combat Desertification, entitled *Desertification: A Perspective on Canada* (Nov. 2000). This report, which has been revised for electronic publishing, is available on CIDA's desertification web site at <http://www.acdi-cida.gc.ca/desertification-e.htm> as well as on the UNCCD site.

- The publication of two reports focusing on Canada's commitment to the Convention through its international work, namely; *Desertification: Meeting the Challenge - Canada's commitment to the United Nations Convention to Combat Desertification* (1997); and *Desertification: A Canadian Perspective - Canada's 1st Official Report on the Implementation of the United Nations Convention to Combat Desertification* (1999).
- CIDA has contributed to a variety of projects in developing countries to help them with communications activities relating to the UNCCD, such as supporting the national action programme (NAP) processes in Senegal, Mali and Burkina Faso by providing financial and technical assistance, including components for carrying out public consultations.

Prairie Farm Rehabilitation Administration

The Prairie Farm Rehabilitation Administration (PFRA) of Agriculture and Agri-Food Canada (AAFC), working in close cooperation with provincial governments, has an important role in addressing desertification issues in Canada. PFRA has undertaken numerous communication-related activities to collect and disseminate information on land degradation and best practices for combating desertification and mitigating the effects of drought in the Canadian prairies. Examples include:

- Research for and publication of the report *Prairie Agricultural Landscapes: A Land Resource Review* (2000). This study was designed to help focus and direct the PFRA's future programmes and activities centered on sustainable land use by examining emerging environmental issues, geographic distribution of different farming systems, and economic and resource data. The report was prepared by PFRA with the input of many authors and a panel comprising agricultural producers and academics. This report is available on-line on their web site at <http://www.agr.ca/pfra/pub/pallande.htm> (English) <http://www.agr.ca/pfra/pub/pallandf.htm> (French).
- AAFC-PFRA operates a Drought Watch Programme which serves as an early warning system for affected Canadian farmers. The goals of the programme are: (1) to provide timely information of the impacts of climatic variability on water supply and agriculture on the Prairies, and (2) to promote ideas and activities for groups/individuals to reduce drought vulnerability. Recognizing that monitoring the impacts on water supplies, soil degradation and agricultural production is essential to preparedness for dealing with possible drought conditions, through a series of regularly updated maps available on their web site they provide users with an overview of the risk of drought in Western Canada. Information on the Drought Watch Programme can be found at <http://www.agr.ca/pfra/drought.htm>.
- To help share information and best practices for others to learn from, PFRA maintains a list of success stories on its web site - <http://www.agr.ca/pfra/growth/feature/index.htm>.
- PFRA also produces a variety of newsletters, fact sheets and various other publications which are available through their web site <http://www.agr.ca/pfra/public.htm#news>. Past issues have covered topics such as:

Community pasture drought checklist, Agricultural best management practices, and Prairie soils: the case for conservation.

IDRC

IDRC, a public corporation created by the Canadian government to help communities in the developing world find solutions to social, economic, and environmental problems through science and research, maintains information on networks and forges links which allow Canadians and their partners to benefit equally from a global sharing of knowledge. One of IDRC's objectives is to mobilize and strengthen indigenous research capacity in developing countries. IDRC has extensive experience in drylands issues and a long history of programming to combat desertification. IDRC has produced numerous case studies and reports on desertification, some notable examples of which include:

- A series of reports on drylands and desertification (*Reports Magazine*, July 1994; Volume 22, Number 2)
- *Grassroots Indicators for Desertification Experience and Perspectives from Eastern and Southern Africa* (1996), edited by Helen Hambly and Tobias Onweng Angura.

Two projects in particular present excellent case studies of recent IDRC work in support of communication success stories.

Water conflicts resolution through participatory communication in Burkina Faso

The principal objective of the first phase of this project was to work out and establish a participative control programme for the management of conflict relating to water use in the Nakambe River basin in Burkina Faso. Data was collected through on-the-ground documentation and investigation (July 1999 - April 2000). A specific guide of communications with the various community groups and for a process of village animation was developed in order to identify the various conflicts arising from water use. In a second step, the researchers examined and analysed the results of the investigations (May-August 2000). On the basis of this compilation (data on history, ethnicity, religions, numbers and situation of water points, conflicts, solutions suggested by stakeholders, established solutions, position of the village compared to the ecosystem, etc.), a monographic text was produced for each village. As a third step, a round table meeting of the stakeholders was organized in September 2000 to discuss the conflicts identified by the investigators, and to validate the information and discuss solutions.

A second phase is being developed, based on the considerable work of the researchers and the community. The research will continue to focus on the resolution of conflicts relating to water, but will also stress, in particular, the development of communication strategies appropriate for the various groups of users and the development of a strategy of know-how transfer. Indeed, research showed that the conflicts connected to water uses originated in four specific problems: the lack of water points, the lack of communication at the base between the various users, the lack of appropriation of the work by the population, and the lack of maintenance of the water points. The development of suitable communication strategies would make it

possible to face the last three problems and to inform the appropriate authorities of the situation concerning the first problem. These strategies of communication would play a significant role in the circulation of experience and knowledge regarding the use of water, health and hygiene, village management of water points, and appropriation by the peasants of the wells and boreholes. Work would be done in the 19 villages targeted in the first phase of research along the Nakanbe River. A CIDA project supporting local initiatives in Burkina Faso (for equipment and installation of wells and boreholes) and the Social Communication Network of Burkina will also collaborate in this research.

Participatory communication for community actions against desertification in the Sahel

One lesson learned from past field experience in the fight against desertification in the Sahel is that one of the most significant factors in success is the participation of local populations in the concrete actions carried out on the ground, and in decision-making concerning the choice and the implementation of these interventions. Communication is the tool which can facilitate this participation. However, the majority of the communication strategies used so far in the framework of the actions against desertification stress the diffusion of information and messages of persuasion and mobilization. These actions have only little real impact on participation by the communities and concrete development action. It is necessary to develop an experimental communication strategy which supports and reinforces community participation.

The project supports action research to develop strategies of participative communication with local populations and organizations in order to involve them actively in the processes of evaluation and realization of the decisions made. Associated closely with grass roots actors, action research allows experimentation strategies of communication in the context of real conditions and the analysis of their factors of difficulties and success. Lessons learned are shared with the organizations responsible for the implementation of the UNCCD in Sahelian countries. A set of regional round tables brings together those in charge of communication in these organizations to discuss the case studies and the experimental communication strategies, to make recommendations for the establishment of communication strategies in the various countries of the Sahel, and thus to ensure a regional impact of the experience arising from the project.

Other Canadian initiatives

The Canadian Government has also undertaken a variety of activities which, although not directed specifically towards combating desertification, do have a role in educating Canadians about the issues, and in helping to provide access to reliable information to aid in decision-making relating to environmental issues. Three notable examples include:

- The Canadian Information System for the Environment (CISE), currently under development, which would help all levels of Canadian society to gain access to reliable information which they need in order to make informed decisions relating to the environment. A Task Force was established by the Environment Minister to provide advice

on the design and implementation of such a system. Following the release of its interim report (www.ec.gc.ca/cise), the Task Force is undertaking consultations with Canadians to explore the views and environmental information needs of citizens, non-governmental organizations, businesses, institutions and governments before submitting their final report this autumn (2001). CIDA is working with the Task Force to ensure that information on desertification is incorporated into this information system.

- As Canada is a Party to numerous international environmental agreements, Canada's Commissioner for the Environment and Sustainable Development established a data base of Canada's international environmental commitments. This data base provides users with key information about some of the agreements Canada is a Party to, and its commitments under them. The Desertification Convention is among those listed in this database, which can be found on the Internet at (http://www.oag-bvg.gc.ca/domino/env_commitments.nsf/homepage).

- The new Canada and the World Pavilion, a national museum which opened in Ottawa in 2001, highlights some of the work that Canada is doing to combat desertification internationally through its aid programme.

There is also a strong Canadian contribution to global policy knowledge and current affairs through Canada's support of a variety of journals and bulletins. One notable example is the International Institute for Sustainable Development (IISD) linkages site. Linkages has a section devoted to the UNCCD (<http://www.iisd.ca/desert.html>), which provides a summary of the Convention and meetings to date. IISD's *Earth Negotiations Bulletin* provides balanced, objective and informative summaries of UNCCD events and negotiations. Information is provided in hard copy to meeting participants, and is published on its web site for access by anyone around the world.

A similar initiative supported by Canada is undertaken by the Observatoire de l'écopolitique internationale (Université du Québec à Montréal) together with the Institut de l'énergie et de l'environnement de la Francophonie (IEPF), to publish *Objectif Terre*, a quarterly magazine dedicated to monitoring progress and events relating to sustainable development and international environmental conventions, with particular attention to audiences in francophone countries (http://www.iepf.org/ressources/objectif_terre.asp).

NGO partners

Many Canadian NGOs are actively involved in the efforts to combat desertification, and play an important role in communicating desertification messages and getting people involved both in Canada and abroad. Some notable activities include:

- The production of public service announcements (French and English) featuring prominent Canadians which are disseminated across Canada.
- The production of teaching videos, targeting Canadian school children in affected areas, which explain and demonstrate techniques to combat desertification as well as promoting various school writing and video exchanges.

- The conducting of various awareness-raising activities in connection with World Day to Combat Desertification, such as SCS holding an international NGO Forum with a special working session addressing desertification.
- With support from CIDA, Developing Countries Farm Radio Network (DCFRN), a Canadian-based NGO, undertook a very successful initiative to reach out to local farmers and communities to encourage their participation in the preparation of national action plans, and to share knowledge. The group produced a series of practical and sustainable agricultural information programmes and distributed the scripts to broadcasters in 120 countries. These radio programmes were designed to be informative and to provide practical techniques and strategies to combat desertification, and to encourage people to take action.
- CIDA also supported the International Institute for Environment and Development (IIED) to produce and distribute various issue papers and the newsletter, *Haramata*, which helped to strengthen networking among a broad range of people and institutions involved in drylands management and to link policy makers and practitioners in east, west, and southern Africa.

2. The Sahara and the Sahel Observatory (OSS)

SID-SISEI Programme

Environmental information circulation and monitoring system on the Internet An OSS contribution to item 9 of Agenda

1. INTRODUCTORY NOTE

1.1. Background

Significant efforts are being made to manage natural resources, involving scientific and technical research, the implementation of appropriate programmes and projects in the field, and the harnessing of local know-how. The results, in the form of products, information and data, represent a unique scientific, technical and cultural heritage for sustainable development and the fight against poverty in Africa. However, it has to be recognized that this information heritage is more often than not dispersed on account of sectoral compartmentalization at the inter-institutional level, which results in duplicated activities that constitute a waste of time, energy and money.

The huge body of data, information and products thus accumulated does not always amount to a usable information capital, for three main reasons:

- (i) The results of data collection and processing are disseminated among only a limited number of users who often form part of the same professional, scientific or technical milieus;

(ii) The products generated are only to a limited extent transformed into information that can be directly used in decision-making processes relating to the management of natural resources and the environment;

(iii) The information all too often remains dispersed, restricted and hard to access by users at both the national and international levels owing to a lack of suitable mechanisms for the circulation of information.

The result of all this is an apparent lack of information at the local level which contradicts the existence in reality of an information heritage within national and international institutions or bodies specializing in Africa throughout the world. This loss of "institutional memory" due to dispersal and compartmentalization is now recognized as being one of the major obstacles to sustainable development in Africa.

1.2. International context

Strengthening of the collection and exchange of information is recommended by Agenda 21 (Chapter 40) and by other international legal instruments relating to the environment, such as those on climate change (Articles 5 and 12), biodiversity (Articles 12, 17 and 18), combating desertification (Articles 16 and 18), the Ramsar Convention, CITES, etc.

Since 1994, moreover, several International Telecommunications Union (ITU) conferences, in particular the first World Telecommunication Development Conference (WTDC) (Buenos Aires, 1994), the Plenipotentiary Conference (Kyoto, 1994) and the second WTDC (Valletta, 1998), have emphasized the role of telecommunications and information technologies for environmental protection and sustainable development. Among other things, WTDC-98 recommended the following:

1. The implementation of a global operational telecommunications-environment project on the development and use of telecommunications and information technologies for the protection of the environment and sustainable development.
2. The organization of seminars, regional workshops and training and research programmes in order to study the matter in greater depth and heighten awareness among all those concerned of the value of implementing multilateral and bilateral projects within the framework of international cooperation.
3. The establishment of a framework for international cooperation which will enable all those concerned to carry out, promote and develop projects to ensure optimum use of the most appropriate telecommunication and information technologies for the protection of the environment and sustainable development.

2. SISEI concept and approach

2.1. Concept

The Environmental Information Circulation and Monitoring System on the Internet (SISEI), which is being implemented in the framework of a number of pilot projects at the national and regional levels in Africa (1998-2000: Benin, Mali, Morocco, Senegal, Tunisia, the Permanent Interstate Committee for Drought Control in the Sahel (CILSS), the Intergovernmental Authority on Development (IGAD) and the Arab Maghreb Union (AMU)), is an environmental information management tool to assist in implementing the legal instruments relating to the environment in Africa - desertification, biodiversity, climate change, wetlands - and is based on new information and communication technologies. The SISEI concept is derived from the observation that the success of many projects aimed at establishing information systems has been seriously impaired by their limitation to purely technical aspects.

SISEI comprises:

- A coherent and efficient institutional framework which is conducive to synergy among current or planned endeavours;
- A technological tool for the accessing, exchange and circulation of useful information relating to sustainable development in general and the environment in particular, for the benefit of decision-makers, governmental or non-governmental structures, civil society and the private sector on the African continent.

The SISEI concept responds to the needs expressed by a large number of decision-makers responsible for environmental matters in developing countries. As well as being a technological tool, it also seeks to encourage the various players involved in the management of natural resources and the environment to share their experiences and information heritage. This approach is aimed at creating a synergy of both human and financial resources.

The SISEI concept is also based on the principles of balancing supply and demand in respect of information, and adoption by the national players concerned. The establishment of SISEIs is starting to be included in national programmes such as national development plans, national environmental action plans and action programmes for combating desertification.

The SISEI takes the form of a web site which serves as an environmental gateway at the national, subregional and regional levels, offering the user a one-stop information shop comprising several specialized gateways such as:

- An institutional gateway, with each partner owning its own web site enabling it to become acquainted with other partners.

- The general information on the body in question (contact details, terms of reference and prerogatives, objectives, resources, results, available services, products) is arranged according to a pre-established and homogeneous format.
- The institutional portal, which is structured on the basis of a topology of the partners, provides access to the web sites of the various partner bodies.
- A thematic gateway, in which the information is organized according to sectors of activity (forestry, animal breeding, agricultural production, irrigation, combating desertification, biodiversity, etc.).
- Thematic groups, formed around institutions involved in the field in question, are responsible for structuring the information and disseminating it via the SISEI gateway, taking care to balance the information supply and demand.
- A virtual library which, under the auspices of the documentation centres of the different ministerial bodies, is gradually opening up direct online access to reference material.
- Anyone is able to identify a document reference and then access the source electronically from his or her own workstation.
- A virtual map library which, subject to the regulatory provisions in force, allows access to map resources (thematic maps, satellite images, aerial photographs, geodesic graticules).
- Different levels of product are offered: metadata (references), quick look (reduced images), raw data (digital reproduction) or analytic products (combinations of georeferenced information layers accessible via the Internet - GisWeb).

2.2. Users

SISEIs serve the various partners concerned with environmental issues, namely the authorities (coordination bodies, ministries and their respective technical services), the scientific and technological community (research laboratories, higher education and training institutions, etc.), civil society (NGOs, associations, etc.), the private sector (consultants, companies, etc.) and partners in cooperation (multilateral and bilateral development agencies, etc.).

The main users are thus:

- technical directors and other technical officials;
- programme and project managers;
- national bodies responsible for coordinating the United Nations conventions;
- the scientific and technological community;
- the media;
- the general public;
- national, subregional, regional and international institutions.

2.3. Approach

Drawing on the experience and preliminary results obtained from the pilot projects, the SISEI concept is based on the combination of three components taken in parallel, namely institutional, for synergy of action between players; technical, to strengthen the local capacities concerned; and scientific, for the development and rational use of NICTs for sustainable development in Africa.

The institutional component is based on a participative approach through partnership between the different players and information generators. It fosters coordination through consultation and decision-making on the basis of negotiated consensus, and is aimed at:

- Fostering the establishment of an institutional framework linking the international, regional, subregional and national levels and which is conducive to the circulation and exchange of useful information for the management of natural resources and the environment on the various scales concerned;
- Defining universally-acceptable agreements for the constitution and sharing of a common information capital with a view to managing environmental information, making optimum use of existing resources and identifying additional needs;
- Establishing a strategy that is tailored to the interests of the different players;
- Drawing up rules and mechanisms in respect of the circulation, accessibility, exchange and updating of the information contained in the SISEI.

An agreement is reached between all parties on these different points through the drawing up and adoption of an "information charter".

The technical component is primarily aimed at:

- Strengthening national, subregional and continental capacities for communication infrastructure development with a view to ensuring access to and efficient use of information and communication technologies for meeting the needs identified in the institutional component. Public and private telecommunication operators are encouraged to facilitate such access;
- Developing the capacity of SISEI partner institutions to make use of existing infrastructures and master information and communication technologies in order to:
 - circulate information on the management of natural resources and the environment (documents and various types of product such as reports, publications, files, maps, data, indicators and metadata);
 - facilitate the integration and networking of existing databases and geographic information systems using Internet services;

- Establishing an information capital by developing capacities for the management and enhancement of SISEIs.

The scientific component is primarily aimed at enabling:

- The updating, adaptation and transfer of new methods and products which require constant surveillance in a rapidly changing environment;
- The harmonization of tools and formats in a highly competitive sector;
- Maintaining the interest of the partners concerned in order to avoid a further widening of the digital divide.

2.4. Methodology

Three major phases are necessary for the implementation and subsequent success of an SISEI at the national, subregional and regional levels:

- An institutional phase comprising:
 - awareness raising and discussion of the concept with the players in order to identify their interest and commitment in respect of the SISEI;
 - specific studies on each country in order to identify prerequisites for the sustainability of the project;
 - an institutional profile of the environment based on inventories;
 - a consultative forum for the players concerned, for the purpose of, among other things, drawing up an information charter to serve as a genuine draft agreement.
- An equipment and training phase comprising:
 - appraisal of the capacities and needs of partner institutions in order to fully implement and use SISEI;
 - strengthening of the technical capacities of the institutions concerned and training of technicians with a view to the creation and maintenance of the network of harmonized web sites.
- An evaluation, feedback and extension phase comprising:
 - internal and external evaluations aimed at improving the SISEI and adapting it to the evolving needs of its users;
 - input of the selected information into the system;
 - feedback in the form of a national forum or workshop;
 - drawing up of arrangements for extending the project to other national partners.

The methodology is aimed at defining a concept for sustainability of the project at the level under consideration.

3. SISEI Programme for 2002-2005

3.1. General objective

Efficient management of resources for sustainable development in general, and for the fight against poverty in particular, in the African countries contributes to the improvement of planning processes through improved management and the better harnessing of information, as well as through increased collaboration and coordination between players at different levels.

The general objective of the SISEI programme is to provide the African countries and regional organizations with systems for the validation, circulation and harnessing of relevant environmental information with a view to strengthening the participative approach at the different decision-making and operational levels and thereby promoting enlightened decision-making.

3.2. Specific objectives and expected results

The establishment of SISEIs will be based on the principle of generating institutional agreements and technical solutions proposed by the partners according to local contexts and conditions.

The programme is aimed at developing a full and operational system on three levels. Particular attention will be paid to the points of interaction and transfer between levels. The programme partners will therefore be invited to determine the substantive aspects involved, with a view to setting up information exchange mechanisms between:

- the African continent and external partners in the framework of solidarity between North and South;
- the African countries and subregions, bringing together existing experience and capacities.

The detailed objectives, as expressed by the partner subregional organizations and national institutions, are primarily focused on:

- The strengthening of national capacities for the management of environmental information at the subregional and national levels in the different environmental sectors;
- Support for and encouragement of ongoing initiatives through the facilitation of direct exchanges of information and mutual cooperation between beneficiary African countries and their partners;
- The development of the existing information heritage through encouragement and support for local initiatives and by facilitating the exchange of experience among the various local, national and subregional players;

- The establishment of an operational network of African institutions involved in or producing information, and of national and subregional focal points for the various international and regional legal instruments relating to the environment, through a stable institutional framework and common gateways.

The results expected from the different SISEIs are:

- A functional, coherent and efficient institutional framework that makes for synergy in current or planned endeavours;
- An operational technological tool for access to, and the exchange and circulation of, useful information;
- Technical structures that can exchange dialogue in order to integrate scientific and technical data in planning and decision-making processes;
- Increased use of Internet-based information sources in support of processes intended to assist in decision-making through improved ergonomics of the access gateways;
- Better integration of the different players in participative decision-making processes;
- Easier access for the different institutions and the general public to environmental information in the public domain, such as legal texts;
- A telecommunication and information network interlinking national systems through the regional nodes;
- A distance learning platform through the bringing online of different environmental learning modules;
- An operational process of quality monitoring and of data and information sharing and exchange for the purpose of ensuring synergy between the different players and programmes;
- Assistance in the drafting of reports and studies on the basis of information that is known to be reliable and from common sources, thanks to the SISEI.

3.3. Development of the operational phase (2002-2005)

Three stages are proposed for deployment of the operational phase of the programme:

Stage 1: Duration: 4 months

The first stage relates to capitalization on experience and the transfer of know-how and skills for the strengthening of regional, subregional and national capabilities ahead of the decentralized implementation of the programme.

The different steering, scientific and technical committees (see above) will be established.

Stage 2: Duration: 8 months

This stage will serve to strengthen regional and subregional capacities for acquiring the necessary means to implement actions at the respective levels as well as at the national level.

Stage 3: Duration: 36 months

The third stage relates to the actual implementation of the SISEIs. During this phase, the regional SISEI, the four subregional SISEIs and some 20 national SISEIs are gradually set up in year-by-year stages. In parallel to this, specialized tools such as GisWeb are improved, transferred and integrated into the SISEIs.

Support for implementation of the programme in the countries and the subregions will be coordinated by a consortium set up around OSS, with the United Nations Institute for Training and Research (UNITAR), ITU, the United Nations Environment Programme (UNEP), the United Nations Office for Project Services (UNOPS), the United Nations Development Programme (UNDP), the African Organization of Cartography and Remote Sensing (OACT) and other partners.

The 2002-2005 phase of the SISEI programme is aimed at making the SISEI concept operational in the four subregions of the African continent, namely CILSS-ECOWAS (Economic Community of West African States), IGAD, AMU and the Southern African Development Community (SADC). In addition to the subregional bodies that will be establishing their own subregional systems, several countries in each subregion will be designated to implement operational DIS (System for the circulation of information on desertification)/SISEIs at the national level.

Countries will be chosen on the basis of their confirmed commitment to implementation of the programme.

3.4. Institutional framework

In 1996, the Sahara and Sahel Observatory (OSS), which was set up as an international framework for North-South partnership, initiated the DIS concept, which was subsequently broadened into the SISEI concept.

This concept, implemented by UNITAR, has been tested and validated in a number of African countries and subregions thanks to the financial backing received from France, Germany, Italy, the World Bank, ITU, UNDP/UNSO, UNEP/GRID (Global Resources Information Database) and the Fonds Francophone des Inforoutes.

An assessment of the pilot projects is annexed hereto.

In the new configuration, regional organizations such as the African Organization for Cartography and Remote Sensing (OACT) - the institution charged by the African Ministerial Conference on Environment (AMCEN) to serve as the focal point for the "ecological monitoring, cartography of natural resources, remote sensing and early warning" network in the framework of the regional action plan for the fight against desertification - or the Pretoria-based non-governmental organization Environmental Information Systems in Africa (EIS Africa), together with subregional organizations

(e.g. CILSS, AMU, IGAD and SADC), will have a key role to play in implementation of the regional and subregional components of the SISEIs and in supporting countries in the establishment of their national SISEIs.

In parallel to this, while leaving the policy side of the programme to OSS, ITU, UNEP and UNOPS will provide technical support in their respective fields of competence (i.e. telecommunications, the environment, remote sensing and administration). UNITAR will oversee the operational setting-up and training method components using existing African capacities.

Finally, through the "UNEP.Net" initiative, and the coherence and synergy of the efforts deployed by the secretariats of the environmental conventions, the areas of access to and circulation of information will have to be sought in order to ensure:

- that all possible means are employed to strengthen African capacities for free access to and sustained management of information resources on the environment using SISEI;
- a harmonized flow of data and information between the global (UNEP.Net) and local (SISEI) levels.

A steering committee made up of representatives from the organizations involved in the management of the programme will attend in particular to monitoring the institutional framework.

3.5. Respective roles of the various partners

| Partners | Responsibilities |
|--|---|
| National structures | |
| <p>National SISEI leaders Institutions designated by countries as responsible for leading the SISEI at the national level</p> | <ul style="list-style-type: none"> • Coordinates implementation of the programme and run the network of partners at the national level; • Liaises with the programme leader and operator at the national level. |
| Subregional organizations | |
| <p>CILSS-ECOWAS Intergovernmental organization for western Africa</p> | <ul style="list-style-type: none"> • Responsible for SISEI-WA regional project; • African operator for SISEI-WA; • Ensures political consistency at the subregional level; • Monitors and evaluates the national projects in the countries within the subregion, assisted by OSS and UNITAR. |
| <p>AMU Intergovernmental organization for northern Africa</p> | <ul style="list-style-type: none"> • Responsible for the SCIDE-AMU subregional project; • Ensures political consistency at the subregional level; • Mandates OSS and its partners with respect to support for implementation of the SCIDE-AMU and national SISEIs with the backing of UNITAR. |
| <p>IGAD Intergovernmental organization for eastern Africa</p> | <ul style="list-style-type: none"> • Responsible for the SISEI-EA regional project as the environment component of the RIIS; • Support for national SISEIs with the backing of OSS, UNITAR, ITU and UNEP; • SISEI-EA operator, if required. |
| <p>SADC Intergovernmental organization for southern Africa</p> | <ul style="list-style-type: none"> • Responsible for the regional SISEI-SA project; • Support for national SISEIs with the backing of OSS, UNITAR, ITU and UNEP; • SISEI-SA operator, if required. |
| International organizations | |
| <p>OSS Autonomous international organization whose members are AMU, CILSS and IGAD and their respective member countries plus Egypt</p> | <ul style="list-style-type: none"> • Ensures overall consistency in the framework of support for the implementation of the UNCCD; • Carries out a global evaluation of the programme on behalf of its members; • Hosts and manages DIS/SISEI Africa; • Runs the programme steering committee. |

OACT

African organization responsible for cartography, remote sensing and geographical information systems (SIGs)

- Supports spatial information gathering;
- Supports monitoring and evaluation of the programme;
- Participates in GisWeb development activities;
- Joint partner of OSS for SISEI-Africa.

UNITAR

United Nations agency for training and training research

- Ensures technical consistency of the programme;
- Responsible for the training machinery;
- Serves as a link between the three convention (UNCCD, CBD, UNFCCC) and integrates their requirements;
- Undertakes training of trainers and initial training where the necessary competences are not available *in situ*;
- Strengthening of subregional capacities;
- Supervising of R&D activities carried out within the framework of the programme (GisWeb, metadata).

ITU

United Nations specialized agency for telecommunications with a membership comprising Member States (governments and State operators) and Sector Members (private organizations, equipment manufacturers, etc.)

- Technical support for telecommunications and the Internet;
- Assistance with training for the operator staff;
- Technical and economic project studies;
- Relations with the private sector and telecommunication operators in the countries in question;
- Assistance in negotiations with operators and in obtaining equipment.

UNEP

United Nations operator for environment databases

- Links with UNEP.Net and ensures consistency with other environment programmes;
- Technical support for GisWeb and databases.

UNOPS

Support services office for United Nations projects

- Support for financial resource mobilization;
- Support for finance management;
- Consistency with other United Nations programmes;
- Technical support for project assembly;
- Satellite images.

Secretariats of international conventions (CBD, UNCCD and UNFCCC)

- Provide support in the framework of reports to Conferences of the Parties;
- Contribute to overall evaluation of the programme;
- Validate the programme's strategic orientations.

Other partners

Private sector, cooperation agencies, etc.

Roles and contributions to be defined by the new partners according to their interest in the programme.

3.6. Scientific and technical framework

A large number of institutions and operators are working in the field of new technologies on the same themes of the environment and geographical issues in Africa. If the objectives sought are more or less identical, then it would be worth comparing, or even harmonizing, the tools and methods developed.

The scientific and technical community could only stand to gain from such an exchange, which would give rise to efficient cooperation. Users in the field can only benefit from harmonized approaches, as they would no longer be torn between several essentially convergent initiatives that in reality often compete with one another. To this end, a high level scientific committee comprising the top experts should be set up.

3.7. Consolidation of experience acquired during the initiation phase

The operational phase of the programme will be implemented through the strengthening of national, subregional and regional technical and institutional capacities to enable those concerned to directly initiate, train and develop and to monitor and evaluate the actual implementation of the national and subregional SISEIs.

The first stage is aimed at analysing and consolidating the experience gained in the launch and development phase of the SISEI, in particular in the conceptual areas, on the basis of the following:

- Building and documenting examples to ensure the replication of the concept on the different scales;
- Studying compatibility between the level of approach and methods to be applied;
- Refining target user groups in order to reach a compromise between accessibility of information tailored to the target users and the widest possible dissemination of that information.

Technical solutions can then be put forward in response to the need to:

- Strengthen communication capacities in the countries concerned using local strategies;
- Promote adoption of the technologies and systems by users and SISEI partners;
- Clearly specify the demand for environmental data that are useful for development in Africa, and initiate specific activities under each of the identified themes;
- Evaluate the impact on demand of knowledge of the information capital;
- Establish mechanisms for the transfer of information at the level of users in the field, particularly the local communities concerned (diskettes, CD-ROMs, rural radio).

Appendix

Assessment 1996-2001

1. National pilot projects

Five pilot projects initiated by OSS and implemented by UNITAR and the countries concerned were carried out in northern Africa (Morocco and Tunisia) and western Africa (Benin, Mali and Senegal). On the basis of those projects, a methodology was developed and refined for implementation of the national SISEIs.

That methodology was applied in a similar fashion in each country, with a few minor differences to accommodate the specific features of the various national contexts encountered, and the following results were obtained:

- Definition of institutional and technical frameworks and of terms of reference for implementation of the concept at the presentation and awareness-raising stage, and performance of a feasibility study.

In each case, the SISEI projects are integrated into an existing institutional framework in order to reinforce the mechanisms established. These are the environmental action plans (EAPs) established by the World Bank within the framework of structural adjustment policies, and the national, subregional and regional action programmes (NAPs, SRAPs and RAPs, respectively) developed in the framework of implementation of the UNCCD.

- Elaboration of a national environment profile, involving the listing of institutions, legal texts, programmes, projects and documents relating to the environment;
- Adoption of an "information charter" by a round table set up to define the roles of the various partners and the information content of the SISEI on the basis of the needs expressed;
- Elaboration of the national environment gateway comprising web sites designed and created by the project partners following technical support in the form of practical training in content production.

In the interests of consistency and efficiency, the national SISEIs are very similar ergonomically speaking. Examples of their implementation during the 1996-2001 phase are given in the present document (see pages 4 and 5).

On the basis of the experience gained from the national, subregional and regional pilot projects, it has been possible to identify a number of obstacles which will need to be removed during the operational phase of the programme (2002-2005).

- The infrastructure and telecommunications facet: Owing to a lack of technical capacity on the part of the countries (limited bandwidth) and difficulties in accessing such capacities, the SISEIs are temporarily hosted on a UNITAR server, with the exception of Senegal, Tunisia and very soon Mali, where private and public (university) hosts have been approached. The efforts made in respect of the structuring and dissemination of information will have to be accompanied by a strengthening of the communication capacities of the local users in order for the information to become accessible Africa-wide. In order to redress the situation, it will be necessary to request the support and intervention of public or private local or international operators. It will also be necessary to integrate local server solutions as from the initial phase in order to foster adoption of the SISEIs by the partner institutions. Another possibility will be to host mirror sites of the other SISEIs, to which and it will be necessary to define the arrangements for updating from the main sites.
- Budgetary allocation for equipment: The projects implemented in beneficiary countries, with the exception of Benin and Mali which received additional funding within the framework of a loan from the World Bank, did not receive a sufficient quantity of computer equipment to allow the effective participation of the players concerned and the dissemination of SISEI products. In future, therefore, an appropriate amount should be allocated for such equipment. Computer companies will be regularly approached with the request that they contribute to the improvement of the SISEI equipment.
- Staff motivation and involvement: Difficulties arise in the spontaneous and regular updating of SISEIs by the partner institutions. In this regard, it will be necessary to introduce, from the outset, measures that are more encouraging and motivating on the one hand and coercive on the other: technical solutions, individual satisfaction, task included in the job description of the person concerned and services provided linked to technical training.

Uganda and Burkina Faso currently benefit, through UNITAR, from technical assistance from OSS in implementing the pilot phase of their SISEI according to the same methodology. The majority of western, eastern, and northern African countries, as well as a few southern African countries, have expressed their desire to carry out an SISEI project themselves.

2. Subregional project

The Permanent Inter-State Committee for Drought Control in the Sahel (CILSS), together with the Economic Community of West African States (ECOWAS), in the framework of their subregional action programme (SRAP), have launched the development of a subregional SISEI using a methodological approach similar to that employed at the national level.

A subregional round table was held in 1999 to draw up an information charter with the support of ITU, OSS (with financing from France) and UNDP/UNSO. It was attended by all the national focal points responsible for implementation of the UNCCD, as well as a number of representatives from subregional organizations. A technical training period following the round-table resulted in the formation of a team responsible for preparing a prototype of the western Africa SISEI.

The preparation of the subregional component in western Africa has made possible the establishment of machinery for networking and interlinking of the different subregional and national programmes and institutions through the interconnection of the national SISEIs, as well as the integration at the different levels of the available environmental data and information requiring consolidation.

IGAD and AMU have in turn initiated a process for the implementation of a subregional SISEI.

Workshops were organized in each of these two subregions. SCIDE-AMU has been validated by all AMU member countries and is an integral part of the subregional action programme (SRAP)/AMU.

In the IGAD area, all The focal points of the three post-Rio conventions (on biodiversity, desertification and climate change) from the six member countries closely collaborated, within the framework of a subregional workshop, on the preparation of the eastern Africa SISEI project.

At the subregional and national levels, all the countries are ready to launch their SISEIs in association with the different focal points for the post-Rio conventions.

The initial results are encouraging and have aroused the interest of the other subregions.

3. Regional project

In its pilot phase, the activities organized within the framework of the regional SISEI were geared towards the development of tools and applications which could subsequently be adapted and replicated at the national and subregional levels.

The GisWeb concept, which was designed in collaboration with UNEP/GRID in Geneva with the assistance of a group of international experts, gave rise to a tool based on the combination of web and SIG technologies which enables the user, without the need for a database, SIG programme or any particular technical knowledge, and in an interactive fashion:

- to access, using any navigator, a remote georeferenced database;
- to display information layers, overlay vector plans and consult the corresponding legends;
- to conduct analyses on the vector information plans by means of mathematical or logical operators.

The regional SISEI developed by OSS with the contribution of UNITAR and UNEP, known as the Africa SISEI, is in due course destined to become a gateway for:

- the African information heritage that is dispersed throughout the different subregional and regional organizations in Africa;

- existing information resources that are available outside Africa;
- regional data and information on the themes of sustainable development and the different international legal instruments relating to the environment;
- the subregional SISEIs;
- the national SISEIs.

The GisWeb application, which is a tool in a class of its own, is now operational throughout Africa. It operates on the basis of a georeferenced database covering the entire African continent. The database was compiled from the various databases available (unrestricted content) from a number of data producers: UNEP, FAO, NASA, DCW, WRI, IRD, etc.

GisWeb has been replicated in Senegal. Advanced technical training has enabled the Senegalese players to develop a harmonized georeferenced database which has been integrated into the GisWeb application.

4. Products generated

The experience jointly acquired by OSS and UNITAR with financial and/or technical partners such as France, Germany, the World Bank, GRID-UNEP, UNDP/UNSO, ITU and the Fonds Francophone des Inforoutes led to the production of:

- A methodological guide to SISEI implementation, which runs through the various stages involved in setting up an SISEI. The methodological elements are provided in the form of a toolbox;
- A CD-ROM presenting the work carried out by the countries and the products generated during the initial phase of the programme;
- A web gateway (www.sisei.net) providing online access to all these sites and products.

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