Environmental Management of the Iraqi Marshlands

COMMUNITY LEVEL INITIATIVES

PARTICIPANT'S HANDBOOK

UNITED NATIONS ENVIRONMENT PROGRAMME
DIVISION OF TECHNOLOGY, INDUSTRY AND ECONOMICS
INTERNATIONAL ENVIRONMENTAL TECHNOLOGY CENTRE
UNEP-DTIE-IETC

In collaboration with

Centre For Environment And Development For Arab Region And Europe (CEDARE)

Training Kit

COMMUNITY LEVEL INITIATIVES

This training kit responds to the following need:

Support for Environmental Management of the Iraqi Marshlands Project

It is financed by:

UNEP-DTIE-IETC
The United Nations Environment Programme,
Division of Technology, Industry and Economics,
International Environmental Technology Centre

Acknowledgements

Acknowledgements and appreciation are due to the following persons who have contributed to the production of this Training Kit:

Professor Ahmed Osman El Kholy, Consultant For Centre for Environment & Development for the Arab Region and Europe - CEDARE

Ahmed Abdelrehim, Regional Programme Manager, Centre for Environment & Development for the Arab Region and Europe - CEDARE

SUPPORT FOR ENVIRONMENTAL MANAGEMENT OF THE IRAQI MARSHLANDS

A. Overview of the Iraqi Marshlands and their environmental priorities

The Iraqi Marshlands constitute the largest wetland ecosystem in the Middle East, with considerable environmental and socio-cultural significance. Recent assessments of environmental conditions in Iraq, as reported by UNEP and the UN/World Bank Needs Assessment Initiative for the Reconstruction of Iraq, have identified the destruction of the Iraqi Marshlands as one of the major environmental and humanitarian disasters facing Iraq (United Nations and World Bank, 2003). Critical problems and associated priority needs for the Iraqi Marshlands identified by the Iraqi authorities and the UN assessments include, among others, the following:

Marshland degradation: While the re-flooding of dried areas started in 2003, only 20 to 30 per cent of the original area has been re-inundated to date, with varying degrees of ecosystem recovery. Marsh water is contaminated with pesticides, salts, and untreated industrial discharges and sewage from upstream. Haphazard breaching of embankments has also resulted in contaminated water stagnating in some areas, impacting the recovery of both vegetation and fish. Water quality and marshland management is an urgent priority to protect human health and livelihoods, and to preserve biodiversity and the ecosystems.

Lack of drinking water: The 2003 UN/World Bank Needs Assessment and a public health survey by the US Agency for International Development (US AID) found that the provision of safe drinking water is the critical priority for the residents of the Iraqi Marshlands (United Nations, 2003). While some residents are able to purchase tanker water, many, particularly those living within the marshes, currently obtain drinking water directly from the marshes without treatment (US AID, 2004).

Lack of sanitation: Assessments found that most settlements lack basic sanitation systems, and wastewater is often drained through open channels to the nearest stream or to the street. The presence of human waste in the streets was noted in 50 per cent of villages in the region. Outbreaks of water-borne diseases are prevalent. The provision of wastewater treatment services is therefore a critical necessity for protecting the public health. In addition, the return of displaced persons to the marshland area continues to place an increasing burden on the provision of drinking water and sanitation.

The Iraqi authorities have recognized the above issues as priorities, and have submitted the following as project priorities, among others, to the Donor Conference: Management of Biodiversity in the al Hwaize Marshland (Project number 706), Provision of Treatment Units for Water and Sanitation (Project numbers 592 and 594), and Training Programme Development (Project number 704).

The need for immediate environmental relief in the Iraqi Marshlands was also raised as a priority by the high-level Iraqi delegation to Japan. In December 2003, Prime Minister Koizumi was requested in person to prioritize marshland management and restoration by a visiting Iraqi dignitary. In March 2004, the Iraqi Minister of Environment met with the Japanese Foreign Minister and Environment Minister and, again, requested that Japan prioritize support for marshland management and restoration. **Specifically, the Iraqi Minister of Environment requested assistance in the improvement of water quality, as well as in the provision of technologies, equipment, and training.** To respond to such requests, the Government of Japan made contributions to the UN Iraq Trust Fund, and earmarked funds for this project. In addition,

within the UN Iraq Trust Fund framework, the need for coordination of activities and strategy formulation for longer-term marshland management has been identified.

B. Project goal and components

Owing to the uniqueness of the Iraqi Marshlands ecosystem and its socio-cultural heritage, the technical and programmatic responses needed to address the above priorities may be quite different from those most appropriate for other settings. Also, an underlying factor that hinders the response is the limited capacities of, and availability of credible information for, policy makers, experts, and communities to assess and implement solutions. Given these observations, the goal of this project is to support the sustainable management and restoration of the Iraqi Marshlands by facilitating strategy formulation, monitoring and analysing current conditions, raising capacities for policy and technical management, and implementing environmentally sound technology (EST) options on a pilot basis. This project is an integrated package of five component activities, as follows:

- **Component 1: Support for strategy development and coordination**
  This component facilitates strategy development for marshland management by analysing the current policy and institutional frameworks, and by providing initial support to assess the integration of environmental dimensions into the national marshland management coordination mechanism. Stakeholder and donor coordination activities also are supported.
- **Component 2: Data collection and baseline analysis**
  This component addresses the need to establish a baseline for the marshland environment, and to collect and analyse the data needed to determine the potential intervention options required to meet the immediate needs for water, sanitation, and marshland management.
- **Component 3: Capacity building**
  This component addresses the need to raise the capacity of Iraqi decision-makers in government and communities to develop and implement a policy and strategy framework for marshland management, as well as technical options for immediate mitigation of critical concerns.
- **Component 4: Pilot implementation**
  This component addresses the need to identify suitable options, and provides support for the pilot implementation of such options in drinking water, sanitation, and marshland management.
- **Component 5: Awareness raising and follow-up**
  This component addresses the need to raise awareness of marshland conditions, and the efforts to manage and restore this critical ecosystem. These issues are described in more detail in the project approach section below.

UNEP experiences relevant to the project, as well as indications of UNEP's implementation capacity, are summarized below:

- **Promotion of environmentally sound technologies (ESTs)**: UNEP, through the International Environmental Technology Centre (IETC) of the Division of Technology, Industry, and Economics (DTIE), has provided technical and policy expertise for applications of ESTs in water and wastewater management and wetland management in developing countries. IETC has also supported related capacity-building activities, and provides guidance for decision-makers on appropriate policies and strategies (UNEP IETC, 2004). The Division has directly implemented over 1,000 cleaner technology assessments and demonstrations in 24 developing countries (UNEP DTIE, 2004).
- **Assessments of the Iraqi Marshlands**: Assessments carried out by UNEP have catalogued the degradation of the Iraqi Marshlands for several years, and alerted the

international community to its potential destruction. UNEP has been the lead agency in monitoring and reporting on the recovery of the Marshlands (UNEP, 2001 and 2003).

- **Post-conflict assessments**: UNEP has provided environmental assistance to post-conflict countries since the late 1990s by investigating the environmental impacts of conflicts and pre-existing conditions, supporting decision-making, and initiating follow-up action. Locations of post-conflict operations include Afghanistan, Albania, Bosnia and Herzegovina, Kosovo, Liberia, and the Occupied Palestinian Territories (UNEP PCAU, 2004).

UNEP also has the experience and mandate to coordinate policy dialogue so as to ensure that environmental issues are adequately addressed within the scope of problems that encompass both environmental and non-environmental dimensions. Further, given the special constraints on local implementation in Iraq, additional measures taken to ensure the implementation of the Iraqi Marshlands project include the following:

- Establishment of a Project Implementation Unit (PIU) to be anchored within the Ministry of Environment, to provide technical support, to liaise with national and governorate institutions, and to oversee the project at the local level
- Employment of a national project coordinator, to operate out of the PIU
- Building the capacity of Iraqi experts and decision-makers first, and utilizing that capacity for implementation during the second stage of the project
- Contracting with UNOPS for assistance in local implementation, monitoring, and evaluation
- Coordination within Cluster 5 to evaluate the development and use of a common implementation framework
- Coordination with other UN agencies operating in Southern Iraq to carry out pilot projects in complementary and mutually beneficial locations, and to employ their local staff and contractors for implementation assistance on an as-needed basis.

C. Project approach

This project is an integrated package of five components, and specific activities under each component are summarized in the logical framework. The following section provides some key additional information on the linkages among specific activities.

Component 1: Support for strategy development and coordination

The development of a marshland management plan is a long-term process that encompasses various disciplines and perspectives, including transboundary resource allocation, agriculture, industry, food production, land use, socio-cultural heritage, and displaced persons, as well as environmental issues. Formulating such a plan will require individual strategy formulation and coordination within the above areas, consensus building, allocation of substantial resources, political will, and considerable institutional capacity.[1]

Nevertheless, there is a current need to strengthen the coordination mechanism, and to provide environmentally sound input and objective analysis. There is also an urgent need to find and apply suitable options for immediate environmental relief, and to build the necessary capacity in Iraq for longer-term environmental management. This project aims to initiate this process by addressing such needs through various activities within this component.

UNEP is in the process of submitting another proposal that focuses on coordination, building upon the results and insights generated from this component. This additional proposal, which is in the UN Iraq Trust Fund pipeline, will support the development of the national, regional,

and international strategies and action plans for marshland restoration, utilizing the practical knowledge and capacity from this project as building blocks. Discussions on activities to be undertaken within the next proposal are underway with the relevant Iraqi authorities.

Activities to be undertaken within this component include the following:

- **PIU establishment**: The project will establish the Project Implementation Unit (PIU) within the Ministry of Environment, and provide support to strengthen the institutional capacity of the ministry to address marshland management, and to establish an anchor for this project within Iraq. The PIU will, among other tasks, facilitate dialogue among various line ministries and stakeholders for the coordination of marshland activities, and provide implementation support.
- **Survey of policy and institutional frameworks**: The project will conduct a survey to assess the current policy and institutional frameworks for marshland management, and identify the roles and responsibilities of stakeholders. The clarification of the framework will articulate the decision-making process and actors, and help identify areas where priority actions and support may be needed by the national government and donors.
- **Roundtable organization**: Among UN organizations there is a need for a coordinated response for sound marshland management. To address this need, UNEP organized a Roundtable on Marshland initiatives during 2004 with Iraqi ministries and stakeholders, relevant clusters, and bilateral project personnel. Held in Amman, the Roundtable discussed the current status of various initiatives, both environmental and otherwise, that are taking place in/for the Iraqi Marshlands, and supported the dialogue for management plan development.
- **Support for environmental integration**: UNEP will provide support for assessments that aim to ensure that environmental dimensions are adequately reflected into the ongoing management strategy formulation within the country. Such support is intended to provide objective counter-analyses that are based on sound environmental science and policy perspectives.
- **Donor coordination**: As there are other bilaterally supported initiatives underway for marshland restoration and management, coordination of international activities is important to find and exploit synergies and avoid duplication. (See the section on specific assessments for further detail.) Such coordination has already been initiated, beginning with a meeting in early 2004 sponsored by the Italian government. UNEP participated in this meeting. Additional meetings will be organized regularly, with US AID sponsoring one in mid-2004. UNEP plans to host a further such meeting, scheduled for early 2005, to be confirmed upon full consultation with other organizations.
- **Post-phase needs assessment and strategies**: At the end of this project phase, results and observations will be used to formulate a report that identifies areas where further strengthening of institutional and policy frameworks may be warranted. In addition, the results of the pilot project will be used to develop a strategy for the wider implementation of suitable options for the provision of water supplies, sanitation and marshland management. This strategy will include a listing of priority areas and their current conditions, data on specific applications, current institutional capacities and identified needs, and recommended policies and strategies to support longer-term applications. This strategy will be submitted as a component of the marshland management plan.

Activities to be undertaken within this project cannot be put on hold until the master plan is developed, as immediate relief is needed as soon as possible. UNEP will ensure that this project

will not jeopardize the intended objectives and outcomes of a longer-term management plan. UNEP will also ensure that project activities, particularly the pilot implementation activities, are in locations and conducted under operating conditions that will not be impacted by future re-flooding that may be stipulated in the longer-term marshland management plan.

Component 2: Data collection and baseline analysis
This component will focus on the collection of necessary data to establish the baseline conditions of the Iraqi Marshlands.

- **Data and analysis**: The following data collection and analysis will be carried out: analysis of ongoing hydrologic data and biodiversity assessments; water quality sampling and assessment; and monitoring and reporting of re-flooding and ecological changes using satellite imagery. The baseline data will be used to determine the patterns of re-flooding, community locations and changes in size, water quality and water availability for residents, and impacts on biodiversity. For example, various bilateral initiatives have undertaken hydrological assessments, developed models, and analysed scenarios for re-flooding. In addition, biodiversity assessments are being carried out to establish the geographical distributions of plant and animal species, and threatened areas. Such information will be collected and analysed to help identify areas where targeted actions by this project may be warranted. If needed, this analysis may be supplemented with small scale assessments of targeted areas. Based on these data, a water-quality sampling protocol will be established. Sampling and analysis will then be carried out to determine the extent of water contamination in various communities and locales. Such data will be used to determine suitable options and locations for the pilot project, as described in more detail under component 4. Monitoring and reporting on re-flooding will generate regular reports on changes within the Marshlands. Equipment will be provided to the line ministry to support remote sensing and GIS applications, so that the monitoring data on re-flooding will be available for analysis inside the country.
- **Marshland Information Network establishment**: The project will establish a web-based Marshland Information Network (MIN), which will: provide stakeholders with a forum to share information; provide a common point of access to tools for technical assessments and management; and facilitate the identification of solutions and the development of common strategies and partnerships among stakeholders. The system will be available in Arabic and English. The establishment of the MIN is expected to address the barrier of limited availability and sharing of environmental and social information regarding the Marshlands identified during UNEP's discussions with relevant Iraqi ministries. The system will use the EST Information System (ESTIS) framework, developed by UNEP IETC (UNEP IETC, 2003). ESTIS is one of the only information systems in the world with multilanguage compatibility, and is already utilized by various developing countries' agencies and organizations.
- **MIN node establishment**: To facilitate the active engagement of stakeholders at the local level, in data sharing, and monitoring, the project will provide equipment and support to establish MIN nodes at the PIU, and within relevant southern governorates.

Component 3: Capacity building
Identifying and implementing technical and policy responses for sustainable marshland management requires capacity. This project will provide capacity-building opportunities in multiple areas that are deemed necessary to develop a cross-cutting response to sustainable marshland management. Such capacity building will be carried out in policy and institutional development, technical capability, and data management and analysis areas.

In addition, study tours will be conducted to provide opportunities to examine at first hand the following two areas: community-level actions and capacity-building activities, and EST applications. Given the current security concerns, these training activities will be carried out outside Iraq, in the region and elsewhere. Individual participants will be selected from key government agencies, governorates, and communities. Criteria for the selection of participants will be developed and used to identify suitable candidates. Institutional agreements and arrangements with employers will be negotiated, so that trained experts will be assigned to take part in the actual implementation and management of the pilot projects.

- **Policy and institutional development**: Sound environmental management of marshlands, including EST applications, must be based on an integrated water resource management (IWRM) approach. The relevant Iraqi authorities and decision-makers in communities and NGOs currently have limited understanding of this approach, and the formulation of practical policies and strategies to operationalize IWRM in the Iraqi context. Initiatives for marshland management must be anchored in the local communities. To address this need, capacity building will be conducted within the communities on the following topics: water quality management; wetland management; community-level initiatives; and IWRM policy integration. Thirty placements per topic will made available to line ministries, communities, NGOs, and other organizations, resulting in a total of 120 training placements.
- **Technical training**: Identification, implementation, and management of EST options to provide water, sanitation, and marshland water quality management require specific skills in four key areas: ESTs for drinking water provision; phytotechnologies for wetland management (i.e. the use of plants and vegetation to manage wetland conditions and water quality – constructed wetlands being a prime example); sustainable sanitation options; and EST assessment methodology and implementation. A training curriculum and training materials will be developed for each area, based on the best current knowledge in the field and drawing, where appropriate, on existing UNEP and other products. For each skills area, a team of 30 technical experts will be selected to undergo this specialized training, resulting in a total of 120 training placements. For both policy- and technical-oriented training, the training curriculum will have a train-the-trainer component, and will supply materials to enable the trained experts to carry out site-specific training of local teams and communities at the pilot sites. Follow-up training on the above subjects will be supported.
- **Study tours**: Two study tours are planned within this project. The first study tour will provide opportunities to see and evaluate the integration of capacity building programmes into policy-making and community-level actions, while the second study tour will provide opportunities to visit and evaluate ongoing EST implementation projects.
- **Data management and analysis training**: Training on MIN utilization will be provided. The MIN system will be used to disseminate regular reports of satellite and remote sensing data on marshland re-floodings and their subsequent ecological changes. A training programme on remote sensing data analysis will also be conducted.
- **Support for local training**: Support will be provided to local organizations that provide training on wetland management, technical response, and community initiatives within Iraq. The aim of this support is to ensure the localization and ownership of training activities to educate a larger number of citizens and communities on the practical options for wetland management. The scope of support and selection criteria will be established upon consultation by the PIU with relevant local communities.

Component 4: Pilot implementation

The project will identify suitable options for marshland management and for the provision of water supply and sanitation on a pilot scale. Technical options that are considered to be environmentally sound; i.e. environmentally sound technologies (EST), will be the focus of such implementations. ESTs are defined in Chapter 34 of Agenda 21 as technologies that: protect the environment; are less polluting; use resources in a more sustainable manner; recycle more of their wastes and by-products; and handle residual wastes in a more acceptable manner than the technologies for which they substitute (United Nations, 1992). ESTs go beyond individual technologies, and encompass total systems that include the technical know-how, operational procedures, and organizational and managerial procedures. The need to facilitate EST transfer and accessibility, and to build capacity for EST deployment and use, particularly in developing countries, is clearly set out in Agenda 21. ESTs cover a wide spectrum and many can be described as 'low-tech' or appropriate technologies that may be widely used in developing countries. ESTs that are suitable for developing countries tend to have low energy intensities, require less maintenance, create increased employment, are culturally acceptable, and often cost less to acquire and operate.

For example, constructed wetlands have been used to treat wastewater before direct discharge, or as part of a more comprehensive treatment process.[2] Sustainable sanitation, such as urine separation, enables faster and more efficient recovery of nutrients for agricultural applications, with lower risks of diseases and contamination. Grass plots have been used to process human wastes in communities with relatively low wastewater volumes that possess the necessary areas, with highly impermeable soils, for treatment. Figure 1 shows a range of appropriate ESTs. Many of these ESTs could be used effectively in rural areas, such as the Iraqi Marshlands. During the pilot phase of this project, UNEP will identify two or three ESTs for implementation. The selection criteria and strategy are described in the Project Approach section below.

The pilot-scale implementation of ESTs will focus on three areas of application: drinking water provision, sanitation provision, and wetland water quality management. At least three communities will be chosen for pilot projects within each application area. For each community site, up to three suitable EST options will be identified, and one or two will be implemented. The selection of candidate sites for the EST pilot projects will be carried out by the PIU, in consultation with the line ministry, other relevant ministries, and stakeholders, reflecting domestic priorities. The baseline data to be collected under component 2 will be used for the feasibility analysis. The site selection criteria to ensure sustainability include the following:

- Demonstrated need for interventions
- Size of the community
- Probability of re-flooding, and physical and population stability
- Access and security for implementation and monitoring
- Likelihood of replicability and wider application (i.e. how typical are the geographic, population, social, lifestyle, and environmental characteristics? How relevant is the experience at a particular site to other communities?)
- Availability of basic materials, energy, and physical space for technology installation
- Level of community willingness to participate
- Existence of water collection and wastewater discharge systems
- Linkage with ongoing initiatives for synergy and collaboration

Once the candidate sites and EST options have been identified, UNEP will convene a meeting during 2005 with Iraqi and international stakeholders to present and discuss the planned

activities, and ensure that they are compatible with the ongoing planning of marshland restoration activities.

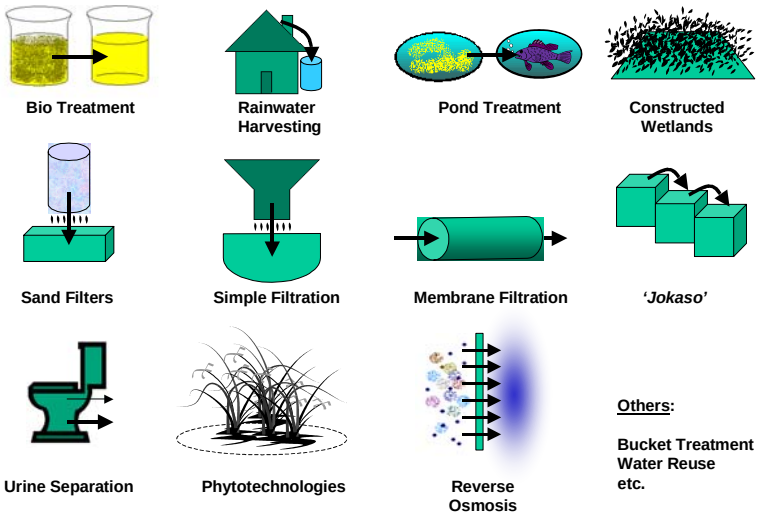


Figure 1: Examples of Environmentally Sound Technologies

The actual pilot implementation is expected to commence during 2005, and will be coordinated by the PIU with guidance from UNEP and UNOPS. Hands-on training will be provided for on-site pilot teams on pilot installations, operations, and maintenance.

The protocol for pilot project assessment and evaluation will be developed and utilized to assess the suitability of the EST options from various angles, including performance, environmental impact, community acceptance, maintenance, and ease of operation. Finally, a monitoring mechanism will be put into place to continue the operation and maintenance of the pilot project technologies, to be coordinated by the PIU.

Component 5: Awareness raising and follow-up

UNEP's experiences show that the long-term success of pilot applications – and thus the sustainability of the outputs and results of a project – requires the involvement of, and ownership by, the communities. UNEP's experience further shows that awareness-raising activities are key to ensuring such involvement. Therefore, this project will undertake information dissemination and outreach programmes to inform and involve communities in EST applications. In addition, UNEP believes that broad public understanding of the issues confronting the Iraqi Marshlands and of the programmatic responses to date is critical in two areas: securing further international support for wetlands activities, and securing support within Iraq for moving beyond the pilot stage to broader implementation. Therefore, public relations materials will be prepared and media coverage solicited. Further, two public meetings will be organized to discuss the state of the Iraqi Marshlands and the restoration and management efforts. In these efforts, the project team will develop and disseminate information utilizing a wide variety of media (including audio-visual materials, reports, brochures, and the internet), adapted appropriately to key audiences.

UNEP also expects to consult with stakeholders in the development of a proposal for a second phase of this project. The second phase, which must be demand driven, will build upon the first-phase pilot projects, the lessons learned, and focus on wider implementation. UNEP

would seek to mobilize additional international technical cooperation resources for such a second phase.

Development goal and key immediate objectives

The development goal of this project is to support the sustainable management and restoration of the Iraqi Marshlands, with the following immediate objectives:

- To monitor and assess baseline characteristics of the marshland conditions, to provide objective and up-to-date information, and to disseminate tools needed for assessment and management.
- To build the capacity of Iraqi decision-makers and community representatives in the area of marshland management, including: policy and institutional development, technical capability, and analysis.
- To identify EST options that are suitable for the immediate provision of drinking water and sanitation services, as well as wetland management, and to implement them on a pilot basis.
- To identify the needs for additional strategy formulation and coordination for the development of a longer-term marshland management plan based on the results of the pilot project and cross-sectoral dialogue.

The project is expected to raise the basic capacity of communities, institutions, and key personnel in technical and policy aspects of water quality and wetland management. Utilizing such expertise, suitable EST options will be identified and implemented on a pilot basis to meet the urgent need for water and sanitation in a number of marshland communities. Based on these activities, a strategy for the wider application of technical options for marshland management will be developed. The strategy, as well as relevant expertise and knowledge, will provide valuable input for the eventual development of a master plan for the Iraqi Marshlands, and its subsequent implementation by domestic institutions.

Outputs and key activities

Outputs:

- Establishment of a Project Implementation Unit within the Ministry of Environment to address marshland management.
- Implementation of a satellite-based observation system for marshland monitoring and generation of regular real-time reports.
- Establishment of the Marshland Information Network, adequately equipped and with trained users.
- Publication of training materials on wetland management, water quality management, technical analysis and assessment methodologies, available in English and Arabic.
- Establishment of a cadre of trained decision-makers, experts, and community leaders with on-the-ground experience in technical implementation and the policy and institutional aspects of wetland management.
- Pilot implementation of demonstration projects for drinking water supply, sanitation, and wetland management (totalling US$3 million, plus monitoring and evaluation costs), for the immediate relief of marshland communities.
- Publication of reports on suitable technological options for wider implementation, and analysis of policy and institutional needs to support longer-term management plan development.
- Dissemination of awareness-raising materials on the Marshlands.

Key Activities:

- **Support for strategy development and coordination**: Establishment of the Project Implementation Unit within the Ministry of Environment. Implementation of a policy and institutional survey to establish the current status of marshland management. Organization of a Roundtable on Marshland initiatives with UN clusters, bilateral donors, and Iraqi counterparts, to share information on ongoing activities and establish collaboration and coordination between donors and Iraqi counterparts. Hosting of one donor coordination meeting. Assessment of policy and institutional strengthening for marshland management based on the project results and observations, as a contribution to the development of a longer-term management plan.
- **Data collection and baseline analysis**: Development of a satellite-based marshland observation system to monitor and report on re-flooding and ecological changes. Water sampling, and provision of support for hydrological and biodiversity assessments. Creation of the Marshland Information Network to provide access to data on marshland management activities (in Arabic and English), and establishment of a regional information network with nodes in the southern governorates and at the PIU for information exchange and project monitoring. Equipping of the network and nodes with equipment and providing appropriate training to staff and users.
- **Capacity building**: Provision of training to decision-makers and community leaders on: policy and institutional development, technical capability, and data management and analysis. Study tours of EST implementation sites, and integration of capacity-building initiatives into policy and community action. Support of local training initiatives.
- **Pilot implementation**: On-site training of local teams. Implementation of EST feasibility analysis, selection and assessment to develop a portfolio of candidate options by organizing a meeting with stakeholders. Implementation of suitable ESTs on a pilot scale (including investments of up to US$3 million), and utilization of trained experts for project implementation. Provision of operations and maintenance support.
- **Awareness raising and follow-up**: Distribution of information materials to raise awareness on the state of Marshlands and the restoration initiatives. Provision of support to community-level initiatives for awareness raising, convening of public meetings, and provision of assistance in developing the second phase of the project, upon request.

Notes

[1] The master plan development tends to be a long-term process that requires consultations and consensus among various stakeholders. While it may include urgently needed actions, development of such a master plan is generally time consuming. For example, the management plan for the Florida Everglades in the United States took approximately 6 years to develop, and entails actions for the next 20 years with budget of US$8 billion for implementation (Comprehensive Everglades Restoration Plan, 2004). On a smaller scale, the master plan development for Lake Biwa, the largest freshwater lake in Japan, took over 10 years to reach consensus, and entails actions by various stakeholders. For this plan, the coordination and government engagement alone costs approximately US$1 million per year, not including the costs of the actual lake management measures (Shiga Prefecture, 2000).

[2] Constructed wetlands are an example of phytotechnology, which is the use of vegetation for environmental benefits such as water quality improvement, remediation of degraded ecosystems, enhancement of biodiversity, improvement of agricultural production, and bioenergy generation. In addition to environmental benefits, its applications can have developmental benefits, providing alternative sources of fuel, forage, and shelter.

UNEP-IETC Iraqi Marshland Project Overview

مشروع مناطق الأهوار العراقية

الذي يقوم به برنامج الأمم المتحدة للبيئة – المركز الدولي لتكنولوجيا البيئة

عرض عـــام

UNEP

Slide1

UNEP Project Overview - عرض عام للمشروع

- Goal and objectives
  to support sustainable management and restoration of the Iraqi Marshlands, by:
  1. Monitoring and assessing current marshland conditions and disseminating information and assessment tools
  2. Building capacity for technical and policy management
  3. Implementing environmentally sound technology (EST) options on a pilot basis for:
     a) Drinking water
     b) Sanitation
     c) Wetland and water quality management
  4. Facilitating policy and strategy formulation and coordination, based on project results and dialogue

- أهداف المشروع:
  دعم الإدارة المستديمة وإحياء مناطق الأهوار العراقية، وذلك عن طريق:
  ١. مراقبة ودراسة الظروف الحالية للأهوار، نشر المعلومات، وتقييم الإحتياجات
  ٢. بناء القدرات الفنية والإدارية
  ٣. تطبيق خيارات التكنولوجيا السليمة بيئياً (EST) على أسس رائدة فيما يتعلق بـ:
     أ) مياه الشرب
     ب) المرافق الصحية
     جـ) إدارة الأهوار ونوعية المياه
  ٤. تسهيل وضع السياسات والإستراتيجيات، والتنسيق بناءاً على نتائج المشروع والحوار الموضوعي

٢ المركز الدولي لتكنولوجيا البيئة International Environmental Technology Centre

UNEP

Slide2

What is Environmentally Sound Technology (EST)? ما هي التكنولوجيا السليمة بيئياً (EST) ؟

- Technologies that protect the environment → are less polluting → use all resources in a suitable manner → recycle more of their wastes and products → and handle residual wastes in a more acceptable manner (As defined and endorsed in Agenda 21 (Rio Summit))
- Suitable for developing countries
  - Tend to have lower energy intensity, require less maintenance and skill, create employment opportunities, culturally acceptable, cost less to buy and operate
- Range from low- to high-tech
- Suitable options not always intuitively obvious
  - Local needs and conditions influence suitable options
  - Training needed on how to assess and implement ESTs

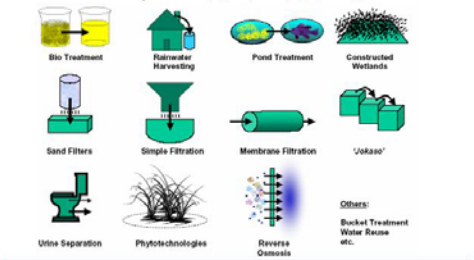
- تكنولوجيات تحمي البيئة ← أقل تلويثاً ← تستعمل جميع الموارد بطريقة مناسبة ← تعيد إستعمال أكثر النفايات والمواد ← تعالج النفايات والفضلات بطريقة ملائمة (كما حددتها وصادقت عليها الأجندة ٢١ (قمة ريو))
- مناسبة للدول النامية
  - تستهلك قليلاً من الطاقة، تتطلب قليلاً من الصيانة والمهارة، توفر فرصاً للعمل، مقبولة ثقافياً ، منخفضة الكلفة للحصول عليها والعمل بها
- تتراوح بين التكنولوجيا البسيطة والمتقدمة
- الخيارات المناسبة ليست دوماً بديهية
  - الإحتياجات والظروف المحلية تلعب دوراً هاماً في تحديد الخيارات المناسبة
  - الحاجة إلى التدريب حول تقييم وتطبيق التكنولوجيات السليمة بيئياً ESTs

٣ المركز الدولي لتكنولوجيا البيئة International Environmental Technology Centre

UNEP

Slide3

EST Examples - أمثلة عن التكنولوجيا السليمة بيئياً



Suitable ESTs depend on local conditions and needs
will be decided based on EST assessment
التكنولوجيات السليمة بيئياً تعتمد على الإحتياجات والظروف المحلية
سيتم تحديد التكنولوجيات المناسبة بناء على تقييمات EST

٤ المركز الدولي لتكنولوجيا البيئة International Environmental Technology Centre

UNEP

Slide4

Activity Components - عناصر النشاطات

٥ المركز الدولي لتكنولوجيا البيئة International Environmental Technology Centre

UNEP

Slide5

Component 1 : Strategy Development & Coordination Support
العنصر ١ : دعم تطوير الإستراتيجية والتنسيق

Activities planned:

- Set-up Project Implementation Unit (PIU) within Environment Ministry
- Survey the current status of policy and institutional frameworks
- Provide support for environmental integration into marshland management strategy development
- Facilitate donor coordination
- Post-phase needs assessment and strategies

النشاطات المخطط لها:

- إنشاء وحدة تنفيذ المشروع (PIU) ضمن وزارة البيئة
- مراقبة السياسات الحالية وإطار عمل المؤسسات
- توفير دعم التكامل البيئي لتطوير إستراتيجية إدارة الأهوار
- التنسيق بين المتبرعين
- الحاجة إلى تقييم الإستراتيجيات بعد إنتهاء كل مرحلة

٦ المركز الدولي لتكنولوجيا البيئة International Environmental Technology Centre

UNEP

Slide6

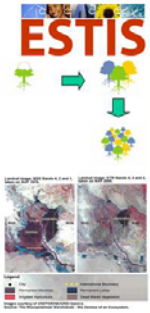
Component 2 : Data Collection & Baseline Analysis
العنصر ٢ : جمع البيانات وتحليل الأسس

Activities planned:

- Set-up Marshland Information Network (MIN) to share data, analysis, and analytical tools
  - Using ESTIS: multi-language, information system management tool
  - MIN nodes established @ governorates, PIU, and region
- Monitor re-flooding with satellite image& remote sensing analysis
- Carry-out:
  - Analysis of on-going hydrologic and biodiversity assessments
  - Water quality sampling

النشاطات المخطط لها :

- إنشاء شبكة معلوماتية الأهوار (MIN) لتداول البيانات، الدراسات، وبرمجيات التحليل
  - إستعمال ESTIS المتعدد اللغات كوسيلة إدارية
  - وضع نواة MIN ضمن الإدارات المحلية ، PIU، والمناطق
- مراقبة إعادة الغمر بواسطة الأقمار الإصطناعية والتحليل عن بعد
- القيام بـ :
  - دراسة التقييمات الحالية المتعلقة بالمياه والتنوع الحيوي
  - الحصول على عيّنات لتحليل نوعية الماء



Slide7

Component 3 : Capacity Building
العنصر ٣: بنـاء القدرات

What? Technical: drinking water provision, sustainable sanitation, phytotechnology, EST assessment & implementation
Policy and institutional: water quality management, wetland management, integrated water resource management (IWRM), community level initiatives
Data management: remote sensing, marshland info. system

Who? Iraqi professionals, educators, civil servants, community leaders → decision makers and stakeholders

How? Training courses in the region and in Japan, with secondary training organized by trained persons in Iraq → Provide support tools and training materials

ماذا؟ فنيا" : تأمين ماء الشرب، المرافق الصحية المستديمة، التكنولوجيا النباتية، تقييمات وتطبيقات EST
السياسات و المؤسسات : إدارة نوعية الماء، إدارة الأهوار، الإدارة المتكاملة للموارد المائية (IWRM)، مبادرات السكان
إدارة البيانات: المراقبة عن بعد، نظام معلومات الأهوار.

مَن؟ المحترفون العراقيون، المدرسون، الموظفون، زعماء الجاليات، ← أصحاب القرار والأطراف المعنية

كيف ؟ دورات تدريبية في المنطقة وفي اليابان، بالإضافة إلى تدريبات أخرى ينظمها الأشخاص المدرّبون في العراق ← توفير التجهيزات والمواد اللازمة للتدريب

Slide8

Component 4 : EST Pilot Implementation
العنصر ٤ : تطبيقات EST الرائدة

What? 3 pilot applications
Drinking water provision
Sanitation and wastewater treatment provision
Wetland and water quality management

Where? Targeting smaller communities
Up to 3 EST options to be identified, with 1 or 2 implemented

How? Involvement of Iraqi partners with international input
Sampling, local training, & monitoring organized locally
Feasibility study, network organized with international input

ماذا ؟ ٣ تطبيقات رائدة
تأمين ماء الشرب
تأمين المرافق الصحية ومعالجة المياه المستعملة
إدارة الأهوار، و إدارة نوعية الماء

أين ؟ على مستوى الجاليات الصغيرة
تحديد ٣ خيارات EST، وتطبيق واحدا" أو إثنين منها

كيف ؟ التركيز على مشاركة الأطراف العراقية في الجهود الدولية
تحليل العينات، التدريب المحلي، والمراقبة المحلية
دراسة الجدوى من المشروع، تنظيم التعاون المحلي مع الدعم الدولي

Slide9

Component 5 : Awareness Raising
العنصر ٥: زيادة التوعية

Activities planned:

- Organize public meetings
- Distribute awareness raising materials
- Prepare audio visual materials on the marshland
- Support community level initiatives for marshland management
- Organize an international workshop on marshland management
- Support, as needed, for preparation of the second phase

النشاطات المخطط لها :

- تنظيم الإجتماعات العامة
- توزيع مواد" زيادة التوعية
- إعداد مواد سمعية - بصرية عن الأهوار
- دعم مبادرات السكان لإدارة الأهوار
- تنظيم ندوة دولية حول إدارة الأهوار
- توفير المساعدة اللازمة للإعداد للمرحلة التالية

Slide10

Expected Outputs - النتائج المتوقعة

- Immediate relief to marshland communities for water, sanitation, and marshland water quality through pilot-projects
- Establishment of a Project Implementation Unit (PIU) within the Ministry of Environment to support marshland management
- Satellite based observation system for marsh monitoring and real-time reporting
- Marshland Information Network (MIN) established
- Training materials made available in Arabic and English
- Cadre of trained decision makers, experts, and community leaders with on-the-ground experience
- Employment opportunities for professionals & community tasks

- إغاثة فورية لسكان الأهوار، لتأمين ماء الشرب، المرافق الصحية، ونوعية مياه الأهوار عن طريق المشاريع الرائدة
- إنشاء وحدة تنفيذ المشروع (PIU) ضمن وزارة البيئة لدعم إدارة الأهوار
- نظام رصد بالأقمار الإصطناعية لمراقبة مراحل المشروع، ورفع التقارير المنتظمة في الوقت المناسب
- إنشاء شبكة معلوماتية الأهوار (MIN)
- توفير مواد التدريب بالعربية والإنجليزية
- توفير الخبرات الميدانية والتدريب للمسؤولين والخبراء وزعماء الجاليات
- توفير فرص عمل للمحترفين، ومهام الجاليات

Slide11

شكرا
谢谢
Thank You
Merci
спасибо
Gracias

Slide12

Environmental Management of the Iraqi Marshlands – Training Kit Series

1. Environmental Management of the Iraqi Marshlands: Water Quality Management
2. Environmental Management of the Iraqi Marshlands: Sustainable Sanitation
3. Environmental Management of the Iraqi Marshlands: Phytotechnology for Wetland Management
4. Environmental Management of the Iraqi Marshlands: Wetland Remote Sensing
5. Environmental Management of the Iraqi Marshlands: EST Assessment Methodology and Implementation
6. Environmental Management of the Iraqi Marshlands: Marshland Information Network
7. Environmental Management of the Iraqi Marshlands: IWRM Policy Integration
8. Environmental Management of the Iraqi Marshlands: ESTs for Drinking Water Provision
9. Environmental Management of the Iraqi Marshlands: Wetland Management.
10. Environmental Management of the Iraqi Marshlands: Community Level Initiatives

Table of Contents

Chapter ..... Page

Acknowledgements iii
Iraq Project Overview..... v
Training Kit Series xx
Table of Contents xxi

Chapter I. Steps for the Development and Implementation of a Strategic Plan 1

Chapter II. Steps of Building Partnerships 15

Chapter III. Steps for Action Plan Preparation 21

Chapter IV. Steps for Implementation, Monitoring and Evaluation of Action Plan Activities 29

Chapter V. Sustainable Development indicators: State-Pressure-Response approach and Logical Framework Analysis approach to design projects 35

CHAPTER I

STEPS FOR THE DEVELOPMENT AND IMPLEMENTATION OF A STRATEGIC PLAN

The purpose of this training module is to provide the trainee with strategic planning skills in the field of environmental management. This will be accomplished by providing trainees with the required knowledge on the ecosystem and how it works, showing what is sustainable development and how to plan for it, enhancing the trainees skills in problem identification and finally enabling them to prepare a strategic framework for the environmental correction processes necessary to protect the Marshlands and make it possible to revive and restore them within the overall process of local community development and the revival/recovery of the national economy in general.

A How does the ecosystem work?

The ecosystem comprises the following four groups:

- Living things group: animal and plants;
- Medium group: water, air and soil;
- Reactions group: chemical, biological and physical;
- Energy group: the sun, the wind, waterfalls.

A plant formulates its nutrition through the photosynthesis process, which it carries out using solar energy. This energy, which is stored in the plants, is in turn transferred to omnivorous animals and subsequently to carnivorous animals. Afterwards, scavengers (corpse eaters) like the hyena remove any waste. Minute creatures (parasites) then break down the remaining wastes into simple substances absorbed by plants through the soil.

If any imbalance occurs in this chain, it is inevitably accompanied by deterioration in the ecosystem either through pollution of natural resources or their depletion.

B What is sustainable development?

Efforts towards global economic development can not continue at the same rate and with the methods used at present, as the current economic development process overlooks two main important factors. These are:

- **Ecological Development**, which is responsible for the production of animal wealth and the provision of the climate conditions necessary for the continuity of life on earth; and
- **Community Development**, which generates educated and well-informed communities and families who will be responsible for the people and the community itself.

The absence of these two factors renders human communities prone to destruction. Thus sustainable development is an economic reform programme on both the national and global levels, which has lacked proper definition until now. Accordingly, the present challenge that we now face is establishing this programme, testing it and publishing its results and methods of implementation with the aim of avoiding the destruction of ecological systems and communities like cities, villages, neighbourhoods and families.

At the national level, sustainable development entails the growth of the national economy, which supports the process of community development by making the use of resources available to local inhabitants. This represents a challenge with regards to distributing the fruitful outcomes of economic progress equitably between all community individuals and different groups regardless of colour, race or religion. The only way to achieve this is to protect the environment from depletion and irrational overuse/consumption/over-exploitation, and at the same time protect it from wastes and litter that result from economic activities like consumption and production.

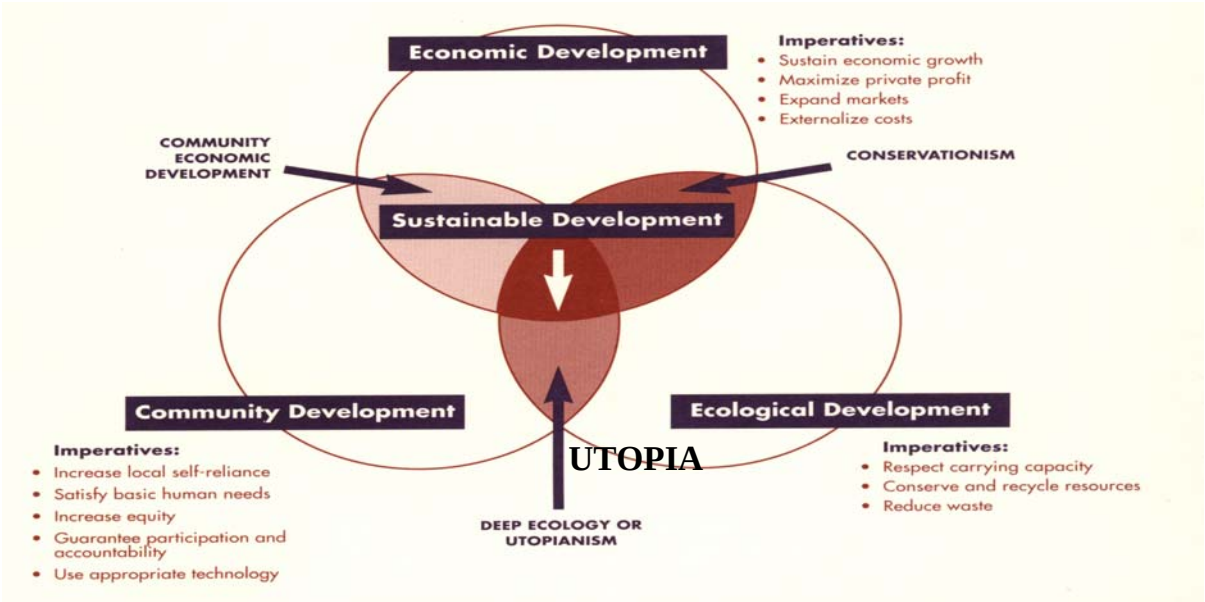


Figure 1.1: The three main factors of sustainable development
Source: International Council for Local Development (ICLEI), *The Local Agenda 21 Planning Guide: An Introduction to Sustainable Development Planning*, International Development Research Centre (IDRC), Ottawa, ON, Canada; and United Nations Environment Programme (UNEP), Nairobi, Kenya, 1996.

C How can sustainable development be applied at the local level?

The local authorities play a major role, in collaboration with civil society, in local economic growth activities as they are:

- The departments responsible for the establishment, management and maintenance of infrastructure utilities, which are considered important and necessary factors for economic growth activities.
- The bodies responsible for setting standards, legislation, bylaws, taxes and fees that have a direct impact on economic growth rates.
- Responsible for purchasing equipment and asking for tenders on contracting works, demanding goods and services, and have a great effect on markets.
- In addition these entities, like other private enterprises/organizations, produce goods and provide services such as environmental protection services, wastewater services, solid waste management and land utilization management, etc. Moreover, they provide economic services such as transportation, and social services such as health and education services.

D Planning sustainable development

Identification of planning and community management activities depends on several factors among which are political and institutional restrictions, legislative and constitutional limitations, as well as financial resources. These factors represent the scope of the planning process and impediments to the integration of environmental, social and economic aspects that are not included within the scope of the local authority.

Accordingly, the purpose of planning for sustainable development is to widen the scope of factors related to the process, which must be included during the preparation of plans at the local level and which can be identified and are known to facilitate or otherwise impede local development activities. This, in turn, entails that the person responsible for the preparation of sustainable development plans should integrate ecological and social planning into the methods/techniques of planning for economic establishment in order to come out finally with a strategic planning approach suitable for sectors in general and which takes into consideration the necessity of sustainable development. It involves:

- Using strategic planning in the private sector to develop long-term visions/plans for companies and economic establishments with regard also to objectives and short-term work plans through mobilization of the available resources to increase the competition capacity of the economic establishment.
- On the other hand, social planning is involved with the empowerment of local community members and their participation in participatory consultative processes aimed at development and implementation of programmes and service delivery projects.
- And finally ecological planning, which uses several different techniques in the assessment and evaluation of environmental conditions and making recommendations for procedures that should be used to protect the environment from the harmful effects of development projects in general and human activities in particular.

Planning for sustainable development integrates the three planning models to consider each of the ecological, social and economic processes equally in the designing of development projects and strategies for the production and provision of goods and services implemented through the participation of various stakeholders.

E Building partnerships

Planning for sustainable development is a process which requires the involvement of institutions and stakeholders in activities related to the implementation and replication of work plans. In other words, the planning process thus becomes a collective effort which reflect the needs, values and ambitions of the local community members involved in the process, especially service providers who provide goods and services to community members.

F Steps of strategic planning

In the past, experts in development planning used their policies and strategies in the light of some defining factors which outlined the overall process, the most important being the effective role of the government (either the central government or the locality's) in problem definition, goal determination, financing and implementation of programmes and marketing of private goods through public channels such as residential units, provision of social services and establishing basic infrastructure. In addition, the government used to implement the Import Substitute Industries (ISI) strategy through public sector-owned companies, which increased its influence on development. The most important outcome resulting from the major role played by the government is the abundance of information on the production and

consumption rates of a family and the potential to control both rates through the use of specific economic policies. This, in turn, facilitated the process of putting strategies and programmes in place for the implementation of the **developmental** plan objectives. Furthermore, this abundance of information and control potential had undeniable influence on the ability of **planners** to anticipate and predict the outcomes of different urban planning policies and strategies.

In the light of these factors, which used to define the framework of the planning process in the developing countries, the role of the urban planner was limited to being a technical expert who was assigned to carry out studies on a specific problem and consequently put forward an integrated conceptual framework represented in a detailed outline plan to solve the problem in question. To carry out the task, the urban planner made use of the Rational Planning Model. This requires a definition of the problem in the first stage, then the presentation of alternatives for the achievement of target objectives, the assessment of alternatives and then the selection of the most appropriate alternative to be implemented. Finally, the planner should possess a **rational planning** approach and **technical superiority** to be able to carry out the task successfully.

Many researchers criticized the Rational Planning Model on several grounds and considerations, as in the stage of **problem definition** and **goal determination** and the proposition of suitable alternatives, the planner should be aware of the public interest and what is appropriate for them. The assumption that the planner has more knowledge of the appropriate options which satisfy the community's needs than community members themselves do is an uncertain and doubtful supposition which leads to the complication of the problem. Moreover, the approach in which the planner determines public interest is considered in conflict, and clashes with advocates of liberty, democracy and **political pluralism** as community members should be involved in the public interest definition process. Developmental policies and strategies should not be prepared based on the **scientific analysis** approach only, due to the deficiency of human capabilities which are considered preclusive to the **rational approach**. In addition, this model does not set clear boundaries between **normative** and **positivism**. If we take into consideration the expected political transformations towards more democratic and political freedom being granted to citizens and the criticism of the Rational Planning Model, it leads us to the realization that it is inappropriate for the new framework of sustainable development. Moreover, the successive transformations and changes which have occurred on the global level have made the framework for Policy and Urban Planning Preparation dynamic, which limits the ability of the planner to predict changes and subsequently restricts his use of the Rational Planning Model.

The Strategic Planning Process (Figure 1.2) begins initially/originally with seeking decision-making support to ensure the success of the plan and then it shifts to defining mandates and needs followed by clarification and definition of functions for each group as well as their role. This arises from the fact that **function** and **role** definition are directly related to the identification of **strategic** issues, which in turn depends on the **public interest** that is based on **problem definition**, **goal determination** and **implementation of the plan**.

This is followed by two parallel steps; the first of which is defining and outlining the opportunities and external threats on the Marshlands area, which makes it necessary for the planner to monitor the effects of various political, economic, social and technological transformations, as well as changes in the interests of clients, competitors and beneficiaries of the Marshlands.

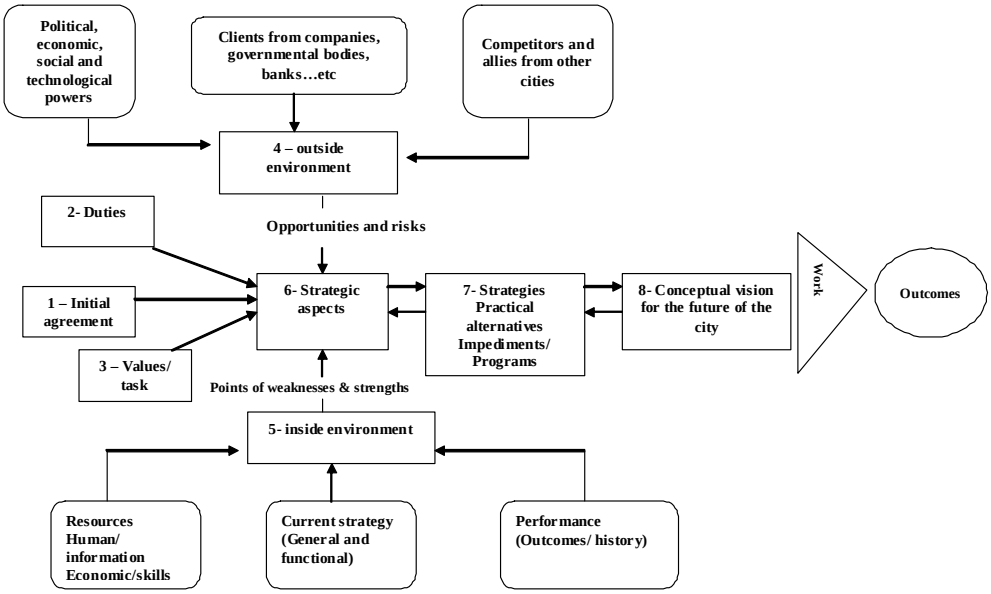


Figure 1.2: Steps of strategic planning
Source: Bryson, John, and William Roering, "Applying Private-Sector Strategic Planning in the Public Sector," Journal of American Planning Association, 52 (1): 9-22, 1987.

The second step involves identifying and assessing internal strengths and weaknesses through the monitoring of resources, financial and human resources inputs, the present strategy and evaluation of performance according to the outputs.

The sixth step of strategic planning is to focus on making the Marshlands more accommodating to its community through the identification of different related aspects, responsibilities and strategic issues. Taking the external environment into consideration is **outside-in planning** while it is **inside-out planning** for the internal environment.

The previous five steps lead to the identification of strategic issues sought to form the basis for designing a plan and an implementation programme to achieve target objectives. This model takes into consideration these issues as overlooking any of them could lead to negative undesired outcomes that could spring from any possible danger or outside threat or other failure to take better advantage of potential opportunities or both.

The seventh step is putting together a strategy, which initially begins with the identification of practical alternatives that will contribute to resolving strategic issues and problems and then shifts to the determination of impediments facing the achievement of these alternatives. At this point, the planner might need to redefine the strategic objectives of the plan.

The eighth and final step is the delineation of future potential strategies for the Marshlands area if the planned strategies were implemented efficiently and with success. The importance of this step lies in the determination of priorities and standards by which comparison between alternatives takes place. It is worth noting that steps seven and eight are the stages of developing the strategy.

G Advantages of strategic planning

Using the strategic planning model is the most suitable framework for the protection of wetlands as putting together a strategy needs an abundance of skills for goal determination, designing plans, obtaining approval for the plan and mobilization of resources to achieve desired goals. The reason for this is that the model depends on:

- Action, putting together a plan establishes a link between its implementation analysis and political feasibility.
- Taking the interest of different stakeholders into consideration, which is done through opening communication channels with community leaders on the local as well as the political level for the purpose of collecting data needed to prepare the plan and also obtaining their support. In this sense, the model promotes the concept of citizen participation.
- Observing external threats and internal weaknesses. This arises from the fact that our framework is affected by the global economy, which drives us to think and act as business people. Accordingly, we should **think globally** and **act locally**. This only happens when leadership potential and the skills to identify strategic issues are available.
- Building participatory structure.
- Institutional transformation.
- Understanding the political aspect of the planning profession.
- Regarding actual competitors as we should.
- Evaluating the economic performance of the wetlands and the potential to implement various activities on them.
- Monitoring efforts carried out in other areas to attract resettlement activities and compete with them through collaboration with civil society to enhance the performance and economic efficiency of the Marshlands.
- Collecting data required for the design process of the plan and gaining the support of community leaderships and members and their approval of the plan. Thus, this model promotes the principle of **citizen participation**.

References

Amirahmadi, Hooshang, "Third World Economic Imbalances and Global Restructuring: Prospects for Medium-Term Growth," a paper presented at the Consortium on Development Studies meeting, Seoul National University, Seoul, Korea, 1991.

_____, "Global Restructuring and Prospects for Third World Transformations," in *Dynamic Transformation: Korea, NICs and Beyond*, G. C. Lim and W. Chang (editors), Urbana, Illinois: Consortium on Development Studies, The University of Illinois, 1990.

Brown, L. David, "Participatory Research and Community Planning," in *Strategic Perspectives on Planning Practice,* B. Checkoway (editor), Lexington, Massachusetts: Lexington Books, D.C. Heath and Company, 1986.

Bryson, John, and Roering, William, "Applying Private Sector Strategic Planning to the Public Sector," *Journal of American Planning Association,* 53 (1): 9-21, 1987.

Checkoway, Barry (editor) *Strategic Perspectives on Planning Practice*, Lexington, Massachusetts: Lexington Books, D.C. Heath and Company, 1986.

Christensen, K. "Coping with Uncertainty in Planning," *Journal of American Planning Association*, 51 (1): 63-63, 1985.

Dluhy, Milan J. "Developing Coalitions in the Face of Power: Lessons from Human Services," in *Strategic Perspectives on Planning Practice,* B. Checkoway (editor) Lexington, Massachusetts: Lexington Books, D.C. Heath and Company, 1986.

Dyckman, John W. "Planning Practice in an Age of Reaction," in *Strategic Perspectives on Planning Practice,* B. Checkoway (editor) Lexington, Massachusetts: Lexington Books, D.C. Heath and Company, [1983] 1986.

Gross, Bertram, and Singh, Kusum, "Planning Under Freedom: A New Experiment in Democracy," in *Strategic Perspectives on Planning Practice,* B. Checkoway (editor), Lexington, Massachusetts: Lexington Books, D.C. Heath and Company, 1986.

Haggard, Stephen, *Pathways from the Periphery: The Politics of Growth in Newly Industrialized Countries.* A volume in the series Cornell studies in political economy, Peter J. Katzentein (editor), Ithca, New York: Cornell University Press, 1990.

Lipietz, Alain, *Towards a New Economic Order: Postfordism, Ecology and Democracy,* translated by Malocm Slater, Cambridge, United Kingdom: Polity Press, 1992.

Mayer, Neil S. "Roles for Planners in Community Development," in *Strategic Perspectives on Planning Practice,* B. Checkoway (editor) Lexington, Massachusetts: Lexington Books, D.C. Heath and Company, 1986.

Mills, Edwin, and Hamilton, Bruce, *Urban Economics,* Fourth Edition, Boston, Massachusetts: Scott, Foresman, and Company, 1989.

Patton, Carl V. "Policy Analysis with Implementation in Mind," in *Strategic Perspectives on Planning Practice,* B. Checkoway (editor) Lexington, Massachusetts: Lexington Books, D.C. Heath and Company, 1986.

Tropman, John E. "Governing and Managing Public Organizations," in *Strategic Perspectives on Planning Practice,* B. Checkoway (editor) Lexington, Massachusetts: Lexington Books, D.C. Heath and Company, 1986.

Webber, Melvin, "The Myth of Rationality: Development Planning Reconsidered," *Environment and Planning B: Planning and Design,* 10 (1): 89-100, 1983.

Planning and Management Manual for Marshlands in Iraq

Training Module 1:

Steps For The Development And Implementation of A Strategic Plan

Slide1

How does The Ecosystem Work?

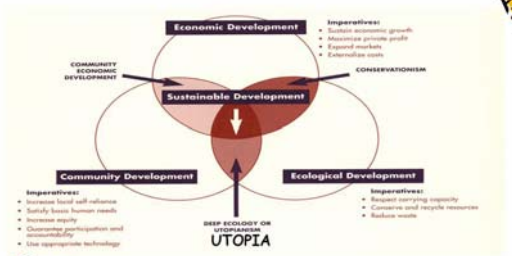
The ecosystem comprises the following four groups:

- Living things group: animal and plants;
- Medium group: water, air and soil;
- Reactions group: chemical, biological and physical;
- Energy group: the sun, the wind, waterfalls.

A plant formulates its nutrition through the photosynthesis process which it carries out using solar energy. This energy, which is stored in the plants, is in turn transferred to omnivorous animals and subsequently to carnivorous animals. Afterwards, scavengers (corpse eaters) like the hyena remove any waste. Minute creatures (parasites) then break down the remaining wastes into simple substances absorbed by plants through the soil. If any imbalance occurs in this chain, it is inevitably accompanied by deterioration in the ecosystem either through pollution of natural resources or their depletion.

Slide2

What Is Sustainable Development?



Source: International Council for Local Development (ICLEI), The Local Agenda 21 Planning Guide: An Introduction to Sustainable Development Planning, International Development Research Centre (IDRC), Ottawa, ON, Canada; and United Nations Environment Programme (UNEP), Nairobi, Kenya, 1996

Slide3

How Can Sustainable Development Be Applied At The Local Level?

The local authorities play a major role, in collaboration with civil society, in local economic growth activities as they are:

- The departments responsible for establishment, management and maintenance of infrastructure utilities which are considered important and necessary factors required for economic growth activities.
- The bodies responsible for setting standards, legislation, bylaws, taxes and fees that have a direct impact on economic growth rates.
- Responsible for purchasing equipment and asking for tenders on contracting works, demanding goods and services, and have a great effect on markets.
- In addition these entities, like other private enterprises/organizations, produce goods and provide services such as environmental protection services, wastewater services, solid waste management and land utilization management. etc. Moreover, they provide economic services such as transportation, and social services such as health and education services.

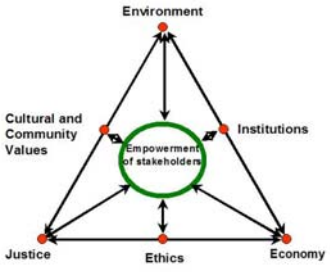
Slide4

Planning Sustainable Development

- Using strategic planning in the private sector to develop long-term visions/plans for companies and economic establishments with regard also to objectives and short-term work plans through mobilization of the available resources to increase the competition capacity of the economic establishment.
- On the other hand, social planning is involved with the empowerment of local community members and their participation in participatory consultative processes aimed at development and implementation of programmes and service delivery projects.
- And finally ecological planning, which uses several different techniques in the assessment and evaluation of environmental conditions and making recommendations for procedures that should be used to protect the environment from the harmful effects of development projects in general and human activities in particular.

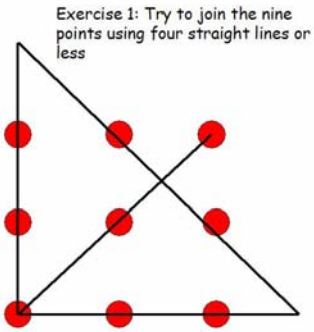
Slide5

Building Partnerships



Slide6

Exercise 1: Try to join the nine points using four straight lines or less



Slide7

Steps of Strategic Planning

- Seeking decision-making support to ensure the success of the plan.
- Defining mandates and needs of both the local government and the civil society groups.
- Clarification and definition of function of each group as well as its role. This arises from the fact that function and role definitions are directly related to the identification of strategic issues which in turn depends on the public interest that is based on problem definition, goal determination and implementation of the plan.

Slide8

Steps of Strategic Planning

- This is followed by two parallel steps; the first of which is defining and outlining of the opportunities and external threats on the Marshlands area, which makes it necessary for the planner to monitor the effects of various political, economic, social and technological transformations, as well as changes in the interests of clients, competitors and beneficiaries of the Marshlands.
- The second step involves identifying and assessing internal strengths and weaknesses through the monitoring of resources, financial and human resources inputs, the present strategy and evaluation of performance according to the outputs.

Slide9

Steps of Strategic Planning

- The sixth step of strategic planning is to focus on making the Marshlands more accommodating to its community through the identification of different related aspects, responsibilities and strategic issues. Taking the external environment into consideration is Outside-in planning while it is Inside-out planning for the internal environment.
- The previous five steps lead to the identification of strategic issues sought to form the basis for designing a plan and an implementation programme to achieve target objectives. This model takes into consideration these issues as overlooking any of them could lead to negative undesired outcomes that could spring from any possible danger or outside threat or other failure to take better advantage of potential opportunities or both.

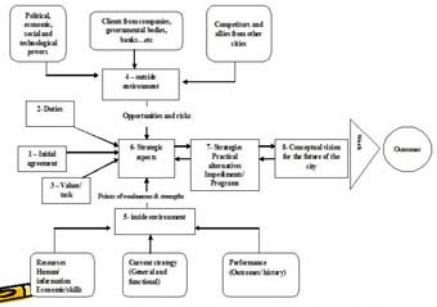
Slide10

Steps of Strategic Planning

- The seventh step is putting together a strategy, which initially begins with the identification of practical alternatives that will contribute to resolving strategic issues and problems and then shifts to the determination of impediments facing the achievement of these alternatives. At this point, the planner might need to redefine the strategic objectives of the plan.
- The eighth and final step is the delineation of future potential strategies for the Marshlands area if the planned strategies were implemented efficiently and with success. The importance of this step lies in the determination of priorities and standards by which comparison between alternatives takes place. It is worth noting that steps seven and eight are the stages of developing the strategy.

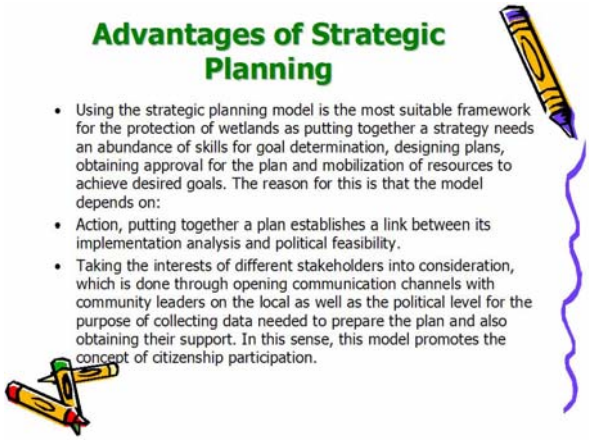
Slide11

Steps of Strategic Planning

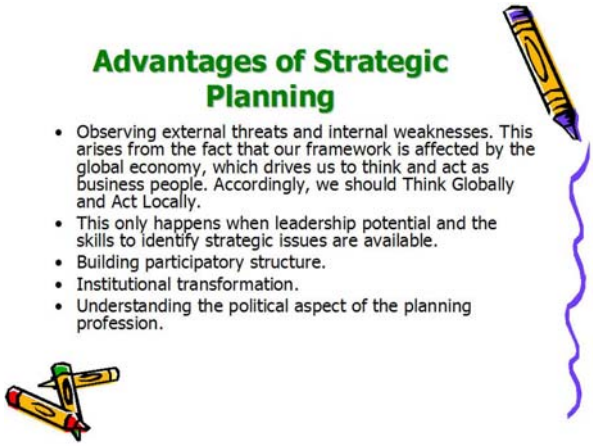


Source: Bryson, John, and William Roering, "Applying Private-Sector Strategic Planning in the Public Sector," Journal of American Planning Association, 52 (1): 9-22, 1987.

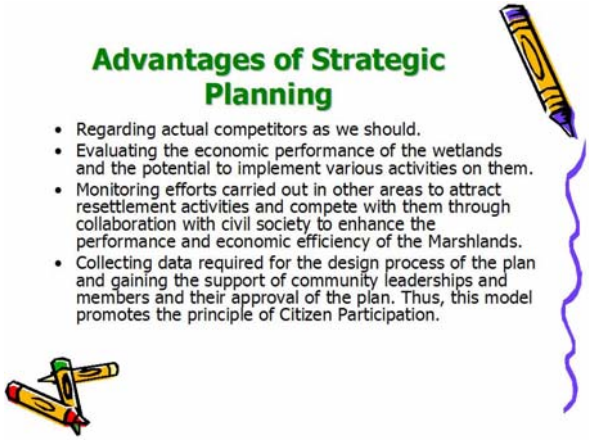
Slide12



Slide13



Slide14



Slide15

CHAPTER II

STEPS OF BUILDING PARTNERSHIPS

The purpose of this training module is to enhance the trainee's skills in establishing a framework for partnerships to manage community activities targeting environmental correction necessary to protect the Marshlands and increase the potential for their restoration within the overall objective of local community development and national economy growth in general.

A Partnership and participation

Sustainable development process usually requires the presence of balance between the daily management operations in three fields: economic development, community development and environmental development in all the cities all over the world. For example, the supply of drinking water is not inexpensive (economic development) and the process has to be carried out using clean mechanisms and environmentally sustainable (environmental development) and beneficial to all members of the community (community development). Thus, the process will then be successful from every aspect at the end.

Sustainable development is a process that depends on achieving a balance between various interests/welfares and requires the development of community partnerships. This is considered an indispensable requirement in today's environment in order to face the pressures imposed on local communities, which make the individual work of any institution difficult. In this sense, it is necessary to divide labour between the government, private sector, civil community organizations, workers' unions, religious groups and subgroups, etc. due to the presence of financial limitations, required constitutional and legal reformations, scarcity of resources, environmental hazards accompanying globalization, market liberalization and economics. These factors are the main cause of a change in values and social standards in addition to population pressure, which drives local communities to establish partnership frameworks to coordinate between local administrations, service providers, private sector investors, local trade activities, subgroups such as the tax payers' leagues and workers' unions. etc.

The process of establishing partnerships between stakeholders facilitates some institutional mechanisms. Thus, involving stakeholders in the process of planning for sustainable development aims at:

- Establishing a common vision for the future to set priorities among key issues and distinguish between them which, in turn, facilitates taking immediate measures necessary to mitigate the severe effects of the problem.
- Supporting the approach which strives to solve local issues using the local community as a referential framework thus ensuring an integrated systematic check for all the issues and problems facing production and service provision schemes and the necessity of integrating different strategies for service provision.
- Developing work plans to identify and prioritize major issues and concerns as indicated by the previous experiences of various local community groups.
- Mobilizing entire community resources to provide for production requirements and service provision needs.
- Mobilizing public opinion to support local authorities' activities and civil society organizations, and raising community awareness of the development needs and the obstacles faced by local authorities to achieve the desired developmental objectives.

The process of establishing partnerships between various stakeholders aims at reforming current institutional mechanisms and intermittently seeks to establish new institutions for service provision or to act as an intermediaries between stakeholders.

During the past decade, local administrations have been founded on international rules for partnership, which plan to answer the demands of stakeholders and solve their problems. These partnership structures take the different forms of stakeholders groups, roundtable discussions and short-term designated forums in addition to committees and new legislative councils acting on delegation for planning in the long term.

B Analysis of stakeholders' diagram

The analysis process of the stakeholders' diagram depends on two main components:

- **First**: implementing a data collection process and discussing conditions at the local level through an ongoing dialogue with available local community members.
- **Second**: technical evaluation/assessment of stakeholders' needs to provide more information and data, and thus public awareness and technical research become two integral parts examined and analysed by the stakeholders for the purpose of reaching a general consensus on the common problems and challenges.

C Advantages of stakeholders' interests analysis

The analysis process has two additional advantages:

- **First**: It helps the local community in setting a list of priorities subject to immediate action. This is due to the scarcity or limitation of resources available, which makes it difficult to deal with all the problems efficiently at the same time.
- **Second**: setting priorities is necessary for the success of work plans at the local level.

Thus, using the technical evaluation in parallel with participation in the analysis process of issues and concerns gives local community groups a chance to establish databases and indicators that can be used to determine the most suitable approach to achieve success in the future.

D Analysis of participation and stakeholders

The first step in the analysis of the participation process is to identify the major stakeholders involved in the process, and investigate their roles, interests, relative authority and ability to participate. We have to measure the extent of collaboration and participation or conflict of interests then conclude by incorporating the results in the project design, target groups, subgroups comprising stakeholders who have a direct impact on the issue in question, or beneficiaries like women, youth and farmers etc. The following two tables are analyses of stakeholders, which will be incorporated in the work plan within the framework of the strategic plan.

Table 2.1: Analysis matrix for stakeholders' interests in the problem/issue in question

Beneficiaries/stakeholders	Extent of problem effect on them	Their capabilities and motives for participation	Their relation with other beneficiaries/ stakeholders
Members of local community development association			
Private sector leadership			
Technical expertise			
Farmers			
Youth			
Women			
Members of local popular councils and executive councils			

Table 2.2: Analysis matrix for beneficiaries' interests in targets and objectives

Beneficiaries/stakeholders	Extent of problem effect on them	Their capabilities and motives for participation	Their relation with other beneficiaries/ stakeholders
Members of local community development association			
Private sector leadership			
Technical expertise			
Farmers			
Youth			
Women			
Members of local popular councils and executive councils			

E Building partnerships between stakeholders

1. Specify the area that needs planning; determine the general objectives, outputs, outcomes and impacts. This should be carried out through a participatory consultative process between the local authorities and target groups/beneficiaries and it should be preceded by a preliminary campaign to raise community members' awareness of how they will benefit from this plan.

2. Form or delegate a certain group of stakeholders/beneficiaries to coordinate efforts and guide community members during the planning process so that there will be synergy between the discussion outcomes, research and planning processes of the work plan.

3. Form a unique work group that will be organized under the supervision of the stakeholders/beneficiaries. Then assign each group to carry out a specific task of either planning, implementation or monitoring. For example, tasks could be setting priorities, problem analysis, setting a vision, planning the work process, implementation etc. They might prefer concentrating on crucial issues and problems such as protection of wetlands from solid waste disposal, industrial wastes etc.

4. Choose suitable partners for participation in the stakeholders'/beneficiaries' group and the other work groups.

5. Set the responsibilities and authorities of each group, which include determining the relationship between the beneficiaries' plans and legislation controlling the implementation of these plans such as the official development plans of the government.

6. Develop a common vision for community issues and concerns, and areas of future work and the role of each of the community groups.

F Discussion of principles

It is necessary to hold discussions between various stakeholders to minimize the gap between their views in order to establish partnerships. This could be achieved through the following:

- Focus on the problem/issue rather than the individual or group stance;
- Focus on the community concerns and their interests;
- Provide alternatives;
- Always make use of objective standards;
- Watch your back for foul play.

In case any imbalance occurs in the power poles, develop the best alternative that could get consensus.

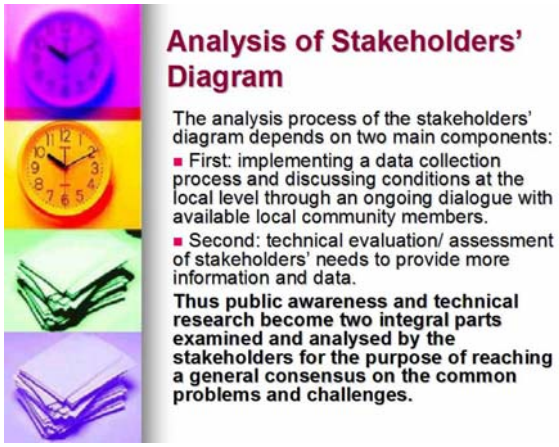
G Acquiring skills challenge

- Analyse areas of concern and interest for beneficiaries in the Marshlands in Iraq.
- Identify common interests and different personal interests.
- Determine the technique by which you will reach a common agreement that acquires consensus from the various stakeholders involved.

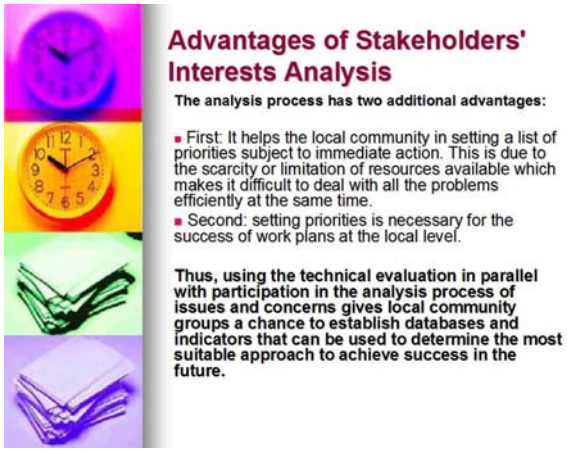
It is necessary to refer to the presentation slides during the discussion of each step.

Slide1

Slide2

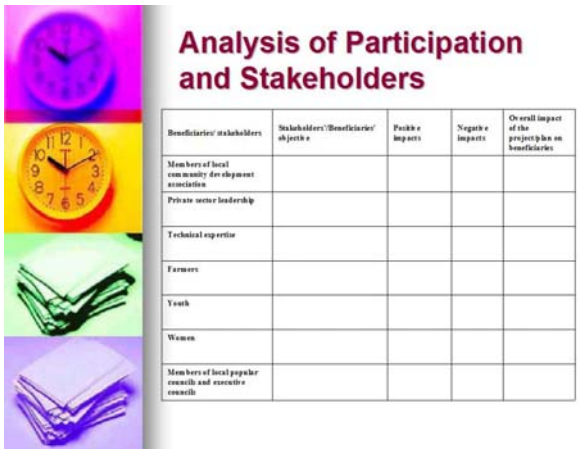


Slide3

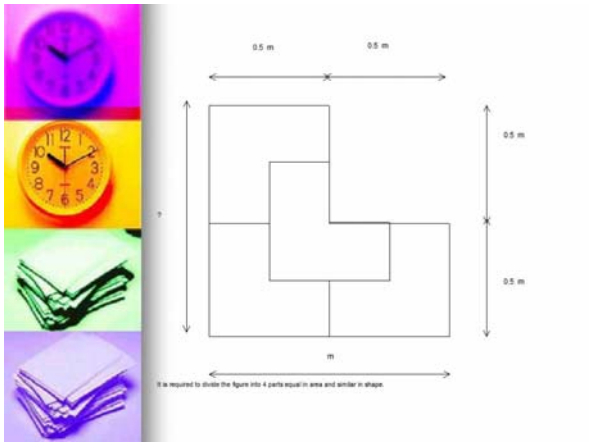


Slide4

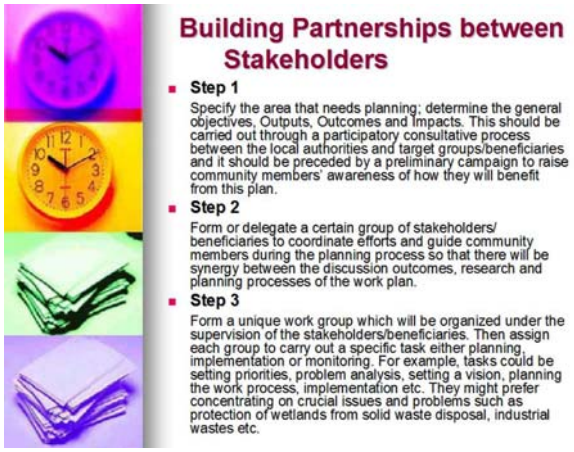
Slide5



Slide6



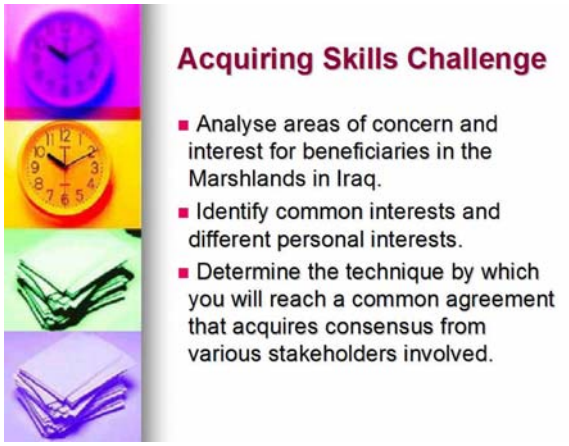
Slide7



Slide8

Slide9

Slide10



Slide11

CHAPTER III

STEPS FOR ACTION PLAN PREPARATION

The purpose of this training module is to provide the trainee with the planning skills needed to develop an environmental correction action plan necessary to protect the Marshlands and make possible their revival and restoration within the overall process of local community development and the revival/recovery of the national economy in general.

A Action plan

1 Definitions

Objectives: are specific outcomes which reflect the local community groups' needs and requirements through a better vision of the future; this vision should be translated into tendencies, priorities and resources allocated to achieve target outcomes.

Outcomes and catalysts: after the identification of overall objectives, all parties concerned should work on identifying and defining specific outcomes that could be achieved in a limited period of time as it is difficult to plan for the achievement of unclear and undefined outcomes. As for the catalysts, they are considered a unique type of outcome which depicts certain conditions in the future that will act as a catalyst for an action depending on the beneficiaries' needs while solving a certain issue/problem.

Work strategies and commitments: this is the most crucial important part of the action plan and the one which determines the work strategies and commitments of the local authorities' stakeholders involved in the achievement of various action plan objectives. It is an extremely accurate part of the plan comprising specific projects implemented in timeframes with commitments to provide the funding, time and human resources needed for the implementation process.

2 Theory

The development and implementation of an action plan is the core step in the efforts directed at the Marshlands' protection and restoration. It should be noted that every step carried out prior to the implementation of the action plan, such as establishing community partnership patterns, the development of a community vision to solve the problem, problem analysis and prioritization is considered groundwork/preparation for designing an effective and feasible action plan.

3 The document

The action plan document comprises:

- A common vision developed by the various stakeholders involved;
- Consensus on current problems/issues and potential opportunities;
- Setting strategic objectives for each and every opportunity or problem related to this vision;
- Certain outcomes that should be achieved in order to achieve each of the overall objectives;
- Using distinctive strategies and implementation programmes to achieve those outcomes and objectives;

- A description of the nature of partnerships and decision-making procedures and their importance to the recent planning processes;
- Setting a framework for an ongoing evaluation process to monitor progress including the planning "catalysts" and future plans;
- Action plan.

The action plan document will include:

- Agreements and commitments of government administrations and service provision and production agencies including private sector companies, NGOs etc. for certain programmes;
- Agreements settled between various stakeholders involved to work collectively and collaboratively;
- Commitments of individuals, families, neighbourhoods, schools, commercial projects etc. to improve their performance with regards to achieving community development objectives and at the same time the protection and restoration of the Marshlands.

B Steps of action plan preparation

1. Get acquainted with the planning process.

2. Identify the community vision of objectives and results through problem analysis based on community values and principles.

3. Set strategic objectives of the action plan.

4. Target groups.

5. Select work strategies and implementation programmes.

6. Develop a framework for the work plan.

7. Promote the establishment of partnerships.

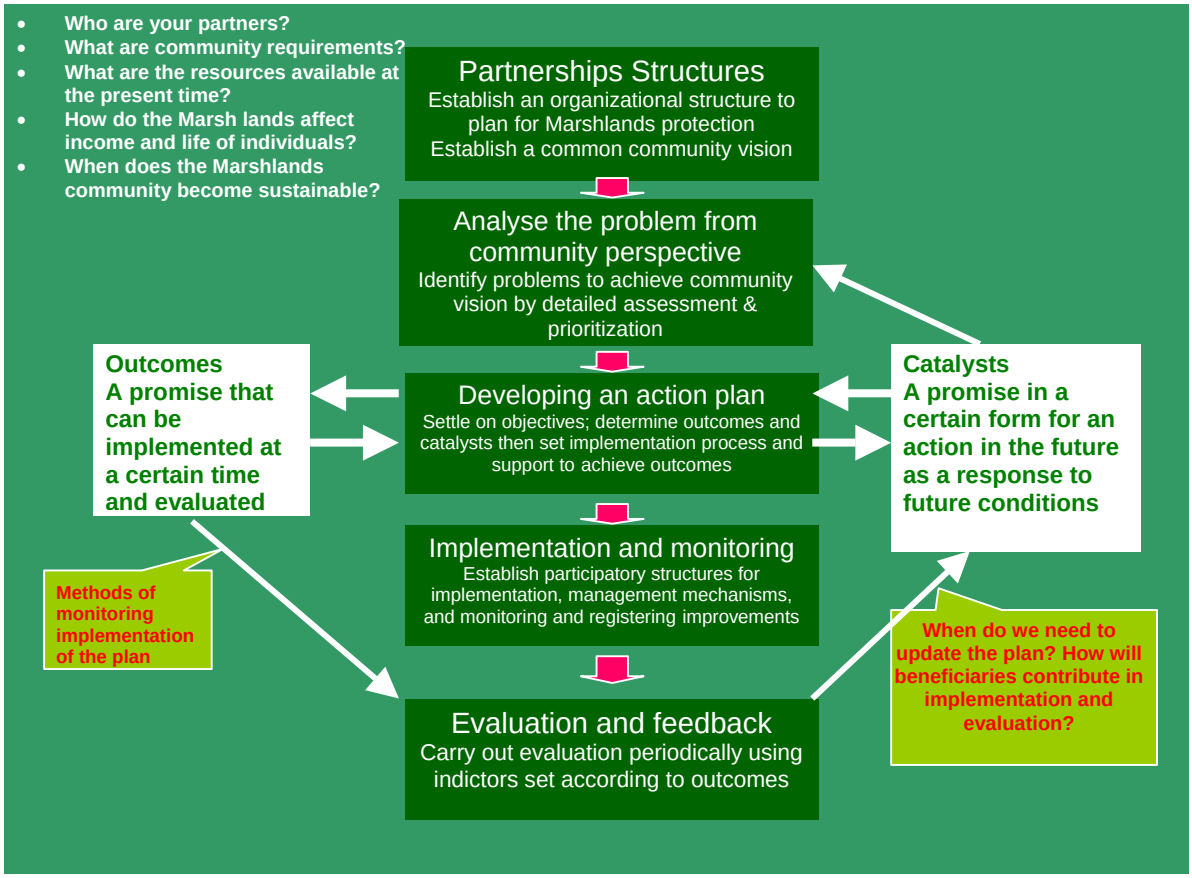


Figure 3.1: Steps of action plan preparation

C Steps for preparation of an action plan to restore and protect El-Temsah Lake in Al Ismailiyah

Environmental problems and concerns are considered one of the major impediments to the achievement of sustainable development in Al Ismailiyah Governorate and city. Among the most important environmental problems is the pollution of El-Temsah Lake, which was the reason behind the formation of a work group comprising members from the Suez Canal Authority, the Al Ismailiyah Governorate, the Suez Canal University, the local popular council and executive council, and local community development associations, to detect the source of this pollution. The main sources of pollution were El Mahsama drainage channel, El Suez Channel Authority workshops and the absence of a working drainage system for industrial and sanitary wastes. The study included the negative impacts of pollution on the Lake, which were the loss of a considerable amount of fish, the collapse of tourism in the area and the spread of disease and infection.

After the preparation of the study, which clarified the environmental status of Al Ismailiyah City, a meeting was held to discuss the findings and it concluded by setting priorities and forming a work group to be responsible for the preparation of programmes and projects to solve the problems of El-Temsah Lake. Later, the committee dedicated its efforts to resource mobilization and the implementation of projects proposed in the action plan.

A wastewater plant was constructed in addition to a network for the collection of wastewater. In addition, a subsidiary strait was used to form a link between the Lake and the Canal on one side and the western pool on the other side in order to prevent water stagnancy. The Authority carried out a purification process to remove the contaminant residues from the bottom of the Lake, and the Suez Canal University took responsibility for environmental monitoring of the Lake and the development of a mechanism to treat contaminated water using plants and other methods of environmentally friendly biological treatments.

Figure 3.2: Steps of preparation of an action plan to restore and protect El-Temsah Lake in Al Ismailiyah

D Acquiring skills challenge

Describe the steps of preparing an action plan for restoration and revival of the Marshlands area.

Planning and Management of Sustainable Development In Wetlands Manual

Training Module 3: Steps for Action Plan Preparation

Slide1

Action Plan

The action plan document comprises:

- A common vision developed by the various stakeholders involved.
- Consensus on current problems/issues and potential opportunities.
- Setting strategic objectives for each and every opportunity or problem related to this vision.
- Certain outcomes that should be achieved in order to achieve each of the overall objectives.
- Using distinctive strategies and implementation programmes to achieve those outcomes and objectives.
- A description of the nature of partnerships and decision-making procedures and their importance to the recent planning processes.
- Setting a framework for an ongoing evaluation process to monitor progress including the planning "catalysts" and future plans.

Slide2

Action Plan

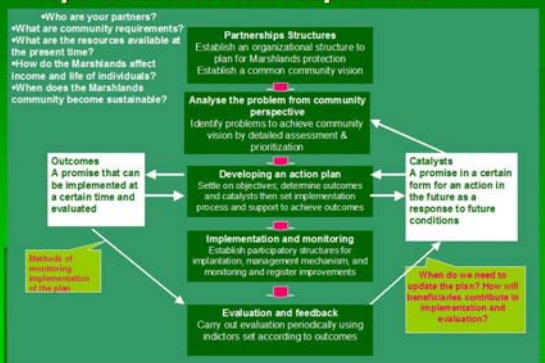
The action plan document will include:

- Agreements and commitments of government administrations and service provision and production agencies including private sector companies, NGOs etc. for certain programmes.
- Agreements settled between various stakeholders involved to work collectively and collaboratively.
- Commitments of individuals, families, neighbourhoods, schools, commercial projects etc. to improve their performance with regards to achieving community development objectives and at the same time the protection and restoration of Marshlands.

Slide3

Sustainable development is development which provides environmental, economic and social services without affecting natural resources supply

Steps of Action Plan Preparation



Slide4

Steps of preparing an action plan

- **Step 1:**

Get acquainted with the planning process

- **Step 2:**

Identify the community vision of objectives and results through problem analysis based on community values and principles.

- **Step 3:**

Set strategic objectives of the action plan.

Slide5

Steps of preparing an action plan

- **Step 4:**

Target groups.

- **Step 5:**

Select of work strategies and implementation programmes.

- **Step 6:**

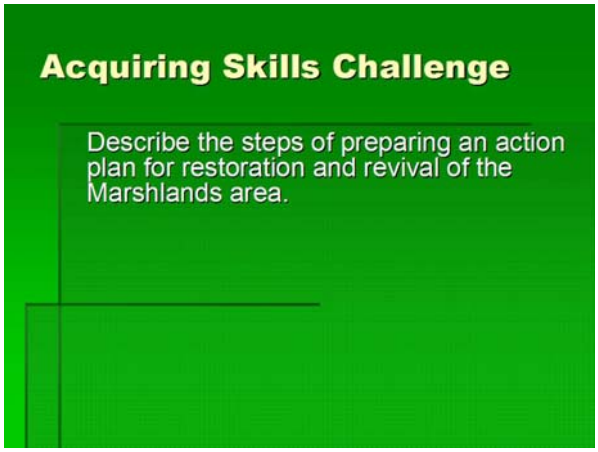
Develop a framework for the work plan.

- **Step 7:**

Promote the establishment of partnerships.

Slide6

Slide7



Slide8

CHAPTER IV

STEPS FOR IMPLEMENTATION, MONITORING AND EVALUATION OF ACTION PLAN ACTIVITIES

The purpose of this training module is to provide the trainee with the skills required for the implementation, monitoring and evaluation of activities carried out under an action plan for environmental correction necessary to protect the Marshlands and make possible their revival and restoration for the purpose of local community development and the revival/recovery of the national economy in general.

A Introduction

The development of an excellent work plan does not by itself guarantee the protection of the Marshlands and their restoration or that the condition of the local community and its individuals will improve in the future. Actually, one of the main impediments that could face the community in the Marshlands' restoration is the failure of previous plans to achieve their target objectives. This failure is usually attributed to the lack of will and determination needed to achieve objectives in addition to the resistance of individuals and groups to the plan and its project, claiming that they have not participated in its preparation and consequently are not responsible for it. In any event, in most cases poor performance is a result of a limited scope of planning where the planner determines the final outcomes or impacts without thoroughly studying the requirements needed for institutional building and reformation. A sound and successful planning process should deal with the immediate realistic requirements of implementation. The success of the implementation process of a particular plan requires two main actions:

- **First**: the beneficiaries/stakeholders who were involved in the study and development of the plan should assign specific responsibilities and authorities to the same organizational structures they used during the planning process.
- **Second**: the local administration should take into consideration the stakeholders' propositions and the objectives of their work plan and integrate them into its plan. This is done by listing their priorities in budget items and investment decrees along with institutional capacity mobilization of local administration as it is considered a necessity for the implementation process.

Action plans usually require modifications to implementation arrangements as well as the restructuring of pre-existing institutional bodies or the formation of new institutional structures as needed. The action plans may also need to reach some agreements to specify responsibilities and contribution (investment size), time allocated for activities, define dates for intervention and monitoring methods for each of the stakeholders involved. Furthermore, this process may possibly require the establishment of a management unit/body responsible for the implementation of the plan and its monitoring process.

As for the monitoring process, it begins during the implementation process and requires documentation of the implementation activities and observation of their impacts on a regular basis which, in turn, allows steady monitoring and evaluation of the plan activities and their impact on the Marshlands.

B Monitoring and evaluation

Monitoring and observation are two of the main aspects necessary for internal management/ administration. While, on the other hand, evaluation and feedback are needed for internal and external purposes; they are necessary for achieving accountability in the implementation of action plans and reporting the extent of progress, development, whether goals and objectives are achieved or not, and whether plans should be modified accordingly.

Effective evaluation schemes and methods regularly provide data for all local community categories, beneficiaries and stakeholders on changes in frameworks and conditions related to the Marshlands. This makes it possible for individuals and groups to modify their behaviours and activities accordingly, especially with regard to financial budgeting activities and resource mobilization to realize the community vision.

This monitoring and evaluation system triggers the modification of action plans when failure is proved in order to achieve the desired objectives.

C Implementation and monitoring

The successful implementation of an action plan requires an implementation strategy comprising two major activities:

- **First**: stakeholders involved in the study and development of the action plan should transform the organizational structures (partnerships) they used in the planning process into entities with specific roles, responsibilities and capacity of implementation.
- **Second**: local authorities should integrate the propositions and objectives of the stakeholders' plan into their practices, including budgeting priorities and investment decrees.

Mobilization of the institutional capacity of the local authorities may probably be a necessity for the implementation process.

There are four main components for an effective implementation strategy based on participation between local authorities and stakeholders/beneficiaries:

- Establishing new organizational structures or reforming pre-existing ones with the purpose of supporting participatory-based implementation of activities.
- Setting an effective linking relationship between the stakeholders' plan and legal requirements of the government plans, including a review of central and local government's policies, budgeting priorities and techniques, and internal procedures to ensure their compatibility with the action plan.
- Monitoring current and future local authorities' policies and decrees to make sure they fit with the action plan.
- Documenting all the procedures and steps taken by the stakeholders/beneficiaries and local authorities to implement the plan.

Implementation and monitoring requires:

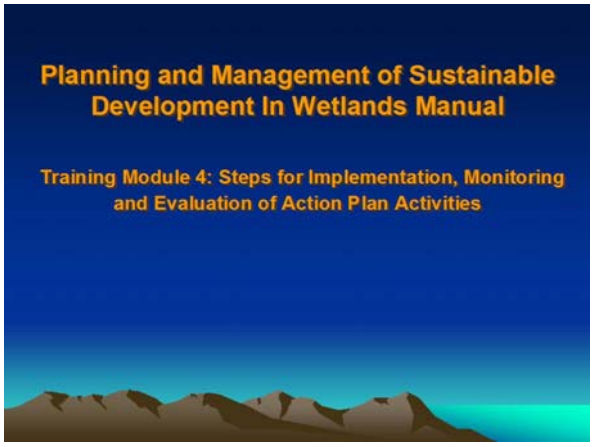
- Establishing administrative arrangements including the implementation of new programmes along with the proposed plan.
- Coordinating the implementation of activities between central and local administrations.
- Coordinating the implementation of activities between different departments of the government.
- Coordinating the implementation of activities between the government and civil society organizations.

- Decentralization: on the political, administrative and financial level.

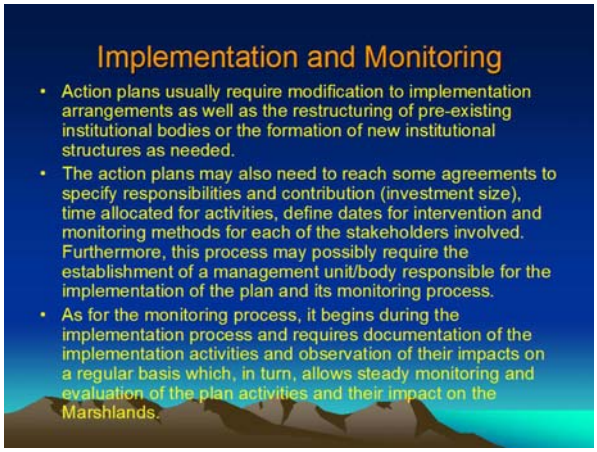
Implementation and monitoring requires:
- Establishing semi-governmental organizations (partnerships between public and private sectors);
- Financial auditing and internal observation/inspection systems;
- Financial auditing and external observation/inspection systems;
- Reformation of procedures, rules and standards;
- Establishment of internal management system;
- Documentation.

D Acquiring skills challenge

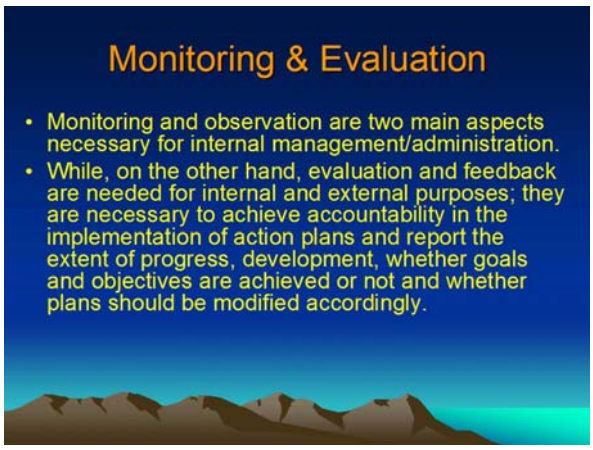
Describe the administrative arrangements of an action plan for the restoration and revival of the Marshlands area.



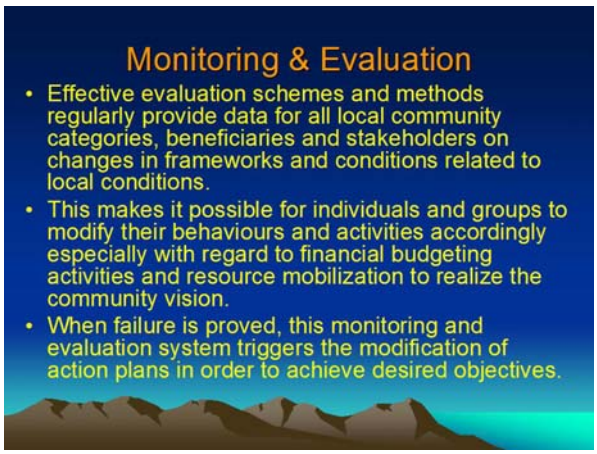
Slide1



Slide2

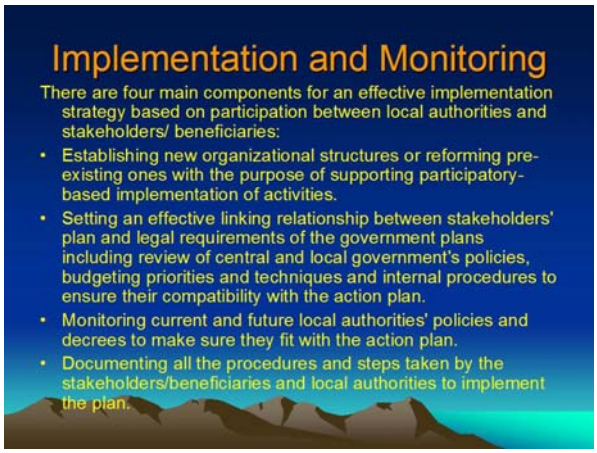


Slide3



Slide4

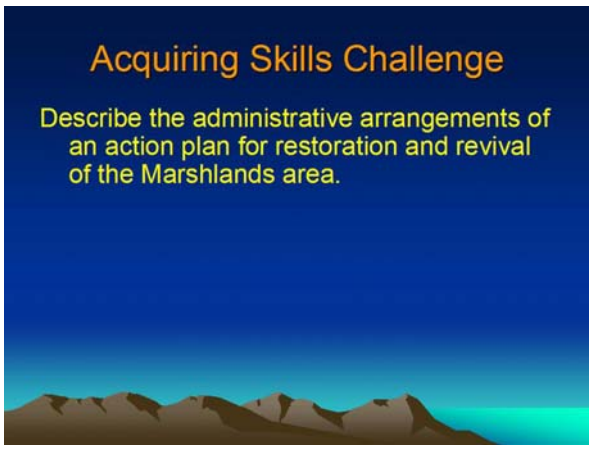
Slide5



Slide6

Slide7

Slide8



Slide9

CHAPTER V

SUSTAINABLE DEVELOPMENT INDICATORS: STATE-PRESSURE-RESPONSE APPROACH AND LOGICAL FRAMEWORK ANALYSIS APPROACH TO DESIGN PROJECTS

The purpose of this training module is to provide the trainee with the skills required for the preparation of Sustainable Development Indicators and using two approaches for problem definition, selection of work techniques and preparation/designing of projects under an action plan for environmental correction necessary to protect the Marshlands and make possible their revival and restoration for the purpose of local community development and the revival/recovery of the national economy in general.

A Definitions

Data is considered the main component of work in this area as it is the basis upon which indicators, measurements and information are developed. Moreover, most of the data could not be used in its unprocessed state to interpret and explain changes that occur in the environment, economy and the community.

These indicators are used as the basis for assessment and evaluation of the state/conditions and measuring the extent of the achievement of sustainable development. Indicators are used in the initial stage of policy preparation and in development processes, where the data is presented in the form of one figure, easily read and interpreted without the need to refer to complicated statistical analysis. Thus, each indicator can be used on its own and linked to several groups.

By aggregating indicators or using some information, we can refer to them as a criterion; the criterion is usually used for analysis at the overall international/national/regional levels. Indicators and criteria are not considered the goal/objective but rather the tools by which the decision-making process and the progress of developmental policies can be improved.

There are two frameworks:

1. State-Pressure-Response Approach is used in the analysis of the overall international/ national/regional levels to develop strategies, policies and plans then monitor them.

2. Logical Framework Approach (LFA) is used in the preparation/design of programmes and projects then in monitoring the achievement of impacts and objectives.

B State-Pressure-Response (S-P-R)

The theoretical framework used in employing indicators in ecosystem management is the State, Driving Forces (pressures) and Response framework, which is known as State-Pressure-Response (S-P-R) and is a framework used in many countries of the world in ecosystem management in order to achieve its sustainable development.

1 State

This is the description and analysis of the current status/condition of the ecosystem through asking the following question: what is the current state of the environment? What is meant by this is not only the natural resources state but the economic, urban, social and institutional states etc. State indicators are criteria for the type of resources and their available supplies either quantitatively or qualitatively.

2 Driving forces (pressures)

It is generally the human activities from production processes and consumption stereotypes which have either positive or negative impacts on the biological environment of the Marshlands area, its community and effective market mechanisms. Natural disasters are part of the driving forces (pressures) and pressure indicators are a criterion/gauge of the factors affecting the development of the area and how the current state previously described was produced. This is done through the preparation of an environmental profile, which will be discussed in a later section.

3 Response

This is the description and identification of the response of city council/local bodies offices, which are responsible for ecosystem development and management of the Marshland area, in addition to different governmental bodies and economic sectors like industry and tourism, and civil society sectors including NGOs and private sector companies, to the pressures and driving forces specified in the environmental profile of the Marshlands area.

To determine the response, we should be acquainted with the activities currently implemented for the purpose of minimizing the pressures. This is carried out by asking the following question: What will the Marshlands area need from the local administration (government) and the community in the future to sustain its development? There are several response indicators which assess the positive impacts of the activities targeting the rectification of certain conditions that were pointed out in the **driving forces** (**pressure**) analysis, and which result in the current **state**.

Table 5.1: A model for using indicators in the State-Pressure-Response (S-P-R) approach in the management of the Marshlands area

External factors/ Assumptions	Verification Methods	Response	Driving Forces	Current State
1. General background indicators				
	Monitoring reports for the Implementation of the plans Congruity between timeframes of the plans with the activities and funding allocated for implementation	Regional and urban plans of the area	Problem and potentials chart	Land usage
2. Population indicators				
	Statistics / Population Estimates		Population density Population growth rate	Population size Population distribution according to the gender Population distribution according to the age Average size of the family Type of possession for the residential properties Residential units provided with pure drinking water

External factors/ Assumptions	Verification Methods	Response	Driving Forces	Current State
3. Economic and social development indicators				
	Government data/ local government Statistics office		Infant fatality rate before the age of five Illiteracy rate among adults Enrolment rates in pre-university education Average no. of requests in each class Average rate of family members Enrolment rate in university education	Number of hospital beds Survival expectation after birth Percentage of school buildings in conformity with specifications Percentage of enrolment in private sector employment opportunities Percentage of NGOs/ percentage of women NGOs Person per capita in a city
4. Infrastructure indicators				
	Government data and reports Annual plan/five-year plan		Expenditures on infrastructure activities Average consumption of water Cost of water per $100m^3$	Percentage of houses connected to networks of: – water – wastewater – electricity – mobiles

4 Preparation of the environmental profile

This is a report of the current **state** prepared using available and published information; this report comprises the five following parts:

- **Background:** is the part which presents and describes the characteristics of the Marshlands area including the location/geographic properties/historical development/ importance for Iraq.
- **Habitat**: is a description of the current state of the population, concentrating on the provision of property security, the right to have appropriate housing, the right to possess land provided with services and infrastructure, and the necessary loan credit for the purpose of building or purchasing a residential unit/access to services.
- **Social development**: is the part which presents the social state and how extreme poverty can be alleviated or reduced. This part focuses on security, health and education in addition to supporting marginalized groups, poverty and special needs, and gender equality between men and women in civil rights and duties.
- **Environmental/ecosystem management:** this part presents the environmental profile report of the Marshlands area through concentration on population, geographic distribution of the population, drinking water supply and connection to wastewater management services, pollution of the environment (air/water/solid waste), disaster management, transportation and local environment planning.
- **Governance:** this part explains the level of management and governance performance through concentrating on the degree of decentralization, reinforcement and support of local authorities, and participation and empowerment of civil society organizations with regard to report preparation, implementation, transparency, creditability and efficiency.

5 State-Pressure-Response (S-P-R) Model: A framework for Marshlands management

It is proposed to manage the Marshlands area using the State-Pressure-Response (S-P-R) model as a framework for achieving sustainable environmental development of this area. In addition to identifying the current **state**, **pressures** and **response**, Figure 5.1 describes a model for State-Pressure indicators used for sustainable development of the Marshlands. It stresses the fact that **response** through any of the activities implemented to achieve environmental development requires coordination between different stakeholders involved in the process (local authorities/civil society/central government and its administrative authorities in the Marshlands). Accordingly, there is a constant need for a participatory analysis mechanism to detect the impacts of proposed activities that are being implemented to achieve sustainable environmental development for the Marshlands. This is followed by the necessity for intervention in the market mechanism to ensure fair competition and prevent monopoly, as well as provide public goods that are not provided by the private sector such as clean fresh air, realization of justice with regards to economic development, outcomes' distribution among community members through social security and safety systems, and dealing with externalities (negative side-effects of any human activity on the activities of other individuals and their welfare). Finally, adopting institutional reforms ensures sustainable environmental development and effects, good governance, transparency, credibility, participation and empowerment of stakeholders with the purpose of achieving sustainable urban development and setting a model for all other areas in Iraq.

There are five reasons for preparing an environmental plan to manage the Marshlands area which are, in detail, as follows:

5.1 Mechanisms to ensure fair competition in the markets

There are several considerations that ensure the presence of complete fair competition practices in markets, among which is the increase in the number of vendors/suppliers and purchasers/customers in a manner which prevents monopoly. There should not be any effects on the decision of the producer or the consumer. And everyone should be fully aware of the facts related to the market regarding the size of goods offered, their type, price and choice expected to be issued etc. Moreover, individual behaviour should be rational and wise to maximize the benefit of consumption, decrease the product cost and in any case achieve target profit and revenue. The absence of any of these assumptions means that the market is not competitive anymore and requires interventions to restore balance and competition.

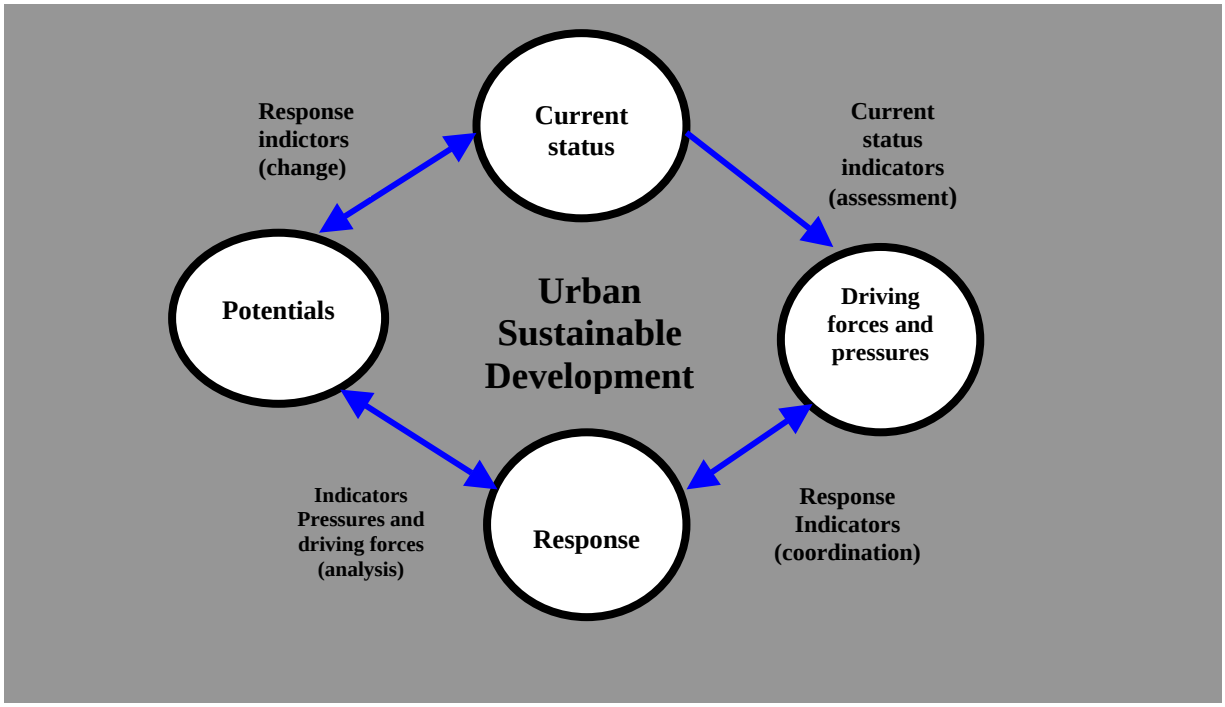


Figure 5.1: Sustainable environmental management of the Marshlands

5.2 Providing public goods

These are goods which can not be provided by the private sector and its companies and institutions. Public goods are characterized by (1) they are available to all community members without exception and are not restricted to a certain category of the community, (2) individual consumption of a community member does not affect the overall consumption or another consumer's satisfaction. There are several examples of public goods such as fresh clean air, social protection and security, television and radio broadcasts, beaches, public parks etc.

5.3 Externalities

They are the products of individual economic activity which affect the economic activities of other community members. For example, the individual has absolute freedom to establish a lead smelter but the exhausts and fumes expelled from this smelter are considered negative externalities on the activities of the smelter's neighbours. Thus, preparation and development of plans, specifying locations for implementing activities and setting certain stipulations for

construction processes are all matters which target the protection of individuals and their activities from economic activity externalities of other individuals.

5.4 Distributional justice of economic growth outcomes

The marginalized groups of the poor members of society are usually the victims of economic growth and progress processes such as, for instance, the inhabitants of informal settlements that are in dire need of services and infrastructure. If this community group is not supported by the development of a mechanism to alleviate their poverty, and reduce ignorance and disease, the gap between the rich and the poor will become wider. Islam has several dictates in its Qur'an and Sunnah that advocates the provision of assistance to these special needs' groups – the poor, the young, the handicapped – and others who are in need of charity, as a mechanism to support the poor. These mechanisms are considered a prerequisite to avoid and reduce chaotic and riotous actions in the community and encourage an atmosphere of harmony.

Governments follow several methods and techniques for the redistribution of income and wealth including social security, insurance and pension plans and the most important is establishing a mechanism to alleviate the poverty of marginalized groups through providing the necessary credit and enhancing their participation in the decision-making process. For example, development of informal settlements can be achieved through granting ownership contracts to land seizers/grabbers at low prices and carrying out property registration procedures. This would be an important factor in reviving the economy and decreasing inflation rates at the national level as the size of securities' dealing in the market will be covered by extra properties which were not previously counted into the property assets of the state. Moreover, this will lead to an increase in local government resources as the properties which are registered will be included in the category of properties that pay taxes and dues in return for services provided to their residents.

5.5 Institutional transformation

The emergence of a particular problem usually comes as a result of a specific institutional situation and any procedures undertaken to solve the problem do not necessarily guarantee the sustainability of the solution if the institutional framework is not modified to prevent the reoccurrence of the problem. Institutional building, capacity development and participation are all vehicles of institutional transformation and reform. For example, how can the private sector participate in the implementation of development plans without being involved in the decision-making process or the preparation of these plans? How can we expect NGOs to carry out their assigned role while they are in need of technical assistance? Moreover, the laws and legislation made to coordinate the activities should be modified. For example, how can the young start a particular economic activity while they are bound by institutional red tape and bureaucracy? This would require the simplification of procedures related to the establishment and management of new economic enterprises/organizations. Several cities have registered global success in attracting investment through the simplification of required procedures within the framework of promoting investment opportunities in those areas.

C Logical framework analysis approach

Inappropriate planning of projects is the main reason for their failure to achieve target objectives. The project document usually specifies the amount of funding and in-kind contributions available for the project but overlooks the accurate definition of objectives,

target beneficiaries/groups and external factors/assumptions/uncertainties affecting the success of the project.

Most projects lack the monitoring, evaluation and assessment components and usually focus on the physical/materialistic outputs rather than the political issues or the project impacts/results. Accordingly, the Logical Framework Approach (LFA) is used in designing the project with the purpose of solving the problems in question.

Logical Framework Approach (LFA) is a technique and an approach to reframe basic elements of a project and shed light on the logical connections/linkages between inputs, activities, outputs and expected results.

This approach has several advantages, among which are asking key questions, and analysing weaknesses with the purpose of providing decision-makers with accurate and consistent data and information. Furthermore, it is considered a guide for carrying out logical sequential analysis of the exponential correlation between different components of the project and enhancing the project design process, as well as facilitating comprehension of available resources as well as communication among various stakeholders/beneficiaries/target groups. In addition, this approach provides a logical pattern for the collection, classification and analysis of data.

This approach has certain limitations and weaknesses, the most important of which is that it is an analysis tool that is politically insensitive with regard to problems of income distribution and poverty. Accordingly, it could not be used on its own but rather should be linked to other project evaluation and assessment tools such as the tool used to determine the degree of cost effectiveness.

1 Main concepts of the LFA

The purpose of development projects is to instigate changes that will have a desirable impact on the community, assuming that there is a general consensus/agreement on the need to improve the situation prior to the implementation of the project. This, in turn, would increase the possibility of agreement upon short-term outputs and developmental outcomes in general.

It is well known that development projects target the provision of services for target groups and also depend on resources for inputs and implementation of activities. This, in turn, results in a number of expected outputs that lead to the achievement of target objectives. It should be noted that the inputs, activities and outputs are considered elements/components and not indications of its failure or success.

The success of the project depends on several factors that can be controlled by the project management but nevertheless there are other assumptions/uncertainties/elements that are difficult to handle through the project management. For instance, during the project planning and implementation process, it is necessary to identify, monitor, observe and analyse any assumptions involved as they could lead eventually to the failure of the project even if it was implemented according to the design and plan.

2 The development process

The development project is a sequence of actions built on as a consequence of other factors and described on several levels: general objectives/impacts and short-term outputs/ activities/inputs/target groups etc. The process can be analysed as follows: suppose that the

inputs are available so the activities will be implemented and will accordingly result in the short-term outputs which finally will lead to the achievement of objectives and, in the long run, the overall objective will be achieved. If we are not certain that the inputs are available, we can not be certain that the outputs can be achieved and the overall objective of the project reached. This would be a result of some external factors, which are the factors uncontrolled by the project management.

3 The project framework

The Logical Framework Approach (LFA) is a tool to analyse the project by using a Logframe matrix in the preparation of the project where its management is divided from its objectives through vertical logic. Moreover, the project structure is separated from its objectives and management by using horizontal logic. This is how the analysis of assumptions and uncertainties beyond the project manager's control could be analysed along with other issues that were difficult to handle.

The early identification of assumptions and uncertainties during the first stages of the project is crucial in setting an appropriate project strategy. Later, the monitoring and evaluation process begins for the project objectives and potential uncertainties that could occur during the lifetime of the project and, depending on the data provided, reflects the potential/opportunities for success.

4 The Logframe matrix format

In addition, the project matrix consists of the following elements/components:

- Project design;
- Project management;
- Project objectives;
- Other elements, the most important of which are the indicators for each of:
  - Overall goal/objective of the project;
  - Short-term outputs;
  - Outcomes (component objectives and purpose) where the achievement of each is measured by the indicators.

The Logical Framework Approach (LFA) is a planning tool for projects as well as an instrument for the management of their implementation. Through the situation/problem/state analysis achieved by the participation of different stakeholders and the consensus on target objectives, the project Logframe matrix is considered the natural outcome of the planning process using the LFA. Thus, the project Logframe matrix becomes the starting point for the preparation of the technical component and implementation plan. The LFA could be used to monitor the implementation process and verify the achievement of target objectives.

Table 5.2: Logframe matrix structure and sequence of completion

Assumptions	Means of verification (MOVs)	Indicators	Project description
	11. MOVs	10. Indicators	1. Goal
9. Assumptions	13. MOVs	12. Indicators	2. Purpose
8. Assumptions	15. MOVs	14. Indicators	3. Component objectives
7. Assumptions	17. MOVs	16. Indicators	4. Outputs
6. Assumptions	Work plans and management reports on physical and financial progress	Milestones specified in activity schedules and scope of services	5. Activities

5 LFA workshop

Holding a workshop on the Logical Framework Approach (LFA) is considered an important tool for the planning of the project and its analysis. It can be organized in several forms. Either a brief one held during the preliminary stage of the project to determine whether the project should continue or be terminated. Or it could be a detailed workshop in case the project is complex and comprises several components. In this case, the workshop is held for a minimum period of 6 days and a maximum of 12 days and organized at the location of the project for the purpose of project design. The representatives of different stakeholders at the national, regional and local level should be invited to this workshop, including the donor agencies and institutions involved in the project (either affecting or affected by it) in addition to specialists. This should ensure the participation of all parties and their continuous support of the project in the future. The representatives of target groups/beneficiaries should also participate directly in the process to be able to present their visions and priorities. The workshop should be managed by an independent expert who is affiliated to neither the donor agencies nor the target groups and institutions participating in the project.

6 Making use of optical techniques in the workshop

Using optical techniques in the workshop is a very effective method for enhancing the discussion of problems/issues and contemplating potential solutions by making use of coloured cards for the expression and analysis of different visions and views. The discussion is mainly based on the contributions of all the participants, which they write down on the coloured cards and then display them on the wall to present their views to all the participants. This enhances discussion and improves results gradually.

The ten basic elements of using the optical technique in discussion are:
1. Positive reaction/ responsiveness;
2. One word per card;
3. Clear, realistic and unique message;
4. The facilitator does not interfere but organizes discussions;
5. The facilitator helps the participants in organizing their thoughts by organizing the cards;
6. Exchange of general statements' cards with definite ones;
7. The cards can be changed or temporarily exchanged upon the participant's request;
8. The sentences can be modified or removed completely upon the participants' request;

9. When discussions are unnecessarily prolonged, there should be a clarification of points, a request for additional information, an end put to the conflict or the discussion terminated and switched to another problem/issue;
10. The vertical and horizontal links representing cause-effect relationships should not be drawn until the end of the session.

7 Step by step

In the LFA workshop, the participants focus on certain issues and problems and the comprehensive planning of the project depends on the amount of information available as well as the degree of complexity of the problem in question, the number of participants and their capabilities. The workshop opens with the presentation of a paper that describes the current problems in the project location to the participants, taking into account that they have already been provided with the necessary information on target groups before the workshop. The analysis is carried out by following the sequence of steps to identify the cause-effect relationships of the problem in direct and indirect manifestations. This is followed by the steps of designing and planning the project, which makes it necessary to analyse the current **state** through the analysis of relationships, problem analysis, analysis of objectives and alternative strategies. The participants then move to another step in the project design process through the identification and definition of project elements and components as listed in the Logframe matrix, as well as the assumptions and indicators as listed in the project matrix.

7.1 Participatory analysis

The absence of basic fundamental information on community groups, which affects the project and is affected by it at the same time, is the main reason behind the failure of development projects to achieve their objectives. Accordingly, an analysis of the interests/concerns and results expected by the all stakeholders involved should be carried out during the project preparation and implementation stages. In the light of this, it is imperative to define project objectives which reflect community needs as well as target groups' and then prepare a list of stakeholders involved in the project, their views/stances and the categories that will be most affected by this project either positively or negatively; directly or indirectly. To make the analysis more accurate and profound, the different views of participants belonging to various groups should be reflected during the proceedings of the workshop. Then this information should be verified and scrutinized for some groups by selecting the key groups; this process is known as **participatory analysis**. Afterwards, an accurate analysis is done for the problems/issues, interests, potentials, relationships and linkages so it is important to determine the priorities in the workshop by identifying vulnerable groups in need of support, to ensure the sustainability of the project's objectives and resolve any possible conflict using the support of a specific group/category.

7.2 Problem analysis, the starting point

Each participant should start by first defining a problem where the focus of the discussion should be on the interests and concerns of the participating groups. The participants then proceed to the discussion of each proposal and try to reach consensus on one case/problem only. In the case where a general agreement/consensus can not be reached, the problems can be rearranged/analysed/sorted out using the **problem tree** tool and according to the cause and effect logic. The problem can be discussed again according to the new **problem tree** structure. Where an agreement still can not be reached, it is advisable to use **brainstorming** or **role play.** Or it may be appropriate to undertake an approach of assisting in the decision-making, then help in the selection of the right decision by giving points to every problem, temporarily

agree on a certain problem and proceed, bearing in mind that you will have to go back to discuss the other problems proposed. Try to avoid taking direct votes in order to gain consensus on this decision.

7.2.1 Target groups

The target groups should be identified within the overall objective of the project or the short-term outcomes/component objectives and their information should be accurately presented as their geographic location, activities, economic status and relationships, needs, gender, age, social stratum and human element (Negro, Caucasians etc.) Also, the target groups should be identified at the appropriate level of the matrix.

7.2.2 Objective (general development objective)

The overall objective of the project should concur (be in harmony) with the development policy of the state (government) as well as the policy of the donor country. Moreover, it should reflect the target purpose/impact and be paraphrased in a clearly defined sentence, which does not include more than one objective.

7.2.3 Problem tree structure

To draw the problem tree analysis, start first with identifying the direct cause relationships of the problem then move to the identification of the direct effects of the problem. Start to draw the **problem tree** diagram reflecting the cause and effect (result) relationship between the problems. Then revise the tree through verifying/checking the credibility/logic/completeness of the tree, make modifications where necessary, and end the problem analysis when every participant is convinced that the basic necessary information is there on the tree to explain the cause-effect relationship of the problem.

7.3 Objectives analysis

In order to draw the objectives tree diagram, we start with identifying again the elements of the problem tree reflecting the positives, then we revise the cause relationships between the means and ends relationships and, when necessary, we revise the problem statements. Then we omit/check out the objectives that seem unrealistic or unnecessary and we add new objectives if needed. Finally, we draw in vertical links to show cause-effect relationships, and horizontal links to show joint causes and combined effects. We should note that not every cause-effect relationship can be turned into a means-end relationship. Thus, it is advisable to revise the problem tree diagram in parallel with the objective tree from the bottom upwards and vice versa.

7.4 Analysis of alternative strategies

To identify alternative strategies, analyse and select the most suitable one. Start with identifying a different means-end relationship as a possible alternative or project component, then check out the objectives that are hard to achieve or undesired, omit the objective which other projects could achieve, then discuss the consequences for each of the target groups in the project. The most suitable practical alternative is then selected through the assessment/evaluation criteria to examine the various alternatives. Select one of these alternatives as a strategy for the project and take a vote/approval on it. If it does not gain consensus, try to add an additional criterion to modify the alternative desired most by the participants by adding or omitting elements from the objectives tree diagram.

7.5 Identification of project elements (project matrix PM)

When the participants succeed in the identification and drawing of the objectives tree, work from top to bottom through the agreement/consensus on an overall objective and outputs. The overall objective describes the final targeted situation and it is the purpose behind the project, but the short-term outputs/component objective describes the desirable impacts the project should have on the target groups in the short term. As for the outcomes, the objectives should be expressed in a realistic, tangible and sustainable manner to achieve the short-term outcome. (Note that the project management is responsible for the outcomes and not the achievement of the outputs.) As for the activities, they are tasks that should not be separated but should be the basic framework/structure of the project strategy. Keep in mind that all the activities should be numbered according to the number of the outcome. Thus any outcomes in cash/work/in-kind form should be calculated on the basis of activities and then the budget of the project is calculated in the light of the total activities estimate.

7.6 Assumptions/uncertainties

The identification of external factors/assumptions/uncertainties is then carried out by revising the objectives tree diagram, as they are linked to the different levels of the project matrix. Their relative value is then evaluated/determined according to importance and probability as the assumptions are conditions that should be available to cause the success of the project as they are factors out of the direct project management's control. Thus, we always work from the top of the tree downwards and test if the inputs are sufficient to implement the activities or whether we need an addition from outside the project to support it. The assumptions can be identified by checking the logic of each of the project levels, then we repeat the testing of the objectives tree from the bottom upwards to ensure that the proposal is following a logical integrated framework. On each level, make sure that all the necessary conditions are enough to cause the success of the project and its advancement to the next level. The effect of the external factors/assumptions should be tested/examined to clarify the chances of the project success and thus the assumptions list could be checked one-by-one at each level of the matrix to be sure of the possibility that these assumptions will eventually occur. If the participants decide that a certain assumption is important but unlikely to happen, it should be considered a risk and the project should be reconsidered as a whole once more.

7.7 Indicators

Indicators are a basic link in the project matrix and the details of each indicator are considered extremely important as they measure the extent of target objective achievement at different times during the project’s lifespan. Measurement is usually quantitative (kg, m, etc.) or qualitative, such as when we refer to the agriculture cooperation as working efficiently, or a behavioural measurement such as the increasing demand on wastewater/sewerage services. There should be measurements for the quantitative indicators like the customer satisfaction from cooperation, such as community members accept the level of cooperation performance or do not use its services so often. The direct indicators should be supplemented/supported by additional indicators as it is noted that using several indicators is better than using one only where it is difficult to reflect the complete picture after/during the project implementation.

How can an indicator be established? A good indicator should:

- Reflect important aspects of the objective accurately;
- Be independent on all the different levels as the output is different from the overall objective and, accordingly, one indicator can not measure performance on two levels and it is difficult to measure more than one objective;
- Be realistic and not affected by mood or personal opinion;
- Register and detect the changes/improvements during the project cycle;
- Be built on available data from the beneficiaries of the project.

To ensure the effectiveness of the monitoring and evaluation tools, after establishing the indicators we should point out:

- What information is available;
- In what form it is available;
- Who would provide the information.

In this sense, sources of information outside the project should be contacted to ensure the possibility of depending on such sources and the appropriateness of their data to the project and the indicator. The issue of data collection costs should be handled along with the effort needed to collect it.

As for the indicators that are difficult to verify, they should be replaced with other indicators. Also, the indicators for which data will be expensive to collect should be replaced with other simple, less expensive indicators. A column could be added to the matrix to enable the verification of the indicator.

D Indicators

The indicator should identify:

- target group
- quantitative measurement
- qualitative measurement
- time
- place/location

E Participatory model of planning for sustainable development

1 Local unit

- Establishes the stakeholders/beneficiaries group and assigns the planning tasks and also helps to establish the planning team that assists the stakeholders’ group.

2 Regional centre of the authority

- Provides data and information necessary for decision-making using the indicators.
- Prepares reports and acts as communication intermediary between the stakeholders' group, local administrations and central departments.
- Revises work strategies and proposals.
- Works on integrating the interests/concerns of groups involved within the planning process and ensures that their objectives are achieved without affecting the national objectives.

3 Stakeholders' group

- Defines the level and scope of the planning process.
- Establishes work groups and determines the terms of reference for their work.
- Develops community visions.
- Consults with community members and sets priorities.
- Seeks a general agreement/consensus on the problems/issues and how to deal with them.
- Revises work plans and provides resources necessary to implement them.

4 The planning team

- Supports the stakeholders with ideas and technical opinions.
- Carries out the planning, implementation and monitoring activities.
- Provides research and studies.
- Observes and monitors the results.

5 Work groups

Service providers, beneficiaries, funding agencies and target groups affected by the plan and its projects.

5.1 Planning groups

- Analyse the problems and potential opportunities.
- Suggest implementation steps according to objectives and catalysts.
- Prepare draft work plan.

5.2 Implementation groups

- Discuss the implementation arrangements and establish partnerships.
- Mobilize resources.
- Document experiences.

5.3 Monitoring and evaluation groups

- Set indicators.
- Follow up on implementation and observe the changes in conditions of implementation.
- Analyse outcomes/results.
- Develop reports related to previous experiences, lessons learned and best practices.

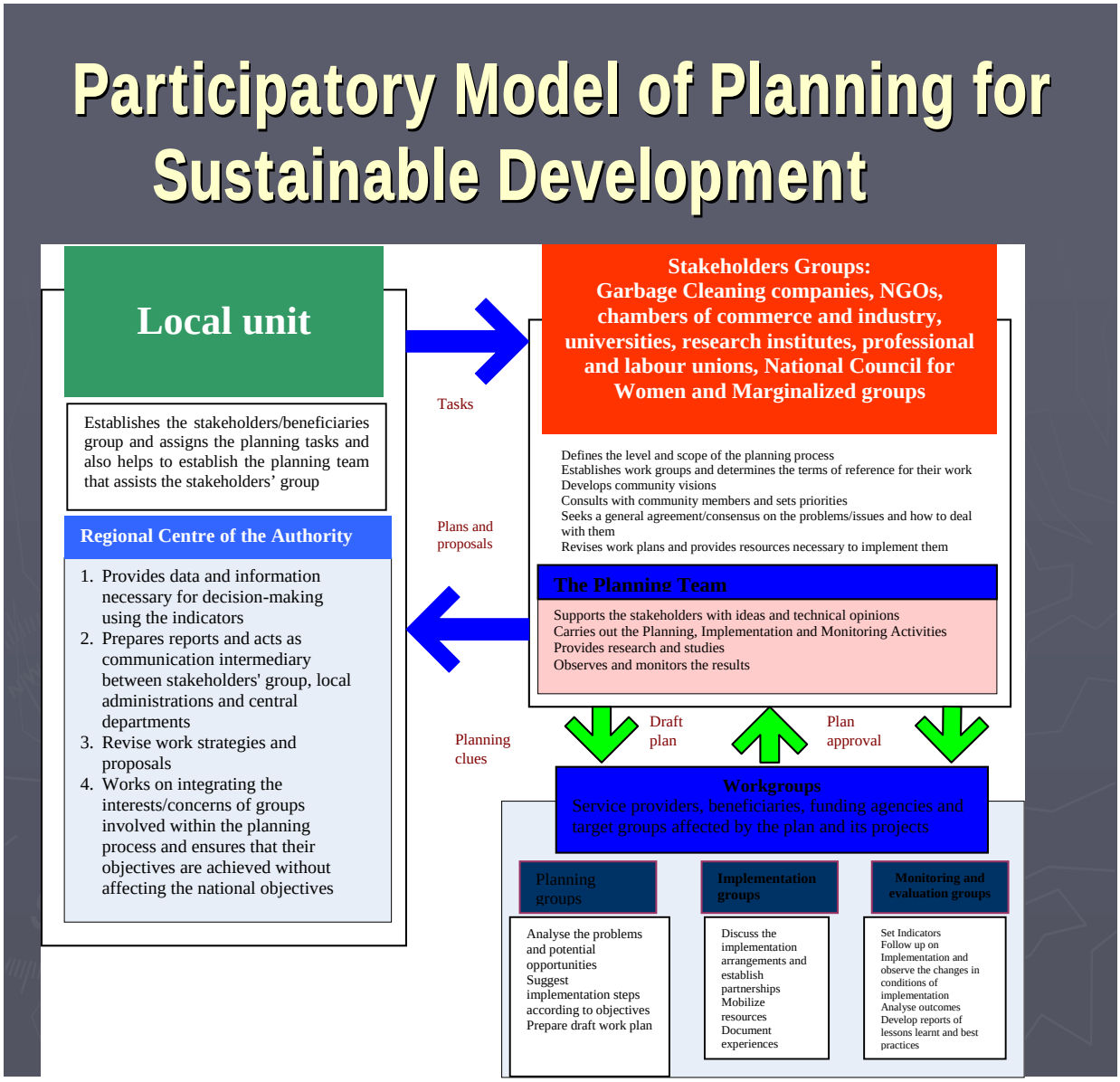


Figure 5.2: Participatory model of planning for sustainable development in Egypt (General Urban Planning Authority)

F Measuring sustainable development

This process requires indicators for measuring the extent of progress achieved towards sustainable development with the purpose of assisting decision-makers and developmental policy makers.

In addition to known economic and social indicators, it is necessary to use indicators to measure the environmental conditions and the institutional framework for development work in order to draw a complete, comprehensive picture for community development.

There is a pressing need for a comprehensive framework to introduce complicated and complex developmental initiatives by analysing the following areas:

- Information
- Technical areas
- Community
- Funding
- Institutions
- Environment
- Economics

The issues which should be handled are:

- Institutional impediments:
  - General institutional and administrative impediments
  - Data collection
  - Data management
  - Data relevance to the subject matter
- Technical impediments:
  - Discrepancy of terminology
  - Inspection/detection network coverage
  - Difference timing of chart reports issuance
  - Attempts to minimize gaps in bar charts
  - Theoretical and technical difficulties in the measurement process
  - Discrepancy in the measurement process results
- Political impediments

The time and place measurement plays an important role in the development of indicators related to natural resources management and protection against pollution.

The participation of community member with decision-makers is crucial and necessary to achieve the utmost benefit from the indicator. There are many community participation mechanisms from the involvement of civil community associations and research institutions to the use of audio and visual information systems, as well as using the press to publish information according to the purpose of participation and the reason behind using the indicator itself.

G Recommendations

There is a pressing need to use an indicator for the environmental quality for the Marshlands area.

The expected difficulties on the selection and preparation of an indicator for environmental quality measurement are:

- Selection of indicators that reflect the real situation;
- Motives behind the choice of indicators;
- For whom the indicator is prepared;
- The problem of cause and effect definition.

The requirements that should be available in the indicator are:
- Collection of measurements that could be handled and managed;
- Compliance with international standards;
- Distinction between natural and human factors causing the pollution of the environment;
- Easy distribution;
- Easy access to information and decreasing cost – without sacrificing efficiency;
- Presenting a brief for courses on preparing indicators in countries involved and international organizations.

Planning and Management of Sustainable Development In Wetlands Manual

Training Module 5:
Sustainable Development Indicators
State-Pressure-Response Approach
Logical Framework Analysis Approach to Design Projects

Slide1

Definitions

- Data is considered the main component of work in this area as it is the basis upon which indicators, measurements and information are developed. Moreover, most of the data could not be used in its unprocessed state to interpret and explain changes that occur in the environment, economy and the community.
- These indicators are used as the basis for assessment and evaluation of the state/ conditions and measuring the extent of the achievement of sustainable development.
- Indicators are used in the initial stage of policy preparation and development processes where the data is presented in the form of one figure that is easily read and interpreted without the need to refer to complicated statistical analysis. Thus, each indicator can be used on its own and linked to several groups.

Slide2

Definitions

- By aggregating indicators or using some information, we can refer to them as a criterion; the criterion is usually used for analysis on the overall international/national/regional levels.
- Indicators and criteria are not considered the goal/objective but rather the tools by which the decision-making process and the progress of developmental policies can be improved.

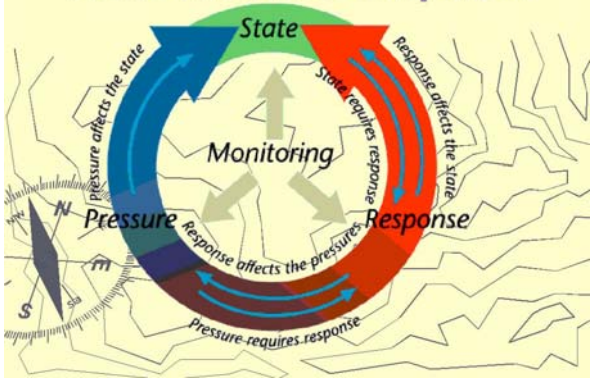
Slide3

Definitions

- There are two frameworks:
  - State-Pressure-Response Approach: is used in the analysis of the overall international/ national/regional levels to develop strategies, policies and plans then monitor them.
  - Logical Framework Approach (LFA): is used in the preparation/design of programmes and projects then in monitoring the achievement of impacts and objectives.

Slide4

State-Pressure-Response

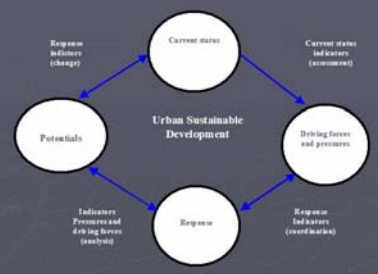


Slide5

State-Pressure-Response: Environmental Management

Slide6

State-Pressure-Response: Environmental Management



Slide7

Logical Framework Approach (LFA) : A tool to improve Project's Quality

- Logical Framework Approach (LFA) is a technique and an approach to reframe basic elements of a project and result-based management

Slide8

LFA assists in

- Identifying project objectives
- Information/data requirements
- Basic elements
- Institutional framework of the project
- Coordination and communication between partners
- Measurement of the degree of success/failure of the project

Slide9

LFA: Step - By - Step

- State Analysis
- Participation analysis
- Problem analysis
- Objectives analysis
- Alternative Strategy analysis
- Project design
- Assumptions
- Indicators

Slide10

Participatory Analysis: identify participating groups

- Write down all the participants
- Rearrange them in groups
- Discuss their views and identify their interests

Slide11

Selection of Stakeholders

- Carry out an accurate analysis
  - For the problems
  - Interests
  - Potentials
  - Relationships and linkages

Slide12

Identify Priorities

- Carry out an accurate analysis

Slide13

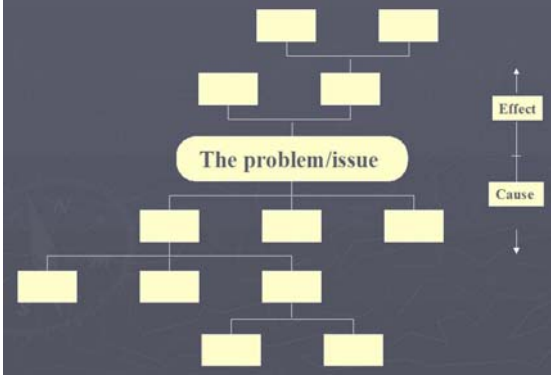
Problem analysis: selection of starting point

Select a specific problem/issue then discuss

- concerns
- interests
- potentials
- relationships and linkages

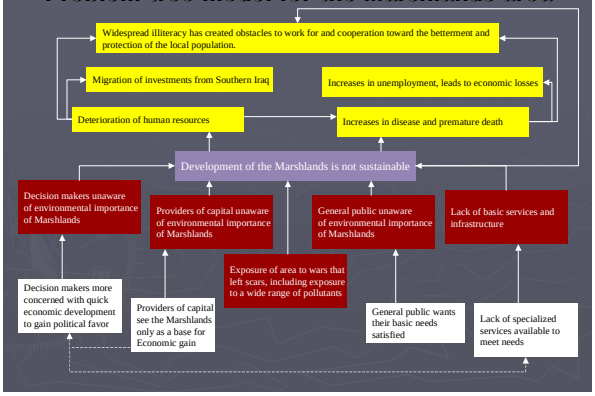
Slide14

Draw the problem tree



Slide15

Problem tree model for the Marshlands area



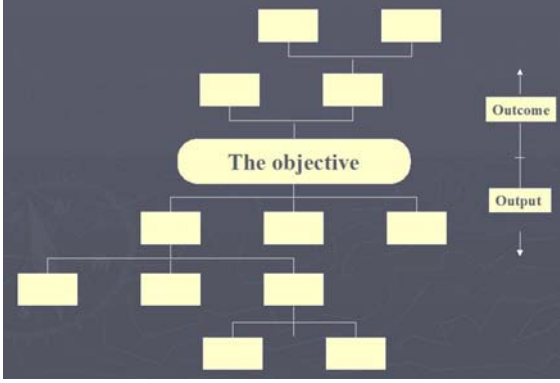
Slide16

Objectives analysis

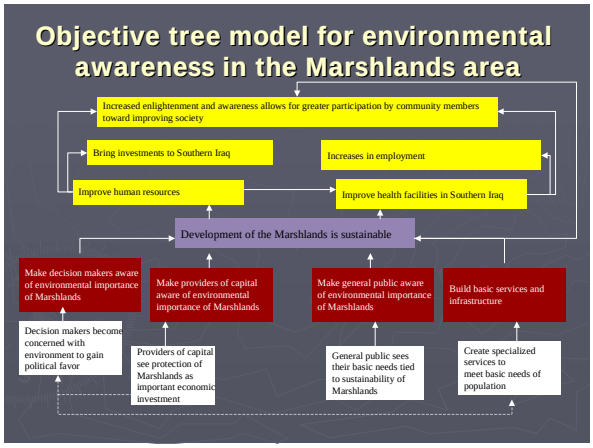
- Positive means and end
- Review of objectives rationale
- Draw the relation between the means and end

Slide17

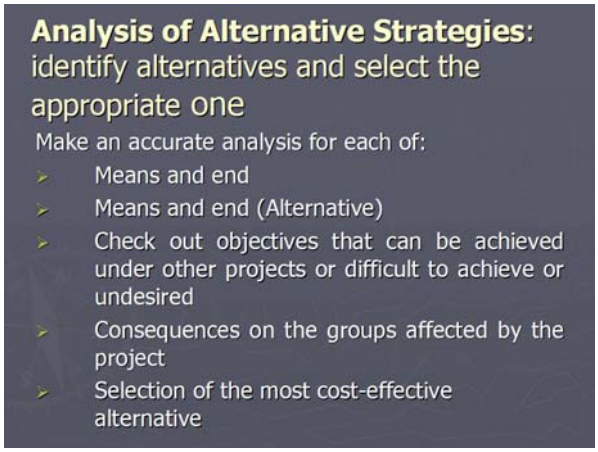
Draw the objectives tree



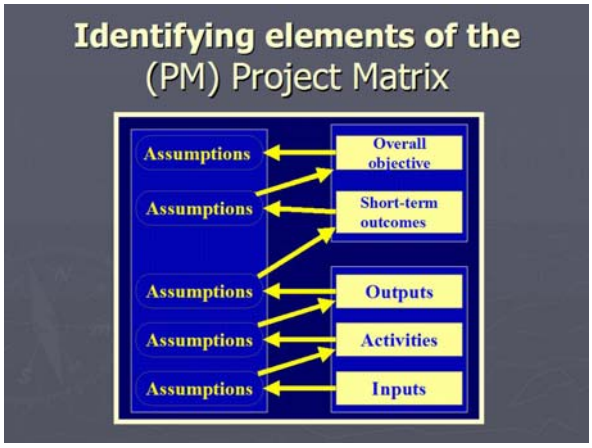
Slide18



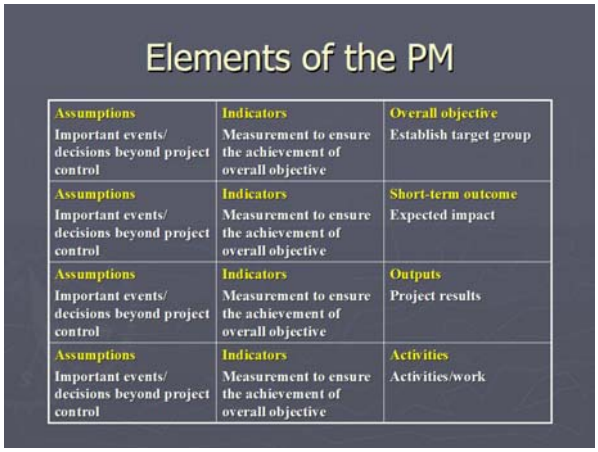
Slide19



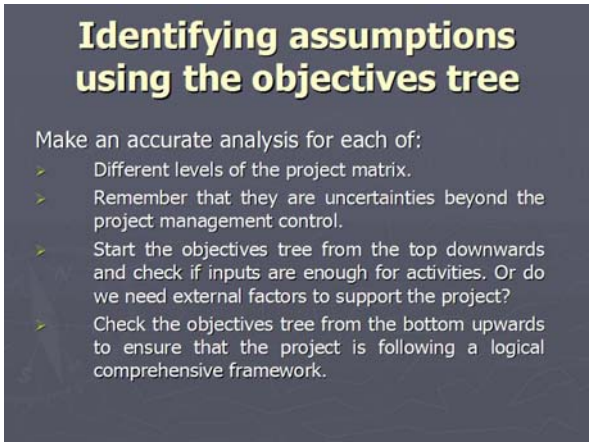
Slide20



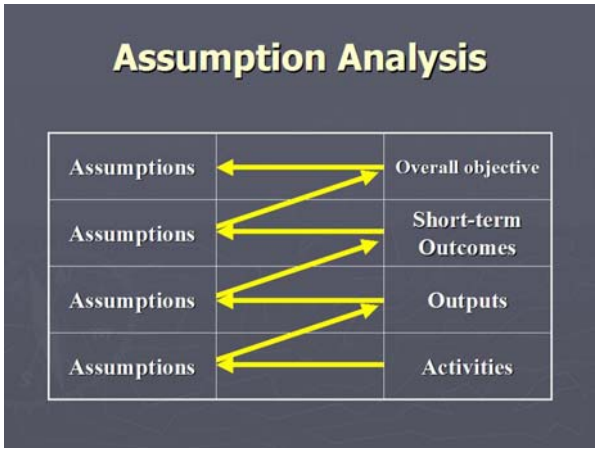
Slide21



Slide22



Slide23



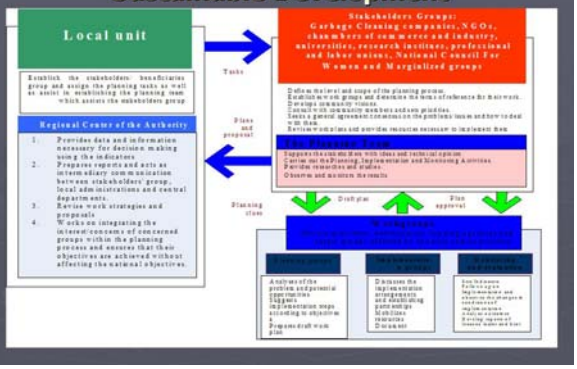
Slide24

Indicators

- The indicator should identify:
  - target group
  - quantitative measurement
  - qualitative measurement
  - time
  - place/location

Slide25

Participatory Model of Planning for Sustainable Development



Slide26

Measuring Sustainable Development

- This process requires indicators for measuring the extent of progress achieved towards sustainable development with the purpose of assisting decision-makers and developmental policy-makers.
- In addition to known economic and social indicators, it is necessary to use indicators to measure the environmental conditions and the institutional framework for development work in order to draw a complete picture.

Slide27

Measuring Sustainable Development

- There is an overwhelming need for a comprehensive framework to introduce complicated and complex developmental initiatives by analysing the following areas:
- Information
- Technical areas
- Community
- Funding
- Institutions
- Environment
- Economics

Slide28

The issues which should be handled

- Institutional Impediments

- General institutional and administrative impediments
- Data collection
- Data management
- Data relevance to the subject matter

Slide29

The issues which should be handled

- Technical Impediments

- Discrepancy of terminology
- Inspection/detection network coverage
- Difference timing of chart reports issuance
- Attempts to minimize gaps in bar charts
- Theoretical and technical difficulties in the measurement process
- Discrepancy in the measurement process results

Slide30

Slide31

Slide32

Slide33