



# CHAPTER 4

**MDG-7**

**ENVIRONMENTAL SUSTAINABILITY**



# CHAPTER 4

## MDG-7: ENVIRONMENTAL SUSTAINABILITY

### OBJECTIVE, SCOPE AND LIMITATIONS OF THE PUBLICATION

This MDG good practice publication presents a list of various constraints and challenges to the achievement of the MDGs, which each good practice has addressed in a national and/or local context. The publication does not claim to be an exhaustive list of 'best practices' with self-claimed objectivity. Instead, it presents a diverse range of nationally-led programmes, policy interventions, and/or locally-tailored support to address those specific challenges. It is hoped that this publication will serve as a practical reference to context-specific approaches addressing these constraints.



## Foreword

A decade has passed since world leaders adopted the Millennium Declaration at the General Assembly of the United Nations. Recognizing the urgent need to reduce poverty and address development challenges for long-lasting peace and security, time-bound development goals – coined as the Millennium Development Goals – were established with specific targets and indicators. At the 10th anniversary of the Millennium Summit, marked at the High Level Plenary Meeting on the MDGs in September 2010, world leaders and other stakeholders will be seeking concrete evidence of programmes and policies that have worked well and can be considered for adaptation and scaling up. The High Level Plenary Meeting will provide a unique opportunity to mobilize political will, re-energize the global MDG effort and agree on effective measures to accelerate and sustain progress.

Much has been achieved during the past decade. In order to take stock of some of the country level evidence and experience, I am pleased to present the MDG Good Practices publication developed by the United Nations Development Group (UNDG). Good practices covered in this publication have sought to address specific constraints and challenges in achieving the Goals, in each country's context. The publication provides evidence on different approaches to achieving the various MDGs and the importance of recognizing the synergies between these and the Internationally Agreed Development Goals. Some case studies may be familiar while others may serve as technical references for development practitioners. They demonstrate that, even under resource-constrained circumstances, there are innovative ways of overcoming obstacles to accelerate progress.

It is our hope that this collection can serve as a practical tool for governments, non-governmental organizations, research institutes, the private sector and the UNDG agencies – and that it will contribute to evidence-based discussions in preparation for the High Level Plenary Meeting and in our collective efforts beyond.



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<sup>1</sup> Belarus , Georgia, Serbia, Montenegro, Russia, Armenia, Albania , Moldova, Romania, Lithuania, Slovakia, Poland, Bulgaria, Kyrgyzstan Azerbaijan and Tajikistan

# Acronyms and Abbreviations

**ACWUA**- Arab Countries Water Utilities Association

**ADC**- Austrian Development Cooperation

**AGRITEX**- Agricultural Research, Training, and Extension

**AIDS**- Acquired Immune Deficiency Syndrome

**ARIJ**- Applied Research Institute in Jerusalem

**CFC**- Chlorofluorocarbons

**CIDA**- Canadian International Development Agency

**CIS**- Commonwealth of Independent States

**CO2**- Carbon Dioxide

**DFID**- UK Department for International Development

**DWSSC**- District Water and Sanitation Coordination Committee

**EC**- European Commission

**EE**- Energy Efficient

**EU**- European Union

**FAO**- Food and Agriculture Organization

**FMNR**- Farmer Managed Natural Regeneration

**GBC**- Gilgit-Baltistan and Chitral

**GCC**- Greek Cypriot Community

**GDP**- Gross Domestic Product

**GEF**- Global Environmental Facility

**GFS**- Gravity Flow Scheme

**GHG**- Greenhouse Gas

**GIS**- Geographic Information System

**GPS**- Global Positioning System

**GWP**- Global Warming Potential

**HA**- Hectare

**HCFC**- Hydrochlorofluorocarbons

**HELP**- Hydrology for Environment, Life and Policy

**HFC**- Hydrofluorocarbon

**HIV**- Human Immunodeficiency Virus

**ICSU**- International Council for Science

**IMF**- International Monetary Fund

**INGO**- International Non-Governmental Organization

**IUCN**- International Union for the Conservation of Nature

**IWRM**- Integrated Water Resource Management

**KG**- Kilogram

**KM**- Kilometer

**LPG**- Liquefied Petroleum Gas

**LULC**- Land Use Land Cover

**MCA**- Millennium Challenge Account

**MDG**- Millennium Development Goals

**MET**- Ministry of Environment and Tourism

**NGO**- Non-Government Organization

**ODP**- Ozone Depleting Potential

**O&M**- Operations and Maintenance

**PA**- Protected Area

**PEI**- Poverty Environment Initiative

**PEPAM**- Programme for Safe Drinking Water and Sanitation

**PETRA**- Petra Perdana Bhd

**PKR**- Pakistan Rupee

**PMR**- Plant Micro Reserves

**PPP**- Purchasing Power Parity

**PRSP**- Poverty Reduction Strategy Paper

**PSA**- Pago por Servicios Ambientales (Payment for Environmental Services)

**SADC**- South African Development Community

**SEE**- South Eastern Europe

**SLTS**- School Led Total Sanitation

**SPAN**- Strengthening the Protected Area Network

**SSWWT**- Small Scale Activated Sludge Filtration Technology

**TSC**- Tap Stand Committee

**TVE**- Township Village Enterprises

**UK-DFID**- United Kingdom Department for International Development

**UN**- United Nations

**UNDP**- United Nations Development Programme

**UNECE**- United Nations Economic Commission for Europe

**UNEP**- United Nations Environmental Programme

**UNESCO**- United Nations Educational, Scientific and Cultural Organization

**UNESCWA**- United Nations Economic and Social Commission for Western Asia

**UNFICYP**- United Nations Peacekeeping Force in Cyprus

**UN-HABITAT**- United Nations Human Settlements Programme

**UNICEF**- United Nations Children's Fund

**UNIDO**- United Nations Industrial Development Organization

**UNPOL**- United Nations Police

**UNV**- United Nations Volunteers

**UPPR**- Urban Partnerships for Poverty Reduction

**USAID**- United States Agency for International Development

**US EPA**- United States Environmental Protection Agency

**WASMO**- Water and Sanitation Management Organization

**WHO**- World Health Organization

# Acknowledgments

This Chapter was the result of valuable contributions from colleagues at research institutes, foundations, local NGOs, development corporations, as well as UNEP, UNIDO, HABITAT, UNDP, FAO, UNICEF, UNESCO, the UN Economic Commission for Europe and the United Nations Economic and Social Commission for Western Asia. The contributors to this Chapter were Albagir Adam, S.M. Si Ahmed, Giuseppe Arduino, Costas Kadis, Paola Deda, Mira Djangaracheva, Yamina Djacta, Silvia Gaya, Nadine Gbossa, Richard Geier, Luc Grégoire, Salih Gücel, Gurinder Gulati, Christopher Hutton, Jad Isaac, Enver Khan, Khaldon Khashman, Faryal Khan, Shahbaz Khan, Yaya Konate, Xenia Loizidou, Arun Mudgerikar, Nehemiah Murusuri, Masanori Nagaoka, M. Fadel Ndaw, Jacinta Nekesa, Khizer Omer, Marie Prchalova, Hari Ramalu Ragavan, Abdelaziz Rahhou, Mehreen Saeed, Basilisa Sanou, Nik Sekhran, Tarek Shawki, Namaste Shrestha, Jaipal Singh, Benni Sormin, Rohana Subasinghe, Zharas Takenov, Marcel Tchaou, Radwan Al-Weshah, Rolf Willmann and Abdel Aziz Zaki.

The Chapter could not be completed without the valuable guidance and support from Diana Alarcon, Zehra Aydin, Alioune Badiane, Anna Boelens, Garry Conille, Shinji Hirose, Selim Jahan, Nicolas Jarraud, Zounoubate Nzombie, Katrin Park, Julie Payne, Liliana Ramirez and Xuesong Shen. Technical advice was also drawn from Si Ahmed, Moushumi Chaudhury, Usman Iftikhar, Ole Lundby and Renata Rubian as peer reviewers who significantly enriched the chapter.

Lance W. Garmer edited the chapter and Jacqueline Broner did the design and layout. Interior photographs were contributed by Devika Iyer, Jakob Krupka, Nehemiah Murusuri and Nik Sekhran. Barbara Kosny and Junting Wei tirelessly provided research assistance.

All names mentioned in the acknowledgments are listed in alphabetical order.

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The UNDG Policy Network for MD/MDGs  
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# Introduction and Analysis of MDG 7 Good Practice Cases

| MDG 7: Ensure Environmental Sustainability  |  |
|---|--|
| Targets   | Indicators   |
| <b>Target 7.a</b><br>Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources | 7.1: Proportion of land area covered by forest<br>7.2: CO <sub>2</sub> emissions, total, per capita and per \$1 GDP (PPP)<br>7.3: Consumption of ozone-depleting substances<br>7.4: Proportion of fish stocks within safe biological limits<br>7.5: Proportion of total water resources used |
| <b>Target 7.b</b><br>Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss  | 7.6: Proportion of terrestrial and marine areas protected<br>7.7: Proportion of species threatened with extinction   |
| <b>Target 7.c</b><br>Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation                          | 7.8: Proportion of population using an improved drinking water source<br>7.9: Proportion of population using an improved sanitation facility   |
| <b>Target 7.d</b><br>Achieve significant improvement in the lives of at least 100 million slum dwellers, by 2020  | 7.10: Proportion of urban population living in slums   |

## THE MDG GOOD PRACTICE CASES

### Objectives, selection criteria and limitations

This chapter contains 34 good practices cases that contribute to MDG 7 achievement, including examples of initiatives implemented and/or supported by national governments, UN and other international agencies and civil society. They include large-scale national environmental sustainability programs, area-based initiatives and smaller-scale community-based interventions targeting a specific constraint or challenge, including examples that focus on policy interventions as well as programs and projects.

The majority of case studies in this publication were submitted by partners responding to a call for good practices addressing specific constraints and challenges that have been blocking the achievement of the Goals.<sup>3</sup> The selection of good practice cases was largely done by submitting organizations and/or field offices. The objective of this publication, and the corresponding MDG Good Practices database on the UNDG Policy Network for MD/MDGs ([www.undg-policynet.org](http://www.undg-policynet.org)), is to provide practical references for context-specific cases in pursuit of MDG achievement. While specific constraints may be unique to a particular country, region and/or

### Where Do We Stand on MDG 7 Achievement?<sup>2</sup>

Global performance on MDG 7 targets has been mixed, with countries making significant progress toward achieving some indicators and inadequate progress, with an occasional worsening, toward others. The consumption of ozone-depleting substances has decreased sharply in developing and developed regions alike, although challenges remain in avoiding substitutes very likely to worsen global warming. The world is on track to meet the drinking water target and has already achieved the target on improving the lives of 100 million slum dwellers. On the other hand, while 1.1 billion people in the developing world gained access to some form of improved sanitation from 1990 to 2006, an additional 1.4 billion people will require access to improved facilities by 2015 if the target is to be met. Deforestation still continues at an alarming rate and urgent action is needed to protect threatened species and ecosystems. The harmful effects of climate change will likely exacerbate the challenges of meeting the MDG 7 targets over the coming decade and beyond.

<sup>2</sup> UN 2009, The Millennium Development Goals Report

<sup>3</sup> Calls for good practices were announced through the UNDG Policy Network on MD/MDGs in September 2009.

development context, sharing knowledge and experiences to overcome those constraints can yield valuable lessons that can be learned and applied in diverse settings.

This publication does not intend to present prescriptive suggestions or an exhaustive list of ‘best’ practices with self-claimed objectivity. Instead, this collection and its analyses provide some examples of innovative approaches that are tailored in country contexts, responding to particular constraints and challenges to MDG achievement. Each case contains unique lessons and creative approaches that could be useful for development planners and practitioners.

## ALLEVIATING CONSTRAINTS AND CHALLENGES TO MDG 7 ACHIEVEMENT-EVIDENCE FROM THE CASES

The MDG 7 good practice cases address ten distinct areas to alleviate constraints that countries, regions or communities face in reversing the loss of environmental resources, reducing biodiversity loss, increasing access to potable water and basic sanitation, and improving the lives of slum dwellers. The constraints and challenges presented here do not exist in isolation; they are intrinsically linked with one another. The analysis in this chapter draws exclusively from the evidence and information presented in the cases.

Key major constraints and challenges addressed by the environmental sustainability good practices included in this publication are the following:

| Summary of Constraints and Challenges |   |
|---------------------------------------|---|
| 1                                     | Inadequate integration of environmental sustainability into national development plans    |
| 2                                     | Policy incoherence and weak institutional environments                                    |
| 3                                     | Lack of adequate incentives to conserve environmental resources                           |
| 4                                     | Limited access to low-cost, appropriate technologies and innovative solutions             |
| 5                                     | Limited access to infrastructure and services for potable water and sanitation            |
| 6                                     | Unsustainable environmental practices, including over-fishing, deforestation and poaching |
| 7                                     | Capacity gaps   |
| 8                                     | Ineffective implementation practices  |
| 9                                     | Limited access to information and low awareness   |
| 10                                    | Inadequate resources and creative financing strategies                                    |

### ***1. Inadequate integration of environmental sustainability into national development plans***

Progress on MDG targets related to environmental sustainability can directly affect efforts to achieve every other Goal. For example, a lack of adequate sanitation is a major factor keeping some girls from attending school. Deforestation and over-fishing can strip livelihoods from entire communities, sharply increasing the incidence of poverty and hunger. Contaminated water is a primary cause of infant and child mortality and lower overall health outcomes. As a result, it is important to integrate the principles of sustainable development into national policies and programs, including national development plans, and to address the issues in a comprehensive manner<sup>4</sup>.

<sup>4</sup> UN 2009, Thematic Paper on MDG 7: Environmental Sustainability

**Rwanda's** Poverty-Environment Initiative, a joint UNDP-UNEP programme, aims to improve the well-being of poor and vulnerable groups by mainstreaming poverty-environment linkages into national development processes. The global program, which also works in other countries throughout Africa and Asia, works to incorporate environmental sustainability as a central objective into national development strategies, to increase national budget allocations for pro-poor environmental outcomes, and to build the long-term capacity of governments to integrate poverty-environment concerns into development plans and programs. In Rwanda, the program has mainstreamed environment into the country's 2007 Poverty Reduction Strategy Paper and other strategic plans.

Building capacity of the State Agency of Environmental Protection and Forestry to formulate national policies addressing major environmental considerations affecting sustainable human development is the primary objective of **Kyrgyzstan's** Environmental Protection for Sustainable Development support. As a result, the government's new Country Development Strategy considers environmental security as one of the main pillars to ensure sustainable development and covers *inter alia* the improvement of environmental policy, the conservation of biodiversity, and the creation of a greenhouse gas emission analysis and accounting system.

## **2. Policy incoherence and weak institutional environments**

The implementation of environmentally focused development strategies requires bold policy reform. Policies provide the mandate and create the framework for changes to laws and regulations governing the use of environmental resources and for programs designed to conserve biodiversity and to increase access to water and sanitation services.

**Tanzania's** Forest Resources Management approach developed a national land policy laying the foundation for the Land and Village Land Acts, which secured land rights for women to acquire title and registration of land, vigorously promoted women's representation in decision-making bodies covering land issues, addressed issues of customary land rights, and upheld the principle of non-discrimination based on sex.

To help member states establish effective housing policies, including unplanned and illegal informal housing developments, the Country Profiles on Housing and Land Management initiative in some countries in **Europe and the CIS** develops practical country-specific policy guidance and recommendations based on the unique context and needs of individual member states. The Profiles involve the main stakeholders of the national housing and land management sector in the country and are based on a thorough assessment of the housing and urban planning situation. The Country Profiles have often provided the basis for national legislation and reforms in the housing sector and have provided the background and rationale for many programs responding to local needs.

## **3. Lack of adequate incentives to conserve environmental resources**

Economics teaches us that people are driven by incentives. Providing communities and other stakeholders with incentives to protect biodiversity and other environmental resources can be an effective, and often low-cost, mechanism that can accelerate development.

The amendment of laws to transfer ownership of trees to farmers in **Niger** gave

communities incentives to protect forests, to monitor illegal activity, and to pursue legal action against poachers. Consequently, reforestation has occurred simultaneously with rapid population growth in Niger and gains have been highly sustainable. Increased access to forest resources has also improved household income and food security.

**Costa Rica's** Forestry Law 7575 recognizes that environmental services provided by private land are public goods and provides the legal and regulatory basis to contract with landowners for the environmental services supplied by their land. As a result, the law provides financial incentives for private landowners to conserve environmental resources that deliver a public benefit. Four environmental services recognized by the law include: a) mitigation of GHG emissions; b) hydrological services, including the provision of water for human consumption, irrigation and energy production; c) biodiversity conservation; and d) provision of scenic beauty for recreation and eco-tourism. The program has reduced deforestation, particularly in areas where biodiversity is a priority.

#### ***4. Limited access to low-cost appropriate technologies and innovative solutions***

Introducing low-cost, appropriate technologies that can be produced by the local private sector can increase access to adequate sanitation, potable water and energy-efficient products. The potential for self-replication and the ability of market forces to expand the production and sale of technologies contributing to MDG 7 achievement are key factors to consider when choosing solutions to promote.

**China's** Energy Conservation and GHG Emissions Reduction in Township and Village Enterprises (TVEs) – Phase II focused on reducing Greenhouse Gas (GHG) emissions in brick, cement, metal casting and cooking TVE sectors. The TVE project was designed to remove key market, policy, technological, management and financial barriers to induce a market transformation supportive of the development and uptake of key energy efficient technologies and products in these four TVE sectors. The eight pilot-demonstration



**Lufumbu village traditional water source before the community water initiative in Tanzania**

projects led to GHG savings of 193,192 tons CO<sub>2</sub> per year. In addition, 118 formal and informal replication projects were implemented, with CO<sub>2</sub> reductions of more than 1.3 million tons per year.

**Pakistan's** Building and Construction Improvement program introduces energy-efficient (EE) products in a remote northern region of the country to conserve energy and natural resources as well as to reduce poverty through lowering expenditures on fuel wood and healthcare. The program builds the capacity of local craftsmen to manufacture EE products and links entrepreneurs and households with micro-finance providers to fund the production and purchase of the technologies. EE products are introduced through local demonstrations, road shows, radio broadcasts, study tours and other activities. Over a period of 10 years, over 36,000 energy-efficient home improvement products have been installed on a self-financed basis in over 18,000 households in the region. EE products include fuel-efficient stoves, the roof-hatch window, wall insulation and solar cookers. Participating households have seen 50 percent reductions in fuel expenses, smoke-related illnesses, and CO<sub>2</sub> emissions.

In **Zimbabwe**, UNIDO supported the phase out of methyl bromide use in the production of tobacco by helping to replace the ozone-depleting fumigant methyl bromide with a non-chemical alternative known as the 'floating tray system.' The initiative catalytically identified local farmer representatives and trained in total 7,500 tobacco growers.

The Occupied **Palestinian Territory's** Introduction of Small-Scale Activated Sludge Filtration Systems initiative pilots the efficiency of small-scale wastewater treatment technology at the household level by assessing the effectiveness and sustainability of locally developed technologies compared to imported technologies to determine which is more suitable for replication and scaling up. It was found that locally produced technologies cost one-third as much as imported technologies and were better-suited to local conditions. In addition, more jobs were created and there was a greater potential for scaling up using locally developed products.

In **Nepal's** School-Led Total Sanitation support, schools and local communities developed a wide range of latrine designs based on the local environment, affordability and sustainability. Local entrepreneurs invented cost-effective and efficient technologies and toilet products, including child- and gender-friendly latrines and facilities enabling disabled children to wash their hands with soap, which were promoted in the community by the programme.

### ***5. Limited access to infrastructure and services for potable water and sanitation***

In many cases, increasing the proportion of people using an improved drinking water source and sanitation facility requires the provision of infrastructure, including water pipes and boreholes for potable water and latrines and sewage systems for adequate sanitation. Access to services, especially in urban areas, is required to maintain the systems. Large-scale infrastructure installation and service expansion and upgrade can require significant resources, or creative market-based solutions.

**Senegal's** Millennium Programme for Safe Drinking Water and Sanitation Facilities develops infrastructure for safe drinking water and basic sanitation in both rural and urban areas, including the construction of 181,000 new domiciliary water access points, 355,000 improved latrines, and 92,400 new sewer branch points. It seeks to provide a source of safe drinking water for nearly 4 million people nationwide and sanitation



**Lufumbu village water drawing point after the community water initiative in Tanzania**

facilities for over 2 million people. Principally as a result of the programme, the city dwellers' access to water services increased from 74/81 percent (depending on the town) in 1996 to 98 percent overall in 2006.

The Professionalizing the Manual Drilling Sector program, implemented in 14 **African** countries, created a step-by-step methodology to promote a local professional manual drilling sector, which provides a sustainable and cost-effective option for supplying water to rural communities. The programme demonstrated that developing the capacity of the local private sector makes improved access to potable water in rural areas more replicable and sustainable.

**India's** Decentralized, Community-Owned and Managed Drinking Water Supply Systems and Sanitation Facilities supported the construction of in-village water supply systems in more than 4,600 villages in Gujarat through community empowerment and each community's participation in the management of its own resources.

**Pakistan's** Water and Sanitation Extension Programme installed 10,200 water-efficient latrines and 207 safe water supply and filtration services in partnership with local villages, which were trained in the construction and maintenance of the water infrastructure. As a result, access to potable water and sanitation facilities increased dramatically among beneficiary households and the incidence of diarrheal and water-borne diseases have gone down by 60 percent in program villages.

## ***6. Unsustainable environmental practices, including over-fishing, deforestation and poaching***

Addressing unsustainable practices, including overfishing, deforestation and poaching, often requires a mix of approaches, including the enforcement of regulations that restrict such practices and the protection of areas where the unwanted activities take place. One successful approach identified in the good practice cases includes working with communities



### **Informal settlements, Kyrgyzstan**

that are engaged in the unsustainable practices or that are able to more effectively monitor and enforce environmental regulations. In many cases, educating communities about the risks of such activities to their livelihood can be enough to greatly enhance the use of more environmentally friendly approaches.

**Indonesia's** Rehabilitation and Sustainable Development of Fisheries and Aquaculture Affected by the Tsunami in Aceh Province combated unsustainable fishing practices by facilitating an agreement between the Government, fishers and local communities to cease illegal trawling and use more environmentally friendly fishing equipment, in addition to supporting comprehensive fishery legislation through a participatory process. The intervention was successful because it invested in one year of stakeholder training in understanding fisheries management issues and in motivating them to participate in managing their coastal resources.

Likewise, in **Pakistan**, the Juniper Forest Ecosystem has an important role to play in maintaining the watershed of the area, on which local livelihood depends. The forest provides grazing lands for livestock, an attractive location for tourists, and a number of streams that are used for agriculture produce. This support engaged local communities to promote and introduce sustainable practices.

**Burkina Faso's** Communal Program of Improvement of the Basic Urban Services project increased access to safe drinking water and adequate sanitation by using participatory implementation to identify problems, collect data, implement the program, and evaluate the approach, which helped to ensure sustainability.

**Cyprus's** Cooperation for the Conservation of Rare Endemic Plants involved communities in activities to conserve diverse and threatened plants from its inception, which helped to build cooperation, respect and trust among the partners. This participatory approach led to more effective results and promoted greater awareness among the general population about the importance of conserving biodiversity.

## **7. Capacity gaps**

The achievement of long-lasting development results requires developing the knowledge, skills and capacities of communities, authorities and other stakeholders with a role to

play in conserving environmental resources and in facilitating access to essential water and sanitation services. If capacity gaps are not overcome, results will be at risk after the program support ends.

**Malaysia's** Mangrove Ecosystem Conservation and Livelihood Creation builds the capacity of communities and local authorities to protect mangrove forests. By educating communities about the importance and potential of the mangrove ecosystem for their livelihood and facilitating the creation of grassroots eco-tourism cooperatives, the support instilled community members with the motivation and the tools to conserve.

**Uganda's** Improving Functional Access to Safe Water through Strengthening Water Management Groups strengthens the capacity of decentralized community-based water maintenance structures, such as Water Boards and Tap-Stand Committees, to improve the functionality of water systems providing vital services to their communities. Training was in basic financial management skills, the importance of transparency and accountability to users, work plan development, and hygiene promotion.

The Capacity Building and Networking initiative in the **Nile Basin** countries works to build the capacity of water experts in the context of trans-boundary water cooperation, which contributed to ensuring an adequate, safe and clean water supply for the population. The **Arab Countries** Water Utilities Association (ACWUA) serves as a regional center of excellence that provides water supply and wastewater utilities in Arab countries with best practices for improving the delivery of water supply and sanitation services to their customers.

## **8. Ineffective implementation practices**

Reforming institutional processes, facilitating well-functioning and productive partnerships and networks, and establishing effective monitoring and evaluating systems can help to bolster the ability of institutions to deliver valuable services and meaningful results over the long term. There are several ways to make implementation more effective; the specific context, which includes the implementation agency and the traditions and culture of the beneficiary population, often suggests the choice of an approach.

### **• Employ participatory planning and implementation**

**Tanzania's** Forest Resources Management approach facilitates the conservation of biodiversity by granting communities, particularly women, greater rights and responsibilities in managing forests and other land assets, recognizing that communities have greater incentives to protect and restore forest resources that they depend on for their livelihood. As a result, more than 500 villages now directly own and manage forest reserves and there has been a sharp reduction in illegal forest use. Each village drafted its own forest management bylaws, which were approved by the district council. This greatly enhanced the community's felt responsibility in managing its forest resources.

A number of water and sanitation programs, such as **Tanzania's** Village Water Supply and Environment Conservation program, use community management systems and participatory processes to more effectively deliver and maintain essential services.

**Indonesia's** Rehabilitation and Sustainable Development of Fisheries and Aquaculture Affected by the Tsunami in Aceh Province brought farmers together

into self-help groups to coordinate input purchases, pond preparation, stocking and management. Greater collaboration among community stakeholders helped to develop trust and more effective management practices - both of which are essential for long-term sustainability.

• ***Catalyze partnerships with the private sector and civil society***

Facilitating partnerships with the private sector is an effective and sustainable solution in many countries. In **Nigeria**, UNIDO provided technical support to introduce and install ozone-friendly technology at the local commercial refrigeration equipment company. It adopted an ozone-friendly technology and phased out CFCs.

The Professionalizing the Manual Drilling Sector program promotes local professional manual drilling sectors in **14 African countries** to increase access to safe water in rural areas. The initiative builds local capacity to provide manual well drilling services, independent quality assurance, training services for communities to ensure sustainable management of the water points, pump installers, repair professionals, and spare parts dealers. The program demonstrated that developing the capacity of the local private sector makes improved access to potable water in rural areas more replicable and sustainable.

**Senegal's** Millennium Programme for Safe Drinking Water and Sanitation Facilities provided technical assistance to create a public-private partnership, where a governmental holding society manages water and sanitation services by subcontracting work to a private enterprise in which the government owns shares. The program is evaluated annually using a participatory process including the government, users, the private sector, civil society and other stakeholders.

**Niger's** Environmental Rehabilitation initiative showed that support for the expansion of local NGOs and service providers through capacity development and grants has had great success in reaching households.



**View over an informal settlement close to Baku, Azerbaijan**

### • **Institutionalize an effective monitoring and evaluating system**

A well-integrated monitoring and evaluating system is *sine qua non* for ensuring implementation effectiveness. Regular monitoring provides real-time performance feedback and information on emerging risks to program success. It enables managers to readjust the implementation approach to achieve an optimal outcome. Systematic and results-based evaluations not only enable the articulation and sharing of lessons, but they also can provide an incentive for program managers and staff to perform optimally and to maintain focus on maximizing the results of development.

A key element of success of **Morocco's** Transhumance for Biodiversity Conservation in the Southern High Atlas was the development of a monitoring and evaluating system linked to a geographical information system to implement long-term management of natural resources; this has enabled decision makers to view tangible results and outcomes of the intervention, leading to the integration of its approaches in their annual budgets and work plans.

### **9. Limited access to information and low awareness**

In many cases, facilitating access to information about the importance of biodiversity conservation and land and water use – and about the consequences that failure to do so would have for human development – can be a catalytic force in implementing lasting change.

**Russia's** Enhancement of Environmental Awareness Targeting Effective Water and Wetlands Ecosystem Management of the Volga Delta fostered better awareness and valuation of biodiversity resources of the Lower Volga water and wetlands ecosystem by producing informational materials, facilitating training sessions and establishing a working group to focus on conservation of the Lower Volga wetlands. 50,000 people living in the Lower Volga watershed benefited from the information, which helped to change attitudes toward the water and wetlands ecosystems.

In **Benin**, despite the ratification of the Convention on Biological Diversity, sea turtles are victims of daily and diverse threats on all of the beaches of Benin's 125 km coastline. Sea turtles are endangered and risk extinction. The Protection of Atlantic Sea Turtles raised awareness and conducted education campaigns, sensitizing leaders to the economic and ecological benefits of protecting sea turtles and their habitats. This significantly reduced sea turtle killings.

Several examples of good practice cases focus on facilitating access to information for experts in fields related to sustainable development – experts who can then work with policymakers and other stakeholders to introduce needed reforms and actions. **Cyprus's** Biodiversity in the Buffer Zone helps to alleviate the scarcity of information about biodiversity in the zone, thereby bolstering conservation efforts. Various materials were produced to educate the public about environmental and conservation issues related to biodiversity in this restricted area. Providing the community with information about illegal activities such as bird trapping, poaching, rubbish tipping and unauthorized logging resulted in a crackdown on illegal activities at one site and greater sharing of information about challenges within a broader group of environmental experts.

The Sustainable Integrated Management and Development of Arid and Semi-Arid Regions of Southern Africa (SIMDAS) program is implemented in **Botswana**,

**Tanzania, Zambia and Zimbabwe**, and works toward long-term sustainable ecosystem management by enhancing the regional networking of regional professionals to accomplish integrated water resource management objectives. Three studies on land use and land cover in the southern Africa headstreams were completed to contribute to the management of the region's water resources.

By informing scientists about the augmentation of groundwater resources through artificial recharge, **Vietnam's** Artificial Aquifer Recharge initiative works to reforest the Hong Phong District and to demonstrate the potential development of the area through the application of techniques that provide water for human and agricultural use.

Some good practice cases established permanent web-based networks to share information on an on-going basis. The **Philippines'** Hydrology for Environment, Life and Policy (HELP) network is a platform where stakeholders involved in watershed management can debate possible solutions and establish collaboration. It raises awareness about policy changes needed to protect aquatic ecosystems, including integrated water resources management, and supports the collection and analysis of data needed to inform policy makers about required reforms.

### **10. Inadequate resources and creative financing strategies**

Most development solutions rely on employing substantial financial resources to bring about change at the national level. Whether financed by governments in large tranches or by households in small, individual sums, investments in infrastructure, technologies, services, and even the collection of information require resources.

**Bangladesh's** Urban Partnerships for Poverty Reduction (UPPR) aims to improve the living conditions for 3 million slum dwellers residing in 30 urban areas throughout Bangladesh. It achieves this, in part, by facilitating the community's access to



**Elephants roam free in Namibia's Protected Area on the Chobe river**

sustainable sources of finance for housing and livelihood improvements. It also provides technical assistance for the creation of community savings and credit groups to increase access to essential financial services.

**Namibia's** Strengthening the Protected Area Network establishes sustainable financing mechanisms for the country's Protected Area (PA) system to ensure management effectiveness. By calculating the economic benefits of the PA system, it was able to convince authorities to increase the annual budget for the parks and to earmark park entrance revenues for reinvestment in park and wildlife management, providing a much more sustainable source of funds to protect environmental resources.

## OTHER LESSONS LEARNED FOR IMPROVED DEVELOPMENT RESULTS

### *First Step: Build awareness of the issues and mobilize support for action*

Good practice case studies for MDG 7 overwhelmingly stress the importance of spending time at the start of an initiative, or even prior to commencement if possible, educating stakeholders about the risks of inaction (continued deforestation, health risks associated with open defecation, etc.) and mobilizing support for strategies that promote more sustainable development. This investment can result in greater support for the initiative, healthier practices and more sustainable outcomes with changes owned and continued by communities and local authorities.

One lesson learned by **Pakistan's** Mainstreaming Biodiversity Conservation into Production Systems in the Juniper Forest Ecosystem program was the importance of involving local communities in biodiversity conservation and natural resource management before undertaking activities on the ground. This not only helps to facilitate the support of communities, but also enables the program to tap into indigenous knowledge to achieve its goals and objectives. One key element of success in Indonesia's Rehabilitation and Sustainable Development of Fisheries and Aquaculture Affected by the Tsunami in Aceh Province was the dedication of an initial year of work with local communities, government staff and fishers to help them understand fisheries management issues and to motivate them to cooperate in managing their coastal resources. The Occupied **Palestinian Territory's** Small Scale Activated Sludge Filtration Systems of Wastewater Treatment program also emphasized the importance of starting a public relations campaign early, preferably before commencement of the intervention.

There are many innovative ways to effectively build stakeholders' awareness. **India's** Decentralized, Community-Owned and Managed Drinking Water Supply Systems and Sanitation Facilities used street plays, exposure visits, information-sharing sessions at village meetings and other methods to raise awareness of the importance of safe, adequate and regular water supply. This resulted in mobilizing community support for the development of community-managed in-village water supply systems in over 18,000 villages in Gujarat. **Nepal's** School-Led Total Sanitation program acknowledges that changing hygiene and sanitation behaviour is a complex undertaking that will require years of regular program activities to ensure that behavior changes are sustainable, yet the case also notes that newly acquired knowledge and skills can be transferred from generation to generation.

The importance of building stakeholders' knowledge and awareness can be summed up by one lesson learned by the **Philippines'** Hydrology for Environment, Life and Policy

(HELP) Network: if results are to be effective and permanent, individual stakeholders need to become the drivers of change within their own organizations and communities.

### ***National and local commitment and ownership***

The importance of national, as well as local, ownership for any initiative contributing to MDG 7 cannot be overemphasized. External support that does not enjoy the full commitment of government, communities and other key stakeholders face an acute risk of losing support once that external support is withdrawn. MDG good practice cases stress this point, and many incorporate specific activities, including employing participatory planning and implementation techniques, raising awareness and mobilizing support prior to the implementation, to help build ownership in the initiative right from the start.

**Malaysia's** Mangrove Ecosystem Conservation and Livelihood Creation builds the capacity of communities and local authorities to protect mangrove forests by developing an understanding among stakeholders that the fate of their livelihoods is inextricably tied to the conservation of mangrove forests. Commitments from the state government, coupled with strong support from the local communities, is key to the success and that increased awareness of the need to sustainably manage the mangrove ecosystem will enable the state government to better manage these natural resources through greater participation from the local communities.

The **UNECE's** Country Profiles on Housing and Land Management in the Europe and CIS region learned that solutions involving informal settlements need to respond to local needs, and therefore necessitate local ownership of any actions proposed. It stresses that this can be achieved if those proposed solutions respect local customs, social structures and traditional cultures.

### ***Prioritizing gender equality and the needs of women***

Many MDG good practice cases recognize that prioritizing gender equality and the unique needs of women can have exponential dividends in achieving development outcomes. Often, women are responsible for drawing water and bear most of the burden in bringing water from distant access points; they also face the greatest health risks posed by inadequate sanitation. Women can also be powerful drivers of lasting change in their communities.

The strategy of **Burkina Faso's** Communal Program of Improvement of Basic Urban Services takes gender equity into account in the management of urban water and sanitation services, and targets women and youth as the primary beneficiaries. Women were involved in identifying problems, collecting data, implementing the program, evaluating the approach and ensuring sustainability. The program resulted in easier access to safe drinking water and adequate sanitation, thus decreasing the incidence of malnutrition and water-borne diseases. The incomes of women who started businesses relying on a steady supply of water also increased, providing greater livelihood stability for their families.

**Pakistan's** Water and Sanitation Extension Program places emphasis on the participation of women at all stages of design and implementation, from land surveying and decisions on tap-stand placement to system training and testing. As a result, the water collection time for women and children in program villages has decreased

from an average of 3 to 4 hours per day or per week to almost zero for the entire year. The incidence of diarrheal and water borne diseases has decreased by 60 percent in participating villages.

### ***Building on local traditions and practices***

Successful conservation approaches should build on traditional land use patterns and cultural resources, rather than seek to replace them, in order to maximize effectiveness and sustainability. **Tanzania's** Forest Resources Management approach built on *ngitiri*, a traditional practice of reserving and self-policing tracts of pastureland for later use, and extended this to residual pockets of woodlands. An independent evaluation found that this practice was highly sustainable and has great potential for replication.

**Pakistan's** Mainstreaming Biodiversity Conservation into Production Systems in the Juniper Forest Ecosystems promoted traditional systems of rotational grazing to ensure that grazing lands are not depleted beyond their carrying capacity. This helped to ensure sustainable livelihoods for communities while protecting biodiversity in the forest.

**Morocco's** Transhumance for Biodiversity Conservation in the Southern High Atlas addresses the causes of biodiversity loss by reviving bio-friendly transhumance and traditional common property management regimes and land use planning. Ethnic territorial boundaries were often incompatible with governmental district boundaries, creating a conflict between customary land use and administrative allocation. This helped to revive traditional pastoral practices and to facilitate the conservation of key biodiversity sites on the basis of traditional natural resource management practices fully adapted to the local context. The program demonstrated that customary boundaries often correspond to ecological entities, an insight that produced more coherent and feasible management plans.





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# MDG-7: Ensure Environmental Sustainability

MDG target 7.A: Integrate principles of sustainable development into country programs & policies; reverse environmental resource loss

## CONSTRAINT:

### Lack of Environment-Based Planning at the National Level

Development plans lack environmental sustainability as a mainstreamed theme

**Rwanda's Poverty-Environment Initiative** is a joint UNDP-UNEP programme that aims to contribute to poverty reduction and improved well-being of the poor and vulnerable through mainstreaming poverty-environment linkages into national development processes.

## COMPONENTS:

- Inclusion of environmental sustainability as a central objective in national development strategies, such as poverty reduction strategy papers (PRSPs), MDG implementation plans or their equivalent
- Increase national budget allocations in support of pro-poor environmental outcomes
- Build the long-term capacity of the government to integrate poverty-environment concerns into the design and implementation of development plans

## RESULTS:

- The environment has been effectively mainstreamed into the 2007 Poverty Reduction Strategy Paper (EDPRS). The evidence and advocacy provided by PEI played a crucial role in this accomplishment.
- Linkages between the environment and poverty are reflected in Sector Strategic Plans and priorities.
- There is greater public awareness about poverty-environment linkages due to productions for television, radio and print media as well as training for journalists.
- Government personnel and local government officials have better skills for using tools for environmental mainstreaming (i.e., indicator development).

## KEY ELEMENTS OF SUCCESS:

- Increased awareness and more effective participation of stakeholders in environmental policy and planning processes
- Increased stakeholder participation and training of local civil society groups
- Capacity of national and district level government officials was built in understanding and analyzing linkages between poverty and environment and integrating environment into development planning.
- Capacity of the Ministry of Finance was built to improve environmental mainstreaming in budgets across sectors, to develop financial instruments, to conduct mainstreaming of environment in public expenditure reviews, and to conduct environmental fiscal reform.

## LESSONS LEARNED:

- Involvement of key stakeholders from the very start of programme development ensures broad ownership and improves the efficiency and effectiveness of its implementation.
- It is crucial to clearly demonstrate the links between poverty and environment at the national level in a language familiar to planners and policymakers. Assessments such as economic analysis of environmental degradation and integrated ecosystem assessments are essential evidence-based advocacy tools for convincing policy makers about the importance and benefits of sustainable natural resource management.
- It is necessary to provide sustained support over a longer period. Continuous engagement ensures better mainstreaming results.
- The production of tools such as mainstreaming guidelines, sector specific environmental checklists and poverty-environment indicators provides concrete guidance to the sectors and relevant ministries and enhances the mainstreaming process.



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## BACKGROUND INFORMATION:

Rwanda's "Vision 2020" is the country's overarching national planning and policy framework into which other strategies, plans, programmes and policies should fit. Developed in 1999, the Vision 2020 document recognizes that environmental problems cannot be tackled in isolation. The document states that Rwanda will endeavor to "mainstream the environmental aspect in all policies and programmes of education, sensitization and development and in all the processes of decision making."

Rwanda's first PRSP was finalized in November 2001 and endorsed by the World Bank and IMF in July 2002. In the development of PRSP 1, environment was considered a cross-cutting issue but not an independent sector. However, it is widely agreed that Rwanda's first PRSP did not adequately integrate environmental issues and, consequently, the planning processes did not adequately consider sustainable natural resource management.

The first phase was implemented from 2005 to 2007 and the second phase will continue until December 2010. The budget for both phases is just over \$3 million.

## IMPLEMENTATION PARTNERS:

Government of Rwanda: Ministry of Natural Resources, Rwanda Environment Management Authority; Ministry of Finance and Economic Planning; Ministry of Local Government and Good Governance; Ministry of Agriculture; Ministry of Infrastructure, Energy, Transport and Communications; Ministry of Commerce, Industry, Investment Promotion Tourism and Cooperatives

UNDP, UNEP

Government of Belgium, Government of Norway, Government of Ireland



## MDG-7: Ensure Environmental Sustainability

MDG target 7.A: Integrate principles of sustainable development into country programs & policies; reverse environmental resource loss

### CONSTRAINT:

#### Capacity Gaps for Formulating Environmental Policies

Lack of capacity and background knowledge among State Environment and Forestry staff to effectively formulate national environmental policies

**Kyrgyzstan's Environment Protection for Sustainable Development** aims to build the capacity of the State Agency on Environmental Protection and Forestry staff to formulate national policies addressing major environmental considerations affecting sustainable human development.

### COMPONENTS:

- Build the capacity of State Agency staff in sustainable development issues
- Facilitate experts' support for the creation and operation of the Working Group in an effort to integrate environmental concerns into the Country Development Strategy
- Complete the survey "Kyrgyzstan: Environment and Natural Resources for Sustainable Development"

### RESULTS:

- As a result of this support, the new Country Development Strategy 2009-2011 considers environment security as one of the pillars to ensure sustainable human development in Kyrgyzstan.
- The Government Strategy calls for the improvement of environmental policy; the statutory and legal framework for applying environmental requirements in the operations of economic entities; reform of solid waste management, including medical waste products; the creation of a greenhouse gas emission analysis and accounting system; biodiversity conservation; harmonization of natural protection legislation with international legislation; and the performance of obligations under international ecological conventions. Through this document, the Government has clearly expressed its full commitment to advancing the country toward environmental stabilization and human security.

### KEY ELEMENTS OF SUCCESS:

- Intensive capacity-building in and sensitization of decision makers to environmental security and sustainable human development are essential parts of a national vision for addressing the rational use of natural resources as a means to reducing poverty and fostering economic development.

### LESSONS LEARNED:

- It is important to engage the widest range of state partners in dialogue about environmental considerations.

### BACKGROUND INFORMATION:

Kyrgyz strategic policy was paying scant attention to environmental considerations. As a result of the Government's failure to incorporate environmental concerns into its strategic agenda, the irrational use of natural resources and the progressive destruction of eco-systems were becoming increasingly critical problems. Indeed, environmental contamination in Kyrgyzstan had become so severe that there was the potential that biomass production would even decrease. The worsening human habitat constituted a threat to healthy and safe human, social and economic development. A considerable part of the soil cover was subject to destructive processes. Of 10.6 million hectares of agricultural land in Kyrgyzstan, more than 88 percent was recognized as degraded and subject to desertification processes. The acreage of secondary salivation of soil increased to 75 percent of all arable land in the Republic and half was also subject to water and wind erosion. In addition, about half of grazing land was rated as degraded pasture. The Red Book of the Kyrgyz Republic showed increased numbers of critically endangered species of flora and fauna. All of these factors were damaging the growth and development of crops and

biodiversity. The project, which ran for 12 months in 2007-2008, had a budget of \$150,000.

### **IMPLEMENTATION PARTNERS:**

Ministry of Economical Development and Trade  
State Agency on Environmental Protection and Forestry  
Ministry of Emergency  
UNDP

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# MDG-7: Ensure Environmental Sustainability

MDG target 7.A: Integrate principles of sustainable development into country programs & policies; reverse environmental resource loss

## CONSTRAINT:

### Incentive Incompatibility in Forest Management

Centralized forest management resulting in illegal exploitation and deforestation

**Tanzania's Forest Resources Management** approach more effectively conserves biodiversity by granting communities, particularly women, greater rights and responsibilities in managing forests and other land assets. Communities have greater incentives to protect and restore forest resources on which their livelihoods depend.

## COMPONENTS:

- A national land policy was developed and eventually led to the Land Act and Village Land Act in 1999.
- The technical competence of the institutions concerned in land demarcation and survey, as well as in land registration and titling, was improved through training and modern equipment, especially GPS.
- Village demarcation, survey and titling were done with community participation.

## RESULTS:

- The Land Act and Village Land Act secured the right of women to acquire title and registration of land in the following ways: by vigorously promoting women's representation in decision-making bodies addressing land issues; by addressing issues of customary land rights and upholding the principle of non-discrimination based on sex; and by including women's land rights in the forthcoming National Land Policy.
- More than 500 villages now directly own and manage forest reserves.
- The Duru-Haitemba forest in the Arusha region, a degraded 9,000 ha dry woodland, was to be gazetted as a forest reserve, which provoked much local resistance. Negotiations led to the return of the proposed reserve to the eight communities within whose jurisdictions it lay. Village forest communities were appointed to manage the forest for the communities.
- Illegal timber harvesters were evicted, charcoal burning ceased and the felling of live trees came to a halt.
- There was a sharp reduction in illegal forest use and the condition of forest reserves improved.
- The promotion of private nurseries enabled an increased production of about 9 million tree seedlings, sufficient to cover 3,500 ha of land with a firewood yield of about 400 m<sup>3</sup>/ha in 3 rotations of 7 years each.
- About 10,500 improved wood stoves were built, with firewood savings of 50 percent; based on average family usage of 5 kg per day, this results in an annual savings of 9,600 tonnes.
- The internal economic return rate of increased tree seedling production and additional wood stoves was estimated at 12 percent.

## KEY ELEMENTS OF SUCCESS:

- Some activities built on ngitiri, a traditional practice of reserving and self-policing tracts of pastureland for later use, and extended this to residual pockets of woodlands.
- Some activities used joint forest management, where the benefits and responsibilities of management of government forest reserves were shared with communities.
- Women were taught to construct improved and more fuel-efficient stoves made from clay.
- Grazing was restricted to specified zones and months.
- Each village drafted its own forest management bylaws, which were subsequently approved by the district council.

## LESSONS LEARNED:

- An independent evaluation of the ngitiri concept found that it is sound and has great potential for replication elsewhere.

- A fuller transfer of decision-making responsibilities to the communities would have enhanced impact.

## BACKGROUND INFORMATION:

Forests in Tanzania were historically managed by the Forest and Beekeeping Division of the Ministry of Natural Resources and Tourism. This was a centralized management approach with state control and no involvement of local communities. In it, available managerial resources were too thinly spread to resist pressures on the forests from illegal exploitation driven by denser populations of people. Thus, forests have been steadily reduced and degraded by settlement and farming, commercial charcoal and fuel wood production, overgrazing, uncontrolled fires, shifting cultivation and illegal logging.

The result was that forest cover in Tanzania was more than 50 percent in the mid 1960s, 45 percent in the late 1970s and about 38 percent in the late 1990s. Local deforestation rates were often far higher than the national figures suggest – between 1991 and 2003, for example, there was an annual rate of forest loss of 4 percent in the area surrounding Gombe National Park in the Kigoma region of western Tanzania.

In 1985, international concern over the rate of tropical deforestation led to the formation of the Tropical Forestry Action Programme (TFAP). This led to a project in Tanzania in 1992-1999 that aimed to strengthen national institutions responsible for forests and lands, to improve their policies, and to strengthen local forestry services in the Mwanza and Tabora regions of the north-west and north-centre of the country. Forest cover was mapped, policy studies were undertaken, and the technical competence of the forestry department was improved, particularly with respect to the monitoring of royalty collection. The first three community-owned and community-managed forest reserves were established in September 1994.

## IMPLEMENTATION PARTNERS:

Government of Tanzania



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# MDG-7: Ensure Environmental Sustainability

MDG target 7.A: Integrate principles of sustainable development into country programs & policies; reverse environmental resource loss

## CONSTRAINT:

### Lack of incentives to conserve environmental resources

Lack of financial incentives to conserve environmental resources that provide a public benefit on privately owned land

**Costa Rica's Forestry Law 7575** recognizes that environmental services provided by private land are public goods and provides the legal and regulatory basis to contract with landowners for the environmental services provided by their land. The law also establishes a financing mechanism for this purpose.

## COMPONENTS:

- Explicitly recognizes four environmental services provided by forest ecosystems: a) mitigation of GHG emissions; b) hydrological services, including the provision of water for human consumption, irrigation and energy production; c) biodiversity conservation; and d) provision of scenic beauty for recreation and ecotourism
- Delegates responsibilities and duties inter alia to licensed foresters, the Ministry of Environment and Energy, the National Forestry Financing Fund, the National System of Conservation Areas and the Costa Rican Office for Joint Implementation
- Provides the legal and regulatory basis to contract with landowners for environmental services provided by their lands, and establishes a financing mechanism for this purpose
- Empowers the National Forestry Financing Fund to issue such contracts for the environmental services provided by privately-owned forest ecosystems

## RESULTS:

- The forest area enrolled in the PSA programme at the end of 2005 represented about 10 percent of the country's forest area and studies have found that PSA recipients have higher forest cover than non-recipients.
- It is estimated that the PSA program prevented the loss of 720 sq km of forests in biodiversity priority areas in 1999-2005.
- The 210 sq km of forest plantation contracted in 1998-20005 stored about a million tonnes of carbon, and the whole PSA programme is estimated to have avoided the emission of 11 million tonnes of carbon from 1999-2005.
- In 2005, about 65 percent of PSA conservation contracts were in biodiversity priority areas.

## KEY ELEMENTS OF SUCCESS:

- Regulations within Forestry Law No. 7575 establish the conditions for and levels of environmental service payments (PSAs) through the National Forestry Financing Fund to small and medium-sized landowners.

## LESSONS LEARNED:

- Environmental service payment programmes are very popular with landowners and can provide an effective incentive to conserve biodiversity and forest resources. In Costa Rica, requests to participate in the programme far surpassed available financing.
- The rising number of contracts with water users indicates that many share the common perception of the benefits of forests. Most of these contracts are in catchments that provide satisfactory levels of water services and where forest cover is still substantially intact.

## BACKGROUND INFORMATION:

More than half of Costa Rica was covered by forest in 1950. Forest cover declined rapidly over the following decades, falling to 24 percent by 1985. Agriculture, particularly pasture, replaced the forest. Conversion was driven by rapid expansion of the road system, cheap credit for cattle, and land titling laws that encouraged deforestation.



Costa Rica undertook one of the first national efforts to value ecosystem services. In the 1970s, concerned about rapid deforestation, the government began to offer incentives for timber plantations, primarily in the form of tax rebates. The system comprised a number of forest accreditations, the most significant being the Forest Protection Certificate (Certificado para la Protección de Bosque, CPB) in 1995, which supported forest conservation rather than timber production. In 1997, the Payments for Environmental Services, or Pago por Servicios Ambientales (PSA), built on this base with two key changes. Forest Law No. 7575 changed the rationale for payments from support for the timber industry to the provision of environmental services, and it changed the source of financing from the government budget to an earmarked tax and payments from beneficiaries.

With the passage of Forestry Law No. 7575, the forestry sector has established a modern legal framework which:

- Recognizes environmental services provided by forest ecosystems
- Defines the role of the State in protecting forests as well as in promoting and facilitating private sector activities
- Decentralizes duties and responsibilities to local actors
- Establishes that forests may be harvested only if there exists a forestry management plan that complies with the criteria for sustainable forestry as approved by the State.

### **IMPLEMENTATION PARTNERS:**

Government of Costa Rica



# MDG-7: Ensure Environmental Sustainability

MDG target 7.A: Integrate principles of sustainable development into country programs & policies; reverse environmental resource loss

## CONSTRAINT:

### Energy Efficiency Barriers

Market, policy, technological, management and financial barriers hamper development and uptake of key energy efficient technologies and products in Township and Village Enterprises (TVEs)

**Energy Conservation and GHG Emissions Reduction in Chinese TVEs** – Phase II focused on reducing Greenhouse Gas (GHG) emissions in China’s brick, cement, metal casting and coking TVE sectors. The TVE project was designed to remove key market, policy, technological, management and financial barriers to induce a market transformation supportive of the development and uptake of key energy efficient technologies and products in this four TVE sectors.

## COMPONENTS:

- Create institutional mechanisms for barrier removal at the national, county and enterprise levels
- Establish incentives and monitoring systems to strengthen existing regulatory programs at the county level
- Build technical capacity for energy efficiency and product quality improvement in TVEs
- Create special access to commercial financing for TVEs in industries to undertake energy conservation and GHG emission reduction activities
- Commercialize the financing of TVE energy conservation projects
- Expand the application of best practices for local regulatory reform to the national level

## RESULTS:

- Pilot projects were undertaken in eight enterprises in four industry sectors.
- Feasibility studies and detailed designs were prepared to ensure the duplication of these pilot projects in at least 100 enterprises in 20 out of a total of 2500 counties in China.
- The eight pilot-demonstration projects implemented led to GHG savings of 193,192 tons CO<sub>2</sub> per year compared with 85,000 tons per year CO<sub>2</sub> savings anticipated in the support design. Around \$49 million of co-funding was invested in these pilots. This includes \$10 million from commercial sources, leveraged from an \$800,000 contribution from the Global Environment Facility (GEF).
- 118 formal and informal replication projects were implemented, with CO<sub>2</sub> reductions of more than 1.3 million tons per year. Funding was provided by GEF and the TVEs, as well as through a range of grants, policies and other supportive initiatives from various levels of the Chinese government. Overall an amount of about 150 million US\$ of co-funding was leveraged during the project.

## KEY ELEMENTS OF SUCCESS:

- Numerous adjustments to evolving project circumstances and early implementation results have been critical to the success.
- The Ministry of Agriculture’s (MOA) strong support has also clearly been a critical factor.
- The use of national and local Policy Implementation Committees was a particularly relevant support design element.
- The use of formal co-operation Voluntary Agreements between the TVE projects, local government agencies, relevant industry associations, and pilot as well as formal replication sites proved to be very effective.
- The considerable number of independent energy efficiency self-replications arose from the extensive technical training provided by the project, site visits and training provided by the pilot TVEs (including on a for-profit basis), project publicity efforts, and from efforts to locally disseminate the technologies demonstrated by the project.

## LESSONS LEARNED:

- Need for improved focus on assessing the project’s impact with regard to its self-replication



- Simple, fair and transparent electricity grid access is a key success factor in the uptake and rapid spread of energy efficient technologies
- Need for clear understanding of the socio-economic development of the host country
- Need for improved understanding of common barrier removal instruments
- Replications beyond host country also need to be tracked
- Actual as well as calculated energy savings and related greenhouse gas emissions need to be tracked

### **BACKGROUND INFORMATION:**

From the 1950's onwards TVEs were established in China as rural, collective entities at the township and village level to provide jobs for the huge amounts of surplus rural labor as well as to provide essential low cost local products. TVEs have now been largely privatized to their former managers, and still primarily sell their products into local markets. TVEs are an important source of local tax revenues, and generally retain strong links to local governments and officials for their land tenure and to manage their exposure to the implementation of the numerous guidelines emanating from central, provincial and district government levels.

There are around 23 million TVEs in China, accounting for around 30 percent of GDP and providing around 143 million primarily unskilled rural jobs. TVEs provide more than half of the total output from the building materials (cement and brick), coking and metal casting sectors. These four TVE sectors account for one-sixth of China's CO<sub>2</sub> emissions. Key drivers in updating TVEs in a step-by-step process from their very backwards 1950's technology, investment and management levels are to improve their competitiveness and to reduce their high pollution levels.

In 1994 the Ministry of Agriculture (MOA) - in cooperation with UNDP and UNIDO – developed the "Energy Conservation and GHG Emissions Reduction in Chinese TVEs" project. In early 1995, GEF approved this project and granted \$1 million in funding for its Phase I (implemented from 1998-1999). The positive Phase I results formed the basis of Phase II, approved by GEF in November 2000. The total budget of Phase II was approximately \$158 million, \$8 million of which were GEF funds whereas the remaining amount were cash and in-kind contributions from the Chinese government, financing institution and beneficiary enterprises. The project was finalized in 2007 and has been extremely successful in reducing GHG emission.

### **IMPLEMENTATION PARTNERS:**

United Nations Development Programme  
United Nations Industrial Development Organization  
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ENSURE  
ENVIRONMENTAL  
SUSTAINABILITY

# MDG-7: Ensure Environmental Sustainability

MDG target 7.A: Integrate principles of sustainable development into country programs & policies; reverse environmental resource loss

## CONSTRAINT:

### Lack of Information on and Availability of Energy-Efficient Products

Lack of information on the benefits of energy-efficient technologies, lack of access to low-cost and locally produced EE technologies and lack of finance and technological know-how to locally produce and purchase EE products

**Pakistan's Building and Construction Improvement** programme aims to introduce energy-efficient (EE) products in a remote region of Northern Pakistan to conserve energy and natural resources and to reduce poverty by lowering on the costs of fuel wood and healthcare and stimulating a new market for EE products.

## COMPONENTS:

- Introduce and promote energy-efficient (EE) products through local demonstrations, road shows, radio broadcasts, study tours and other activities.
- Build the capacity of craftsmen to locally manufacture EE products and train entrepreneurs to sell the products on the local market.
- Link entrepreneurs and households with micro-finance providers to fund production and finance the purchase of EE products.
- Such EE products include fuel-efficient stoves with water-warming capabilities, roof-hatch windows, floor and wall insulation and solar cookers.

## RESULTS:

- In 10 years, over 36,000 EE and home-improvement products have been installed on a self-financed basis in over 18,000 households, directly benefiting 150,000 people in the GBC region.
- The fuel-efficient stove increases household savings while reducing GHG emissions and conserving natural resources. It costs \$50 to install and saves \$440 and 3 tonnes of fuel wood/ year.
- The roof-hatch window costs \$44 to install and can save \$375 and 2.7 tonnes of fuel wood/year. It provides lighting, conserves indoor heat and prevents dust and air pollution from entering the house.
- Wall insulation made from locally constructed willow mats cost \$0.8 per sq. ft. and saves a household \$500 and about 4 tonnes of fuel wood per year.
- Solar cookers cost up to \$65 and can save an average household \$330 per year by saving on fuel wood.
- Over 1,000 craftsmen and product manufacturers have been trained and over 20 entrepreneurs have been established in the region to manufacture and supply EE products, along with a sale and delivery network of over 200 sales resources persons, 90 percent of whom are women.
- The overall impact for 18,000 households in the GBC region has been: 50 percent reduction in fuel wood expense; 25 percent increase in craftsmen income through training and skills enhancement; 100 percent increase of (some) EE entrepreneurs' income; 50 percent increase in sales resource person income; 50 percent reduction in incidences of ARI, pneumonia and other health-related disease in women and children; 25 percent savings in health-related costs; 50 percent reduction in household CO<sub>2</sub> emissions; a savings of an estimated 400 M. kg of wood (450,000 trees).
- The socio-economic benefits and potential CO<sub>2</sub> emissions reduction of the project's EE products have been recognized by the ALCAN Prize for Sustainability 2005, the World Habitat Award 2006, the Energy Globe National Award 2008, and the Partnership for Clean Indoor Air Global Leadership Award 2009, among others.
- The program has facilitated a private sector initiative to finance and facilitate the manufacture, supply and installation of approximately 90,000 EE products in 30,000 households within 3 years. The initiative will earn 800,000 CER per year over 10 years to significantly expand the products' demand, supply and sales chains and to attain economies-of-scale in addressing the issue of energy-efficiency in the region.

## KEY ELEMENTS OF SUCCESS:

- Innovative methods and activities related to Awareness and Demand Generation include village-level road shows, installation of demonstration products in local houses and community tours to visit installed products and to learn about the benefits and functionality. Activities related to manufacturing, sales and supply include the set-up and support of mechanisms for supply and delivery, financial management training and capacity building, and the establishment of women sales agents in villages.
- The program promoted the use of EE on a no-subsidy basis through a market-based mechanism and provided technical and financial capacity building of a nascent private sector to meet the new demand for EE products.

## LESSONS LEARNED:

- The results could be achieved only through a consistent, coherent, long-term and well-planned and phased approach, starting from basic problem understanding to applicable solution development, in consultation with and for the local communities and households.
- A systems-based approach of problem life-cycle analysis, while heeding the interest and utility of stakeholders, was the key to achieving development impact.
- Strategic partnerships with key stakeholders such as Government officials, international NGOs, academic and research agencies, community organizations and the private sector throughout each program phase helped to mainstream energy efficiency in rural households to sustain socio-environmental development and improve quality of life.
- Energy services value-chain management can be successful in the poorest and most remote areas of the world.

## BACKGROUND INFORMATION:

The Gilgit-Baltistan and Chitral (GBC) region of Northern Pakistan is among the most remote and poorest areas of the high mountain region of Pakistan. GBC is difficult to reach, disaster-prone, and has a high degree of environmental degradation. The region's 1.5 million inhabitants are poor, with an average household income of \$0.50 per capita per day. Eighty-five percent of all households use biomass as their primary fuel, burning three to eight tonnes of fuel wood per year, emitting 7-12 tonnes of CO<sub>2</sub>. Forty-five percent of all households purchase fuel wood, spending approximately PKR 3,000-4,000 (\$50-65) per month during the winter season. The rest collect fuel wood daily.

Poor housing and environmental conditions, coupled with insufficient skills and appropriate technology to improve thermal efficiency of residences, worsen economic, health and sanitation problems. An average household spends 4 percent of its annual cash income (PKR 1,920/\$32) on healthcare, and 9 percent of its annual cash income (PKR 4,500 /\$75) on excess energy due to poor insulation and inefficient heating and cooking devices. Household energy requirements are the third largest household expense after food and clothing. With only 4.5 percent of natural forest cover and a fuel wood requirement of about 1 million m<sup>3</sup> per year for heating and cooking alone, the region could lose its entire forest cover within one decade.

Launched in 1997, the Building and Construction Improvement Program (BACIP) has developed, tested and refined more than 50 types of EE products to improve living conditions. These products are environmentally friendly, cost-effective, culturally sensitive and easily replicable.

## IMPLEMENTATION PARTNERS:

Government of Pakistan, Ministry of Environment; UNDP/GEF; CIDA; USAID; World Bank; EC; ADC (Austrian); Government of Finland; US EPA; Climate Care; First Microfinance Bank; Aga Khan Planning and Building Service Pakistan

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ENSURE  
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# MDG-7: Ensure Environmental Sustainability

MDG target 7.A: Integrate principles of sustainable development into country programs & policies; reverse environmental resource loss

## CONSTRAINT:

### Methyl Bromide Use in the Production of Tobacco Seedlings

An ozone-depleting substance, methyl bromide, is used to produce tobacco seedlings

**Zimbabwe's Total Phase-Out of Methyl Bromide Use in the Production of Tobacco Seedlings** initiative aims to replace the ozone-depleting fumigant methyl bromide with a non-chemical alternative known as the "floating tray system."

## COMPONENTS:

- Train 7,500 tobacco growers on the floating tray system to produce seedlings.
- Phase out 120 ODP (ozone depleting potential) tonnes (equivalent to around 200 metric tonnes) of methyl bromide used in the fumigation of tobacco seedbeds by December 2009.

## RESULTS:

- A total of 280 trainers were identified and trained in the floating tray system – 110 farmer representatives from 15 council districts, 120 AGRITEX (Agricultural Research, Training and Extension) officers and 50 technical staff of tobacco contracting companies.
- The handbook on "methyl bromide phase out," published by the Tobacco Research Board, was disseminated after each training session, reaching over 8,000 tobacco growers.
- All 710,010 plastic trays, covering 401,472m<sup>2</sup>, were delivered to the Tobacco Research Board premises on time (March 2009). Growers had adequate time to collect their trays and other material after the training sessions and to prepare float beds for the 2009-2010 growing season.
- By June 2009, a total of 6,880 farmers were trained in the use of the floating tray system, corresponding to a total of 679,822 trays covering 180,737m<sup>2</sup> of plastic.
- The quality of the yielded products is still to be conclusively assessed, but experience so far indicates that tobacco seedlings produced by the floating tray system are of a very high quality and are more apt to survive replanting.

## KEY ELEMENTS OF SUCCESS:

- Due to the absence of alternative chemicals, this method has proven to be environmentally sustainable. It is inexpensive and easy to practice. Farmers do not revert to the use of methyl bromide and are highly satisfied using this process.
- Growers and project stakeholders have shown great enthusiasm in driving this support forward, amidst economic and political unrest in Zimbabwe at the beginning of the project.
- The Tobacco Research Board predicts that the training target will be exceeded.

## LESSONS LEARNED:

- To ensure the fluidity of the operation, it was important to identify qualified implementation partners at the beginning of the planning, as well as to select the most qualified representatives for the training team.
- The inclusion of staff from contracting companies in the training teams was important, as 70 percent of the national tobacco crop in Zimbabwe is grown under the contract system.

## BACKGROUND INFORMATION:

The project was approved in 2007 and seeks to replace the use of methyl bromide, an ozone-depleting fumigant, with the floating tray system in the production of tobacco seedlings. The floating tray system is a chemical-free alternative, whereby the celled-plastic trays are used to grow tobacco seedlings. Each cell accommodates one seedling. Usually the seedlings are grown in a mixture of bark and soil for optimum results. The trays are then placed under a plastic covering. The protection of the seedlings from pests using this method is highly effective, making them very strong once they are

replanted into the fields. Growers are trained in the use of the floating tray system and are provided with trays at the end of the training sessions.

### **IMPLEMENTATION PARTNERS:**

AGRITEX; Tobacco Research Board, UNIDO

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ENSURE  
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## MDG-7: Ensure Environmental Sustainability

MDG target 7.A: Integrate principles of sustainable development into country programs & policies; reverse environmental resource loss

### CONSTRAINT:

#### Lack of Ozone-Friendly Technology Used in Local Manufactures

Ozone-depleting substances, including CFC-12 and CFC-11, are used to produce refrigeration equipment

**Nigeria's Reducing Ozone Depleting Substances Used in the Production of Refrigeration Equipment** aims to assist Ristian, a domestic manufacturer of commercial refrigeration equipment, convert to ozone-friendly technology by replacing the refrigerant CFC-12 with HFC-134a and the foaming agent CFC-11 with HCFC-141b in the manufacture of domestic and commercial refrigeration equipment.

### COMPONENTS:

- Phase out 11 ODP (ozone-depleting potential) tonnes of CFC-12 and CFC-11 in the manufacturing process
- Introduce and install ozone-friendly (HCFC and HFC) technology at Ristian
- Support staff in the redesign of refrigeration units using new ozone-friendly technology
- Train staff on the safe use of the alternative technology

### RESULTS:

- The CFC phase-out was achieved. The refrigerant HFC-134a is being charged into the units and HCFC-141b (with small ODP) is being used as a transitional alternative foaming agent.
- The new technology was delivered and installed within the time schedule and the old equipment was dismantled accordingly.

### KEY ELEMENTS OF SUCCESS:

- The company has fully adopted the use of the ozone-friendly technology and is therefore very unlikely to revert to the use of CFC technology.
- The supplier of the injection foaming machine (using HCFC-141b) provided training for staff at Ristian on the safe operation and maintenance of high-pressure equipment.
- UNIDO organized a workshop for Ristian staff that focused on the redesign of refrigeration cycles. This enabled the company to gain confidence in the use of HFC-134a as a refrigerant.
- The company is able to safely operate and maintain the new technology and is satisfied with the ozone-friendly refrigeration units it manufactures.

### LESSONS LEARNED:

- It was important to have proactive Government support and backing. The Nigerian Government applied incentives such as tariff reductions on imports of components and materials, adjustment of import tariffs on finished goods, establishment of a law preventing imports of old appliances, and generally encouragement for companies such as Ristian to convert to ozone-friendly technology.
- Involvement of the National Ozone Unit staff was essential for project implementation.
- Utilities were readily available at the company, except for the flow of electricity from the grid, which was not very reliable. Several options had to be carefully weighed in order to avoid possible difficulty in operating the new technology.

### BACKGROUND INFORMATION:

The project was approved in December 2001 and was completed in June 2004, only a month after its planned completion date. In the phase-out of CFCs (high ODP and GWP (Global Warming Potential) products), the most common replacements were HCFCs (low ODP, significant GWP) and HFCs (zero ODP, significant GWP). UNIDO has implemented several successful activities using hydrocarbons (zero ODP, negligible GWP) as alternatives to CFCs. The selection of alternative technology relies heavily on the situation at hand, such that absolute ozone-friendly, carbon-free technology may not always be applied. Feasibility analyses are based on many factors, such as safety and economics.

## IMPLEMENTATION PARTNERS:

The Nigerian Federal Ministry of Environment; the National Ozone Unit; UNIDO

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# MDG-7: Ensure Environmental Sustainability

MDG target 7.A: Integrate principles of sustainable development into country programs & policies; reverse environmental resource loss

## CONSTRAINT:

### Poor Basin Management Practices in Upper Catchments

Lack of data on changes in land-use/land-cover in the headstreams and corresponding human impact analysis to inform national basin management policies and trans-border decision making

**Sustainable Integrated Management and Development of Arid and Semi-Arid Regions of Southern Africa (SIMDAS):** is implemented in four arid/semi-arid countries in southern Africa – Botswana, Tanzania, Zambia and Zimbabwe – and works toward long-term sustainable ecosystem management. It quantifies past and present development of land-cover ecosystem trends (including land-water interactions) in southern African headstreams in order to facilitate international (trans-boundary) decision making pertaining to long-term sustainable management and poverty alleviation.

## COMPONENTS:

- Improve national policies and strategies for the water sector, supporting existing PRSP processes;
- Improve the institutional and regulatory framework in participating countries;
- Strengthen the capacity of stakeholders who will be better able to effect sustainable implementation and management of land- and/or water-related issues;
- Enhance integrated water resources management by combining river basin and related land issues in an integrated manner, supporting best practices and wise use of resources;
- Enhance the management of trans-boundary basins through its support of the regional priorities of the Africa Union, the New Partnership for Africa Development (AU-NEPAD) action plans;
- Enhance regional networking and the capacity of regional professionals to accomplish the Integrated Water Resource Management (IWRM) objective;
- Enhance networks by working closely with water-related networks in the region (WATERNET, WARFSA, etc)

## RESULTS:

- The results of these studies are providing great insight into the effect of land use and land cover on Southern African headstreams and will contribute to water resources management decision-making tools. The studies are:
  - “Impact of Mining on the Save River” by Mrs. Maideyi Meck, Zimbabwe
  - “LULC cause in Upper Zambezi” by Mr. Jonathan Kampata, Zambia
  - “Malagarasi Ramsar Site Ecological Project” by Mr. Charles Mulokozi, Tanzania

## KEY ELEMENTS OF SUCCESS:

- The regional ownership was ensured and achieved through the functioning of an efficient Steering Committee. The primary role of the Committee is to lead the project; evaluate proposals submitted by institutions from the SADC countries; assess annual reports of ongoing projects; participate in the planning, monitoring and evaluation of the activities supported by UNESCO; and contribute to the formation of partnerships and mobilization of resources of activities.

## BACKGROUND INFORMATION:

The focuses on the long-term, sustainable management of ecosystems (involving land-use/land-cover (LULC) change and water interactions) in selected upper catchment areas in all Southern African Development Community (SADC) countries. Following a broad Landsat satellite analysis of change, field work and monitoring are envisaged in specific catchment areas. As all 14 SADC states are involved, this work is multi-partner and interdisciplinary. While maintaining an overall strategy for water- and land-use assessments in the upper catchment areas, we are also cognizant of national priorities.

The reason for choosing headstreams is that a lack of proper management in the upper catchments

is causing serious problems in downstream areas that are often more populated. Management problems are exacerbated when a downstream section lies in a different country. Various international agreements or groupings, such as OKACOM for the Okavango basin, try to manage basins, albeit with varying degrees of success.

The present work will integrate significant elements of existing projects that examine the human impact on downstream areas of basins such as the Okavango, lower Zambezi, Limpopo and the Rift Valley lakes. However, the biggest need now is to provide more data on changes in land-use/land-cover in the headstreams, since the downstream portions may face severe difficulties if there is not proper management in these areas. This support therefore will undertake land-use/land-cover (LULC) change and include a dimension of hydrological and soil data collection as a basis for monitoring sediment inputs in the significant upper catchments that feed major rivers in all SADC countries. Extended areas that will serve as foci for the proposed work have been identified. In these upper catchments, accelerated LULC changes are threatening to undermine not only the quality and quantity of river water, but, through erosion and ecological deterioration, are also reducing the natural resource bases for human livelihood.

An advantage of this approach is that long-term monitoring strategies can be set up with the help of community involvement, and SADC-wide databases can be established with interactive and comparable datasets, including rates of change under specific conditions, that can provide a basis for the predictive modeling of catchment change. The total costs for this pilot were estimated to be \$966,000. UNESCO's contribution was \$200,000.

### **IMPLEMENTATION PARTNERS:**

UNESCO Harare Cluster Office, University of Botswana and the Harry Oppenheimer Okavango Research Centre of the University of Botswana

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# MDG-7: Ensure Environmental Sustainability

MDG target 7.A: Integrate principles of sustainable development into country programs & policies; reverse environmental resource loss

## CONSTRAINT:

### Desertification Resulting from Poor Groundwater Management

Limited knowledge and proven success of different innovative methodologies for groundwater management through recharge technologies

**Vietnam's Artificial Aquifer Recharge** in Hong Phong District aims to demonstrate the potential development of the area through applying techniques that provide water for both human and agricultural use. An important aim is also the reforestation of the area to allow original (1975) environmental conditions to be re-established, including land cover, run-off and base flow. This is also currently used as a production site (220 m<sup>3</sup>/day of good water quality).

## COMPONENTS:

- To build up an experimental pilot project in the sand dune area of Binh Thuan Province as an example of artificial recharge in Southeast Asia.
- To assess methodologies and effectiveness of groundwater management through groundwater recharge technologies.
- To transfer knowledge and experience of augmenting groundwater resources by artificial recharge to scientists, especially young scientists.
- To inform governments, donors and NGOs about the role of artificial recharge in water supply and groundwater management.
- To supply good quality water to communities periodically affected by longstanding droughts.

## RESULTS:

- Particular attention has been paid to the interpretation of the geological-hydrogeological-environmental asset of the area with particular respect to groundwater occurrences. This investigation has so far produced important results, including these:
- Due to the removal of the land cover, the piezometric head of the aquifer has risen and outcrops in low morphologically depressed areas as a consequence of direct infiltration into the sand aquifer during the last 30 years (since the removal of the land cover).
- Groundwater can be abstracted and used after natural filtration for different uses (human and agricultural).
- The particular geo-hydrological asset of the area represented by a semi-permeable bedrock and porous material (sand dunes) with a thickness of up to 150 m would allow the use of SAR (Storage and Aquifer Recovery) techniques by conveying rainfall during the rainy season and recovery of the resource during the dry period (December-March).

## KEY ELEMENTS OF SUCCESS:

- Demonstrate the potential development of the area through application of techniques able to provide water for both human and agricultural uses.
- Reforest the area, to allow original environmental conditions to be re-established (land cover, run-off, base flow).
- Provide water supply in a desert area where water is not available between December and March.
- The innovative techniques used imply bank filtration (as aquifer recharge), never performed before in Viet Nam.

## BACKGROUND INFORMATION:

Groundwater is the main source of rural and urban water supplies in South East Asia. Over recent years, increasing extraction to meet rising demand for domestic supplies and irrigation has raised concern about the long-term sustainability of the resource and the livelihoods it supports. In other cases, the human impact has changed the natural hydrological cycle and threatened already scarce resources. This is the case in Hong Phong District, South Viet Nam and Binh Thuan Province. With a

population of one million, for example, the Binh Thuan Province is located along the coastal plain in the lower part of Central East Viet Nam and extends for approximately 8,000 km<sup>2</sup>. Massive desertification has been occurring since 1975, due to human impact and a reduction in rainfall of about 20 percent in the last 50 years, so the area suffers considerable water shortage during the dry season.

In order to fight desertification, best practices on ecosystems rehabilitation as well as remediation techniques to restore aquifer systems and groundwater storage capacity have been developed in Hong Phong district, located about 25 km northeast of Phan Tiet. The support includes three major components: a) research and investigation; b) development of a pilot project to supply water for different use; and c) capacity building through various international and local training courses/workshops and community involvement. Funding for the project amounts to \$450,000 and comes from different sources, such as the Government of Viet Nam, The Italian Ministry for the Environment Land and Sea, ICSU and UNESCO Jakarta.

### **IMPLEMENTATION PARTNERS:**

Institute of Geophysics, Vietnamese Academy of Sciences and Technology (VAST)  
Division of Hydrogeology and Engineering Geology for the South of Vietnam  
Ministry of Natural Resources and Environment  
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# MDG-7: Ensure Environmental Sustainability

MDG target 7.A: Integrate principles of sustainable development into country programs & policies; reverse environmental resource loss

## CONSTRAINT:

### Lack of Information and Partnerships on Watershed Management

Lack of data and analysis to inform policy reform on water management and use, as well as overall aquatic ecosystem protection

**The Philippines' Hydrology for Environment, Life and Policy (HELP) initiative** is part of a UNESCO network of catchments to improve the links between hydrology and the needs of society. There are currently 91 HELP basins covering 67 countries. Davao HELP offers a platform where stakeholders in watershed management can debate potential solutions and forge collaborations. It aims to build awareness about policy changes needed to protect aquatic ecosystems, including integrated water resources management (IWRM), and support data collection and analysis needed to inform policy makers about such reforms.

## COMPONENTS:

- The HELP network is aimed at water communication and public participation for implementing IWRM in the context of following policy action areas: Water and Climate Change; Water and Ecosystem Services; Water and Human Health; Water, Food & Energy Nexus; Empowering Stakeholders; Water Education.

## RESULTS:

- There is greater awareness that the City can ensure the long-term health of the communities and ecosystems only through integrated and comprehensive policies.
- The initiative linked and empowered multiple actors from the field to the lawmakers to enable change to occur under competing water uses for hydropower and longer term water supply.
- The Terrain Analysis contained the first scientifically backed recommendations to help mitigate soil erosion and surface and ground water quality impacts for the city government. In response, the Davao City Council passed land use restrictions in 2005. This included declaring specific areas as critical groundwater recharge zones and as conservation areas and limiting land use in areas most susceptible to erosion and landslides.
- Through consultations, the Davao Network worked to develop implementation strategies that would address the problem of erosion and minimize impacts on marginal communities.
- A comprehensive Water Code (2007) was passed by the City Council, drawing from an Integrated Watershed Management Framework facilitated by the Network. However, there are many challenges facing implementation of the Code before the communities and end users enjoy the benefits.
- Outputs that were achieved largely through volunteerism include the development of the Davao River Code, the Davao River Management Plan, a study into Sustainable Livelihoods Approach, Community-Based Water Resources Planning Workshops and the GIS database for future management.
- A key development outcome of the support was good governance as defined by the Poverty-Environment Partnership: "a process that exists to promote popular participation in designing water and sanitation systems and where decisions about those systems are made."

## KEY ELEMENTS OF SUCCESS:

- Clarifying monitoring responsibilities and identifying a single coordinating body where data can be centrally collected, managed and shared is a critical component for the implementation of IWRM. It also will help identify where private stakeholders, NGOs and communities can best assist the mandated agencies and better support the continued shift from conflict to collaboration between sectors.
- Service-orientation toward the dynamic participation of multiple stakeholders in the governance of the Davao watersheds, making them long-term and sustainable partners for the local government, while deciding on competing water uses such as hydropower, urban water supply and the environment.



- Continued guidance from the Global HELP UNESCO Network will be critical to ensure that local government deems such “user-driven implementation experiences” sufficiently important to invest their budgets in such reviews, coordination, and monitoring initiatives.

## LESSONS LEARNED:

- Civil non-profit organizations are often less restricted and often better positioned to serve as a central coordinating body and to attract external funds.
- While limited resources restrict the extent and pace at which change can occur, the HELP Davao Network has demonstrated that knowledge is empowering and change occurs not only because of healthy budgets but also because of greater understanding and a clear, expressed need for change by the end users.
- Single-focus ordinances tend only to delay confronting such issues or to change their appearance and do not necessarily resolve the root causes of issues.
- Individual stakeholders need to become the drivers of change within their own organizations, pushing for the dynamic integration of policy frameworks and institutional plans for actions that are driven by evidence.
- Once the government has integrated components of the research theme into existing work schedules, it can support such development partnerships and use budgets to leverage external funds to address issues otherwise beyond current capabilities.
- Investments in water contribute to wider development goals, including generating economic growth that reaches the poor more effectively and can improve the prospects of many marginalised regions.
- An ordinance is only the first step in a long process toward changing end users’ practices. The critical, second step requires setting a clear timeframe and agreeing on the parties responsible for drafting and implementing rules and regulations. Such timeframes should be set when an ordinance is enacted and then publicised.

## BACKGROUND INFORMATION:

The Davao Network has demonstrated how local government, through participation in the UNESCO IHP-HELP network, can develop integrated water resources management (IWRM) plans to protect and share water resources despite limited funding. This success involved a broad range of interest groups and participation and was achieved through the constant use of four key drivers of change: collaboration, user-driven activity, leadership, and recognition. Using sound science, the Network became a practical platform where competing stakeholders could debate possible solutions, build collaboration and has become a driver for good governance. The changes repeatedly became manifest in the attitudes and behavior of stakeholders. However, insufficient data and technical capabilities remain major obstacles. Given the local government’s current supportive approach, though, now is an ideal time for tackling cumbersome and technical issues, including the streamlining of legislation, formation of a central coordination body and monitoring of pollution trends, and catchment balances.

## IMPLEMENTATION PARTNERS:

Catholic Relief Services, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Capital Normal University, China, Davao City Water District, Davao City Watersheds, Department of the Environment and National Resources, Davao River Conservation Committee, Davao Hydrology Environment Life and Policy (HELP) Network, International Union Conservation, Institute for Environment and Development (LESTARI), Universiti Kebangsaan Malaysia (UKM), Philippine Banana Growers and Export Agency, People Collaborating for Environmental and Economic Management, Regional Coordinating Unit, South Eastern River Basin District, United Nations Educational Science and Cultural Organization (UNESCO)

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ENSURE ENVIRONMENTAL SUSTAINABILITY

# MDG-7: Ensure Environmental Sustainability

MDG target 7.A: Integrate principles of sustainable development into country programs & policies; reverse environmental resource loss

## CONSTRAINT:

### Capacity and Financing Gaps Preventing Effective Management of Protected Areas

Weak institutional and human capacities and adequate financing mechanisms to effectively manage the Protected Areas (PA) network

**Namibia's Strengthening the Protected Area Network (SPAN)** aims to address several gaps in capacity and financing, including the undervaluation of the ecological and economic values of the PAs and subsequent under-investment in PA management, that hinder management of the national Protected Area (PA) system. The network seeks to establish sustainable financing mechanisms for the PA system to ensure effective management.

## COMPONENTS:

- Strengthening systemic capacity, namely, the enabling legal/policy environment and financial mechanisms for Protected Areas (PA) management
- Strengthening the institutional capacity for PA management
- Demonstrating new ways and means of PA management, including partnerships with other government agencies, local communities and the private sector, to add to the range of available options. These interventions are critical to improving management effectiveness in the PA system as a whole.

## RESULTS:

- There has been progress in securing sustainable financing for PAs. A comprehensive economic analysis of the PA system indicated that the PA system contributed up to 6 percent of the GDP through park-based tourism only, without including other ecosystem services values, and the economic rate of return on the government investment over 20 years was as much as 23 percent. Using these study results, the Government has increased the annual budget for park management and development by 310 percent in the last four years. The Ministry of Finance also agreed to earmark 25 percent of the park entrance revenue for reinvestment in park and wildlife management through a trust fund, providing up to \$2 million in additional sustainable financing per year.
- The study also led to successful mobilization of additional donor funding for PAs, including \$67 million from the US Government's Millennium Challenge Account (MCA) with \$40.5 million direct investment in Etosha National Park management infrastructure.
- The National Policy on Tourism and Wildlife Concessions on State Land was approved by the Cabinet in 2007 to catalyze the economic potential of PAs. In the last two years since the policy was implemented, more than 20 new tourism and hunting concessions have been approved, generating over \$1 million per year as fees payable to the Government. A majority of these concession rights in PAs have been granted to communities neighboring PAs, directly benefiting local people from revenue and jobs created from the concessions.
- Park business plans were developed for six national parks, enabling the park managers to define costs and identify and execute ways to meet those costs.

## KEY ELEMENTS OF SUCCESS:

- Effective use of the study by the Government helped to secure increased public budget allocation for park management, through publication of the report, production of a lobbying booklet and integration of the data and information from the study into the government's budgeting and budget motivation processes.
- Timely and effective use of the study resulted in mobilizing additional co-financing, in particular the \$67 million MCA poverty grant for the tourism project.
- Long-term and gradual lobbying of the Game Products Trust Fund Board for official ring-fencing of the 25 percent park entrance fees for park management support.
- Timely deployment of a PA Tourism and Concession Specialist to support the MET in

establishing the Concession Unit to implement the Concession Policy and in increasing financial and economic benefits from PAs.



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## LESSONS LEARNED:

- To make a strong case for earmarking or retaining funding for Protected Areas (PAs), there needs to be an accurate estimate of PA management costs as well as a presentation of 1) the financial and economic benefits of the PAs and 2) the importance of the PAs for biodiversity and ecosystem service values. In particular, it is critical to be able to show the PA system's direct contribution to poverty alleviation and other national development objectives.
- Greater awareness of PAs' significant economic contribution and businesses opportunities led to more political interest and pressure. Biodiversity and ecological processes need to be safeguarded against strong economic interests. There is also a need for ensuring equitable distribution of benefits from PAs and their contribution to poverty alleviation. For this, a robust and transparent procedure for awarding concession rights is essential. The park management and concession unit must also have a strong technical capacity to develop and monitor concessions that yield both environmental and economic benefits.

## BACKGROUND INFORMATION:

Namibia's dryland ecosystems are a globally significant repository of biodiversity, acclaimed for their rich variety of species, habitat diversity and biological distinctiveness. The country has established an impressive system of Protected Areas, managed by the State, which constitutes a cornerstone of its conservation programme. There is huge potential for these areas to be woven together to form a tight, cohesive and effective network of protected areas, providing an effective buffer against threats to biodiversity and contributing to national economic advancement. However, a number of barriers are hindering movement toward improving PA management effectiveness. These include a fragmented policy framework, weak institutional capacities, weak human capacities for PA operations, incomplete bio-geographic coverage, and the absence of tested mechanisms for public-private-community partnerships. Interventions are needed to improve management effectiveness in the PA system as a whole.

Before the intervention in 2004, the annual budget of the MET for park management in Namibia was around \$7 million; this was considered to be a fraction of what was necessary to adequately manage the PA system, which accounts for 17 percent of the country's surface area (140,394 km<sup>2</sup>). The actual cost of managing the parks was unknown and there was no correlation between the budget amount and what was really required to manage individual parks and the national PA system as a whole. This approach to budgeting was leading to reactive thinking, rather than needs-based budgeting aimed at achieving park objectives. On the side of revenue from PAs, the park entrance fee was paid into the Government Treasury and there was no earmarking of revenues to be reinvested in park management. This weakened the motivation of park managers to increase and diversify revenue from PAs. In addition, park infrastructure deteriorated. The SPAN Project is a six-year project (2006-2012), with \$8.55 million GEF financing and \$33.68 million co-financing, including the preparatory phase in 2004 and 2005. The project aims to strengthen the management effectiveness of the national Protected Area (PA) system in Namibia. This, in turn, is expected to catalyze the economic potential of the PAs, contributing to national development.

## IMPLEMENTATION PARTNERS:

Government of Namibia, Ministry of Environment and Tourism, Ministry of Finance  
Millennium Challenge Cooperation, GEF, German Government (KfW), Conservation International

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## MDG-7: Ensure Environmental Sustainability

MDG target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss

### CONSTRAINT:

#### **Desertification Caused by Deforestation and Destructive Farming and Livestock Practices**

Lack of information and technologies to combat unsustainable deforestation, farming and livestock practices

**Niger's Environmental Rehabilitation** consisted of various policies and Farmer-Managed Natural Regeneration (FMNR) initiatives to contribute to reforestation by managing natural tree regeneration. By conserving trees on agricultural land, farmers have not only contributed to reforestation, but have also benefited from the natural fertilizer that the leaves provide, improved soil fertility, increased crop yields and increased incomes from forest products.

### RESULTS:

- The intervention of managing natural tree regeneration has had many knock-on effects in Niger through improved soil fertility, improved access to fuel-wood energy, fodder for livestock and income from sales of forest products. The intervention provides a pathway to improved agricultural production and food security as well as increased incomes and natural products that support and diversify rural livelihoods.
- Using low-cost methods, Niger has made considerable strides to combat desertification through the efforts of poor farmers. Since 1980, improved rainfall and conservation efforts such as farmer-managed natural tree regeneration have resulted in over 7.4 million new tree-covered acres.
- Not only has reforestation occurred simultaneously with rapid population growth, but satellite imagery shows that the densest vegetation is within some of the most densely populated areas—contrary to conventional wisdom that there is a correlation between population growth and land degradation.
- In the arid Sahel region such as Niger, where drought and desertification have posed a persistent threat to development, farmers are reaping a variety of economic benefits from the reforested areas. The presence of the new trees has resulted in increased crop yields as well as increased incomes and natural products that support and diversify rural livelihoods. For example, leaves, wood, fodder and fruit provide both subsistence and marketable products to rural inhabitants, thus contributing to food security and poverty reduction.

### KEY ELEMENTS OF SUCCESS:

- Changes in environmental policy have also contributed to Niger's successes in reforestation. In recent years, laws have been amended to transfer ownership of trees to farmers. The shift in official policy, however, has come about largely in response to changes in local attitudes toward conservation. Farmers had already begun taking ownership of the trees years before the change in legal status. The new policy strengthens local responsibility for natural resources by allowing farmers to benefit from their protection and to pursue legal action against the poaching of branches, fruit, etc., by others.
- As climate change continues, rain cycles may become increasingly volatile and severe droughts are more likely. Gains in reforestation already achieved may buffer against future dry periods both by mitigating their environmental impact and by providing a supplemental source of income when crop productivity declines. The greening of the Sahel has the potential to reduce both environmental and economic vulnerability in the region. However, additional investments in education, health, infrastructure, energy, water and agriculture would be required as Niger moves up the development ladder.

### LESSONS LEARNED:

- Support of communities through access to information, training, tools and technical support (e.g., learning by doing) as well as diversified and intensified farming systems through agro-forestry all produced a more positive, self-reliant outlook and increased capacities.



- Support to the expansion of local NGOs and service providers through capacity building and grants has had a real impact in reaching the households.
- Improved access to markets for wood and forest products as well as crops has improved household income and food security, reduced vulnerability to drought and mitigated demand for rural out-migration.
- Changed perceptions about rights to trees (from State ownership of trees to individual property rights) has had a profound impact on sustainability.
- Improved Managed Natural Regeneration is an effective mechanism for leveraging transformational development including poverty reduction, economic growth, agricultural and rural development, improved governance and health.
- It is important to take stock, to validate, to disseminate, and to equip champions and producers alike with knowledge of what has worked and why.
- Although challenges remain, the resiliency, innovations and adaptations of rural producers, their responsiveness to favorable policy, regulatory and market conditions in the face of environmental and economic stresses, and the willingness of many partners to capitalize on lessons learned, all provide a solid foundation that encourages prospects for replicability.

## BACKGROUND INFORMATION:

In the 1970s and 1980s, a combination of severe draught, destructive farming and livestock processes, and a rapidly increasing population resulted in vast areas of land being denuded. In the last 20 years, the population of Niger has doubled, and birthrates continue to be one of the highest in the world. With a population of around 13 million, only 12 percent of Niger's land is suitable for cultivation, yet 90 percent of the population depends on farming. Rapid desertification, such as that which was occurring in the 1970s and 80s, has been a major threat to development gains in Niger.

Through the concerted support of local authorities in the 1980s, though, NGOs, donors such as USAID and farmers, farmer-managed natural regeneration (FMNR) was identified as one pathway to improved agricultural productivity and diversification of livelihood. Niger's successes in combating desertification have largely been the result of local efforts by farmers, using simple, low-cost technologies.

The trees are part of a larger shift in local agricultural and land use practices by local farmers over the past two decades. Though farmers continue to rely primarily on rain-fed agriculture to produce sorghum, millet, peanuts, and beans, they no longer clear fields as before. In the past, farmers would entirely clear the field of trees and other vegetation. When the productivity of the field began to decline, the farmer would simply move to another. With limited cultivatable land, increasing population and problems with drought, this was no longer feasible. Today, more farmers are leaving trees on the land, carefully sowing crops around them. Recognizing the ecological and economic benefits the trees can provide, farmers protect and nurture young saplings rather than removing them as before.

Besides ecological benefits from reforestation, the trees provide a number of products to farmers. Farmers with trees on their property have access to extra income through the sale of fuel wood, leaves, fruits, pods, bark (for medicinal purposes) and wood. One tree making a comeback in the region is the *Faidherbia albida*, or gao tree. The gao tree is a nitrogen-fixing tree and helps to fertilize the soil. And since its leaves fall off during the rainy season, it does not compete with crops for water, sun, or soil nutrients during their growing season. The fallen leaves also provide a natural source of fertilizer for the crops.

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# MDG-7: Ensure Environmental Sustainability

MDG target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss

## CONSTRAINT:

### Unsustainable Fishing and Aquaculture Practices

Unsustainable fishing and aquaculture practices that result in reduced income and employment opportunities for poor coastal communities and in a loss of biodiversity

### Indonesia's Rehabilitation and Sustainable Development of Fisheries and Aquaculture

affected by the Tsunami in Aceh Province combated unsustainable fishing practices by facilitating an agreement among the Government, fishers and local community to cease illegal trawling and use more environmentally friendly fishing equipment and by supporting comprehensive fishery legislation through a participatory process. It also helped to protect biodiversity by restoring coral reefs and replanting coastal forests and mangroves. This promoted better management practices in shrimp aquaculture to reduce losses due to disease, to lower the economic risk for small-scale traditional farmers, and thus to generate greater income and employment opportunities for poor coastal communities.

## COMPONENTS:

- Capacity building of youth, both women and men, residing in coastal areas in sustainable management of fishing and best management practices in aquaculture
- Capacity building of government fishery officers and representatives of customary fishers' organizations and traditional aquaculture farming groups in sustainable management of fishing and aquaculture
- Facilitation of collaboration among the various stakeholders to agree on specific actions for responsible marine resource management and best practices in aquaculture
- Support for the Government in creating comprehensive fishery legislation and in making district aquaculture plans through a highly participatory process

## RESULTS:

- Capacity building and collaboration between stakeholders resulted in greater trust between them – a key social ingredient for long-term sustainability.
- Concrete agreements reached between the Government, fishers and local marine fishing communities on implementing sustainable fishing practices in six specific coastal areas spread across four districts and affecting the lives of over 2,000 fisher families.
- The percentage of 1,200 farmers who made a profit on their annual crop increased from 10 percent to 60 percent. In villages that fully participated in the program, the percentage increased to 90-100 percent.
- 87 villages adopted the key Better Management Practices in aquaculture.

## KEY ELEMENTS OF SUCCESS:

- An initial year working with the three key stakeholder groups (i.e., government staff, fishers and local communities) to help them understand fisheries management issues and to encourage them to cooperate in managing their coastal resources.
- Bringing farmers together in self-help groups to coordinate input purchases, pond preparation, stocking and management. The higher the percentage of village participation, the better the results of the harvest.
- The activities built on two previous years of work by FAO and other agencies, which created a wide network for the sharing of learning and experiences.

## LESSONS LEARNED:

- Supporting stakeholder groups as they find their own solutions to apparently intractable problems can work when basic human capacities are developed and trust is created between the groups through commonly supported actions. It is possible to identify some individuals who have greater motivation, interest and initiative; advising and supporting them can drive initiatives forward.



- Resistance to change has to be overcome, but when good farm extension services and successful crop harvests are the result, farmers are keen to cooperate with each other and to adopt better management practices. Formation of self-help groups among aquaculture farmers helps facilitate adoption of better practices. The role of women is also important, as often it is the wives of farmers who make the economic decisions in the household, such as whether to risk stocking a pond.

## BACKGROUND INFORMATION:

The work of promoting “co-management” of coastal fisheries by Government, fishers and local communities resulted in agreements for the sustainable management of fishing in several specific coastal areas. The first step in achieving this involved building the capacity of local youth (both women and men), government fishery officers and representatives of the traditional fishers’ organization, the Panglima Laot. These three groups then collaborated to make and carry out plans for conservation and the more responsible use of marine resources. Their targeted actions included the elimination of illegal trawling in shallow coastal waters, the adoption of more environmentally friendly fishing gear, the restoration of near-shore coral reefs, and the re-planting of coastal forest and mangroves. The work also raised awareness about the continuing role and relevance of customary and traditional knowledge in fisheries management through the use of various media, including a commercial video film. In addition, it helped the government to create a comprehensive framework for fishery legislation through a highly participatory process involving public hearings and expert group contributions.

This also promoted the adoption of Better Management Practices for 1,200 farmers of coastal aquaculture ponds through videos, radio broadcasts, posters, booklets and hands-on demonstrations. Eighty-seven villages were involved in the program and, in the 29 where participation levels were high, 90-100 percent of farmers had successful crops (compared with only 30 percent in control groups). There was a reduction in economic risk for poor coastal farmers and an increase in employment opportunities for participating farmers. This support was financed by the American Red Cross and implemented by FAO between January 2007 and June 2010 with a budget of \$7.55 million.

## IMPLEMENTATION PARTNERS:

Aceh Provincial Government Marine and Fisheries Service  
The traditional fishers’ organization, the Panglima Laot  
FAO  
American Red Cross

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# MDG-7: Ensure Environmental Sustainability

MDG target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss

## CONSTRAINT:

### Coordination Gaps and Limited Awareness on Conservation Issues

Limited awareness and coordination among local communities, NGOs and scientists on activities promoting the conservation of threatened plant diversity

**Cyprus's Cooperation for the Conservation of Rare Endemic Plants** promotes the conservation of endemic, rare and threatened plants on the island by promoting cooperation among scientists, NGOs and local people from the Greek-Cypriot and Turkish-Cypriot communities to establish and effectively manage Plant Micro Reserves (PMRs) in biodiversity-rich areas and promoting greater awareness on the importance of plant diversity conservation.

#### Components:

- Establishment of Plant Micro-Reserves (PMR) in the field (inventory, boundary determination and detailed mapping of the PMRs)
- Monitoring and on-site management of the PMRs, including the implementation of in situ measures for the conservation of the targeted species
- Ex situ conservation of the targeted species in seed banks and botanic gardens
- Completion of an island-wide survey to determine the level of awareness on biodiversity conservation and the environmental values among Greek-Cypriot and Turkish-Cypriot communities
- Promotion of awareness among the general public about plant diversity conservation

## RESULTS:

- Enhanced cooperation of scientists, NGOs and local people from the Greek-Cypriot and Turkish-Cypriot communities for the conservation of endemic, rare and threatened plants of Cyprus growing within the buffer zone

## KEY ELEMENTS OF SUCCESS:

- The involvement of local people in the plant conservation effort from the onset of planning
- The cooperation, trust and respect among the partners
- High level of expertise of the partners involved

## LESSONS LEARNED:

- The project sought and effectively employed the input of local people in the plant conservation efforts from the beginning. The successful implementation proved that conservation efforts are more likely to be sustainable if local communities are vigorously involved from an initial stage in planning and decision-making processes. Local people who live in areas of importance for conservation often have substantial environmental knowledge, which can be extremely valuable when conservation measures are being formulated. The approach adopted in this support secured the sustainability of the conservation measures and can be adopted by future conservation efforts in Cyprus and elsewhere.

## BACKGROUND INFORMATION:

Cyprus is one of the most plant-diverse countries in Europe; however, conservation initiatives targeting endemic, rare and threatened plants of the island have been developed only during the last few years. None of these initiatives have focused on the plants found within the buffer zone, an area with considerable plant diversity. In addition, the communities found within and adjacent to the buffer zone have rarely been consulted or involved in the management of the local environment. The support aimed to address these gaps by promoting cooperation among scientists, NGOs and local people from the Greek-Cypriot and Turkish-Cypriot communities for the conservation of endemic, rare and threatened plants of Cyprus found within the buffer zone, including two of the most impressive, yet endangered endemic species: *Tulipa cypria* and *Ophrys kotschyi*.

Conservation activities focused on the establishment, monitoring and management of two Plant Micro-Reserves (PMRs). The PMRs concept, which was successfully adopted in other countries, envisages the monitoring and conservation of small land plots of great value in terms of plant richness, endemism and rarity. A quantitative and qualitative enrichment of natural plant populations was carried out through the enhancement of the natural regeneration process.

The project lasted approximately 30 months from April 2007 to October 2009. The total budget was \$150,000.

### **IMPLEMENTATION PARTNERS:**

Frederick University (Academic Institution)

Institute of Earth, Ocean, Atmospheric and Environmental Sciences (Research Institution)

AKTI – Centre of Study and Research (NGO)

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# MDG-7: Ensure Environmental Sustainability

MDG target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss

## CONSTRAINT:

### Lack of Effective Practices to Conserve Biodiversity

Lack of sustainable grazing, energy, tourism and forest regeneration practices to preserve, protect and regenerate forest biodiversity

**Pakistan's Mainstreaming Biodiversity Conservation into Production Systems in the Juniper Forest Ecosystems** aims to promote and introduce sustainable practices to conserve biodiversity in the Juniper Forest Ecosystem and to enhance the ecosystem's contribution to sustainable development.

## COMPONENTS:

- Organize communities in formal structures and build their capacity in sustainable natural resource management
- Promote natural and artificial regeneration in the Juniper forests through seeding production in forest plant nurseries
- Promote traditional systems of rotational grazing to ensure that grazing lands are not depleted beyond their carrying capacity
- Strengthen the capacities of communities to rehabilitate and improve watersheds
- Work with communities to determine ways to remove barriers to sustainable energy use
- Demonstrate innovative and sustainable models of tourism and recreation

## RESULTS:

- Establishment of a forest plant nursery of more than 50,000 plants, wherein local shrubs as well as walnut plants are raised to promote high-value tree crops in the area
- Demonstrated Integrated Water Resource Management (IWRM) practices to ensure water conservation from source to final use
- Comprehensive approach adopted for livestock protection and production to provide local communities with sustainable livelihoods
- The acute problem of water availability for human and agriculture use is being addressed by reviving the Karez, or underground streams, for the use of communities
- Demonstrated integrated natural resource management through community participation

## KEY ELEMENTS OF SUCCESS:

- The community was organized in the form of a Community Conservation Organization. This organization helped to adopt sustainable practices in watershed management and livestock rearing that led to the protection of Juniper forests and the preservation of its biodiversity. Close community linkages through social mobilization was the main tool to organize communities and motivate them to adopt biodiversity-friendly practices.

## LESSONS LEARNED:

- To promote biodiversity conservation and natural resource management, it is important to involve local communities before undertaking activities on ground. This not only ensures the support of communities, but also helps to tap into indigenous knowledge to achieve the project goals and objectives.
- To successfully address biodiversity conservation, it is of utmost importance to link the issues with the creation of sustainable livelihood and protection.
- In addressing the conservation issues, a comprehensive approach toward natural resource management should be taken along with the social element, without losing coherency.

## BACKGROUND INFORMATION:

The Juniper Forest Ecosystem has an extremely important role in maintaining the watershed of the area. The local population depends on this watershed for its livelihood. The forest provides grazing

lands for livestock, an attractive location for tourists (generating local jobs), and a number of streams that are harnessed for agriculture produce. Juniper Forests are also considered to be relics, as they are over 2,500 years old. With the growing demand on forest resources, the support is provided to build capacities of local communities for sustainable use of the entire ecosystem.

The Mainstreaming Biodiversity Conservation into Production Systems in the Juniper Forest Ecosystems project is funded by the Global Environment Facility (GEF) and United Nations Development Programme (UNDP). It aims to make the production and support systems in the Juniper forest ecosystem more accommodating of biodiversity.

The Juniper forests of Balochistan are an ecological and cultural treasure of the country. Studies undertaken revealed that Ziarat is richer in plant diversity and in wildlife species than any other area found in the Juniper ecosystem. Apart from its ecological significance, people living in the Ziarat Juniper Mountains possess a rich indigenous knowledge of the local plant resources, a knowledge that is disappearing quickly in the rest of Pakistan. This aims to mainstream biodiversity into a range of productive sector activities across an area of 150,000 ha, approximately 100,000 ha of which is covered by Juniper forest. It works closely with local communities to determine acceptable ways to modify grazing systems and to treat the Juniper forests with respect for biodiversity. The project will also help to develop capacity – in key government agencies and in communities – to replicate results. Support activities are spread over a four-year period, with a total cost of \$1.26 million.

### **IMPLEMENTATION PARTNERS:**

World Conservation Union Pakistan (IUCN-P)

Local communities

Government of Balochistan, Ministry of Environment, Balochistan Forest and Wildlife Department

Local Government, Ziarat District

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<http://www.undp.org.pk/mainstreaming-biodiversity-conservation-into-production-systems-in-the-juniper-forest-ecosystem.html>



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# MDG-7: Ensure Environmental Sustainability

MDG target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss

## CONSTRAINT:

### Lack of Information and Capacity to Protect Mangrove Forests

Capacity constraints of communities and authorities to foster the sustainable growth of mangrove forests

**Malaysia's Mangrove Ecosystem Conservation and Livelihood Creation** builds the capacity of communities and local authorities to protect the mangrove forests and facilitates the development of a conservation management plan using participatory methods and multi-stakeholder consultation. This support partners with the private sector to give training and to advise the government on sustainable uses of the mangrove forest.

## COMPONENTS:

- Training and capacity building of local communities on fostering and sustaining the growth of mangrove forests
- Capacity building of local authorities to support mangrove forest protection
- Support for mangrove forest replanting and sustainable livelihood activities
- Develop a conservation management plan for replanted areas and the surrounding mangrove ecosystem

## RESULTS:

- The local communities are expected to benefit from eco-tourist activities by working together with tour operators to create specialized tours on mangrove regeneration and preservation, as well as to view the “living laboratory” that is being created by the University Terengganu Malaysia.
- The local community has registered a cooperative to manage the business activities from this project site. The project helped the community to create a business plan that currently consists of ecotourism, nursery of mangrove saplings for sale, craft products from mangrove produce and a small restaurant.
- The Terengganu State Government will benefit through the increased awareness of the local communities about the need to sustainably manage the mangrove ecosystem. This will enable the state government to better manage these resources through greater participation from the local communities.
- The results from the restoration and community development outcomes can be considered a “best practice” that can be incorporated into the State’s planning processes, and be used as a tool for managing the mangrove forests in Terengganu. A major policy impact for the state government is that such interventions can feed into a poverty reduction strategy.

## KEY ELEMENTS OF SUCCESS:

- Clear understanding of the community about the importance of the mangrove ecosystem for their livelihood
- Strong commitment from the Terengganu State Government
- Support from the University Terengganu Malaysia for capacity building
- Petra Perdana Bhd’s contribution for funding and creative support

## LESSONS LEARNED:

- This demonstrates how an environmental conservation support can contribute significantly toward poverty reduction. It should be noted that, although the mangrove regeneration project was initially conceived as an environmental conservation, the issue of poverty reduction had become a priority item on this support. In fact, the local community considers this initiative as a means of restoring the environment they depend on for their livelihoods, so that they could continue to use mangrove forest products while benefiting from the ecological function of the mangrove forest.
- Creative Partnership: It is important to forge close partnerships at all levels, with multiple



stakeholders including the local community, local institutions, local government and a private sector partner as sponsor. Due to the nature of governance of land in Malaysia, the state government has the power to decide on the use and development of land. The public-private partnership played a significant role in the sustainable use of the mangrove forest in Setiu District. This has led to both the state and federal government providing additional funding, especially for infrastructure. A committee comprised of the local community, the district office and the state government is entrusted with managing the conservation and economic activity of the project area.

- **Replicability:** The state government of Terengganu has requested University of Terengganu Malaysia to work with the State Economic Planning Unit to implement a similar support in at least two other districts in Terengganu in 2007 and the initial budget allocation has already been made.

## BACKGROUND INFORMATION:

The Government of Malaysia has adopted mangrove regeneration as a priority environmental policy following the December 2004 tsunami tragedy. Most of the regeneration efforts are undertaken by the government on a large scale, particularly through the Forestry Department, almost exclusively on the west coast of peninsular Malaysia where the livelihood of the communities has been affected.

UNDP Malaysia and Petra Perdana Bhd, a locally-owned company, in partnership with the State Government of Terengganu, have implemented a community-based mangrove regeneration project in the state of Terengganu.

The State Government is also using the conservation area as a potential tourist attraction where all activities would involve the local community. As one of the poorer states in Malaysia, this fits well with the poverty reduction policy pursued by the State Government of Terengganu. The benefits to the community of the Pengkalan Gelap within Setiu District include improvement in the lot of people whose livelihoods depend on fishing, mangrove forest product extraction, and eco-tourism.

The Petra Perdana Bhd of Companies is an integrated brown field and offshore marine services provider for the upstream oil and gas industry. PETRA's involvement in the community marks a new milestone in its drive to help develop local communities and in protecting the environment. One of PETRA's primary objectives in fulfilling its commitment to the oil and gas industry is to ensure stringent health, safety and environment practices of the surroundings where it operates. The involvement of staff within Petra Perdana Bhd in the activities will create opportunities for building staff capacity on the mangrove ecosystem. This support will also enhance private sector partnerships with UNDP for development in Malaysia, especially linking environment and poverty in a poor state of Malaysia.

## IMPLEMENTATION PARTNERS:

The State of Terengganu Government  
Petra Perdana Bhd  
University of Terengganu Malaysia

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# MDG-7: Ensure Environmental Sustainability

MDG target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss

## CONSTRAINT:

### Policy Incoherence Surrounding Biodiversity and Land Use Management

Incoherence between economic & institutional policies related to traditional land use practices, leading to an ecological imbalance and inefficient resource management

**Morocco's Transhumance for Biodiversity Conservation** in the Southern High Atlas addresses the causes of biodiversity loss through a revival of bio-friendly transhumance and traditional common property management regimes, land use planning and innovative incentives for rangeland and wildlife biodiversity conservation.

## COMPONENTS:

- Address ownership and land tenure issues, including the incompatibility of ethnic territorial boundaries and governmental district boundaries, which resulted in a disconnect between customary use and administrative allocation
- Strengthen capacity of local leaders to plan efficiently and enforce resource management rules and regulations
- Strengthen government enforcement of viable customary and traditional natural resource management systems
- Sensitize leaders to the economic and ecological benefits of the pastoralist lifestyle and productive patterns
- Conduct expert thematic studies on pastoralism

## RESULTS:

- Established strong coordination mechanisms and effective partnerships to mobilize additional funds and human resources, contributed to sharing know-how and strengthening the workforce, built capacities of various partners and stakeholders, and provided incentives at institutional, systemic, market and individual levels to conserve biodiversity and to revive the practice of transhumance.
- Established alternative income-generating activities through the introduction of revolving funds. This enabled the local NGOs to rehabilitate traditional conservation practices, such as agdals, to reinstate over 74,000 ha of traditional pastures regulated by customary law – resulting in 12,000 ha declared as permanent reserve for Curvier gazelles. The revolving funds have encouraged investment in energy-efficient technologies and supported the development of local products, improving the livelihoods while also conserving critical species such as the Sahara bee, an endemic species threatened with extinction due to the introduction of the black bee.
- In terms of social incentives, the project set up mobile schools to provide educational services to mobile families, namely children, and organized health campaigns for inoculation of over 11,000 beneficiaries. These services have contributed to valuing the transhumant lifestyle and reversing the negative perception of nomadism.
- A strong integration of best practices within other national programs such as the National Initiative for Human Development, the Oasis Programmes, the new agricultural strategy, etc.

## KEY ELEMENTS OF SUCCESS:

- Lobbying for economic, social and ecological benefits derived from pastoral management systems to revive and value the pastoral practice
- Introduction of basic services for this mobile population (health & education)
- Codification and communication of newly introduced alternative technologies for cooking and heating (i.e., economic collective ovens and LPG) have enabled quick, voluntary uptake by non-participants.
- A strategy on sustainable management of key biodiversity sites and ecological hot spots based on traditional know-how of natural resource management and traditional conservation practices (i.e., Agdals) has enabled effective conservation practices as opposed to top-down conservation measures.



- A strong documentary platform consisting of 40 thematic studies conducted during the implementation and covering various strategic sectors for development
- A strong network of 70 capacitated local NGOs working in various sectors (pastoralism, agrobiodiversity, bee-keeping, etc.) ensured the local ownership.
- The development of a monitoring & evaluation system linked to a geographical information system to implement long-term management of natural resources has enabled decision makers to monitor the tangible results.

## LESSONS LEARNED:

- Capitalization of best practices combined with a motivated population with strong capacities has led to significant changes at the local level and will strongly contribute to “scalability.”
- Robust and in-depth studies on ecological, social and environmental characteristics of the area and of the value chain are essential to articulate appropriate and acceptable responses.
- Adopting a territorial approach in land use planning which integrates tribal configuration from the beginning is an absolute necessity as customary practices are still very present despite the introduction of central administrative authorities, regulation and boundaries.
- Customary boundaries often correspond to ecological entities, resulting in more coherent and feasible management plans. The use of traditional local know-how and customary practices has enabled the development of integrated management plans adapted to the local context, facilitating implementation.
- Coordination between traditional institutions and local associations with support from local authorities enabled dialogue and negotiations for the implementation of management plans.
- Organization of the stakeholder population into NGOs and associations has empowered different interest groups (namely pastoralists who were previously marginalized) and promoted constructive participation.
- Decentralized management was used as an opportunity. It accompanied this government-led process by providing it with technical inputs and resources at the local level, promoting efficient decision making.

## BACKGROUND INFORMATION:

The CBTHA is a nine-year project (2001-2010), with \$4.252 million GEF financing and \$5.387 million co-financing. The support aims to conserve globally significant biodiversity in the productive landscape of the southern flank of the High Atlas through an innovative approach integrating pastoral range management with biodiversity conservation in a grazing-dependent ecosystem. Simultaneous global and local benefits are pursued, which would ensure both a demonstration effect and a self-sustaining local process after project completion. It will achieve its objective through four major outcomes: 1) designing integrated biodiversity conservation and sustainable management plans as a support to land use planning; 2) implementing these designed management plans; 3) providing incentives for biodiversity conservation and transhumance; and 4) integrating biodiversity issues into policy debate at provincial and national levels.

## IMPLEMENTATION PARTNERS:

Ministry of Agriculture and Maritime Fisheries  
High Commissioner for Water and Forestry and the Fight Against Desertification, Ministry of Interior, Agency for Social Development, Local Committee for National Human Development Initiative, Center for Development of Renewable Energies, National Institute for Agricultural Research, Agronomy and Veterinary Institute, National School of Agriculture, Mediterranean Center for Environment, Belgian Cooperation, Development and Research Institute, Agronomy Mediterranean Institute of Montpellier, Network of the World Initiative on Sustainable Pastoralism, UNDP, Global Environment Facility (GEF), Small Grants Programme (UNDP-GEF SGP)

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ENSURE  
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## MDG-7: Ensure Environmental Sustainability

MDG target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss

### CONSTRAINT:

#### Lack of Information on Biodiversity Conservation

Lack of information and understanding on the importance of biodiversity protection and conservation

**Russia's Enhancement of Environmental Awareness Targeting Effective Water and Wetlands Ecosystem Management** of the Volga Delta aimed to foster better awareness and valuation of biodiversity resources of the Lower Volga water and wetlands ecosystem and to foster an understanding of the principles of sustainable development amongst local authorities and communities.

### COMPONENTS:

- Produce educational materials and create effective ways to spread information
- Facilitate training sessions and workshops to popularize the value of the Lower Volga water and wetlands ecosystems to different groups, to better inform local authorities about the environmental problems of water and wetland ecosystems, and to contribute to sustainable development in the area
- Establish a working group to focus on conservation of the Lower Volga wetlands

### RESULTS:

- A training seminar and roundtable were held on involving government, private, and public organizations in solving problems on conservation of the Lower Volga wetlands, directly benefiting 35 people and indirectly benefiting 2,000 people
- At least 1,000 people directly benefited from dissemination of promotional and methodological material in the Lower Volga Wetlands
- 50,000 people living in the Lower Volga watershed indirectly benefited from training and awareness activities concerning effective water and wetlands ecosystem management of the Volga delta; among these benefits were changes in attitude toward the Lower Volga water and wetlands ecosystems.
- At the 3rd World Congress of Biosphere Reserves: Biosphere Futures, UNESCO Biosphere Reserves for Sustainable Development (February 2008 - Madrid), there was a report about the main successes of this support and the overall Living Volga programme, as this support is directly relevant for the Congress's question, "How can Biosphere Reserves be used for learning, governance and adaptive management approaches for sustainable development of land/water/seascapes?"

### LESSONS LEARNED:

- The general population has insufficient understanding of the importance of wetlands for the ecosystem. Discussions about wetlands ecology and wetlands management are almost entirely absent in the national systems of state and higher education, and most Russians have never heard of the Ramsar Convention, nor do they understand the need to protect and conserve wetlands. Overcoming these obstacles will be long and challenging.

### BACKGROUND INFORMATION:

The Volga basin, one of the largest closed basins in the world with an area of approximately 1.4 million square km, is divided among 39 provinces and autonomous republics of the Russian Federation. Forty percent of the Russian population lives there and it produces an estimated 45 percent and 50 percent of the national industrial and agricultural output, respectively. Forty-six percent of the land is agricultural, including 20 million hectares of hay and pasture, 6 million hectares irrigated and over 6 million hectares drained farmland. The Volga Delta, in the south of the Russian Federation, is a rather pristine ecosystem.

The sustainable development of fragile ecosystems relies on the public's positive attitude toward

conservation, an attitude that requires understanding of the value of protecting wetlands and having a sense of responsibility for their conservation.

This support was initiated in 2007 as the pilot phase of the initiative “Living Volga.” The broad development goals were to strengthen the ability of the population residing within the Volga River Basin (Volga Delta area) to manage the Volga River catchment area on a sustainable basis and to change attitudes toward water by increasing environmental awareness.

Results and deliveries from this pilot have created a strong foundation for the subsequent Living Volga Programme now being initiated. Close cooperation with UNDP and the International Hydrological Programme is envisaged.

### **IMPLEMENTATION PARTNERS:**

UNESCO Moscow Office - primary implementation partner

EcoCenter Zapovedniks (Moscow) and Astrakhan State Biosphere Reserve (Astrakhan) - executing agencies

Coca-Cola HBC Eurasia - Funding partner

Close cooperation and collaboration with the Russian Man & Biosphere National Committee, the Ministry of Natural Resources, UNDP, UNEP, Wetlands International and others

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# MDG-7: Ensure Environmental Sustainability

MDG target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss

## CONSTRAINT:

### Lack of Information on Biodiversity in a Buffer Zone

Lack of information on the biodiversity in a restricted zone, inhibiting conservation efforts

**Cyprus's Biodiversity of the Buffer Zone** assesses biodiversity in the buffer zone of Cyprus, which runs for 180 km between the Greek Cypriot Community and Turkish Cypriot Community for a total of 346km<sup>2</sup>. Alleviating the scarcity of information on biodiversity in the buffer zone has made conservation efforts more effective.

## COMPONENTS:

- Formation of a bi-communal academic network of biodiversity experts, comprised of both Greek-Cypriot and Turkish-Cypriot scientists, to conduct baseline ecological studies on plants, fungi, mammals, birds, reptiles, amphibians and invertebrates and selected study sites in the buffer zone.
- Completed eleven rounds of monthly field visits to eight areas in the buffer zone identified as study sites, during which biodiversity surveys were conducted and illegal activities were recorded.
- Produced technical publications with bi-communal lists of authors, including eleven articles and four technical publications.
- Produced informational materials to educate the public about the environmental and conservation issues related to the biodiversity present in the buffer zone, including a documentary, four podcasts, a CD, a wildlife calendar for 2008, and a booklet for children.

## RESULTS:

- Stakeholders in both communities dealing with environmental issues were made aware of the biodiversity that is present in the buffer zone and evidence of illegal activities such as bird trapping, poaching, rubbish tipping, illegal logging and illegal grazing of livestock.
- They were also made aware of other environmental issues, such as the presence of packs of feral dogs preying on wildlife, the presence of rats, and the pollution of streams and rivers.
- Establishment of the first ever bi-communal environmental platform, the Cyprus Environmental Stakeholder Forum (CESF), a major success in island-wide cooperation for environmental protection.
- As a result of some of these findings, UNPOL cooperated with the Game Fund and the GCC police to crack down on bird trappers at one of the sites.
- One of the informational materials, the booklet for children, is being used by a local NGO as part of an environmental awareness campaign about bats in Cyprus.

## KEY ELEMENTS OF SUCCESS:

- Joint publication promoted data sharing among experts.
- Publications were produced with bi-communal lists of authors, which is almost unprecedented in the last 3 decades of the division of Cyprus, thus demonstrating that science can lead the way in overcoming boundaries to cooperation.
- Coordinators responsible for activities in their respective communities were appointed.
- The widespread media coverage has inspired other groups to discuss their common environmental future and work together to preserve their shared natural heritage.

## LESSONS LEARNED:

- Forming a bi-communal team of biodiversity experts dedicated to their subject made it easier to break down barriers and suspicion among participants from different communities.
- Joint field visits and team work promoted the establishment of good working relationships.
- Focusing on biodiversity work and avoiding political statements and discussions were beneficial to building trust among teams.

## BACKGROUND INFORMATION:

The overall objective was to address the scarcity of information about the biodiversity of the buffer zone, in comparison to the rest of Cyprus, which has been more or less studied. Because Cyprus is small, the efficient conservation of species and habitats requires knowledge of the distribution of priority species of conservation concern in order to focus conservation efforts on the most important locations on the island where those species are supported. Additionally, the identification and conservation of wildlife corridors that enable the exchange of individuals between populations is also important due to the fragmented landscapes of Cyprus. Moreover, the project promoted the formation of a bi-communal academic network of biodiversity experts in light of the relatively few Cypriot experts on biodiversity available to carry out environmental work on the island.

The support was carried out from April 2007 to July 2009, with a budget of €119,900. A network of 18 plant, fungi, mammal, bird, reptile, amphibian and invertebrate experts and field assistants from both communities was formed. Eight areas in the buffer zone were selected as study sites and all field visits required the approval and presence of UNFICYP escorts. Eleven rounds of monthly field visits were conducted from July 2007 to June 2008, during which biodiversity surveys were conducted and illegal activities were recorded. The field teams were joined on many occasions by photographers and journalists from the local and international press, EU representatives and students.

The project received extensive publicity by the international press, i.e., the Associated Press, the Agence France Presse, Reuters, BBC World Service and France 5 TV. This support was awarded the European Countries Biologists Association Best Project Award in 2009.

## IMPLEMENTATION PARTNERS:

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## MDG-7: Ensure Environmental Sustainability

MDG target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss

### CONSTRAINT:

#### **Lack of Awareness and Policy Enforcement on Biodiversity Conservation**

Lack of knowledge by local communities and authorities about sustainable resource management and conservation of species, particularly of sea turtles

**Benin's Protection of Atlantic Sea Turtles and of Their Habitats** along the Coast of Benin addresses the causes of biodiversity loss through awareness and education campaigns that promote sea turtle conservation.

### COMPONENTS:

- Raise awareness and educate local populations on sustainable resource management and conservation.
- Incorporate sea turtle conservation into the development of ecotourism development plans.
- Strengthen capacity of local leaders to plan efficiently and enforce resource management rules and regulations.
- Sensitize leaders to the economic and ecological benefits of protecting sea turtles and their habitats.
- Share research and best practices on the conservation of marine sea turtles.
- Reduce the stress that coastal populations are placing on marine resources, particularly on sea turtles, through several awareness-raising and advocacy campaigns. Emphasis was placed on reaching out to the key actors involved in coastal management such as local authorities, opinion leaders, sworn officers and local population.
- Improve information exchange with other countries to strengthen regional and sub-regional cooperation at local and state levels.

### RESULTS:

- Significant reduction in the number of intentional killing of sea turtles by local communities. Currently, only 3.70 percent of sea turtle killings are due to local consumption, whereas, before its implementation, consumption was systematic and accounted for 75 percent.
- Enhanced community awareness of sea turtle conservation techniques and their associated environmental and social benefits.
- Before the project, adult turtles found on beaches while nesting were captured and killed for consumption by local residents, and their eggs were eaten as well. With the support of eco-guards trained by Nature Tropicale, adult turtles found on beaches are now measured, banded and released at sea after spawning. Furthermore, the eco-guards collect the eggs and provide secure places for incubation. At hatching, baby turtles are released at sea in the presence of tourists. During the 2007 and 2009 campaigns, 285 adult turtles and more than 9,700 babies were released in the sea with the support of eco-guards and local communities.
- Political and administrative authorities trained in turtle protection techniques, raised their awareness and drafted an inter-municipal decree to facilitate the protection of marine turtles at the local level that is currently in negotiations for ratification and implementation.
- Established alternative income-generating activities for the eco-guards in charge of promoting sea turtle conservation. In addition to microfinance loans and ecotourism, the NGO has introduced the use of solar energy in the region to fight against pollution in the wetlands and to reduce poverty.
- Eco-guards declared January 8th as the National Day of Sea Turtles in Benin, a day to raise awareness and to lobby the government for regulations to protect marine turtles.
- Established strong network of local and regional conservation partnerships and mechanisms.

### KEY ELEMENTS OF SUCCESS:

- Development of legislation to implement the Bonn Convention (CMS) and laws on the management of the concerned species.



- Information campaigns to raise awareness of coastal communities.
- Strengthening the capacity of eco-guards to conduct income-generating activities by helping them to create business plans, and providing funding for the best proposal to generate alternative income.
- Strengthening cooperation mechanisms and exchanges between sub-regional actors. These exchanges led to the creation of a lobbying group of local communities and local government representatives to integrate marine turtle conservation into local development plans.
- Promotion of regional consultations, capacity building workshops and guidance in developing advocacy tools for the development and implementation of legislation for the conservation of marine turtles in countries belonging to the GoSTCON network.
- Involvement of religious leaders and students in conservation efforts, as well as the use of audiovisual tools in public awareness campaigns, successfully engaged the local population in the issue.

## LESSONS LEARNED:

- Participatory management, empowerment of grassroots communities and strong coordination among stakeholders of the communities made the issue relevant at the community level and mobilized them toward an integrated approach.
- The integration of marine turtles into ecotourism, and the establishment and management of marine-protected communities have been and will continue to be fundamental for the sustainability of conservation efforts.

## BACKGROUND INFORMATION:

Included in the International Union for the Conservation of Nature (IUCN) Red List, sea turtles are endangered and risk extinction throughout the world. In Benin, despite the ratification of the Convention on Biological Diversity and the signing of the Abidjan Memorandum of Understanding, sea turtles are victims of daily and diverse threats on all of the beaches of Benin's 125 km coastline. Threats to the sea turtle in Benin include local populations (who value sea turtle eggs as food), fishermen, and nest destruction.

For all these reasons and as part of an emergency plan to protect sea turtles on the Atlantic coast of Benin, the GEF Small Grants Programme supported the Nature Tropicale, a local NGO, to raise awareness and promote the development of a strategy for sustainable sea turtle conservation in Benin.

## IMPLEMENTATION PARTNERS:

GEF-UNDP Small Grants Programme, The Ecosystem Grants Programme (EGP) of the National Committee of the Netherlands-IUCN NL, community officials (administrative and political), The Directorate of Forests and Natural Resources-DGFRN, Management of Wetlands Program-PAZH, Benin Center for Sustainable Development-CBDD, Beninese Environmental Agency-ABE, German Cooperation-GTZ, Netherlands Committee of IUCN, IUCN France, Eco-guards and local inhabitants of the coast of Benin

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ENSURE  
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## MDG-7: Ensure Environmental Sustainability

MDG target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

### CONSTRAINT:

#### **Lack of Innovative and Relevant Technologies for Wastewater Treatment**

Insufficient expertise and funding required to develop and to test appropriate technologies for wastewater treatment

**The Occupied Palestinian Territory's Introduction of Small-Scale Activated Sludge Filtration Systems of Wastewater Treatment** pilots the efficiency of a small scale wastewater treatment technology at the household level in rural areas of the Bethlehem and Hebron Governorates in the West Bank. It assesses the effectiveness and sustainability of locally developed technologies, compared to imported technologies, to determine which is more suitable for replication and scale-up.

### COMPONENTS:

- Six locally made and six imported sludge filtration units (SSWWT) developed/imported, installed and tested.
- Study conducted comparing locally made SSWWT units with the imported technologies.
- Analysis of pre- and post-water tests.
- Analysis of pre- and post-health and medical tests.

### RESULTS:

- Households collectively treat 180 m<sup>3</sup> of wastewater to Palestinian standards daily
- 180 households treat wastewater using installed plants.
- 180 households use treated wastewater for irrigation instead of high-quality drinking water
- 115 dunums of fruit trees and other suitable crops irrigated with treated wastewater.
- 722 kg of fruits and other crops produced per household (increase to 502 kg of fruits and other crops from the current level of 220 kg per year).
- Farming households produce an annual average of \$440 in food compared with \$134 for the current production level.
- This support improved the food security, health and income of 180 households by developing their gardens from additional irrigation sources.
- This improved the awareness of local communities' environmental problems by using environmentally sound technology to solve problems related to waste water. Prior to the implementation of this technology, the community had no clear vision about such technology and the possibility of using treated wastewater. The demand for the technology is growing and the beneficiaries are very satisfied.

### KEY ELEMENTS OF SUCCESS:

- The Palestinian Authority, including the Ministry of Agriculture and the Water Supply and Sewerage Authority, supports the technology advocated by this project, which has been registered as a patent by the Applied Research Institute - Jerusalem (ARIJ). The initiative is poised to provide inputs for future policies designed to mitigate the impact of wastewater on the environment and to improve access to water for irrigation.
- ARIJ was able to locally produce SSWWT for a cost of approximately 15,000 NIS, while the imported SSWWT with the same specifications costs around 45,000 NIS. In addition, the locally produced SSWWT gives a better quality result with reduced labour work and costs, since the workers need to dig only half as deeply for the imported filtration systems. Moreover, locally made raw materials have been used, creating additional jobs.
- The intervention uses low-cost technologies that can be easily implemented by the community, allowing for scaling-up.

### LESSONS LEARNED:

- The support encompasses pollution control and prevention, in addition to cost recovery and wastewater and effluent monitoring. This approach to pollution management is winning wide

community support, as it offers advantages to industries either through removal or reduction of waste, and the community benefits from an improved urban environment.

## BACKGROUND INFORMATION:

The rural population in the West Bank constitutes around 35 percent of the total West Bank population (2,350,583 people according to Census 2007) living in more than 450 villages. Less than 12 percent of localities in the West Bank have a wastewater network collection, while the rest depend on cesspits and open channels. Most of the cesspits are left without a cement basement or lining so that sewage infiltrates into the earth layers. The owners avoid using the expensive services of the vacuum tankers to empty them. The uncontrolled flow of sewage causes many environmental problems and health hazards.

ARIJ findings show that the Palestinian Territory's ground water wells are threatened by wastewater pollution from cesspits. Proper treatment of wastewater provides a convenient means of sewage disposal and pollution prevention, while allowing the effluent to be reused for irrigation. Most of the Palestinian Territory's rural population depends on agriculture to make a living and benefit greatly from using treated waste water when it is available. The conventional centralized wastewater management systems applied in urban areas, however, cannot be successfully used in rural areas. The wastewater collection component of this system accounts for 80 to 90 percent of the capital cost, which makes it economically unfeasible in rural areas because the dispersed pattern of houses requires large sewers to serve each house. As a result, ARIJ promotes Small-Scale Activated Sludge Filtration Technology (SSWWT) to replace the current cesspits in rural areas of the Bethlehem and Hebron Governorates in the West Bank. The duration of the project is 40 months and the total budget is \$1,170,000.

The major constraints to introducing Small Scale Activated Sludge Filtration Technology in rural areas of the Palestinian Territory include: a) The acceptance of the community, due to a lack of awareness of the benefits of using treated waste water; b) The high cost of production of such technology; c) The lack of awareness in the community of the importance of protecting or sustaining the environment.

## IMPLEMENTATION PARTNERS:

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## MDG-7: Ensure Environmental Sustainability

MDG target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

### CONSTRAINT:

#### Insufficient Financing & Community Mobilization for School Latrines

Insufficient funding and community awareness and mobilization to build and maintain school latrines

**Nepal's School-Led Total Sanitation (SLTS)** aims to be a complete package for school and community sanitation and hygiene. It capitalizes on the crucial role that children can play as change agents and promoters of sanitation and hygiene in schools and communities. Through participatory approaches, motivational tools, flexibility for innovation and building ownership at the local level, SLTS is accelerating latrine coverage across Nepal.

### COMPONENTS:

- Communities construct and maintain their latrines
- Provide masonry training, establishing a revolving fund and providing a reward for achieving Open Defecation Free status.
- Enhance personal, household and environmental hygiene behaviours
- Engage children in development activities, thereby enhancing their personal and leadership skills
- Increase ownership of schools and communities over hygiene and sanitation activities
- Build strong school-community partnerships that enable sustainability of hygiene and sanitation facilities

### RESULTS:

- The SLTS approach enhances the sense of dignity, identity and pride among local stakeholders and is sparking an outward momentum for neighboring villages and districts to follow the Open Defecation Free (ODF) approach. At the policy level, it is attracting attention and support from multidisciplinary sectors.
- SLTS has reached approximately 90,000 households and 500,000 people in 15 districts through 300 schools and surrounding communities, promoting sanitation and hygiene by constructing latrines in schools and communities.
- Over 1,000 settlements from 300 school catchment areas and 23 village development committee areas have been declared Open Defecation Free through the SLTS programme.
- Over 1,000 school headmasters and teachers, 8,000 child club members and several local leaders have been trained in SLTS, of whom nearly 50 percent are women. District Sanitation Steering Committees have been established and trained in SLTS facilitation in 15 districts.
- SLTS has been incorporated in the Nepal Sanitation Master Plan, developed in 2009, and the Government of Nepal is replicating the SLTS programme in all 75 districts. Targeted budget lines have been established for sanitation at the national and district levels. A 25 percent additional budgetary grant is given to villages that become open-defecation-free and have a child-friendly environment and facilities.

### KEY ELEMENTS OF SUCCESS:

- Empowered children are a dynamic and ultimately powerful force for catalyzing behavioural change in schools, families and communities with respect to water and sanitation. SLTS takes what children learn one step further, translating their knowledge of good sanitation and hygiene practice into advocacy and action on behalf of community health.
- SLTS promotes creative, non-subsidy-based, financing strategies to assist poorer people, such as loans from revolving funds, basket funds and local-level cooperatives to construct the latrines in every household. In many school catchment areas, fifty-fifty matching funds that provide loans to households have been established. Child clubs and village development committees provide other types of material and social support to ensure that all community members are able to construct and maintain a latrine. Local-level resource mobilization enhances community responsibility and



ownership.

- Schools and communities have developed a wide range of latrine designs based on the local environment, affordability and sustainability. Local entrepreneurs have invented technologies and toilet products that are cost-effective and efficient and that are then promoted in communities. These include child- and gender-friendly latrines, and latrines for disabled children that include facilities for hand washing with soap.
- Total sanitation inherently requires participation by all members of the community. In the past, the exclusion of poor and disadvantaged people from sanitation programming was a major hindrance to achieving open defecation free communities. With SLTS, vulnerable populations are prioritized.

## LESSONS LEARNED:

- At present there is significant variation between organizations regarding subsidies for household latrine construction; this makes building the momentum for community-led sanitation more difficult.
- Stronger linkages with NGOs and other sanitation stakeholders on the ground are one means of scaling up SLTS and promoting other community approaches to total sanitation.
- Changing hygiene and sanitation behaviour is complex and can take a number of years to ensure sustainability and require regular programs and campaign activities. The knowledge and skills that children's clubs and community members learn through SLTS are becoming a culture transferrable from generation to generation.

## BACKGROUND INFORMATION:

In Nepal, 54 percent of the population defecates in the open. Approximately 9.1 million children under 18 live without improved sanitation, the majority of whom practice open defecation. This has severe implications for the overall health of the country's children. Diarrhea and acute respiratory infections are the leading causes of under-five mortality, with 10 million cases of diarrhea annually. Likewise, the socio-economic effects of poor sanitation are significant. For Nepal to achieve the MDG target of halving the number of people without access to sanitation by 2015, 14,000 latrines need to be constructed each month. Nepal's demanding national context required a rapid scale-up of sanitation aimed at reaching children and communities.

In the beginning of 2006, UNICEF and the Government of Nepal piloted School-Led Total Sanitation (SLTS), a new community-based approach to total sanitation. Open Defecation Free (ODF) status is achieved through intensive social mobilization using participatory approaches, advocacy and institutional capacity building at school, community and district levels. SLTS builds on the achievements of UNICEF's School Sanitation and Hygiene Education (SSHE) programme, implemented in Nepal since 2000. It integrates the reward/recognition and revolving fund aspects of the Basic Sanitation Package and incorporates the participatory tools and techniques of Community-Led Total Sanitation.

SLTS begins at the school and extends to the school catchment area, generally made up of four or five communities. SLTS works with child clubs and empowers them to put their skills to use alongside community sanitation sub-committees. Together, they lead in the campaign to educate their parents and neighbors about the benefits of using improved sanitation and keeping their communities clean. Key steps in the implementation to SLTS include: school selection and preparation in collaboration with the District Sanitation Steering Committee and local partners; capacity building of stakeholders; assessment of the sanitation and hygiene situation of the school catchment areas; an "ignition" phase to engage community members' participation; implementation of construction of latrines at households through innovative and creative communication activities; and ODF declaration and follow-up.

## IMPLEMENTATION PARTNERS:

Ministry of Physical Planning and Works, Department of Water Supply and Sewerage  
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# MDG-7: Ensure Environmental Sustainability

MDG target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

## CONSTRAINT:

### Lack of Private Sector Capacity in Manual Drilling

The private sector inhibited from developing a manual drilling sector due to lack of capacity

**Professionalizing the Manual Drilling Sector in Africa** is a capacity building programme to increase access to safe water in rural areas throughout Africa. The programme is creating a step-by-step methodology to promote a local professional manual drilling sector, which provides a sustainable cost-effective option for supplying water to rural communities.

## COMPONENTS:

- Develop a manual drilling toolkit, including practice guides and drilling manuals, for the creation of a sustainable manual drilling sector, which provides a step-by-step methodology for the promotion of a local professional manual drilling sector
- Raise awareness at the country and international levels of the role that manual drilling can play in meeting the MDGs, through promotional materials as videos and technical notes
- Collect data demonstrating the viability and acceptability of manually drilled wells
- Identify zones in Africa where manual drilling is feasible and estimate costs of manually drilled water points
- After identifying suitability, select local enterprises, train local enterprises, complete manual drilling activities in rural areas and schools
- Organize regional workshops and country assessments to support the design of the activities at the country level
- Document methodologies for social marketing and enterprise training
- Compile a database on manual drilling for the countries undertaking the initiative

## RESULTS:

- Currently, 14 African countries are mainstreaming manual drilling and professionalizing the sector as a direct result of this initiative, with each country in a different stage of the process. This shows the high interest in this initiative that has developed in the Sub-Saharan Africa region. In Chad, for example, a total of 208 boreholes were manually drilled from 2006 to 2008, serving approximately 80,000 people. 43 manual drilling enterprises are currently in training and, of those, 13 enterprises are ready for their final test. The government has endorsed the “Technical Well Standards” documents and officially accepted the technique. A group of 20 quality controllers has been trained to create a quality control system of boreholes.

## KEY ELEMENTS OF SUCCESS:

- The cost-effective and demand-driven approach used in activities to promote manual drilling of boreholes in countries with a high demand for potable water in rural areas with a large territory that falls in the category of “high or medium suitability” for manual drilling
- The activities are expanding the capacity of local enterprises to respond to the need for boreholes by:
  - Improving or creating local capacity to provide professional manual well-drilling services
  - Enhancing local capacity to provide independent quality assurance and to provide training and follow-up for communities to ensure sustainable management of the water points
  - Enhancing local capacity of pump installers and repairmen and reinforcing the supply chain for spare parts
  - Identifying favorable zones where the hydro-geology is suitable for manual drilling
  - Creating a market for manually drilled wells through promotion and advocacy with donors, governments, and individuals

## LESSONS LEARNED:

- The process of creating capacity at the country level is possible; however, adequate time (three to



four years) is required for the capacity building to take place.

- Developing capacity of the local private sector makes improved access to potable water in rural areas more replicable and sustainable. If governments incorporate and adopt this strategy into their national strategies, manual drilling could be an enormous complement to increasing access to potable water in rural areas.

## BACKGROUND INFORMATION:

In Sub-Saharan Africa, estimates indicate that an additional 294 million people need access to safe drinking water by 2015 (33 million people annually) in order to achieve the associated MDG target. The high cost of developing potable water sources is a major impediment to improved water access for many rural people. In Africa, UNICEF estimates the cost of concrete-lined hand-dug wells (up to 25 meters deep) equipped with hand pumps to be \$4,000 to \$6,000, and medium-depth drilled wells (50-200 meters deep) equipped with a hand pump to cost about \$12,000 – \$25,000. These figures include all of the associated training and overhead costs.

A number of factors contribute to the high costs of drilling in Africa, including the limited number of drilling rigs and the lack of competition, which have resulted in large profit margins, expensive spare parts, poor infrastructure, and dispersed markets. In addition, the lack of adequate infrastructure, including roads and bridges, makes it difficult for large rigs to reach drilling sites, even in the dry season. At prevailing prices, neither the local communities nor donors can satisfy the great demand for potable water, especially for small communities in rural areas, which account for a high percentage of the un-served population. There is a growing need to provide solutions that are affordable and give rural households enough potable water.

Manual drilling is a practical solution for wells less than 40 metres deep in alluvial soils or soft rock formations. There are many areas in Africa where it can effectively provide drinking water to un-served rural populations at a fraction of the cost of conventional drilling. UNICEF, Practica, and Enterprise Works/VITA have developed a toolkit to build the capacity of the local private sector in order to respond to the ever-increasing demand for safe water in rural areas. Based on the experiences from Niger, Chad, and Senegal, the toolkit provides a step-by step methodology for the promotion of a local professional manual drilling sector. Drawing on these experiences and using the expertise available in the partnership, country programs are tailored to the needs and means for supporting the activities in the countries. To date, 15 African countries are participating in the process.

The activities were designed to support these countries through tested and proven approaches such as: collaboration with local private enterprises; utilization of locally made tools; provision of technical and business training, ensuring that auxiliary service providers are adequately trained to assume their functions; development of a quality control mechanism, national well standards, and centralized data collection; and promotion of the technologies of manual drilling to donors, NGOs, and governments as well as to individuals and communities.

## IMPLEMENTATION PARTNERS:

UNICEF, Enterprise Works Vita, Practica Foundation, Ministries of Water in 15 African countries, local private sector for implementation.

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ENSURE  
ENVIRONMENTAL  
SUSTAINABILITY

## MDG-7: Ensure Environmental Sustainability

MDG target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

### CONSTRAINT:

#### Lack of Infrastructure for Safe Water and Adequate Sanitation

Lack of infrastructure providing safe drinking water and adequate basic sanitation facilities

#### Senegal's Millennium Programme for Safe Drinking Water and Sanitation (PEPAM)

develops infrastructure for safe drinking water and basic sanitation in both rural and urban areas. It is entrenched in the MDG framework and seeks to provide a safe drinking water source for nearly 4 million people and sanitation facilities for over 5 million people nationwide by 2015.

### COMPONENTS:

- Provide a sustainable supply of drinking water for an additional 2.3 million persons residing in rural areas and increase the safe drinking water access rate for rural households from 64 percent in 2004 to 82 percent in 2015
- Prepare 355,000 rural households for improved sanitation facilities; increase the access rate to improved sanitation facilities from 26.2 percent in 2004 to 63 percent in 2015, serving an additional 3.15 million people.
- Provide improved sanitation facilities in public buildings in rural communities by constructing 3,360 public restrooms in schools, post offices, health centers, public markets, train stations, etc.
- In urban areas, provide access to private water connections for an additional 1.64 million people and achieve, by 2015, a private connection access rate of 82 percent, up from 75 percent in 2004
- Enable an additional 1.73 million people residing in urban areas to access sanitary services by improving the rate of access to sanitary facilities from 56.7 percent in 2004 to 78 percent in 2015
- Improve the treatment rate of wastewater collected in urban areas, from 19 percent in 2004 to 61 percent in 2015, by constructing sanitation treatment plants

### RESULTS:

- Overall, 2.62 million people have benefited from reliable access to safe drinking water in rural areas (1.5 million people) and in urban areas (0.7 million people). The efficiency of the urban water sector and the quality of service were dramatically improved by the urban water private operator with a collection bill rate of 98 percent and the reduction of water losses from 32 percent in 1996 to 20 percent in 2008. In rural areas, the management of water facilities was improved, with a rate of functionality reaching 90.3 percent in 2008, thanks to the establishment of ASUFORs (Rural Water Users Associations).
- An additional 830,000 people have access to common sewage systems or individual sanitation facilities in urban areas.
- 102,000 people in rural areas were provided with individual sanitation facilities.
- The treatment rate of wastewater collected in urban areas was 35 percent in 2008, up from 19 percent in 2004.
- Overall, Senegal is expected to reach the MDG targets related to water, but must strengthen its efforts for urban sanitation. The rural sanitation goal may be missed unless a new strategy is devised to address the main challenges for rural sanitation, including lack of funds and difficulty of scaling up.

### KEY ELEMENTS OF SUCCESS:

- The participatory approach for the preparation of a nationwide program in the water and sanitation sector
- The objectives and the strategy of the PEPAM were closely in line with the major axes of the PRSP, in which water and sanitation were set as the top government priorities.
- The results are linked to ambitious reforms based on the mobilization of actors and the populations, a participatory planning process, a long-term strategic vision, an accountable management system and strong partnerships.

## LESSONS LEARNED:

- Using a participatory approach and ensuring the political will of the Government are necessary to design a sound program and to attract public funds reliably.
- Free social water connections significantly improve access in urban areas. Private connections provide better service, and all other alternative sources of safe water, particularly standpipes, are costlier for the end user.
- In rural areas, sanitation is a key issue. Countries must develop a sound strategy to match the necessary subsidies needed for poor households with the scarce funds and the technology to meet the requirement of the MDGs. For the rural water sector, a particularly great challenge consists in levying tariffs that are affordable, yet sufficient to cover overhead and management costs.

## BACKGROUND INFORMATION:

Partially as a result of this initiative, Senegal is closer to achieving the MDG target of sustainable access to an improved water source and sanitation. PEPAM works to provide access to safe drinking water and sanitation infrastructure as well as a harmonized intervention framework. A total of 515.4 billion FCFA will be invested in the program, with 53 percent of the funds going to rural areas. The program enjoys high sector priority both with the Government and Senegal's development partners. It was designed under the framework of the institutional urban water reform of 1995.

The state has the ultimate responsibility for meeting national water supply and sanitation objectives and will stand behind the contractual authority of large-scale water supply and sanitation projects. Local authorities are responsible for the planning and contracting of small- and medium-scale projects in their areas. Each local government has its own Water Supply and Sanitation Local Plan (WSSLP). Rural populations directly benefit from the promotion of individual sanitation through the public supply of water. The private sector is able to broaden the range of services offered and to strengthen its technical prowess (especially with regard to drilling boreholes). While the state is responsible for procurement and contracts, NGOs provide water and sanitation facilities as well as support and training.

## IMPLEMENTATION PARTNERS:

National Government, local governments, ASUFORs (Rural Water Users Associations), NGOs, development partners (including UNDP)

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ENSURE  
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SUSTAINABILITY



## MDG-7: Ensure Environmental Sustainability

MDG target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

### CONSTRAINT:

#### **Insufficient Financing & Mobilization for Community-Owned Water Supply Systems**

Insufficient funding to create a community water system; lack of community awareness and mobilization to adequately maintain a community water system

**India's Decentralized, Community-Owned and Managed Drinking Water Supply Systems and Sanitation Facilities** enabled rural communities in the State of Gujarat to have adequate, safe and sustainable drinking water supplies through community empowerment and their active participation in the management of their own resources. The programme aims to cover all 18,062 villages in Gujarat by 2012.

### COMPONENTS:

- Form a village-level water committee in each village in Gujarat and undertake participatory planning activities
- Raise awareness in the community on the importance of safe, adequate and regular water supply through street plays, exposure visits, information sharing at village meetings, and other methods
- Develop in-village water supply systems consisting of household connections as well as community stand posts through piped water supply, taking into consideration sustainable water supply source and allied infrastructure
- Establish a community-based water quality monitoring system in each village
- Ensure there is a mechanism for regular maintenance of the water system by the community

### RESULTS:

- Since the programme began, village-level water committees have been formed in each of the 18,062 villages in Gujarat. More than 4,600 villages have already constructed an in-village water supply system, with 90 percent of those opting for house-to-house water connections. Another 3,500 villages are in different stages of completion. To date, the Government has invested \$177 million for implementation of these water supply schemes through the Water and Sanitation Management Organization (WASMO), while the community's share has been US\$17 million. In addition, communities have deposited 10% of the capital cost to ensure proper operation and maintenance of the system.
- WASMO has also helped to set up a community-based water quality monitoring system in all of the 18,062 villages of Gujarat. Villagers and Gram-Mitras (village guides) have been trained to monitor water quality with a simple field-test kit provided by WASMO. The monitoring system has ensured regular supply of safe drinking water to villages. According to WASMO, bacterial contamination in water has decreased from 33 percent in 2008 to 8 percent in February 2009. Regular chlorination of the water supply occurs at the community and household levels. People have also been educated about the need to keep their water sources clean and to adopt safe handling practices.

### KEY ELEMENTS OF SUCCESS:

- There have been exercises to assess specific water system needs of the village. The needs vary from recharging local water supply sources to leveraging the state-wide water grid of irrigation canals and pipelines. In addition, WASMO adopted a variety of technologies, such as drawing water from local and remote sources, rooftop rain water harvesting systems, community-based reverse osmosis, ultrafiltration, and resin-based ion exchange technologies, to address problems of high total dissolved salts and ultraviolet filtration for removing bacterial contamination.
- Informational activities, including exposure visits, street plays, and involvement of school children and women, and information-sharing at Gram Sabhas (village meetings), have raised awareness about safe, adequate and regular water supply and the importance of community-managed water supply systems.
- About 10 percent of the capital cost is borne by the community, while 90 percent of funding comes



from Government sources. The responsibility for operating and maintaining the systems resides with the community, for which Pani Samitis (village water committees) levy an appropriate tariff. WASMO has made special efforts to involve women in the day-to-day functioning of the Pani Samitis. As a result, 2,800 Pani Samitis are headed by women and around 42,700 women are members of these committees.

- To implement a sustainable community-based water monitoring system, a rapid water quality monitoring technique was piloted in nine districts. Related district action plans were prepared to improve the water quality.
- Partnership with 75 NGOs has facilitated participatory resource/learning appraisals and community empowerment to build and manage the village water system resources through community mobilization. Private Indian companies like TATA, Adani and Ambuja Cement have joined hands with WASMO to support initiatives in areas adjacent to their factories and beyond. Networking and constant consultations with other Government departments like those of Health, Education and Rural Development, and organizations like UNICEF, helped to crystallize the approach and its successful implementation.

## LESSONS LEARNED:

- Before the programme began, there were fears – since dispelled – about the capacity of communities to plan, implement and manage in-village infrastructure and development works. Gram Panchayats and the community have proved that they are not only able to implement the schemes, but are also able to maintain financial discipline and transparency. They are also willing to contribute toward the capital costs of water supply systems, as well as of operation and maintenance.

## BACKGROUND INFORMATION:

Gujarat, situated in the western part of India, suffers from recurrent droughts and over-exploitation of groundwater, which has resulted in an acute shortage of water. People, particularly women and children, often have to travel long distances to get drinking water. The provision of water in rural areas is the responsibility of Government agencies. Little or no community participation historically existed in managing water sources, resulting in an irregular, inefficient and financially unviable system unable to meet people's requirements.

In 2002, the Government of Gujarat established the Water and Sanitation Management Organization (WASMO) to enable rural communities to have an adequate, safe and sustainable drinking water supply and to ensure their participation in the management of their own water resources. WASMO has been institutionalizing community-managed water supply systems through the formation of Pani Samitis (Water Committees) at the village level. The distinct paradigm shift in the Government's approach from being a provider to a facilitator has made this possible.

## IMPLEMENTATION PARTNERS:

Government of Gujarat Water and Sanitation Management Organization, Gujarat Water Supply and Sewerage Board

UNICEF India Country Office, Royal Netherlands Embassy, village-level water committees, civil society organizations/NGOs, private Indian companies including TATA, Adani and Ambuja Cement

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ENSURE  
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# MDG-7: Ensure Environmental Sustainability

MDG target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

## CONSTRAINT:

### **Lack of Knowledge and Infrastructure for Safe Water and Sanitation Practices**

Lack of knowledge about the importance of safe water and adequate sanitation and lack of sustainable, cost-effective and easy-to-maintain water supply and sanitation infrastructure

**Pakistan's Water and Sanitation Extension Programme (WASEP)** aims to prevent water-related diseases through the integration of improved water supply, sanitation infrastructure and hygiene education.

## COMPONENTS:

- Promotes and encourages community mobilization and participation by undertaking a Terms of Partnership with community organizations to contribute to the overall intervention costs and to form a local Water and Sanitation Committee to administer and manage the water supply scheme
- Undertake health and hygiene education activities, including household visits and school programs, to increase local awareness of good health and hygiene practices
- Provides potable water supply infrastructure to beneficiary households
- Provides three different categories of household latrines to meet different local preferences
- Installs village-level filtration plants to maintain water quality
- Installs infrastructure for disposal of dirty and excess water at each tap-stand, consisting of cemented platforms with a drain leading to a soakage pit or an existing overland channel

## RESULTS:

- Installed 207 safe water supply and filtration services in partnership with local villages. 15 percent of the total population of Gilgit-Baltistan and Chitral regions (165,060 people) have been provided with potable water
- Installed 10,200 water-efficient latrines in rural households
- Conducted over 6,024 health and hygiene education sessions in local households and schools
- Provided 207 villages with skills training in construction and maintenance of water infrastructure
- Trained 50 public sector employees and others in the design and installation of integrated water and sanitation service infrastructure
- The incidence of diarrheal and water-borne diseases has decreased 60 percent in program villages.
- Raising of awareness and education have significantly improved hygienic practices among local communities.
- The water collection time for women and children in program villages has decreased from an average of 3 to 4 hours per day or per week to almost zero for the entire year.
- Over 80 percent of the program's schemes have met or exceeded WHO standards for water quality.
- All 207 water supply schemes are currently operational, being run and operated by local communities.

## KEY ELEMENTS OF SUCCESS:

- Communities take ownership of their schemes by investing time and human resources.
- The program emphasizes the participation of women at all stages of design, from land surveying and tap-stand placement to system training and testing.
- A child-to-child approach to behavioural change is used in the school health program, employing teaching methods such as group discussions, stories, role play and cartoons.
- The program uses cost-effective, energy-free and easy-maintenance technologies to ensure adequate and safe water supply and sanitation schemes, which communities can operate and



maintain with limited but feasible technical assistance and training.

- Human resources are developed by employing local manpower in program activities and providing training opportunities.
- The project installs infrastructure that does not require electricity, making it easy to operate and maintain with limited external support.

## LESSONS LEARNED:

- An integrated water supply, sanitation and hygiene awareness programme that invests in community involvement and participation alongside sustainable technologies can have tremendous socio-economic impacts, especially in villages that have inadequate water collection and supply, unsafe hygiene practices and associated health risks.
- The program's integrated community-oriented approach has the potential to be replicated in any situation.
- Communities are motivated to maintain their systems when they witness comprehensive benefits. The reduction in healthcare expenditures also increases villagers' willingness and ability to pay for maintenance of the infrastructure.

## BACKGROUND INFORMATION:

The regions of Gilgit-Baltistan and Chitral (GBC) are among the most remote and poorest areas of the high mountain regions of northern Pakistan, with an average household income of \$0.50 per capital per day and an unemployment/under-employment rate of about 70 percent. Poor living conditions in the region are compounded by the harsh reality that approximately 85 percent of the population does not have access to safe drinking water. 60 percent of inhabitants collect water daily from open channels usually contaminated with human and animal waste and chemical pollutants. Women and children, traditionally the "water haulers" of the household, must walk moderate distances, negotiating rocky slopes and snow-laden fields to collect water from glacial melt streams and lakes.

Polluted living conditions resulting from unsafe water and almost no sanitation or hygiene awareness directly lead to ill health, disease and death. In many areas of the GBC region, water contamination is 500 times higher than WHO standards, resulting in a frequent illness, including acute respiratory infections, eye infections and dysentery. A local study revealed that 50 percent of all deaths of children between 1 and 5 years of age is attributable to poor water and sanitation. Implications of poor sanitation are not fully understood by many communities, and houses, schools and public buildings are often constructed without latrines. Women in this religiously conservative region often suffer the most from a lack of private and sanitary toilet facilities.

While employing a financially sustainable, environmentally-friendly and participatory approach, WASEP's integrated strategy combats this by applying research related to safe water supply, the development and demonstration of energy-free infrastructure, the integration of sanitation facilities, the establishment of decentralized and community-based water and sanitation committees, and the promotion of intergenerational, village-wide knowledge of hygiene and healthcare.

## IMPLEMENTATION PARTNERS:

Aga-Khan Planning and Building Service, Pakistan

Government of Pakistan

German Government (KfW), UNDP, World Bank, Flora Family Foundation, Partner Aid International, Australian Government

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ENSURE  
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SUSTAINABILITY

## MDG-7: Ensure Environmental Sustainability

MDG target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

### CONSTRAINT:

#### Limited Local Water Governance Capacity

Limited capacity of community-based water maintenance structures to ensure continued supply of safe water to communities

#### Uganda's Improving Functional Access to Safe Water through Strengthening Water

**Management Groups** aims to increase access to safe water for 4,374 people in Butiiti Sub-County through strengthening the decentralised Community-Based Maintenance Structures (e.g., the Water Board and the Tap-Stand Committees).

### COMPONENTS:

- Work with the district water office and the sub-county to:
- Develop a criteria for selection of the Water Management Board and the Tap-Stand Committees (which included representation by gender, categories of water users, etc.)
- Facilitate the User Community to select the Water Board and the Tap-Stand Committees. The Water Board has 9 members representing community, institutions and the sub-county.
- Conduct training in conjunction with the Technical Support Unit of the Water Board and representatives of the Tap-Stand Committees. Focus of the training included basic financial management skills, transparency and accountability to the users, work plan development and integration of hygiene promotion into the Board's activities.
- Support supervision by the sub-county and/or district, including monitoring, evaluation and reporting mechanisms

### RESULTS:

- In October 2008, the sub-county facilitated the election of the Water Board and the Tap-Stand Committees (TSCs) for the Mukunyu Gravity Flow Scheme (GFS).
- The performance of the Management Structures of the Water Board and the Tap-Stand Committees markedly improved, as the following indicators show:
- Improved supply of safe water without breakdown in the system or any of the taps since the Water Board and Tap-Stand Committees were established and trained in November 2008.
- The Water Board and the Tap-Stand Committees for the 12 public and institutional taps have been fully functional since the intervention. All categories of water users are represented on the Water Board.
- There is a positive community attitude toward making contributions for operation and maintenance.
- The Board has receipt books and other financial records to improve transparency and accountability concerning the user fees paid by communities.
- The Board registered with the Mid-Western Umbrella Organisation of Water and Sanitation (MWUWS) of Directorate of Water Development and has paid the annual subscription fees.
- The Water Board developed a 2-year work plan for 2009-2011, incorporating hygiene and sanitation promotion. This was submitted to the sub-county and incorporated into the district plan and budget for FY 2009/10.
- At the Kyenjojo DWSCC meeting held in May 2009, this scheme was visited by stakeholders and the field visit team at Mukunyu noted that "their budget is balanced toward software and hardware investment."
- 4,374 people located in Mukunyu parish have continued to access a safe water supply. Mukunyu GFS is now regarded as a good practice and is the reference point for the district.
- The Water Board realized that communities can participate effectively and make financial contributions for operation and maintenance if there is transparency and accountability concerning the funds collected.
- The district water office has planned to roll out the initiative to other problematic GFS systems in the district.



- The district expects to roll out the good practices from Mukunyu GFS to the rest of the sub-counties in the next 2 years, leading to 100 percent functionality of GFS in the district.

## KEY ELEMENTS OF SUCCESS:

- The commitment from the district and sub-counties to improve the status quo was a vital contribution to increased access to safe water for communities.
- Capacity strengthening for decentralised water management structures, through Public-Private Partnerships, to take charge and building capacity to understand respective roles and responsibilities was key.
- The ability of the management structures at the water-facility level to develop work plans for inclusion in the sub-county plans and subsequently in district plans and budgets will ensure sustainability of investments.
- Water points are better managed and sustainability is guaranteed when all concerned stakeholders are members of the water management structures and especially when women are playing a vital role.

## LESSONS LEARNED:

- Governance issues, especially transparency and accountability, may lead to lack of trust and eventually affect community participation in and contributions for the operation and maintenance of water facilities.
- Willingness of the district and the sub-counties to learn and their ability to apply the lessons to improve the management of water points and systems is very critical for sustainability.
- To enable replication, there need to be mechanisms for sharing the experiences and lessons. Documentation of successful outcome-level cases encourages continuity of good management practices among GFS/community management models.

## BACKGROUND INFORMATION:

The safe water coverage in Kyenjojo district stands at 68 percent and functionality at 85 percent. Poor operation and maintenance of facilities, especially of the Gravity Flow Schemes, compromise access to safe water in the district and Butiiti Sub-County. This results in non-functional systems, a problem that is compounded by non-functional water management structures (Water Boards and Tap-Stand Committees), low community participation and contribution for O&M, and lack of transparency and accountability within the management structures (where these exist).

Butiiti Sub-County is served by 2 Gravity Flow Schemes (GFSs) complimented by a few protected springs. One of these is Mukunyu Gravity Flow Scheme, serving Mukunyu parish and a few households in Butiiti parish. The GFS, constructed in 2004, has an 8 km transmission pipeline from the water source to the reservoir tank. Shortly after construction, the GFS experienced technical failure and did not function well for the next 2 years. In 2007, the district prioritized the rehabilitation of the scheme, but this did not improve access to safe water for the 4,374 people in the parish, as tap-stands soon ran dry.

SNV worked with the district and the sub-county to ensure that there would be a Water Board and Tap-Stand Committees to manage the GFS. This case highlights the outputs and outcomes of the assignment that have enabled approximately 11 percent of the population in Butiiti Sub-County to have constant access to safe water since November 2008.

## IMPLEMENTATION PARTNERS:

Ministry of Water and Environment, Directorate of Water Development (Technical Support Unit 6)  
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ENSURE  
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## MDG-7: Ensure Environmental Sustainability

MDG target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

### CONSTRAINT:

#### Capacity Gaps in the Context of Trans-boundary Water Cooperation

Lack of river basin management coordination among Nile Basin countries; capacity gaps of water experts in the Nile Basin region

**Capacity Building and Networking of the Countries (FRIEND) in the Nile Basin** aims to improve international river basin management of the Nile through improved cooperation among the Nile countries in water resource management and regional analysis of hydrological regimes. This has helped to provide safe and clean water and has promoted sustainable regional development by securing enough water for the agriculture, industry and other sectors.

### COMPONENTS:

- Enhance capacity development and collaboration among water experts of the Nile Basin countries
- Promote research cooperation among Nile Basin countries through hydrological researches on selected topics, conducted by researchers from all participating countries
- Increase the number of trained personnel in the region in order to improve the sustainability of the present initiative and to reduce, in the longer term, the dependence on external support agencies
- Enhance networking among training institutions in the countries of the region and to improve their connections with similar institutions in the rest of the world

### RESULTS:

- Improved institutional and human resource capacity for water resource management
- Developed mutual trust, confidence and understanding among the implementing institutions in the participating Nile Basin countries
- Fostered networking, regional cooperation and the exchange of experience among water experts and institutions in the Nile Basin countries
- Enhanced knowledge and understanding of the hydrological processes of the River Nile
- Enhanced methodologies and promoted relevant hydrological practical research in the Nile Basin
- Enhanced south-south as well as north-south cooperation through research initiatives
- Provided new tools, technologies, methodologies and software as an effective approach for enhancing the institutional and human resources capacity building for Nile Basin water resource management.

### LESSONS LEARNED:

- Networking among the Nile water scientists and experts is a powerful tool for enhancing and addressing the common economic and social problems facing the Nile countries, and thus for introducing sustainable and workable solutions to these problems.
- More efforts and financial resources are needed to sustain the current efforts for enhancing human and institutional capacity building for water resources management in the Nile Basin. Moreover, enhancing regional cooperation and networking among Nile countries in socio-economic fields is vital.

### BACKGROUND INFORMATION:

The River Nile has been providing life to the vast Nile Basin for hundreds of thousands of years. In total, ten countries make up the Nile River Basin: Burundi, Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda. While making up 10 percent of the land mass of Africa, these 10 countries contain 40 percent of the African population: about 300 million inhabitants, half of whom are estimated to live in the Nile Basin. The population density in the well-irrigated parts of the basin is more than 386 per km<sup>2</sup>. Farmers - raising beans, corn, cotton, millet, rice and wheat - form the largest group. The population is considered to be among the poorest in the world.

The Nile countries urgently need training and research as well as the formation of networks and building capacities. The Nile Basin is characterized by water scarcity, poverty, a long history of dispute and insecurity, and rapidly growing populations and demand for water.

### **IMPLEMENTATION PARTNERS:**

UNESCO provided technical and financial support (\$929,700 for 2001-2005 and \$950,000 for 2006-2010 from the UNESCO/Flanders Science Fund-In-Trust). A network of water resource experts in the Nile basin and the Flemish community has been established and strengthened.

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ENSURE  
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# MDG-7: Ensure Environmental Sustainability

MDG target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

## CONSTRAINT:

### Ineffective Operation and Management of Water Supply and Sanitation Services

Limited capacity for the sound operation and management of water supply and sanitation services

**The Arab Countries Water Utilities Association (ACWUA)** serves as a regional center of excellence that provides water supply and wastewater utilities in Arab countries with best practice for improving the delivery of water supply and sanitation service delivery to their customers.

## COMPONENTS:

- Serves as regional platform for the exchange of knowledge and best practice amongst its member utilities, experts and professionals.
- Develops resources, organizes and facilitates training programs, and advocates for the professional certification of member utility staff to enable them to perform their duties in a professional, reliable and cost-effective manner.
- Promotes the development of performance standards for the governance, management, operation and maintenance of water supply and wastewater utilities.
- Supports the interests of ACWUA members, including the provision of advice and consultation on water legislation, policies, and sector management and reform.
- Develops, promotes and disseminates publications and other knowledge products to meet the needs of members and other regional professionals.

## RESULTS:

- Securing the membership of over 60 Arab water utilities less than one year after establishing its Secretariat.
- Organizing three regional best practices conferences on water efficiency and non-revenue water for reducing drinking water loss reduction in public and privately operated networks.
- Securing the commitment of member utilities to lead working groups to address regional challenges facing water operators, including water resources management, cost recovery, capacity building and benchmarking.
- Partnering with regional organization on the identification and monitoring of regional specific indicators for assessing the quality of water supply and sanitation service delivery in Arab countries.
- Collaborating with international and regional partners for the organization of capacity building, training and twinning opportunities for staff of Arab water utilities.
- Completing an assessment of the key challenges, capacity gaps and training needs of member water utilities in consultation with senior managers and operators within member utilities.

## KEY ELEMENTS OF SUCCESS:

- Establishment of a Board of Directors comprised of heads of water utilities in Arab countries.
- In-house access to technical experts on support on water supply and sanitation and knowledge management systems, which complement the core resources of the association's secretariat.
- Regular consultation with the international donor community and regional partners to foster coherent and coordinated support to Arab water utilities.

## LESSONS LEARNED:

- Performance indicators and targets can help in mobilizing action and resources for achieving MDG targets and associated benchmarks
- Benefits can be generated from twinning large utilities with smaller utilities and from south-south cooperation.
- External experts and technical advisor can provide needed support to utility managers in identifying and developing best practices and guidelines for regional dissemination and exchange.

## BACKGROUND INFORMATION:

The water sector in the Arab region suffers from severe water scarcity and increasing demand for water supply and sanitation services due to rapidly growing population pressures, urbanization, and migration due to internal population movements and political conflicts. Arab countries face difficulty overcoming these pressures due inefficient managerial and technical capacity, insufficient investment, poor operation and maintenance, and financing gaps. Socio-economic realities and unsustainable production and consumption patterns also limit the ability of public and private sector water operators to pursue effective cost recovery schemes, reduce non-revenue water and increase the quality and quantity of water delivered, which further contributes to the ineffectiveness of water supply and sanitation services in Arab countries.

In response, the Government of Germany and the United Nations Economic and Social Commission for Western Asia (ESCWA) through its German Cooperation project implemented with GTZ launched a regional initiative to establish an association of water supply and wastewater management utilities. Following high level consultation and expert group meetings with ministries and water operators, regional consensus and support for this initiative was formalized with the establishment of the Arab Countries Water Utilities Association (ACWUA) and the subsequent establishment of its Secretariat in Amman, Jordan in July 2009.

## IMPLEMENTATION PARTNERS:

ACWUA Secretariat, Board of Directors and membership  
German Government (GTZ)  
United Nations Economic and Social Commission for Western Asia (ESCWA)  
Government of Jordan

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SUSTAINABILITY



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SUSTAINABILITY

## MDG-7: Ensure Environmental Sustainability

MDG target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

### CONSTRAINT:

#### **Lack of Community Mobilization & Appropriate Technology for Improved Water**

Lack of community mobilization and affordable and easy-to-use technology to improve access to safe drinking water

**Tanzania's Village Water Supply and Environment Conservation** programme facilitated access to safe drinking water by introducing participatory water management and low-cost and appropriate water supply technologies.

### COMPONENTS:

- Village communities conducted a participatory assessment of their felt needs.
- Village communities, through their leaders, approached Government technicians to design an inexpensive water to suit their needs. With assistance from technicians, villagers selected the gravity water supply technology, which is easy to run and, once fixed, does not require variable costs to maintain.
- Survey to assess volume of water at the source, terrain of village land and length of water distribution lines and establishment of an intake
- A water committee comprising men and women was democratically elected to coordinate the implementation and post-implementation operations; committee members were trained.
- Training of local technicians
- The community contributed voluntary labour to dig 10 km of main and distribution pipelines. A water reservoir tank was constructed by using voluntary labour and paid supervision. 56 drawing points were also constructed.
- Establishment of user regulations including user fees and the establishment of a water fund to sustain operations

### RESULTS:

- Water began to flow in the beneficiary village, benefiting over 3,000 people. The water flows by gravity from its natural spring to a reservoir tank. From the tank, water is conveyed to users through distribution pipes.
- Access to clean water resulted in an 80 percent reduction in the incidence of water-borne disease.
- Construction of 300 additional improved homes, construction of two new classrooms and the rehabilitation of two schools due to the increased availability of water required to make bricks.
- Improved water governance practices
- Afforestation due to enhanced irrigation
- Improved household food security as a result of the onset of irrigation farming
- Increased access to water resulted in higher yields of coffee seedlings, which has increased farmer's incomes from the sale of coffee and surplus coffee seedlings
- Proceeds from the water fund were used to support children orphaned by HIV/AIDS through food aid and the provision of medicine. Villagers with full-blown AIDS are provided with counseling services and life-prolonging medicine.

### KEY ELEMENTS OF SUCCESS:

- Participatory implementation approach; the strategy for implementation involved everybody with clearly defined roles and implementation involved all villagers. The elderly looked after children; women fetched water while men dug the pipe lines and constructed the water tank.
- Community ownership
- Employed simple-to-use and low-cost technology (gravity scheme). Gravity technology moves water from a high altitude to a lower altitude using the force of gravity.
- Village communities examined the budget that was prepared by the technicians. They realized that technical tools, materials and skilled labour comprised 40 percent of the budget while unskilled labour comprised 60 percent. Therefore, they resolved to use all unskilled labour.



- Community members mobilized resources to secure financial resources for the 40 percent technical component of the budget. Their efforts paid dividends: UNDP, through its Small Grants Program, covered 30 percent of the total budget while the Roman Catholic Church supported the remaining unfunded 10 percent. Local communities contributed 60 percent of the budget in-kind.
- Abiding by the principles of water governance

### **LESSONS LEARNED:**

- The reliable provision of water, so lacking in many rural communities, can be an entry point for other development interventions. In this case, the provision of water was used to address income poverty, HIV and AIDS, the expansion of primary schools, improved housing, and the adoption of principles of democratic governance through the use of water governance.

### **BACKGROUND INFORMATION:**

Local communities were involved in the implementation through their leadership, local government and their local church. The project took only six months to complete because of sound, participatory organization methods and commitment of all community members. In addition, water was perceived as a felt need by everyone in the local area. The financial cost was \$50,000 excluding voluntary labour.

### **IMPLEMENTATION PARTNERS:**

Local Government and local communities - executing partners

UNDP, Global Environment Facility (GEF), Small Grants Programme (UNDP-GEF SGP)

Roman Catholic Church

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# MDG-7: Ensure Environmental Sustainability

MDG target 7.D: Achieve significant improvement in lives of at least 100 million slum dwellers, by 2020

## CONSTRAINT:

### Lack of Information and Guidance on Illegal Settlements

Lack of information and policy guidance on addressing unplanned and illegal housing settlements

The **UNECE Country Profiles on Housing and Land Management** contribute to the development of guidance to assist the Economic Commission for Europe (ECE) Member States to fight urban poverty and upgrade illegal settlements, and to develop practical and policy guidance on how to address problems related to unplanned and illegal informal housing developments. In addition, specific policy principles and guidelines on informal settlements have been developed to address the challenge in the region.

## COMPONENTS:

- Guidance on specific issues identified by the UNECE Committee on Housing and Land Management as common and relevant issues to most of Eastern Europe, Caucasus and Central Asia (EECCA) and Southern Europe and South-Eastern Europe (SEE) countries
- Ad-hoc assistance, policy recommendations and guidance offered to countries upon request on the basis of an analysis of the country's housing, planning and land administration systems. These recommendations translate the guidance provided at the regional level into practical solutions for specific countries.
- Enhances the capacity of governments to adjust and modify the housing, planning and land administration structures and policies to address the problem of informal settlements.

## RESULTS:

- Country Profiles have been used by national and local stakeholders for different purposes. They have inspired and provided the basis for national legislation and reforms of the housing sector and have provided the background information and rationale for programmes of government authorities as well as IGOs/NGOs.
- The Country Profiles provide information to private investors so that they can make better decisions about housing funding and to international and national banks so that they can better orient themselves in the real estate market.
- Specific guidance on informal settlements provided information about regional events and trends and aided the development of ad-hoc recommendations and guidance for members states concerning the reduction and upgrade of informal settlements.

## KEY ELEMENTS OF SUCCESS:

- Country Profiles are based on a thorough assessment of the housing and urban planning situations in a given country. The main actors of the housing and land management sectors, from relevant government authorities, to local authorities, non-governmental organizations, the private sector and citizens, have been directly involved in the study, leading to the programme's success.
- Success with regard to the guidelines on informal settlements derives largely from the fact that this is the first such regional study to deal with its subject in such detail..

## LESSONS LEARNED:

- Solutions involving informal settlements need to respond to local needs and therefore require local ownership of proposed solutions. The probability of success is greater if those proposed solutions respect local customs, social structures and traditional cultures.
- Success is linked to the possibility of offering a variety of options, which can then be reviewed by planners and decision-makers and matched to specific needs.
- Achievement of MDG target 7D requires guidance in housing and land administration, international exchanges of experience about best practices, collaboration of all stakeholders in



housing and land, and the promotion and improvement of land management and real estate markets.

- There is a need not only to physically upgrade illegal settlements, but also to create the legal and institutional conditions to make these upgrades possible. Land policies must foster security of tenure and need to come along with appropriate technical tools for land administration and integrated planning, including pro-poor land tools. For this, countries need greater capacity to create appropriate urban development and land-use legislation, to better understand the rules and opportunities offered by the real estate market, and to develop long-term and large-scale policies for social and affordable housing.
- It is important not to address slum upgrading in isolation from other environmental, economic and social issues dealt by the international community, such as climate change or human rights. Solutions to the problem of informal settlements involve many other disciplines and can also indirectly contribute to the achievement of other MDGs.
- The integrated approach to informal settlements must include education and institutional capacity building as well as better collaboration of land administration and land-use planning at various levels.
- Experience at the national and regional levels has again shown that synergies with other UN bodies are very important. Recommendations and guidance offer a basis for action of implementing agencies such as UNDP (see, for instance, planned activities for the upgrading of informal settlements in Kyrgyzstan) and for responding to requests and recommendations developed within other UN fora (see, for instance, the recommendation for the UN Commission on the Legal Empowerment of the Poor).

### **BACKGROUND INFORMATION:**

More than 50 million people in 15 countries of the United Nations Economic Commission for Europe (UNECE) live in informal settlements. Rapid urbanization, poverty and a lack of access to land and ownership, in addition to limited or no social housing, have led citizens to build their homes illegally under very poor environmental and social conditions. This phenomenon is increasingly common in Eastern Europe and Central Asia and urgently requires political, legal and planning solutions.

The UNECE, through its work on housing and land management, undertook an in-depth review of the phenomenon in the region and realized that there are several root causes of the growth of informal settlements. These causes range from population fluxes as a result of armed conflicts and natural disasters, to unrealistic zoning regulations, to complex and inconsistent legislation and political reluctance or inability to tackle the situation.

The review concluded that the UNECE needed to analyze the phenomenon, to identify factors influencing the development of informal settlements, to fully understand the economic, social and environmental challenges related to them, to address constraints in land administration, planning and housing systems, and to review and assess current urban upgrading policies and their effectiveness. With this need now met, the UNECE is developing policy and practical guidance for Member States so that they can address these challenges.

### **IMPLEMENTATION PARTNERS:**

Guidance is addressed to all UNECE Member States, especially to those countries with illegal settlements. Practical recommendations are also addressed to UN implementing agencies and NGOs.

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## MDG-7: Ensure Environmental Sustainability

MDG target 7.D: Achieve significant improvement in lives of at least 100 million slum dwellers, by 2020

### CONSTRAINT:

#### **Lack of Financing & Community Mobilization for Urban Service Improvements**

Unavailability of financing mechanisms for water and sanitation improvements at the household level and lack of public-private partnerships to improve access to urban services

**Burkina Faso's Communal Program of Improvement of Basic Urban Services** brings public and private partners together to improve water and sanitation services in urban communities. Each partner contributes technical and financial resources to achieve the improvement of basic services.

### COMPONENTS:

- Create or reinforce a mechanism for inter-sectoral communal coordination for basic urban services (such as an ad-hoc committee for sanitation)
- Train communal staff and their partners in integrated management of basic urban services using the public-private partnership methodology
- Develop a communal strategy on access to basic urban services
- Construct water and sanitation infrastructure, which is financed by households through microcredit

### RESULTS:

- Increased access to safe drinking water and adequate sanitation, decreasing the incidence of malnutrition and water-borne disease that contributed to high mortality rates of children under 5 and other vulnerable groups
- Reduction in the prevalence of water-borne disease, which contributed to a fall in healthcare expenditure
- Increased the incomes of women who started businesses relying on a steady supply of water
- Improved the environment by disposing of refuse strewn throughout the city (5 large heaps and removal of 60 percent of the household refuse of the sector)
- Improved the system of rain drainage by cleaning more than 11,000 ml of clogged gutters
- Increased drinking water access from 22.2 percent to 40 percent by connecting 249 households to a drinking water system financed by microcredit, which enables each household to pay its subscription to the drinking water system and to repay monthly the cost over 10 months
- Developed drinking water and sanitation infrastructure in each local school and defined one person with maintenance responsibility
- Developed a communal strategy of managing basic urban services
- This support started in one sector of the city and has been replicated in 5 other areas of Bobo-Dioulasso

### KEY ELEMENTS OF SUCCESS:

- The support resulted in the formulation of a municipal strategy for basic urban services, particularly water and sanitation management, which was adopted by the City Council.
- The participatory implementation was facilitated to identify problems, collect data, implement the program, evaluate the approach and ensure accountability. The strategy prioritizes gender equity in the management of basic urban services in general and water and sanitation in particular.

### LESSONS LEARNED:

- Microcredit works well for increasing the purchasing power of households to access improved works such as latrines, washing tubs and water systems.
- Public-private partnerships, combined with a participatory approach involving the local community, are a replicable approach to increasing access to potable water and adequate sanitation services.

## BACKGROUND INFORMATION:

Approximately 554,000 inhabitants live in Bobo Dioulasso, a township of Burkina Faso that is the biggest city after the capital Ouagadougou. Only 50 percent of the population living in the commune has access to water for showers and only 10 percent has sufficient water for household use. A quarter of the population does not have access to a drinking water supply network. The situation is more serious in the peripheral areas of the commune, where half of the commune's population resides. The project was initiated in 2004 to address these issues.

The project's strategy takes into account gender equity in the management of basic urban services, particularly water and sanitation. The poor, especially women and youth, are the main target population.

The selection criteria for the sectors receiving assistance include the level of deficit of basic services of drinking water and sanitation in comparison with the needs of underprivileged populations, as well as the degree of need for a geographical distribution, taking into account the administrative organization of the commune.

## IMPLEMENTATION PARTNERS:

The commune of Bobo Dioulasso, private economic operators of the city, women and youth associations, UN-HABITAT, UNEP, UNDP, UNVP, Regional Centre for Drinking Water and Sanitation at Low Cost (CREPA),

IRC (Ministry in charge of Infrastructure, Transport and Housing), regional technical services of the ministries in charge of the environment (MECV), health (MS), education (MEBA) and hydraulics (MAHRH), National Office of Water and Sanitation (ONEA)

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# MDG-7: Ensure Environmental Sustainability

MDG target 7.D: Achieve significant improvement in lives of at least 100 million slum dwellers, by 2020

## CONSTRAINT:

### Lack of Secure Tenure and Poor Access to Basic Services

Lack of capacity for land tenure negotiation and the development of local poverty reduction strategies; lack of finance for improved living conditions; lack of information on available services; lack of skills desired by employers

**Bangladesh's Urban Partnerships for Poverty Reduction (UPPR)** aims to improve the livelihoods and living conditions of 3 million poor and extremely poor people, especially women and children, living in 30 urban areas throughout Bangladesh. It works to improve security of land tenure, access to community infrastructure for a healthy living environment and access to essential services such as health facilities and finance for improved housing and entrepreneurship.

## COMPONENTS:

- Local capacity building for poverty reduction: The programme engages Town-Level Coordination Committees to support the development of local poverty reduction strategies, including a focus on MDG achievement. UPPR builds the capacity of local leaders to understand the causes of urban poverty and poverty reduction strategies.
- Each community receives a grant of \$10,000 and decides on the physical improvements to be completed using the funds, which can include the provision of water supply, sanitation, waste management and community facilities. Community groups arrange for the construction by using a community contracting system.
- Security of tenure: The program will assist communities threatened with eviction or living in danger zones (e.g., on river banks or near polluted areas), as well as those living in areas where infrastructure improvements are not allowed, to find negotiated solutions to their security of tenure problems. Solutions can include community leasing, land purchase, voluntary relocation and land sharing.
- Improvement of housing: This component helps communities to receive short- and medium-term loans that can be used for housing construction and/or improvements.
- Access to affordable health facilities: It links urban poor communities with healthcare service providers.
- Community savings and credit groups: It supports the creation of community and savings and credit groups and provides technical assistance.
- Support for employment: It links entrepreneurs with established microfinance institutions and banks and supports skill development through training and apprenticeship.

## RESULTS:

By 2015, UPPR is expected to achieve the following results:

- 3 million urban poor, at least 50 percent of whom are women and girls, will have improved living conditions, assets or incomes.
- 2.5 million people living in urban slums will have improved access to basic services.
- 2 million urban poor people, at least 50 percent of whom are women and girls, will benefit from higher incomes.
- Models will be developed and implemented to improve the lives of the urban extremely poor, who make up at least 20% of the urban poor population.
- Local government, urban poor community, civil society and private sector partnerships will be established.
- Town-level participatory economic growth and poverty reduction strategies will be developed and implemented.
- Community access to sustainable sources of finance for housing improvements and livelihoods improvement will be established.

## KEY ELEMENTS OF SUCCESS:

- Settlement Mapping: developed and implemented a stakeholder-managed model to locate and



- characterize all urban poor settlements and vacant land in the towns in which it is working.
- **Community Mobilization:** successfully organized households into primary groups, which elect leaders that form community development committees (200-300 households), who also elect leaders from their membership.
  - **Savings and Credit Groups:** help poor communities start savings and credit sub-groups to build solidarity, promote savings and provide small loans with interest rates lower than microfinance institutions offer.
  - **Participatory surveys:** developed and implemented participatory survey processes, including a census of all household members, household- and community-level surveys, and town-level resource mapping of NGOs, other projects, private sector and local government resources.
  - **Well-being assessments:** trained community leaders to set criteria for and categorize all households into extreme poor, poor, and not poor, and then draw these households on a map. The household poverty status list and survey results ensure that the neediest households and individuals receive the benefits.
  - **Community Action Plan:** trained and supported community leaders to prepare community action plans to identify and articulate the local issues and prioritize interventions that cover physical improvements, livelihood programmes and solutions to social problems, and provide the basis for the commitment of resources.
  - **Homeless Poor Survey and Mapping:** designed and implemented a comprehensive survey to identify and map the locations where homeless people congregate so they will be become eligible for benefits such as day care centers and health services.
  - **Community Contracting:** communities prepare the contracts, manage and monitor construction and provide the labour themselves, under the guidance of project staff, through a process called community-contracting. The quality is often better in part because the result is “owned” by the community.

## LESSONS LEARNED:

- Improved methods are needed identify and target vulnerable groups, including the elderly, disabled, extremely poor and women-headed households.
- Local governments must champion the approach if sustainability, impact, local and national policy improvements are to be achieved, particular regarding the structural barriers to poverty reduction such as security of tenure.
- Gender needs to be interpreted as a key determinant of poverty.
- The poor have few links with governmental or NGO education and health services.
- More attention should be given to listening to the community, interacting with other development actors, and facilitating dialogue with city/town development initiatives.

## BACKGROUND INFORMATION:

The Urban Partnerships for Poverty Reduction programme (UPPR) aims to improve the livelihoods and living conditions of three million urban poor people in Bangladesh, especially women and girls, during the period 2007-2015. The UK Department for International Development (DFID) and UNDP are providing \$120 million on a cost-sharing basis. This will support programmes for settlement improvement and socio-economic development in thirty towns and cities, community and local government capacity development and policy advocacy.

## IMPLEMENTATION PARTNERS:

Local Government Engineering Department, Local Government Division, Ministry of Local Government; UNDP; UN-HABITAT; UK-DFID; Rural Development and Cooperatives

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