Working within the System and
Living within the Means

Celebrating 10 years of UNDP-GEF Small Grants Programme in Pakistan

Power of Partnership

IUCN
The World Conservation Union

UNDP
Pakistan

GEF
The GEF Small Grants Programme

Power of Partnership

IUCN
The World Conservation Union

UNDP
Pakistan

GEF
The GEF Small Grants Programme

Published by: IUCN Pakistan

Compiled by: Tehseena Rafi, IUCN Pakistan

Design & Layout: Azhar Saeed, IUCN Pakistan

Printed by: Pictorial Printers (Pvt) Ltd.

Available from: IUCN – The World Conservation Union
1, Bath Island Road, Karachi
Tel. 92 21 5861540-2
Fax 92 21 5861448, 5835760

LIFE/GEF Small Grants Programme
United Nations Development Programme
8th Floor, Saudi Pak Tower, Islamabad
Tel. 92 51 2800030
www.sgp.net.pk

contents

Foreword

Over the last 10 years the GEF and LIFE - Small Grants Programmes (SGP) managed by UNDP in Pakistan has supported local champions in their work to protect the global environment by providing resources and technical know-how for conservation, protection and sustainable management of the their local environment.

The SGP workshop held on 21- 23 October 2003, celebrated 10 years of SGP in Pakistan. It provided an opportunity to get an overview of the main lessons learned during the course of the programme. As illustrated by the case studies in this report, the work of the SGP over the last decade has been prolific and diverse. It has covered almost the entire country and has successfully undertaken a vast number of innovative community driven projects.

The importance of awareness raising and access to appropriate technology emerged as two of the key lessons shared by the various SGP partners. The title of the workshop "Working within the System, Living within the Means" can in itself be seen to express the core lesson of the SGP. SGP has helped increase awareness regarding global environmental concerns and has built capacities of communities and NGOs to address these issues. With a holistic approach, the SGP has focused its support on promotion of self-help models, based on low-cost solutions and technology, which is appropriate to the local context.

This workshop also provided space for sharing lessons learned "the hard way". Some projects reported resistance from local notables and the lack of appropriate technical know-how as obstacles to achieve their objectives. Pilot projects naturally move forward by the principle of trial and error. By finding ways to overcome these obstacles, the SGP has proved that it is there to support innovative ideas coming from the grassroots. The case studies show how we can turn our errors into opportunities for learning and progress.

Whereas the main programme activities have been concentrated on implementation of small-scale pilot projects, SGP has also successfully contributed to policy dialogue by bringing lessons from the grassroots to the policy level. By raising public awareness, building partnerships, and promoting policy dialogue the SGP has helped create a more supportive environment for achieving sustainable development and addressing global environmental issues.

Maybe the most important lesson learned over the last 10 years is that global environmental problems can only be addressed adequately if the local people themselves are involved in managing their local environment. Being

provided limited but essential resources, people have come together to bring about change based on their own priorities and capabilities. By supporting initiatives taken by local actors, the SGP lends its support to participatory, community-driven efforts to improve the local environment.

This flexible, demand-led approach has also placed SGP in an ideal position to directly support the development of democratic institutions at the local level. As a result of SGP's promotion of "local-local" dialogue and collaborative action amongst local government, civil society and the private sector, several projects demonstrate how linking up with strategic partners has created large-scale impact. By bringing the lessons learned from local initiatives upstream the SGP offer field-tested solutions that may be adapted to other contexts and up-scaled.

The success of the SGP in Pakistan is the product of partnerships and joint efforts by local actors. The National Steering Committee has provided strategic and technical guidance and inputs central to the programme. UNDP is proud to be the implementer of the SGP in Pakistan, contributing to the programme's growth and achievements over the past decade. Most central to the success of the SGP, however, are the local heroes that have championed their ideas at their local arenas. This report presents their experiences and aims to promote the lessons learned and to inspire further action.

Onder Yucer
Resident Representative
UNDP Pakistan

Executive Summary

Global Environment Facility

The Global Environment Facility (GEF) was established in the International Bank for Reconstruction and Development (IBRD or World Bank) as a pilot programme in order to assist in the protection of the global environment and promote environmentally sound and sustainable economic development by resolution of the Executive Directors of the World Bank and related interagency arrangements between the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), and the World Bank.

Since 1991, the GEF has provided $4.5 billion in grants and generated $14.5 billion in co-financing from other partners for projects in developing countries, and countries in economic transition.

GEF funds are contributed by donor countries, and in 2002, 32 donor countries pledged $3 billion to fund operations between 2002 and 2006.The GEF helps developing countries fund projects and programmes that protect the global environment. GEF funds a variety of project types, ranging from its Small Grants Programme (SGP) and project preparation grants to Enabling Activities, Medium-Sized Projects (MSPs), and full projects. It funds projects in six complex global environmental issues, namely, biodiversity, climate change, international waters, ozone, sustainable land management, and persistent organic pollutants.

Small Grants Programme

The Small Grants Programme of the GEF is implemented by the United Nations Development Programme (UNDP) and executed by United Nations Office for Project Services (UNOPS) -an entity of the United Nations System, which provides services to projects and programmes supported by UN member states and organisations.

Sixty- three countries have participated in the Programme so far, and funding stands at US$117.35 million and US$65.66 million by other partners in cash or in-kind. Out of the 3000 projects funded to date, 60% have covered biodiversity, 15% climate change, 6% international waters and 19% are multi-focal. Its benefits have reached more than 4000 communities in Africa, Arab States, Asia and the Pacific, Europe and Latin America and the Caribbean. Participating countries have ratified the Conventions on Biological Diversity and Climate Change.

Established in 1992, the GEF Small Grants Programme (SGP) provides financial and technical support to projects in developing countries that conserve and restore the natural world while enhancing well being and livelihoods. The SGP operates on the premise that people will be empowered to protect their environment when they are organised to take action, have a measure of control over access to the natural resource base, have the necessary information and knowledge, and believe that their social and economic wellbeing is dependent on sound long-term resource management. Grants are made directly to Non-Governmental Organizations (NGOs) and Community-Based Organizations (CBOs) in recognition of the key role they play as a

resource and constituency for environment and development concerns. Though SGP grants are small, their impact is large.

Through this implementation, the SGP has acquired valuable lessons and developed important linkages with communities and institutions engaged with the environment sector of Pakistan. These lessons provide the basis for improving and/ or imbibing learning to similar ongoing or planned initiatives. This includes documenting the strengths and weaknesses, and successes and failures of the initiatives in Pakistan over the last 10 years.

LIFE

The Local Initiative Facility for Urban Environment (LIFE) global programme was started in 1992 to promote local-local dialogue and partnerships between CBOs, NGOs, local authorities, private sector and other actors to address environmental problems of the urban poor and influence policies for participatory local governance. Using an "upstreaming-downstreaming-upstreaming" approach, LIFE has been providing small grants to initiate community-based projects and promote policy dialogues. Since its inception, LIFE has been in operation in 12 developing countries and supported fourteen regional, inter-regional and global NGO networks and Cities Associations to promote participatory local governance.

Working within the System and Living within the Means

"Working within the System and Living within the Means" is a project being executed by IUCN - The World Conservation Union to capture the last ten years of micro-level initiatives funded through SGP in Pakistan. It is also a facilitative forum for sharing experiences so that best practices can be replicated. This facilitation includes the documentation of SGP funded initiatives in order to improve understanding of issues, constraints, opportunities and best practices in implementation of small-scale grassroots initiatives in the years to come. An online network of all the relevant stakeholders is also accessible at http://www.sgp.net.pk/. It provides relevant information, including snapshots of the SGP funded projects, case studies, evaluations, a database of relevant organisations and relevant web links.

Projects reflected in this document have been compiled under the following areas:

Water and Sanitation

The Aga Khan Planning and Building Services Pakistan's Water and Sanitation Expansion Programme

World Wide Fund for Nature's Monitoring Water Pollution in Hudiara Drain

Environment Protection Society's Reducing Water Pollution in Swat River

Taraqee Trust's Challenges of Sanitation in Low Income Urban Settlements

Organization for Participatory Development's Participatory Sanitation Initiatives: Challenges of Community-based Water Management

Anjuman Samaji Behbood's Provision of Water and Sanitation Services on Self-Help Basis

Soan Valley Development Programme's Challenges of Community-based Water Management

Sustainable Agriculture

SUNGI Development Foundation's Natural Resource Management for Conservation of Biodiversity

Hirrak Development Centre's Conservation of Agricultural Ecosystems and Street Theatre for Conservation Awareness

DAMAAN's Agro-biodiversity Conservation in Damaan area

Green Circle Organization's Improving Livelihoods and Environment by Conserving and Promoting Indigenous agro-ecological balance

Eco-Conservation Initiatives' Capacity Building of National Rural Support Programme (NRSP) by developing Training Modules of Integrated Pest Management of Apple Wooly Aphid in Murree Hills Pakistan

Community Protected Areas

Himalayan Wildlife Foundation's Deosai Brown Bear Project

Khunjerab Villagers Social Welfare Organization's Conservation and Management of Wildlife

Takatu Waroor Galvi Taraqee Tanzeem's Community based Conservation of Straight-horned Markhor, Afghan Urial and associated Biodiversity in Takatu

Adventure Foundation of Pakistan's Conservation of Blind Indus Dolphin through Ecotourism at Taunsa Barrage

Lahore Zoo's Indus Dolphin Rescue Unit

World Pheasants Association's Survey of Galliformes in Pakistan

IUCN–The World Conservation Union's Mountain Areas Conservancy Project

Human Settlements and Waste Management

Waste Busters' Private Public Partnerships for Waste Management

Private Public Partnerships for Waste Management's Community Waste Management

Shakkar Ganj Sugar Mills' Composting Industrial Waste

Capital Development Authority's Up-gradation and Regularisation of Informal Settlements

APPNA SEHAT's Preventive Health

Energy

Consumer Rights Commission of Pakistan's Public Awareness about Energy Efficiency of Household Appliances

Conservation and Rehabilitation Centre's Energy Efficient Housing: Blending Tradition with Modernity

Building and Construction Improvement Programme's **(BACIP)** Energy Efficient Building: Building Technologies in Mountain Areas

CARITAS Replication Experience of Fuel Efficient Stoves

Initiative for Rural and Sustainable Development's Biogas Plants for meeting Energy needs in Rural Areas

TRDF's Micro-Hydel Power Stations for lighting up Tribal Homes

The Way Forward

With the completion of ten successful years of GEF's Small Grants Programme in Pakistan, there is a trail of pilot projects at varied levels, which provide the impetus for replication, expansion and up-scaling. From policy to grassroots, the impact of the SGP funded projects has established models in all five areas, namely water and sanitation, sustainable agriculture, community protected areas, human settlements and waste management and energy.

In this regard, dialogues have been initiated with stakeholders and partners alike. The latest in the series of formal and informal interactions has been the UNDP-GEF's one-day consultative workshop on Up-Scaling, Advocacy and Knowledge Management. Through such dialogues and comprehensive presentations, projections were made regarding the capacity, and environmental and economic benefits of the projects. Furthermore, SGP has been able to evaluate the current and proposed scale of activity, the proposed future strategy and assistance required from SGP.

Organizations that undertook projects within the purview of sustainable agriculture were found to have made considerable strides and illustrated a high level of capacity for up scaling and initiating advocacy ventures. In the water and sanitation category, recipient organisations identified steps, which also included largely community-based and devolved measures. Organizations implementing projects for energy efficiency focused not just on devolution but more importantly spoke of building capacity of the entire spectrum of stakeholders involved in the process. In the arena of human settlements and waste management suggestions and recommendations included coordination and facilitation by SGP for several pending requests to replicate programs and possible linkages with government, as it has shown ownership towards such initiatives.

01 Background

1.1 Global Environment Facility

The Global Environment Facility (GEF) was established in the International Bank for Reconstruction and Development (IBRD or World Bank) as a pilot programme in order to assist in the protection of the global environment and promote environmentally sound and sustainable economic development by resolution of the Executive Directors of the World Bank and related interagency arrangements between the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), and the World Bank. Since 1991, the GEF has provided $4.5 billion in grants and generated $14.5 billion in co-financing from other partners for projects in developing countries, and countries in economic transition.

GEF funds are contributed by donor countries, and in 2002, 32 donor countries pledged $3 billion to fund operations between 2002 and 2006.The GEF helps developing countries fund projects and programmes that protect the global environment. It funds a variety of project types, ranging from its Small Grants Programme (SGP) and project preparation grants to Enabling Activities, Medium-Sized Projects (MSPs), and full projects. It funds projects in six complex global environmental issues, namely, biodiversity, climate change, international waters, ozone, persistent organic pollutants, and sustainable land management.

Biodiversity

A wide-ranging spectrum of efforts to conserve and sustainably use the Earth's biological diversity comprises of almost half of all GEF projects. GEF receives guidance from the Conference of Parties (COP) on policy, strategy, programme priorities, and eligibility criteria related to the use of resources for purposes of the Convention on Biological Diversity (CBD). Its projects generally cover any one or more of four critical ecosystems and the human communities found there. These include; 1) arid and semi-arid zones; 2) coastal, marine, and freshwater resources; 3) forests; and 4) mountains.

Climate Change

Those projects that address issues of climate change make up the second largest group of GEF-funded projects. GEF receives guidance from the COP on policy, programme priorities, and eligibility criteria related to the United Nations Framework Convention on Climate Change (UNFCCC). The climate change projects cover the areas of: 1) removing barriers to energy efficiency and energy conservation; 2) promoting the adoption of renewable energy by removing barriers and reducing implementation costs; 3) reducing the long-term costs of low greenhouse gas emitting energy technologies; and 4) supporting the development of sustainable transport.

International Waters

GEF projects to reverse the degradation of international waters are advised by regional and international water agreements. The projects help countries to learn more about water-related issues and discover ways to work together and initiate changes to address these problems. The three categories of water projects are: 1) water bodies; 2) integrated land and water projects; and 3) contaminants.

The Ozone Layer Depletion[1]

GEF, in partnership with the Montreal Protocol of the Vienna Convention on Ozone Layer Depleting Substances, funded projects that enable certain regions to phase out their use of ozone destroying chemicals. After more than 10 years of international support, the concentration of some of these chemicals in the atmosphere has started to decline.

Persistent Organic Pollutants (POPs)

In May 2001, the international community adopted and opened for signature the Stockholm Convention on Persistent Organic Pollutants (POPs), for implementing international action to reduce and eliminate releases of an initial list of twelve chemical substances with known adverse effects on human health and the environment. The Convention will enter into force following its ratification by 50 countries. The GEF has been selected as the interim financial mechanism to assist countries in meeting their obligations under the Stockholm Convention. The programme includes development and strengthening of capacity to enable countries to meet Convention obligations, and on-the-ground interventions aimed at implementing specific activities to reduce and phase-out POPs uses and sources and to remediate POPs stocks and contaminated sites.

POPs are characterised by *persistence* - the ability to resist degradation in various media (air, water and sediments) for months and even decades; *bio-accumulation* - the ability to accumulate in living tissues at levels higher than those in the surrounding environment; and the *potential for long range transport* - the potential to travel great distances from the source of release through various media (air, water, and migratory species). These chemical substances cause injury to human health and to species and ecosystems both adjacent to, and far away from their sources. The POPs included in the Stockholm Convention are: Aldrin, Chlordane, Dieldrin, DDT, Endrin, Hexachlorobenzene, Heptachlor, Mirex, Toxaphene, Polychlorinated biphenyls (PCBs),

1 No longer an SGP area

dioxins and furans, mainly used as pesticides or industrial chemicals. The impacts of exposure to POPs on humans and environment are adverse and the rural and urban poor people, and domesticated and wild animals are the prime victims of such an exposure. The effects include disruption of endocrine systems, suppression of immune system functions, carcinogenicity, and induction of reproductive and developmental changes. The evidence of the detrimental effects of POPs on living organisms at the level of entire populations demonstrates the threat to biodiversity and the potential for disruption at the ecosystem level.

Sustainable Land Management

The second GEF assembly in Beijing, in October 2002 designated land degradation, primarily desertification and deforestation (a focal area of GEF), as a means to support the implementation of the United National Convention to Combat Desertification (UNCCD). This designation makes sustainable land management a primary focus of GEF assistance to achieve global environmental benefits within the context of sustainable development.

Land degradation damages soil structure and leads to the loss of soil nutrients through processes such as water and wind erosion; water logging and salinisation; and soil compaction. The main causes of land degradation are inappropriate land use, mainly unsustainable agricultural practices; overgrazing; and deforestation.

1.2 The UNDP/GEF Small Grants Programme (SGP)

The Small Grants Programme (SGP) of the GEF is implemented by the United Nations Development Programme (UNDP) and executed by UNOPS – an entity of the United Nations System, which provides services to projects and programmes supported by UN member states and organisations.

So far, 63 countries have participated in the Programme and funding stands at US$117.35 million and US$65.66 million by other partners in cash or in-kind. Out of the 3000 projects funded to date, 60% have covered biodiversity, 15% climate change, 6% international waters and 19% are multi-focal. Its benefits have reached more than 4000 communities in Africa, Arab States, Asia and the Pacific, Europe and Latin America and the Caribbean. Participating countries have ratified the Conventions on Biological Diversity and Climate Change.

Established in 1992, the GEF Small Grants Programme (SGP) provides financial and technical support to projects in developing countries that conserve and restore the natural world while enhancing well being and livelihoods. Grants are made directly to non-governmental organisations (NGOs) and community-based organisations (CBOs) in recognition of the key role they play as a resource and constituency for environment and development concerns. Though SGP grants are small, their impact is large.

The SGP is mandated to raise project co-financing that matches GEF funds. The principle objectives of the Small Grants Programme are to:

- Demonstrate community-level strategies and technologies that could reduce threats to the global environment if they are replicated over time;
- Draw lessons from community-level experience, and support the spread of successful community-level strategies and innovations among CBOs and NGOs, host governments, development aid agencies, the

Box 1: Building Capacity and Networks

The SGP is more than just a fund providing small grants to improve the local environment. By raising public awareness, building partnerships, and promoting policy dialogue, the SGP seeks to help create a more supportive environment within countries for achieving sustainable development and addressing global environment issues. Six hundred organisations worldwide have provided co-funding and other forms of collaboration, including significant contributions.

GEF, and others working on a larger scale;
- Build partnerships and networks of local stakeholders to support and strengthen community, CBO, and NGO capacity to address environmental problems and promote sustainable development.

The decentralised structure of the Small Grants Programme encourages maximum country and community level ownership and initiative.

1.3 Local Initiative Facility for Urban Environment (LIFE)

The LIFE global programme was started in 1992 to promote local -local dialogue and partnerships between CBOs, NGOs, local authorities, private sector and other actors to address environmental problems of the urban poor and influence policies for participatory local governance. Using an "upstreaming-downstreaming-upstreaming" approach, LIFE has been providing small grants to initiate community-based projects and promote policy dialogues. Since inception LIFE has been in operation in 12 developing countries and supported fourteen regional, inter-regional and global NGO networks and Cities Associations to promote participatory local governance. The LIFE external evaluation of the first three phases of the LIFE Global Programme highlighted the significant contribution of LIFE in directly reaching the poorest and marginalised population and addressing their immediate problems; empowering communities and other local actors, promoting local-local dialogue and partnerships; in establishing process and mechanisms for micro-macro linkages and reinforced the importance of LIFE's "upstreaming-downstreaming-upstreaming" approach as a way to influence policies that are rooted in ground reality. The evaluation recommended the continuation of the global programme in Phase IV to further consolidate LIFE experiences and strengthen the practice and policy of participatory local governance.

Objectives:

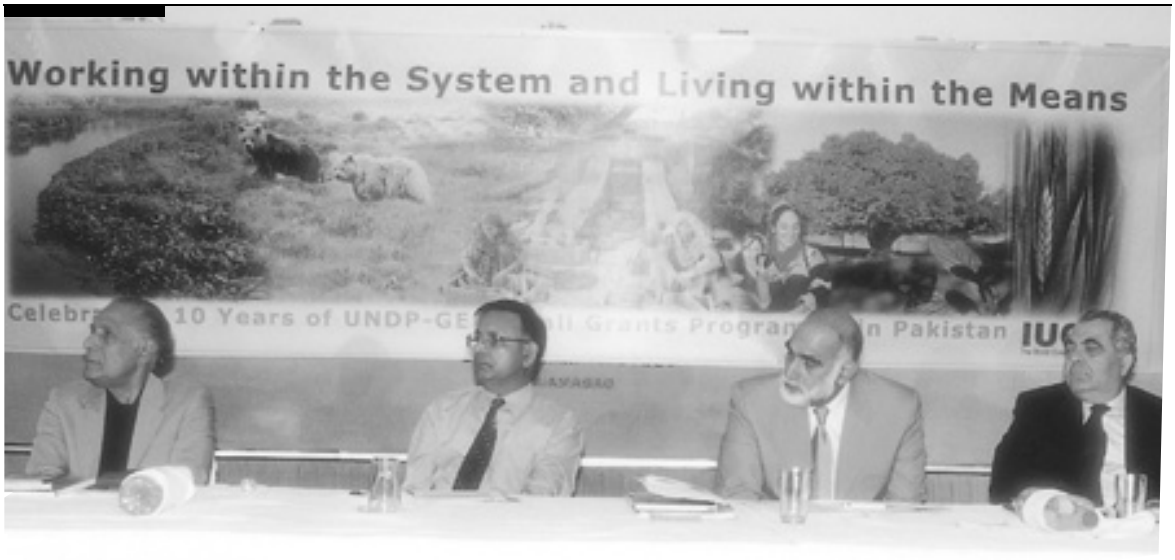
- Promote community-based initiatives, local-local dialogue and partnerships in five pilot countries that started LIFE in 1995-1996 and to upscale existing LIFE project experiences in municipal level initiatives to demonstrate participatory local governance in seven pilot countries that started LIFE in 1992-93.
- Package and disseminate LIFE lessons and experiences for policy dialogues and mainstreaming methodologies for participatory local governance at country, regional and global level by involving NGO networks and Cities Associations.
- Provide support for technical assistance, documentation and analysis of lessons from 12 LIFE countries and other relevant global experiences to promote global networking, dissemination and advocacy measures to promote participatory local governance and mainstreaming of LIFE in non-pilot countries.

1.4 SGP in Pakistan

Since its inception in 1993, the Small Grants Programme (SGP) of the Global Environment Facility (GEF) has been providing financial and technical support to various communities and NGOs for micro-level initiatives in the environment sector to promote biodiversity conservation, reduce global warming and protect international waters.

Through this implementation, the SGP has acquired valuable lessons and developed important linkages with communities and institutions engaged with the environment sector of Pakistan. These lessons provide the basis for improving and/or imbibing learning to similar on-going or planned initiatives. This includes documenting the strengths and weaknesses, and successes and failures of the initiatives in Pakistan over the last 10 years.

The GEF programme priorities link directly with the broad objectives contained in the National Conservation Strategy (NCS) in Pakistan. The federal Cabinet approved NCS in 1992, and it focuses on resource conservation, sustainable development and improved efficiency in the use and management of natural resources. GEF priorities are also in line with the evolving guidance on policies and priorities for action



provided by the Pakistan Environmental Protection Council (PEPC). The portfolio of projects developing under GEF/SGP also reflects the programme priorities and areas of development intervention identified by UNDP Country Office (CO).

The SGP operates on the premise that people will be empowered to protect their environment when they are organised to take action, have a measure of control over access to the natural resource base, have the necessary information and knowledge, and believe that their social and economic wellbeing is dependent on sound long-term resource management.

The strategic goal of SGP is to work as a link to support community level initiatives. SGP strategy therefore aspires to developing environment poverty interface; select specific geographic areas for each GEF thematic area and work with a cluster of CBOs with the support and guidance provided by intermediary NGOs or government programme; enhance the visibility of the programme by holding upstream and downstream dialogue based on successful experiences on ground; leverage resources provided through small grants by building financial partnership with other stakeholders, and make contributions to institution building by providing long term support to community level initiatives and sustainable and affordable solutions, which build on community knowledge and expertise. These strategic goals were identified in view of the recommendations of the brainstorming session of various GEF stakeholders held in December 1996 and on the next phase of SGP in January 1999.

1.5 Working within the System and Living within the Means

"Working within the System and Living within the Means" is a project being executed by IUCN - The World Conservation Union to capture the last ten years of micro-level initiatives funded through SGP in Pakistan. It is also a facilitative forum for sharing experiences so that best practices can be replicated. This facilitation includes the documentation of SGP funded initiatives in order to improve understanding of issues, constraints, opportunities and best practices in implementation of small-scale grassroots initiatives in the years to come.

02 Water and Sanitation

In the Millennium Declaration of September 2000, world leaders reaffirmed their shared duty to "all the world's people, especially the most vulnerable and, in particular, the children of the world, to whom the future belongs" to undertake a collective effort to achieve a set of urgent goals, known as the Millennium Development Goals (MDGs).

In the area of Water, Environment and Sanitation, the goals are to:

- Halve, by 2015, the proportion of people without sustainable access to safe drinking water,
- Halve, by the year 2015, the proportion of people who do not have access to basic sanitation,
- Equip all schools with facilities for sanitation and hand washing by 2015.

Nearly three-quarters of the world's poor live in rural areas, and a large part of this population does not have access to clean water and safe sanitation facilities. Until recently, projects often failed because they used top-down approaches in which community members had little or no say in deciding what services were to be implemented and how. However, community management has now become the leading concept for implementing water supply systems in rural areas in developing countries. In the early days it was seen as the answer to large scale breakdown of water supply systems and the failure of governments either to provide clean water themselves or to devise a system whereby other agencies could supply it reliably and consistently.

To achieve scaling up, the focus must widen from the community to its enabling environment. In particular, the capacity of intermediate level support agencies (local government, NGOs, private sector) must be greatly increased. Communities need technical, financial, and legal backstopping as well as ongoing support in facilitation. To achieve this, knowledge is required. In particular, clearly documented case studies, based on an objective assessment of real experiences, are needed.

In Pakistan's context, there is an issue not just of an inconsistent water supply, but an unhygienic one as well. The treatment of wastewater is almost non-existent and most of it is known to flow into streams, rivers and irrigation canals. Since untreated wastewater causes water-borne diseases, 60% of infant deaths occur through water borne infectious and parasitic diseases. Other reasons include untreated industrial wastewater; discharge of feces and untreated sewage and contamination of piped water by wastewater. Urban excreta flow into the sewerage with domestic wastewater through roadside and waterways. Human excreta are a major source of water-borne diseases. Furthermore, gastrointestinal diseases account for 25–30% of hospital cases, and vegetables are contaminated by bacteria through the use of contaminated irrigation water.

In general, Pakistan needs to address a vast array of problems regarding water and sanitation. According to the Pakistan Council of Scientific and Industrial Research, only 3 out of 100 industries, which use hazardous chemical, treat their wastewater. Tap water reaches 90% of the populace in the in the city of Lahore, Punjab. However, water leaks and wastewater also come into the pipes because of low pressure. Peripheral pipes (leading to each household from the main pipes) sometimes lie in or even penetrate gutters or wastewater ditches, thereby leading to contamination.

Through the SGP, access to funding has been provided to several civil society players to undertake varied and innovative projects for improving and providing access to water and sanitation facilities in Pakistan.

The Aga Khan Planning and Building Service Pakistan's Water and Sanitation Expansion Programme undertook Water Management at Household Level and Biological Treatment of Water in the semi-mountainous terrain of Northern Areas and Chitral.

WASEP sought to work together with communities to reduce diarrhoea morbidity in the programme area by 50%. Its multi-pronged strategy covered aspects of water supply, sanitation, operation and maintenance, community health, school health and capacity building of the public sector.

This intervention was based on the demand of over a 1000 villages for rehabilitation of non-functioning schemes which the government was unable to address. These needs were identified through an extensive research phase which included the failure of old schemes owing to a lack of village capacity; poor personal, domestic and environmental hygiene; demand for various types of sanitation and water treatment technologies.

An integrated approach was undertaken, which included the Community Health Intervention Programme (CHIP) aimed at creating awareness about health and hygiene as well as the facilitation of local action in improving domestic, personal and environmental hygiene and the School Health Intervention Programme (SHIP) which focused on increasing the health and hygiene knowledge of children, improving health and hygiene in schools and villages, and actively involving teachers in the process. Through this project, the level of water borne diseases in programme villages decreased by an average of 60 percent; diarrhoea incidences decreased by at least 25 percent; a successful demonstration of workable and replicable public-private partnerships was set up and all 100 water supply schemes developed by WASEP are currently being run and operated by communities.

Some of the key lessons learnt through this process were the efficacy of community mobilisation and training in ensuring sustainability; success of integrated water supply and sanitation intervention model (as opposed to isolated water of sanitation

Box 2: Enabling Communities to Conserve

Some of the key results of the project were the construction of a septic tank by all commercial and residential buildings along River Swat, development and presentation of the Mingora and Kalam Sanitation Proposal to District government for inclusion in their agenda, establishment of a Fish Conservation Committee (FCC) and conservation of fish protection areas and formation of nature clubs in six schools and colleges, initiation of solid waste management process in three pilot communities, formation of four tehsil level networks against environmental pollution, formation of a women development organisation and saving group, construction of 35 solid waste pits and three pilot communities. Main lessons learnt through the project have been the inculcation of a sense of ownership among communities which makes the task easier; centralised control is a hurdle in conservation activities; local governments cannot be effective unless their roles and responsibilities are clearly defined and a mechanism of monitoring and evaluation is in place; respect for indigenous languages and customs makes activities acceptable; the response to similar activities in different settlements is almost always different; collective action is the key to conservation of the river and small scale physical development grants motivate the community towards action.

projects); health and hygiene education as a cost effective intervention in reducing incidences of disease-communities.

From August 1998 to June 2002, the River Swat Conservation Project (RSCP) was undertaken by the **Environment Protection Society (EPS)** for its protection against pollution, encroachments and illegal fishing practices for the conservation of its biodiversity.

Through the project, a database on River Swat was established, awareness raising was undertaken about water pollution and its adverse effects on health and economy; coordination established amongst the concerned line agencies, stakeholders and communities undertook collective action against River Swat pollution and help provided to the government for developing land use planning and zoning in the area along River Swat.

Over the years, the Swat River has been a source of aesthetic value, has provided irrigation and domestic use, been used for power generation and acted as a habitat for aquatic life.

Its main problems have been both solid and liquid pollution, encroachments and illegal practices like fishing, hunting and smuggling. The RSCP applied a research and action based self-help and participatory approach through awareness and coordination at various levels of society, i.e., village and tehsil level as well as with related agencies.

The awareness process undertaken through the project included seminars, workshops, roundtables, clean up activities, walks, signboards, educational materials, stalls and essay writing competitions.

Pollution, ecological status, hotel information, tourism, traffic count, flow area, socio-economic status, fish population and sanitation in Mingora were surveyed during the project implementation.

Possible future plans include the study of species of diverse plants and animals in River Swat and its tributaries; age distribution of the economically important fish species for the conservation of fish fauna; data on fish and bird hunters for proper management of the issue; pollution surveys of the canals and channels passing through settlements to determine the load of pollution in the river from these sources; forming hunters' organisations at different levels to conserve the fauna of the river; improving the coordination between government departments concerned with wildlife and fisheries, local government and community organisations; enhancing awareness raising campaigns in communities and within a substantial number of educational institutions; effective implementation of law, including the framing of rules at the local level within the broader framework provided by the government through acts and ordinances etc.

The **Anjuman Samaji Behbood (ASB)** undertook the Provision of Water and Sanitation

Box 3: Empowered Stakeholders

The local community contributed a total of Rs. 19,548,456 for this process. Assistance also came through coordination between the community and line agency through user registration with the line agency, as well external linkages with WASA and FDA, which covered planning, coordination and approval of ASB's work through the issuance of NOC. The lessons learnt focused tremendously on the inherent ability of people to search for and implement their own decisions. These also included their ability to provide resources and their willingness to construct self-planned, self-financed, self managed and self maintained infrastructure. Furthermore, the project proved that people simply need skills, knowledge, awareness and mobilisation to make them independent.

Services on Self Help Basis. In this regard, ASB selected Hasanpura as a project area, where donkey cart vendors were transporting drinking water and open drains were leading to unhygienic and deplorable conditions. Before and during implementation of the project, a lengthy process was undertaken which included a visual survey and mapping of the area; documentation of existing infrastructure on the base map; situation analysis; external linkages with the Faisalabad Water and Sanitation Authority (WASA) and the Faisalabad Development Authority (FDA); planning, coordination and signing of NOC; community mobilisation and selection of community activists; short-listing of influential people and mutual understanding about existing problems; individual meetings promoting conceptual clarity of development process and motivation of partners; organisation of lane committees; selection of lane manager for each lane committee; preparation of level survey design and cost estimation by project engineer; resource mobilisation – money collection from target households by lane committee; purchase of material, hiring of labour and management of funds by lane committee.

Resultantly, water supply and sanitation was supplied to 59 communities in 467 lanes and 5,990 houses.

The **World Wide Fund for Nature - Pakistan** channelled its SGP grant to implement a project that focused on Monitoring Water Pollution in Hudiara Drain. This was one of the few projects undertaken directly under the GEF priority area of International Waters.

The project aimed at water quality monitoring with the government and community for surface pollution of a trans-boundary waterway crossing the border of India into Pakistan's River Ravi. The project was implemented from December 1999 to November 2001, and included the following objectives:

- Investigation of the pollution level and water quality of Hudiara Drain
- Assessment of the drain's water irrigation on soil
- Assessment of the impact of drains pollution on locals in one village (epidemiological study)
- Creating awareness about adverse impacts of pollution amongst local villagers
- Establishment of a Water Quality Management Plan (WQMP) for a transboundary drain

In order to achieve the above objectives, three sampling points were chosen, which included an area near the border to assess the total

Box 4: Generating Information and Knowledge for Replication

The project was able to provide a body of knowledge about transboundary water pollution; build the Environmental Protection Department staff's capacity regarding the techniques of continuous monitoring, analyses of data and assessing the problem of a drain; develop WQMP for a representative drain which could be replicated in other drains; procurement of water testing equipment and development of monitoring methodology for utilisation by partners on other replication sites; increased awareness among communities about health problems caused by exposure to the drain's water; and collection of baseline information for initiating a dialogue to undertake remedial measures for treating water of a transboundary water channel.

pollution load coming from India; an area to assess contribution of pollution load of local industries and residential areas along the drain and lastly an area to assess the total pollution load contributed by the drain to River Ravi.

The study conducted included an assessment of prevailing diseases in the local community; blood lead level of inhabitants; physical surveys; free health camp; street theatre; the print media campaigns; sharing of findings with relevant stakeholders in India and Pakistan and a seminar to disseminate the results at the provincial level.

In the process, some of the findings showed that the lack of attention to water quality should be equated with lack of awareness of the community; future strategies should address the issue of deteriorating surface water quality and be supported by adequate legal and institutional setup; the role of NGOs in improvement of awareness and monitoring for WQM Projects is important and awareness, capacity building, allocation of resources and training programmes are essential for implementation of a WQMP.

Some of the steps suggested for the future included undertaking and commissioning several specialised studies, which included:

- Quality of crops produced on soils irrigated with Hudiara Drain water
- Development of national guidelines for maximum permissible metal levels in soils subjected to effluent irrigation
- Studying assimilative capacity of River Ravi
- Development of irrigation water quality standards
- Assessment of drinking water quality along Hudiara Drain

The **Organization for Participatory Development (OPD)** undertook the Participatory Sanitation Initiatives of Community-based Water Management. The OPD initiated the credit programme with Orangi Pilot Project (OPP) in May 1993, and started the sanitation programme in December 1993. The project was able to conduct 18 surveys and estimates, lay 16 sewer lanes, and train 16 lane managers, 9 masons and 10 labourers. Furthermore, an amount of Rs. 317,434 was provided by the community as investment.

However, this project was not viewed as a major success, and the lessons learnt included the fact that the project area selection was not needs based; the sanitation project was linked with other OPD projects which were dissimilar

Box 5: Replicating the OPP Model in Balochistan

The project was undertaken in Nawa Killi- an urban settlement near Quetta, Balochistan and included the disposal of wastewater, construction of pit latrines to shallow sewers and benefited 57 households. The 10 month long project was undertaken from November 1994 to August 1995, as an adaptation of the Orangi Pilot Project (OPP) model, and was based on the values of social mobilisation and promotion of self-help initiative.

in nature; there was a miscalculation of financial contribution of the community, and linkages with the line departments were non-existent.

Investing in the need for remedial measures for sanitation needs, the **Taraqee Trust** undertook a project entitled Challenges of Sanitation in Low Income Urban Settlements. The project aimed at improving living conditions of low income communities, promotion of low cost sanitation facilities on self help approach and educating users about hygiene for intended use of sanitation facilities.

The implementation of the project included assessment of needs and area selection; meetings, sensitisation and general community mobilisation; formation of organisations and election of president and manager; collection of contributions and construction of sewerage lines. This was followed by follow-up visits and health and hygiene education for the communities.

While Taraqee Foundation provided support like lay out and designation of sewerage line, masons training, provision of hardware for household latrines, community mobilisation and health and hygiene education, the communities contributed through the donation and collection of funds and more importantly provision of labour and masonry support.

The project was able to result in an improved physical environment, disposal of wastewater and excreta from the immediate vicinity and reduction in malaria and water-borne diseases. The project brought to the fore learning like the issue of subsidies versus self-help, the need for a clear vision and approach and the need for expertise.

The Soan Valley Development Programme (SVDP) utilised its SGP grant for a five-year project that aimed at the Conservation of Biodiversity and Sustainable Irrigated Agriculture through Participatory Management of Groundwater Resources. The project was undertaken in ten villages of Valley Soan Sakesar, District Khushab, Punjab, under the GEF focus area of Conservation of Biodiversity.

Amongst the project objectives was the need to demonstrate potentially successful strategies for organising village level communities to initiate and sustain activities to combat desertification with special emphasis on biodiversity and sustainable utilisation of groundwater resources; federate the village level communities into an area organisation to address issues related to conservation of biodiversity and enhancement to aquifer through recharge; acquisition of knowledge and information related to conservation of biodiversity, management of groundwater resources and irrigation water through active participation of communities and local experts and provision of technical and credit support to interested individuals and communities for conservation of biodiversity.

Box 6: Streamlining and Enhancing Local Resources

Project outcomes resulted in awareness raising amongst the community; water courses lining and PVC pipe irrigation over 40,000 Rft carried out in 55 small tubewells and dugwells of small farmers resulting in massive water saving and energy saving in monitory terms; support from Pakistan Poverty Alleviation Fund (PPAF) through which pipes were laid on 167 tubewells; sprinkler and drip irrigation interventions in the offing; millions of barrels of ground water saved; over Rs 1 million saved by communities in energy and labour; farmers cooperatives formed for long term conservation support in the area; utilisation of previously wasted cauliflower leaves as compost by small farmers.

Some lessons worth noting include the fact that conservation or sustainable resource use is a slow process and needs time and effort to deliver; and that the involvement of government institutions and line departments is needed in conservation initiatives.

Through the partnerships built between the farmers' cooperatives, local CBOs, NGOs like WWF-P and Green Circle Organization, district level government and line departments' future plans include:

- Development of a model of sustainable development based on the conservation strategies/interventions carried out through farmers cooperatives
- On-farm water management component to be focused on in the coming three to five years

03 Sustainable Agriculture

The area of sustainable agriculture is seen as integrating three main goals-environmental health, economic profitability, and social and economic equity. Sustainability rests on the principle that present needs must be met without jeopardising the ability of coming generations to meet their own needs. This supervision and guardianship of both human and natural resource includes (among many other factors) responsibilities such as working and living conditions of labourers, the needs of rural communities, and maintaining or enhancing this vital resource base for the long term.

For farmers, the attainment of sustainable agriculture normally requires a series of small, realistic steps, which include personal economics and goals. But it is important to realise that reaching toward the goal of sustainable agriculture is the responsibility of all participants in the system, including farmers, policymakers, researchers, and consumers.

Specific strategies for realising these broad themes or goals can be grouped according to three separate though related areas of concern: farming and natural resources, plant and animal production practices, and the economic, social and political context.

Being an agricultural country, more than 50% of Pakistan's population is employed in the agricultural sector. Less than 20% of Pakistan's land can be intensively farmed- nearly all of which is cultivated. However, generally farmers lack knowledge of the operating characteristics and full capabilities of technologies within the sector. Common problems in both irrigated and rainfed areas include erosion of soil, underuse of organic fertilizers and overuse of synthetic chemicals. In rainfed areas, overextensive cultivation is common.

The decision for intensification of farm lands in Pakistan stems from demographic reality. Pakistan has developed strategies to ensure food security by 1998, which also includes the agricultural sector, through the development of infrastructure in rural areas, and community participation. This would be effective in raising both socio-economic standards, and mass-awareness of hygiene and environmental conditions. Furthermore, knowledge and capacity within food production can be strengthened, access to agricultural markets improved and land and fertilizer use managed efficiently.

The **SUNGI Development Foundation's** project for Natural Resource Management for Conservation of Biodiversity aimed towards providing support for the management and utilisation of local natural resources in a sustainable manner through the conservation of biodiversity for enhancing the livelihood capacities of poor and deprived communities of the Hazara region. The main objectives of the project included introduction and pilot test of a comprehensive package of natural resource management, conservation of biodiversity and poverty alleviation; exploration of the indigenous knowledge regarding local crop varieties and cropping pattern with a view to promoting these practices; promotion of local species; development of skills and management capacities of poor farmers to grow local land races and seed crops and establish village level seed banks; development of the seed distribution

network for local crop varieties and ensuring large scale emergence of these varieties and identification of local medicinal plants and herbs in order to encourage their usage.

The project was implemented by the community organisations themselves. SUNGI facilitated the activities through trainings and technical assistance. These village organisations were involved in all stages of the project including implementation, identification and recommendation of beneficiaries to be trained, repair and maintenance of the project; documentation and management of financial and other records. Some of the established organisations were also provided institutional support to implement the physical infrastructure projects, and trained as master trainers. SUNGI was closely involved in the monitoring and implementation of the project activities with the collaboration of community partners. Major activities undertaken for the implementation of the project included the conservation of local land races of agriculture, establishment of demonstration plots of indigenous varieties, mobilisation of communities to grow more of these varieties for seed multiplication leading to the establishment of seed banks for other communities, introduction of environmentally safe and sound techniques in the partners communities to promote safe use of pesticides and insecticides, establishment of demonstration plots for organic farming, promotion of the use of natural and locally available herbs as pesticide, promotion of compost as an alternative to chemical fertilizers.

Although the project was implemented by the community organisations themselves, SUNGI remained an apex body providing support to these organisations. The project was implemented with the collaboration of three community organisations and each organisation covered 8 villages (almost 4,800 households). Through this project, farmers were able to establish community based seed clubs and conserve seeds of maize variety, conserve locally depleting species and promote and build capacity of the community in biodiversity conservation.

Through the project some of the lessons learnt included the fact that a combination of advocacy with developmental work is more effective, areas where agriculture extension has not been approached and where multinational companies have not been established are rich in biodiversity conservation, local knowledge plays a significant role in biodiversity conservation, a combination of local knowledge with research work is more effective for getting the desired result, and the community is always interested in developmental work relevant to poverty alleviation.

Hirrak Development Centre's unique utilisation of its SGP grant has had a two pronged focus through the project on the Conservation of Agricultural Ecosystems and Street Theatre for Conservation Awareness. This two and a half year project has been carried out in two cluster areas, one each in Dera Ghazi Khan and Muzaffargarh districts.

The main project goals focused on the protection of the agricultural ecosystem of the project areas from over use of insecticides and chemical fertilizers; to mitigate threats to the survival of Indus Dolphin, migratory birds and the wetland habitat of the Indus Flood Plains and to promote and conserve traditional varieties and methods of pest control, based on centuries old management techniques.

The main methodology of the project was the use of street theatre as a tool for community mobilisation. The process also included a workshop on alternative methods to controlling insects without the use of insecticides; training of farmers in the preparation of organic fertilizers; application of pheromones, light trapping and methyl Euginal in the cotton crop, vegetables and mangoes; health camps to create awareness about the harmful effects of insecticides and chemical fertilizers; theatre workshops and performances to create awareness amongst farmers about biodiversity conservation; folk melas and CBO meetings/seminars. The project beneficiaries included small farmers and women, general public of both target areas and small farmers involved in the project.

The project has resulted in the development of leadership skills in small farmers and women to conserve biodiversity and search for their own solutions. Some major results have included

the production of organic cauliflower, mangoes and insecticide free tomatoes, as well as plans for the development of direct links between the producer and consumer. The farmers have also begun to appreciate and understand the need to protect the Indus Dolphin. The use of insecticides in wheat crop has been discontinued and a trend of organic wheat production in the hill torrent area has been furthered. Other than developing organic vegetables, farmers are also exploring the development of an alternative market. A unique feature of the project has been the awareness raised amongst the farmers and the general public regarding the WTO, corporate agriculture and biodiversity. More importantly, women have organised themselves, built capacity and knowledge, developed their awareness and protective measures against health problems originating from the use of insecticides and chemical fertilisers and the effect of mechanisation of agriculture and corporate agriculture on their rights to, and involvement in, agricultural activity.

Some interesting lessons learnt include the fact that farmers do not want sympathy, rather, they require a proactive approach. Furthermore, it was realised that the NGOs should be involved in day-to-day problems of target groups and cultural activities should also be used for motivation.

DAMAAN's three-year project on Development through Awareness and Conservation of Biological Diversity worked towards the goals of mobilising farmers to conserve land race, use non-transgenic seeds, promote sustainable consumption of natural resources, conserve local varieties of seeds/plants, promote benefit sharing of local knowledge and multiply local varieties.

DAMAAN's strategy included an inclusive approach towards biological and socio-cultural diversity; extensive mobilisation through multiple communications, i.e., a gradual and proactive approach; large scale linkages for collection and storage of varieties; selective partnerships for reuse and multiplication and recording, storing and reusing of local species, knowledge and practices.

Benefits generated through the project included global contact of local communities established on issues of environment and conservation; local varieties, species and knowledge collected and stored for sharing with

laboratories all over the world; useful (nutritious and economical) seed/plant varieties conserved, shared and reused; alternate patterns reintroduced to reduce dependence on reductionist farming; revival of multiple cropping pattern beneficial for the poor, households and women.

The **Green Circle Organization (GCO)** as its name suggests has the 'green revolution'as the main theme of its project, titled Improving Livelihoods and Environment by Conserving and Promoting Indigenous Agro-ecological Balance.

It therefore focuses on diversifying agriculture by coupling it with dairy, poultry, livestock, horticulture and organic agriculture and farming medicinal plants to increase the per acre income of the farmers. Their work also includes areas like the effects of chemical fertilizers and minimum feasible unit; market uncertainty and major crop crisis; water crisis; identification of indigenous species of plants; export potential of medicinal plants; applied research; soil preparation; the role of livestock (farmyard manure, cow dung); sustainable agriculture; bio-refinery/ bio gas and indigenous seeds/revolving seed bank.

Eco-Conservation Initiatives (ECI) utilised its SGP grant to undertake an Integrated Pest Management (IPM) Capacity Building Project aimed at building the capacity of the National Rural Support Programme (NRSP) through the development of training modules of the IPM of

Box 7:
Learning by Doing

Though DAMAAN is the sole implementing agency of the project, 9 village-communities with 21 male and 6 female farmers are partners in this project. Impacts have included collection of 103 local seeds, securing 30 important seeds, collection of 9 rare seeds, multiplication of 9 threatened seeds, partnership with 10 farmer communities and plantation of 5 local trees. Lessons learnt include the fact that the DAMAAN area seed varieties are highly drought tolerant and moderately pest resistant; cultivation of local seed/crops is comfortable, economical and profitable. Unchecked import of alien varieties is the biggest threat to local species.

Apple Woolly Aphid in Murree Hills. The project spanned the period between March 2002 to October 2003 and covered the exact identification of the target pest problem and determining the extent of the damage; raising awareness amongst the farming communities for minimising use of hazardous insecticides including organophosphate group; motivation and skill enhancement of communities (men and women) to increase their farm income through environment friendly interventions; and designing and preparing IPM training modules through the involvement of NRSP staff with the objective of their capacity building.

To achieve the above, activities carried out included survey of the apple orchards; an IPM orientation session; identification of useful and harmful insects and use of organic manures; community-based IPM of Woolly Apple Aphid; community IPM training for NRSP staff; Training of Trainers (ToT) and field based training; IPM-based budding and grafting of apple plants; establishment of new apple orchards in Tehsil Murree; field activities for cultivation of apple plants; planning meetings with the involvement of master trainers for shift from project to programme.

Several Urdu and English brochures were printed based on the learning and findings of the above activities. These were included as a part of the main training module.

In order to implement this project, ECI networked with varied SGP partners including NRSP, HDC, SVDP and GCO. The main benefits included capacity building of master trainers, establishment of 18 apple orchards, provision of hand pump sprayers to each master trainer, provision of jobs to 10 community members in various ECI projects.

04 Community Protected Areas

It is recognised that a substantial part of the earth's biodiversity survives on territories under the ownership, control, or management of indigenous peoples and local communities who actively or passively conserve many of these sites through traditional or modern means. Yet, these indigenous communities are neglected in formal conservation circles. Considering that these sites are extremely diverse in their governance, objectives of management and ecological and cultural impacts, it is necessary to facilitate them in responding to threats, and enabling them to reach greater security in their conservation and sustainable use practices.

Being a country of varied cultural diversity, Pakistan illustrates varied patterns of land ownership and resource use. These patterns have resulted in various culturally based conflicts. Considering that protected areas are inextricably related to local community values and requirements, their planning and management must be very sensitive and responsive to cultural differences. However, most communities find themselves caught up in issues pertaining to land ownership and therefore the successful planning and management of protected areas is often neglected in the context of Pakistan.

The **Himalayan Wildlife Foundation's** mammoth undertaking, namely the Deosai Brown Bear Project is based near the Line of Control (LoC), Kargil. Deosai was declared a National Park in 1993, and the Himalaya Wildlife Foundation's involvement in Deosai started the same year as an effort to protect the bears. The project has now expanded into an effort to protect the unique ecosystem in Deosai and to manage the National Park in collaboration with the Northern Areas Forest Department. HWF is managed by volunteers and their project staffs are drawn from local communities. HWF aims to create a model national park in Deosai where the communities, the government and other stakeholders collaborate to preserve the ecosystem where people can visit to enjoy the scenic beauty and to learn about nature and the local community can derive economic benefits from eco-tourism.

The project aims for the institution of Deosai National Park; park management and protection of the ecology of Deosai plains; increasing awareness at the local and national level on the value of Deosai Plains; provision of research support and training to the relevant institutions and the involvement of local communities in park management.

In order to achieve the above, the strategy deployed was the development of management plan for the park and participatory institutions; network of guards, check posts, and patrolling; special strategies for protection of bears, falcons and fish; partnerships for research and support to communities in development initiatives.

The key lessons learnt include the need for legislative and regulatory reforms; flexible and adaptive management structures; community involvement in management of protected areas; combination of financing from state, external and internal resources; critical need for

Box 8: Touching New Heights

Some of the major results and achievements include the beginning of a fully functional national park with a management plan and a zoning system; network of check posts and patrolling in the park and adjacent valleys; establishment of Park Management Committees; community development projects; information and awareness on Deosai (visitor guidebooks and brochures, guidebooks for wildlife, birds and plants, and posters); visitor programmes and nature tours.

awareness at the local level; collaborative research programmes lower costs and improve quality and ecotourism for the development of economic opportunities for communities.

Khunjerab Villagers Social Welfare Organization's (KVO) project Conservation and Management of Wildlife, focused on promoting trophy hunting as opposed to illegal hunting.

There are plans now for conservation funds to be established in order to ensure sustainability. Terms of Partnership have also been signed with IUCN/MACP, and a conservation plan is underway. Furthermore, to protect natural resource, it is planned that an alternative resource for firewood will be provided to the local community.

Other facilities like the establishment of educational and resource projects have been planned as well as the provision of basic health facilities to the community through the establishment of 15 hospitals.

The **Takatu Waroor Galvi Taraqee Tanzeem's (TWGTT)** Community based Conservation of Straight horned Markhor, Afghan Urial and associated Biodiversity in Takatu Hills, Quetta - Pishin Districts aims at creating awareness about the importance of biodiversity in the area; preparation of a conservation and development plan; increasing the population of target species; habitat improvement; sustainable use of natural resources in the project area and participatory assessment and monitoring of biodiversity conservation activities.

In this three-year project, community consultation as well as partnerships was established with various agencies like the Balochistan Forest Department, WWF - Pakistan, and the local administration. Resultantly, key species received protection, habitat was rehabilitated and conserved, awareness raised, local economy enhanced, and jobs created locally. Furthermore, the significance of Takatu Hills was acknowledged, community ownership built and the number of flora and fauna grew despite the drought.

Through this project it was learnt that despite tribal conflicts, communities supported such projects. However, it was felt that the project design did not fully address the issues of the communities and area.

Adventure Foundation of Pakistan's (AFP) Conservation of Blind Indus Dolphin through Ecotourism at Taunsa Barrage was a two year project aimed at the creation of awareness among local boat people about the Blind Indus Dolphin; enhancement of their income by introducing a community-based ecotourism project; attracting attention of local and international media to create awareness about the conservation of Indus Blind Dolphin at local and global levels; improvement in the quality

Box 9: Protecting through Trophy Hunting

This five-year project has been able to lead to the protection of wildlife and the introduction of trophy hunting. After ascertaining the official census of wildlife and the quota allocated according to the census, the sale of trophies was set at 5 for foreigners, 19 for local Pakistanis. Therefore, the total number of trophies sold was 24. The permit rate for trophy for foreigners was set at $3000 and for the locals at Rs.25,000.

In order to ensure utilisation by the community, the remuneration percentage was allocated at 80% for the community and 20% for the government.

and standard of local fishermen's services for the promotion of environmental friendly tourism in the area; motivation of Tourism Trade Community to introduce new ecotourism products such as 'Indus Blind Dolphin Boat Safaris' through their marketing campaign.

Initially, a PRAactivity was conducted at Taunsa Barrage to form a community based cooperative to run the ecotourism programme on traditional boats from Taunsa Barrage to Ghazi Ghat. Then a management committee comprising representatives of local community, Adventure Foundation Pakistan, WWF-Pakistan, tour operators, Irrigation Department and Wildlife Department was established to provide policy guideline for the management of this ecotourism project. Adventure Foundation Pakistan, with its previous experience of Indus Boat Safaris, prepared suitable ecotourism products to attract domestic as well as foreign tourists to support boat people communities through creating a reasonable demand for the services of boat safaris. A training programme was organised at Taunsa Barrage to train selected local boat people in tour guiding, visitor management, services arrangement, security and life saving techniques and dealing with tourists in an eco-friendly manner. 'Save Indus Dolphin Rafting Expedition' was organised by AFP to create awareness among the people living along the Indus. A team of eight members of AFP participated in this expedition from Attock to Ghazi Ghat. Three selected boats were renovated, upgraded and decorated in local traditional style to meet the standards of domestic and foreign visitors. Furthermore, necessary equipment required for camping, wildlife viewing and water safety was provided to boat people through the Cooperative Society.

The **Lahore Zoo's** SGP funded project namely the Indus Dolphin Rescue Unit is a three-year project funded by the Lahore Zoo and Sindh Wildlife Department. The project aims at reducing the mortality of Indus River Dolphin stranded in irrigation canals; creating awareness and understanding of about the Indus River Dolphin and its habitat; organising a river based centre for treating injured animals; creating awareness among the communities specially fishermen regarding conservation issues in general and Indus River Dolphin in particular and involving and training local people for Dolphin Rescue Operations including veterinarian training for staff at the Lahore Zoo and the Sindh Wildlife Department.

Box 10: Awareness for Income Generation

This project received very good coverage in the press and electronic media. And a number of news items and articles were published in leading newspapers and magazines. Besides, a special documentary was also made by BBC on the project and was televised twice on its network. Pakistan Television also televised a documentary made by Serendip Productions on its PTV World channel. The information material produced on the Indus Dolphin in Urdu and English also received a positive response. Therefore, the project has shown a reasonable impact as far as awareness about the Indus Dolphin is concerned. As far as income generation impact is concerned, the community received a considerable financial input in their below poverty level economy. The community generated Rs. 137,000 by running short and long duration ecotourism boat safari trips in the second year as compared to the first year's figure of Rs. 40,000. Furthermore, there is a very clear attitudinal change in the community after improvement in their income level. The community is now considering spending some of their savings for education and health of their children and family members.

The approach adopted to achieve these objectives included the collection of information regarding stranded dolphins through communities; establishment of Dolphin Rescue Unit at Sukkur / Lahore Zoo; training of rescue staff; extension of existing awareness programmes and identification of major threats to fisheries, Indus Dolphin and their habitat and improvement in the watch and ward of the area.

Project beneficiaries have been the Indus River Dolphin, the Sindh Wildlife Department, the Lahore Zoo, the World Wide Fund for Nature – Pakistan and local communities, schools, young helpers, nature lovers, researchers and local NGOs.

The overall aim of the Galliforme Project of the **World Pheasants Association (WPA)** was to enhance Pakistan's capacity to conserve its native pheasant species and their habitats. In order to achieve this end, the following processes aimed:

- To develop survey techniques that produce reliable measures of distribution and abundance for populations of the three pheasant species living in NWFP's mountain forest habitats: western tragopans (Tragopan melanocephalus), koklass (Pucrasia macrolopha) and Himalayan monal (Lophophorus impejanus);
- To compare populations assessed in these ways in different areas and through time;
- To seek explanations for the distribution and abundance patterns of pheasant species revealed by the surveys, in terms of physical, biotic and anthropogenic factors;
- To research the ecology of the threatened western tragopan in more detail than had been possible hitherto;
- To suggest what actions are required for the future conservation of pheasants in the project area, and how these might best be implemented;
- To train members of the NWFP Wildlife Department, as well as local people living in key areas, in pheasant population monitoring techniques;
- To initiate and test a conservation education programme designed to promote the conservation of pheasants and their forest habitats via local village schools in the project area;
- To supply all distribution data to the Wildlife Department of NWFP and to World Wide Fund for Nature – Pakistan for addition to its existing sites database for Galliformes species.

Box 11: Protecting the Blind Indus Dolphin

Through the project 26 stranded dolphins have been rescued during 2000-03; awareness among the masses regarding Indus Dolphin has been created; staff trained for the rescue operations; knowledge about Indus River Dolphin generated; university students motivated for research on dolphins and communities involved in rescue operations.

This project focused on the Hazara and Kohistan districts of NWFP - the acknowledged stronghold for these species and their mountain forest habitats in Pakistan. The project identified six sites for surveys, and in the selected areas, three species were being surveyed over the project lifetime.

Project beneficiaries included local wildlife staff in the form of capacity building and exposure to scientific methods, as well as Pakistan's scientific community, which gained insight into pheasant ecology. The study of the western tragopan has resulted in a clearer picture of their seasonal habitat requirements and has also resulted in specific recommendations, which if implemented should be able to influence people to manage their natural resources in a sustainable fashion.

05 Human Settlements and Waste Management

Most of the world's urban population is now in Africa, Asia and Latin America. So too is most of the urban poverty. Most of this populace dwells in life and health threatening homes and neighbourhoods because of poor quality, overcrowded housing, dangerous land sites and lack of basic services. Urban areas also concentrate a high proportion of resource consumption, waste generation and greenhouse gas emissions. There is therefore an urgent need for cities to set new standards in resource conservation and waste minimisation. For instance, the concentration of production provides more scope for reusing or recycling waste. Furthermore, it is necessary to ensure that the urban poor's rights are recognised and that they can form more effective relationships with local government and other decision makers.

It is estimated that 47,920 tons of solid waste is generated in a day, that is, 17.5 million tons per year, and only about a half is collected. Collected waste is dumped on low-lying land without any sanitary precautions. Another half is disposed of at vacant areas, gutters or sewerage system. Toxic and hazardous industrial waste is also dumped in the same land area, or adjacent to factories. Similarly, medical waste is also disposed in the same area and it imposes health risks.

There is practically no solid waste management in Pakistan. Only half of the urban wastes are disposed in sewers, with most remaining untreated. Solid waste treatment has been privatised in order to keep up with the demand for solid waste treatment services. Only Karachi and Islamabad have sewage treatment plants. The environmentally sound management of sewerage and solid waste is a core issue and has been given sue importance in the National Conservation Strategy of Pakistan. However, much more needs to be done in this regard.

The Gujrat Sanitation Programme of **Waste Busters** is a private public partnership for waste management between the UNDP, The Urban Governance Initiative (TUGI) and Urban Governance Innovations Faculty (UGIF). TUGI is a regional project developed and funded by the UNDP as an action-oriented initiative that promotes better urban governance through institutional capacity building; provision of policy advisory services; enabling innovations on tools and methodologies and promoting collaborative networking within and between cities in Asia. Implementation includes building capacities for better urban governance; facilitating collaboration and partnerships into city policy-making levels; production of user-friendly tools for improving urban governance structures and

processes; popularising good governance through the implementation of a complementary awards system; and promoting new collaborations that strengthen national government focal points.

Gujrat City has been a target of indiscriminate dumping of solid waste in fields, garbage dumps and pollution in agricultural fields and general dumping of plastic bags. Solid waste management in Gujrat has led to a shortage of manpower (in comparison to the population); an incomplete sewerage system; lack of proper space for solid waste disposal; non-availability of filth depots in the city; non-cooperation of the general public with the sanitation staff; excess of tonga/rehras in the city; extra use of plastic shoppers; lack of transport and lack of disposal stations.

The Waste Busters Gujrat Sanitation Programme was developed on the principle of public–private partnership with community participation as a key ingredient. The stakeholders in the process were public sector Tehsil Municipal Administration (TMA), Waste Busters, UNDP and the citizens of Gujrat.

The role of the TMA has been to provide the land (10 acres) and basic infrastructure for setting up a waste recycling plant; guarantee the availability of MSW for 30 years free of cost, and arrangement of transportation of waste from transfer point to the disposal site.

Waste busters are meant to establish a MSW recycling plant; manage it and pay for all the operational expenses; market the compost to the local farmers to generate income from the project; sell/recycle the inorganic waste to generate revenue; and share 15% of earnings with the TMA from the profit in the project.

The UNDP/TUGI are to provide the initial start up capital of US $50,000 as seed money for the project; make available adaptable technology in vogue elsewhere in the world and network this project with other cities in the Asia – Pacific Region. The project is aimed at creating employment, generating income; and tackling the solid waste management problem.

Through SGP grant, the **Private Public Partnerships for Waste Management** has implemented a project namely Community Waste Management Project for a period of three years. Its purpose has been to improve health, hygiene and sanitation; to reduce viral diseases caused through waste/garbage; to create awareness amongst the public regarding health and hygiene; and to help in controlling population growth.

To achieve these objectives, health sub-committees were formed in every 15 streets; cleaning tools and trolleys were provided to all Health Sub-Committees (HSC), four sweepers were appointed to clean waste in clusters of 15 streets and provided donkey carts; every household provided its own dustbin in their homes and on the roads and solid waste left for the utilisation of the Sindh regional nursery.

Major activities carried in the project included social mobilisation, appointment of male and female co-ordinators in the Health Sub-Committees, involvement of the vocational and dispensary staff in the Solid Waste

Box 12:
Services to the Underpriviledge: Revisiting Informal Settlements

Funded through a two-year SGPgrant, the project included the collection of data through a physical and economic survey; active involvement of community through committees; widening of street pattern on self help basis; creation of 4007 low cost plots at Farash (MUSP) and allotment of plots through transparent draws. The project has led to an improved and clean environment, better living conditions, plots at affordable cost and permanent settlement. Furthermore, 35 out of the 47 sanctioned hand pumps have been installed, road work at MUSP at an estimated cost of Rs 3.159 million completed; storm drainage system at an estimated cost of Rs 6 million and 98% work completed; cross drainage system of an estimated cost of Rs 4.1 million completed; planned 4007 low-cost 3 marla plots at MUSP; 2142 households of six katchi abadis will benefit from upgradation activities and protection work along nullah in Katchi Abadi G-7/1 is under progress at an estimated cost of Rs 3.284 million.

Management project, health education sessions, orientation workshops regarding health issues, and celebration of national, religious and cultural events. Other than the project being replicated in other areas, it was also able to produce handy publications and information in the form of articles, baseline surveys and brochures.

The **Capital Development Authority's (CDA)** project for the Up-gradation and Regularisation of Informal Settlements of Islamabad aims at the improvement of living and environmental conditions of sectoral areas; provision of plots to urban poor at low cost and provision of better utilities and services.

Lessons learnt included the fact that projects began with sound planning yield effective results, the active participation of residents is essential, availability of required funds is necessary for smooth progress, poor class of community also deserves provision of basic services and provision of land at low cost is necessary within the developed sectors.

APPNA SEHAT has undertaken projects on Preventive Health in Mardan, Murree, Islamabad, Sahiwal Pakpatan and Badin, benefiting (till September 2003) 1019 households and a population of 5462 people. The basic project philosophy is to empower communities to solve their health and related problems through maximum utilisation of existing resources. The overarching goals of the project aim at reducing mortality and morbidity for the population at greatest risk; improving the health of beneficiaries; helping the beneficiaries in identifying and solving their health problems utilising existing resources; and further demonstrating how affordable collaboration between public and private sector can result in dramatic reduction in serious health problems.

The APPNASEHAT model is based on a unit of 500-550 households in one or more adjacent villages, with one unpaid facilitator (local respectable figure), local unit staff, local capacity building with a focus on health education and maximum utilisation of existing resources. Interventions have included baseline surveys with a census survey of each unit; household visits for health education and demonstration and data collection; immunisation (tetanus toxoid for women aged 15-45 years irrespective of their marital status, and all basic shots - diphtheria, measles,

tetanus, pertussis, tuberculosis and polio - for children aged less than five years); control of diarrhoeal diseases with emphasis on Oral Rehydration Therapy (ORT) with home made oral rehydration solution; control of acute respiratory tract infections with special emphasis on recognition of danger signs of pneumonia and timely help seeking; growth monitoring including nutritional education with special emphasis on exclusive breast feeding, weaning and proper indigenous food intake and importance of iodized salt; improved birthing practices including antenatal and post partum care, umbilical procedures, and child spacing; promotion of consumption of clean water and appropriate disposal of waste; environmental protection with special emphasis on hazards of smoking, use of shopping bags and deforestation; generation of awareness against hepatitis and tuberculosis with special emphasis on their spread and control; promotion of importance of personal hygiene; social organisation including formation of small community organisation, unit committee and representative regional health board and formation of sehat markaz.

Once a unit achieves a certain level of improved health and development indicators, it is graduated out of the active programme and its financial inputs withdrawn. However, technical assistance remains available.

APPNA SEHAT's environmental health project Village Improvement of Golra Sharif replicates a previously implemented model for community health care in a semi-urban area near Islamabad. This model has been successfully implemented in four diverse rural areas of Pakistan, with 140,000 beneficiaries. Through the project, un-served or under-served communities become effective, independent, self-sustaining entities, meeting most of their primary health care needs through improved health behaviours and establishing their own Mini Health Care System.

Through the project, communities are being educated about immunisation; diarrhoeal disease, dehydration, ORS preparation and administration; importance of growth monitoring for children; importance of antenatal and postnatal examinations; importance of child spacing; importance of drinking potable water and proper disposal of wastes, etc. Immunisation coverage for children under five has been raised from 32% to 84%, while the same for women of reproductive age has been

increased from 16 to 92%. Contraceptive prevalence has been increased from 30% to 46%. Men and women community organisations have started taking local development initiatives. This has included an initiative to solve the mosquito problem in Golra Sharif, construction of a septic tank on self-help basis, election of a Unit Health Committee by the community organisations, and the establishment of a Computer Literacy Centre.

Through the SGP grant, **Shakkar Ganj Sugar Mills** have undertaken Bio-Composting of Industrial Waste. Certain products of the sugar mills like bagasse, filter cake and molasses result in high levels of effluents. Biocomposting is a process to treat effluents making an environment friendly stable product which could increase the productivity of soils and plants. Through the experience of bio-composting process at Shakkar Ganj Sugar Mills, it has been recommended that such process of de-composting the sugar mill waste should be adopted by all sugar mills; bio-composting plants should be popularised in the main cities with a view to decompose organic waste specially from fruit and vegetable markets; organic garbage from the cities be collected specially for the purpose of decomposition; all the decomposed material should be recycled to agricultural farms to reduce fertilizer costs and improve crop yields.

06 Energy

Energy efficiency is recognised as one of the most cost-effective ways to reduce energy-related emissions associated with climate change. However, for many years, efforts to finance energy efficiency and conservation measures have bypassed the residential sector and particularly focused on the industrial sector and power plants, with increasing attention given to energy-efficiency equipment and elimination of waste energy. Utilities in some highly industrialised countries have justified such initiatives, by the energy savings realised and the significant impact such initiatives have had in reducing greenhouse gas emissions into the atmosphere. Impressive savings have been achieved and projections indicate that still more cost-effective savings exist. This sort of scenario prompted many investors to channel their resources to utilities while overlooking residential sector energy use and its impacts on climate change.

A large majority of new houses being constructed in Pakistan are not designed in accordance with the climate. As a result, occupants consume extra energy to make homes more liveable. It is estimated that improved building designs can reduce household energy bills by up to 20%, and this figure could be increased to 50% by the use of efficient home appliances.

To add to this scenario, primary energy supplies are not enough to meet present demands. So, Pakistan, like other developing countries of the region, is facing a serious energy deficit.

However, renewable energy sources can play an important role in meeting this challenge. Renewable resources that are technologically viable in Pakistan include micro-hydel, bio-energy, wind and solar energy. Pakistan can benefit from these as substitute energy in areas where sources exist. Natural gas is a major energy source in Pakistan; yet renewable and alternative energy development is not promoted.

The **Consumer Rights Commission of Pakistan (CRCP)** undertook a project to create Public Awareness on the Household Appliances' Energy Efficiency

Energy efficiency is a neglected area and despite scarcity of energy resources, a lot of it is wasted with significant environmental implications. Furthermore, there is a lack of information about energy efficient home appliances. The CRCP therefore aimed at:

- Promoting sustainable energy consumption patterns and efficient energy use at the individual and community levels;

- Advocacy and lobbying for measures to minimise energy losses during transmission and distribution at the systemic levels;
- Advocacy and lobbying for formulation and implementation of energy efficiency standards for home appliances related to gas and electricity;
- Training community-based organisations (CBOs), consumer groups, and civil right activists in the area of existing legal framework, which can be used to protect environmental rights.

Project activities have included studies on energy consumption patterns in Rawalpindi/Islamabad; home appliances available in the market in terms of their efficiency, affordability, and patterns of usage; existing legal framework for formulation and enforcement of energy efficiency standards. Furthermore, awareness-raising and training programmes for the promotion of efficient energy use practices both at the community and policy levels have been undertaken and journalists trained on energy efficient practices and appliances. Talks have been held with concerned government agencies and regulators for formulation and implementation of energy efficient standards as well as with manufacturers and dealers to sensitise them about the value of energy efficient home appliances.

As a result, there has been greater awareness about the impact of inefficient energy consumption practices on environment and household budgets; better sensitisation of manufacturers/dealers of home appliances and willingness to introduce efficient appliances and aggressively market them; greater realisation on the part of target audience about a strong connection between consumer action and environment protection.

Three research studies were also conducted which included energy consumption patterns in Rawalpindi/Islamabad area in order to identify attitudes and practices which result in wastage of energy; relevant home appliances available in the market in terms of their efficiency, affordability, their relation with different income groups and patterns of usage; and the existing legal framework for formulation and enforcement of energy efficiency standards.

In total about 800 households have benefited directly from the project activities. At the community level, these included housewives, teachers, students, representatives of local civil society groups and local businessmen. At the policy level, engagements were made with senior government officials to sensitise them. Other beneficiaries covered the media, lawyers' community and various business/dealers associations. About 50 percent of the beneficiaries were women, who are the major users of home appliances and directly suffer from the hazards involved in handling inefficient home appliances. The study produced under the project is beneficial for all those interested in the promotion of energy efficiency practices. At the national level, the activities aimed at sensitisation of relevant businessmen, government agencies and regulators, which are likely to benefit environment consumers in a sustained manner.

Building and Construction Improvement Program's (BACIP) project on Energy Efficient Building: Building Technologies in Mountain Areas evolved as an action research project, with the main focus of analysing housing related problems of the target population for sustainable livelihood and developing appropriate solutions. This focused particularly on fuel efficient housing technologies; improving the quality of life of women through programmatic delivery and building the capacity of local institutions, entrepreneurs and craftpersons on BACIP housing improvements through training and dissemination.

Box 13: Saving Fuel, Improving Lives

These interventions have led to fuel savings due to thermal efficient housing products (up to 60%), improved health due to improved living conditions (50% less illnesses- and diseases related to cold and smoke), better economic conditions (due to savings in health, fuel and recurrent repair bills), improved living conditions, especially for women and children, raised awareness for a better environment, enhanced skills of craftsmen and artisans, and capacity building of institutions related to development.

BACIP's main achievements have included the development of 60 house improvement products; installation of more than 8,000 products till date (1,000 through SGP); benefits to 3,800 households (700 under SGP); utilisation of BACIP by 34,000 people (48% women), 72 research based trainings of 75 entrepreneurs and 250 craftpersons, (62 entrepreneurs/craftpersons through SGP). Additionally, 11 entrepreneurs (2 through SGP) have opened their own shops, which manufacture and sell BACIP products.

Under this project, the main activities included entrepreneur/artisan training, community level promotional activities for raising demand of BACIP products and dissemination of BACIP products, processes and impacts at the institutional level.

BACIP house improvement interventions are focused on improving thermal insulation/fuel efficiency for local houses, improving structural stability by low cost and timber free construction methods, improvement in sanitation facilities and domestic space management to improve the living conditions for women.

Caritas Pakistan's Replication Experience of Fuel Efficient Stoves aims at the conservation of energy by introducing fuel-efficient stove technology at the grassroots level, through the training of its staff and beneficiaries; reduction of wood consumption used as fuel at household level; saving of time used by women for cooking; reduction in gas emissions; improvement in women's health affected by the smoke emitted from traditional stoves.

In the target area, there is a mixed Christian and Muslim population, with an average family size of six persons per family with a per capita income of Rs. 1660. This has resulted in indoor pollution, high firewood consumption, deforestation, and ailments like headaches and watery eyes.

The approach has included selection of target areas, data collection for firewood consumption, selection of participants for TOT, organisation of a TOT, animation process, and training workshops by the trained trainers. The benefits thus generated include reduction in gas emissions, 20-25% reduction in firewood consumption, saving of 2-3 hours per day, increase in family income, and reduction in gas emissions from the stove. Furthermore, fuel efficient stoves have been introduced in 35 villages of Pakistan (2658 fuel efficient stoves were installed in 2658 households), capacity of 1424 women built, and improvement in health and reduction in wood consumption.

Tribal Reforms and Development Forum's (TRDF) project of Micro-Hydel Power Stations for Lighting up Tribal Homes has been implemented in Tirah Valley, Khyber Agency of FATA. The project area was a "No-Go-Area" till December 2001, when Pakistan Army entered into Tirah valley and started development works like construction of roads, schools, and water supply schemes. The project area is extremely under developed but is rich in natural resource like forests and streams. The water streams have potential for generating micro-hydro power.

The project aims to decrease dependency on kerosene oil for lighting, thereby avoiding climatic change due to fossil fuel emissions, provide a lead to governmental and non-governmental organisations to optimally utilise the enormous hydel-power potential of Tirah valley, enable community members to work for longer hours at nights, enable young members of the community to allocate more time to their education after dark, to enable the local

community to access contemporary ideas through the electronic media.

The **Conservation and Rehabilitation Centre's (CRC)** Efficient Housing aims at researching and proposing appropriate designs for sustainable, energy efficient, culturally sensitive and cost effective domestic and public buildings of Uch and other cities of the southern Punjab region. Furthermore, it aims at dissemination of information, building of capacity, provision of education, training and awareness-raising about climate change, climatic conditions and energy efficient building designs.

Pakistan's region of southern Punjab is exceedingly vulnerable to climate change due to the largest irrigation system for arid and semi-arid land. 17 to 59% more summer monsoon rains cause water logging, salinity and further hot and humid months. Therefore, it is important that policy makers, professionals and educationists dealing with the environment should be familiarised with the concept of climate change and climate types. This would enable the stetting up of energy efficient and climate friendly standards for the layout of human settlements and design of buildings reduce energy consumption and provide a better working environment for people from all walks of life. The methodology of the project was to research traditional architecture design principles that are climatically friendly, culturally acceptable, technically apt and cost effective, as well as to introduce natural and low energy mechanical passive cooling systems for thermal control.

The project being undertaken for a period of three years is hoped to contribute towards the mitigation of climate change globally, provide economic and financial saving to building owners, improvement in health and minimisation of pollution in the soil, air and water. Lessons learnt so far include issues like site delays owing to social constraints, substantial time taken to transfer unconventional traditional detail drawings to auto-cad, and the fact that new studies and analysis can be very time consuming.

Initiative for Rural and Sustainable Development's (IRSD) Promotion and Installation of Biogas Units in Rural Areas in Tehsil Rawalpindi aims at the protection of state forests; provision of renewable energy and clean fuel; ensuring hygienic living conditions; improvement in the quality of soil through the slurry of biogas and revival of dormant biogas programmes of Pakistan.

The members of IRSD support a "Greening of Pakistan Project" in the area. This brought with it the learning that a reforestation programme can only be effective when alternate fuel resources are available. Continuous meetings with locals and religious groups were held and GEF was approached. With technical guidance, homes with large families, suitable space for construction and the essential livestock were identified.

For the installation of the biogas units, welding of gas holders was undertaken in Islamabad, (owing to the unavailability of the local welder), and the holders were then supervised and taken to the village. Aplumber was then engaged from Islamabad to train a local worker in laying and connecting gas pipes. Though workable, the beneficiaries have to collect animal dung, put it into the inlet tank, mix it with water and release it into the digester. Unless this activity is not undertaken, there is no gas. Normally dung is stored for a few days in a corner of the compound and then carried to the fields.

Box 14: Utilising Tirah Vallye's Hydel Power

The Project is technically feasible and its completion will provide electric power to a significant number of users, who are currently using kerosene oil, which is both costly and environmentally unfriendly. The replacement of fossil fuel by electric power will be able to contribute in environmental protection efforts. Besides, the capacity of the local community will be enhanced in resource management. Project results have included the reduction of kerosene oil consumption; replacement of fossil fuel by hydro-electricity for light by the local community; economic saving of the project community through provision of a cheaper source of energy; preservation of environment; enabling of the local people towards better resource management practices.

As gas increases during the summer season, it allows many neighbouring houses to use the surplus generated. The value of animal dung has also increased and droppings of passing livestock are picked up from within the village lanes. Therefore, cleaner living conditions within compounds are noticeable. Women claim that their cooking pots last much longer as they do not have to be scrubbed as before. Cooking has now become a pleasure, especially when the womenfolk return tired from cutting fodder for the livestock. Many times one can witness other women chatting while they wait for their turn to use the cooking stove.

07 The Way Forward

With the completion of 10 successful years of GEF's Small Grants Programme in Pakistan, there is a trail of pilot projects at varied levels, which provide the impetus for replication, expansion and up-scaling. From policy to grassroots, the impact of the SGP funded projects has established models in all five areas, namely water and sanitation, sustainable agriculture, community protected areas, human settlements and waste management and energy.

At this juncture, the biggest challenge faced by UNDP-GEF is ensuring that these models are enhanced and the valuable decade long learning, vis-à-vis, capacity, partnerships and implementation is built on. To gauge the capacity and status of recipient organisations to develop and expand, scoping of SGP grantee organisations needed to be undertaken.

In this regard, dialogues have been initiated with stakeholders and partners alike. The latest in the series of formal and informal interactions has been the UNDP-GEF's one-day consultative workshop on Up-Scaling, Advocacy and Knowledge Management. Through such dialogues and comprehensive presentations, projections were made regarding the capacity, and environmental and economic benefits of the projects. Furthermore, SGP has been able to evaluate the current and proposed scale of activity, the proposed future strategy and assistance required from SGP.

Organizations that undertook projects within the purview of ***sustainable agriculture*** were found to have made considerable strides and illustrated a high level of capacity for up scaling and initiating advocacy ventures. Proposed steps included:

- Extension and replication of projects to other geographical areas, within and beyond current provinces
- Initiation of advocacy at the provincial and national level
- Establishment of linkages with other civil society networks, research organisations, provincial and federal governments, media and other forums
- Identification of new partners at the grassroots level
- Increased mobility for expansion of educational facilities
- Development of CDs to be aired on private channels for income generation.

In the ***water and sanitation*** category, recipient organisations identified steps, which also included largely community-based and devolved measures:

- Activation of District Environment Monitoring Committees
- Provision of services through contributions by households at the grassroots level
- Promulgation of regional laws benefiting local areas
- Establishment of training institutes and GIS lab
- Expansion of activities from mohalla to tehsil and District level.

Organizations implementing projects for ***energy*** efficiency focused not just on devolution but more importantly spoke of building capacity of the entire spectrum of stakeholders involved in the process. Therefore some of the proposals that came forward were:

- Introduction of energy efficient building design and building construction standards at the provincial, district, tehsil and union council level
- Partial development of a new curriculum, revised standards of C&W and building plan approval authority at union and tehsil level,
- Training of teachers of poly technical institute, masons, architects, building material suppliers, contractors, para-professionals, home or public builders and developers.

In the arena of ***human settlements and waste management*** suggestions and recommendations included:

- Coordination and facilitation by SGP for several pending requests to replicate programs
- Possible linkages with government that may result in more towards such initiatives.