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United Nations Development Programme

UNDP'S WORK IN ENVIRONMENT AND SUSTAINABLE DEVELOPMENT 2008-2012

TOWARDS TRANSFORMATIONAL CHANGE

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March 2013

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Report team: Matilde Mordt, Laura Hildebrandt, Devika Iyer and Alexander Fankuchen

Design and production: Kimberly Koserowski First Kiss Creative LLC

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Foreword

UNDP has a distinguished history of advancing and delivering on development goals. This experience has shown that development is not just about growth. Likewise, sustainability is not just about protecting the environment. Sustainable development is about people living empowered, productive lives within planetary boundaries. As the natural environment undergoes significant degradation, so too does the potential to improve people's lives.

This integral connection between poverty reduction and the environment has grown ever more apparent as the impacts of climate change and the erosion of ecosystems become a part of daily life for many poor people around the world. Advancing sustainable development worldwide is central to our mandate and integrating the social, economic and environmental aspects of development is central to our approach.

I am proud to present a sample of UNDP's work in environment and sustainable development during the Strategic Plan period of 2008-2012. This collection of stories demonstrates how UNDP's assistance in the area is leading to transformational change – change that is bringing about real improvements in people's lives. The stories are a reflection of our strong partnerships with governments, UN agencies, civil society, the private sector, and in fact with people at all levels of society. They are partnerships that drive the kind of sustainable growth which forms the foundation for equitable and inclusive societies.

On the ground in 177 countries and territories, UNDP offers global perspectives and local insights, and has succeeded in improving the lives of people all around the world – as the remarkable stories in this publication show.

Veerle Vandeweerd
Director, Environment and Energy Group
United Nations Development Programme

Introduction

A profound transformation of our economies and societies is imperative to meet the needs of the rapidly growing global population. Current patterns of consumption and production risk breaching planetary boundaries. Inequitable growth and increasing volatility due to economic crises, social unrest and natural disasters also threaten sustainable development. Despite progress towards achieving the Millennium Development Goals (MDGs), poverty levels remain unacceptably high and many of the world's poor still lack access to basic services such as clean water and energy.

People's lives and livelihoods are threatened by environmental degradation resulting from pollution, biodiversity loss, poor management of natural resources, and the effects of climate change. Without a paradigm shift in how natural resources are valued and managed, inequality and instability will deepen, and human development in current and future generations will be halted, perhaps even reversed. That is why environment and sustainable development is central to the UNDP mission.

A 2008 evaluation of UNDP's work in environment and energy recognized this central role and recommended that UNDP expand its work in this area and mainstream environmental concerns into its own programming. The UNDP 2008-2012 Strategic Plan reflected these goals and organized the strategic outcomes under four key areas:

1. Mainstreaming Environment and Energy
2. Mobilizing Environmental Finance
3. Promoting Adaptation to Climate Change
4. Expanding Access to Environmental and Energy Services for the Poor

Demand for its work has been growing. UNDP is now operating in 150 countries to support linking environmental sustainability initiatives to broader strategies for human development. With 2012 expenditures of over US$ 580 million globally UNDP is one of the leading proponents of technical assistance and grant financing in sustainable development. Between 2008 and 2012 disbursements in the area of environment and sustainable development have increased by 45%. But demand is still outpacing the level of support that UNDP and partners can provide. In a 2012 worldwide survey of developing countries, when asked to indicate the five most important areas for UN assistance over the next four years, nearly all countries chose "Environment and Sustainable Development", including climate change, water and sanitation, as their first priority.[1]

1 Report of the Secretary-General on the Quadrennial Comprehensive Policy Review of Operational Activities for Development of the United Nations System. Refers to the survey carried out in preparation to the report with 111 programme countries.

UNDP endeavors to make the UN more relevant, responsive and results-oriented, supporting the UN family to provide development assistance in a more coordinated way and increasing impact through coherent UN programmes. In the area of environment and sustainable development, there are a number of UN programmes and initiatives that are actively promoting this "Delivering as One" approach, including Sustainable Energy for All, the UN-REDD Programme, the UNDP-UNEP Poverty-Environment Initiative, UN-Water and the MDG Achievement Fund (MDG-F), among others. These initiatives work under the principles of national ownership and leadership and they provide governments with access to the broad range of knowledge and expertise of the UN development system.

The Rio+20 Conference has brought renewed commitment and momentum to sustainable development efforts. Continued progress on the MDGs and the post-2015 agenda requires significant transitions to more resource-efficient, resilient forms of growth that help bring multiple social, economic, and environmental benefits.

This publication provides highlights of transformational change resulting from UNDP's work in the area of environment and sustainable development. The stories offer examples of the breadth of ways UNDP is supporting countries to make the most productive use of their natural environment while preserving it for future generations and becoming more resilient to climate change and ecosystem degradation.

Mainstreaming Environment and Energy

Mainstreaming environment and climate change in national development planning, policies and implementation is central to UNDP's mission of reducing poverty and achieving the MDGs. Through projects supported with grant financing from the Global Environment Facility (GEF) and the Montreal Protocol Trust Fund, and initiatives such as the UNDP-UNEP Poverty-Environment Initiative (PEI), the Integrated Drylands Development Programme, the Water Governance Programme, and the Africa Adaptation Programme, among others, UNDP is supporting 150 countries in integrating environmental issues into economic and national development planning and implementation, as well as helping develop capacities, methodologies and tools to preserve and enhance the contributions of the environment to poverty reduction.

Working closely with government ministries, the private sector and civil society, UNDP is supporting programme countries to:

- establish or transform institutional structures to address climate change;
- mainstream environment needs of the poor into national development planning and poverty reduction strategies;
- integrate biodiversity and sustainable land management issues into development planning;
- strengthen governance in the water and sanitation sector;
- create an enabling environment and support investments in renewable energy and energy efficiency; and
- integrate sound management of chemicals and waste into national development planning.

The value of mainstreaming environmental issues into development planning has been highlighted in several evaluations of UNDP's work on environment and energy. The "Assessment of Development Results" (ADRs) carried out in 23 countries during 2010-2012 shows that UNDP's work in environment and energy is highly relevant for programme countries.[2] The ADRs show that UNDP is recognized for contributing to legal and regulatory frameworks and the conception and support for implementation of tools for environmental management. For example, the ADRs carried out in Thailand and Ghana in 2010/11

2 The ADR is an independent country level evaluation, conducted by the UNDP Evaluation Office. This evaluation examines the relevance and strategic positioning of UNDP support and its contributions to the country's development results.

state that the mainstreaming of climate change and natural resource management issues in policies and measures in non-environmental ministries have resulted in strategic frameworks and governance structures as well as increased national capacity. The ADR carried out in Nepal in 2012 notes that UNDP-supported mainstreaming projects in the area of energy, environment and disaster risk management have contributed to the development or revision of national policies and strategies.

Sample Results (2008-2012)

- With UNDP support, 85 countries have integrated environmental and climate change considerations into national or sub-national development plans and programmes.
- Initiatives to increase access to renewable and clean energy to the poor and vulnerable have been adopted in 56 countries, of which 40 have demonstrated increased access to energy. 15 countries in Africa and 5 small island developing states (SIDS) in Asia-Pacific have mainstreamed energy access into national development plans and strategies.
- With support from the UNDP Africa Adaptation Programme, 15 countries have amended their existing development policies to incorporate climate change adaptation.
- Through the Low Emission Capacity Building Programme (LECB), UNDP assisted 25 countries to design their work on Nationally Appropriate Mitigation Actions (NAMAs) and Low Emission Development Strategies in the context of their low carbon growth and development agendas.
- UNDP supported water governance reforms in 60 countries in relation to both water resources management and water supply and sanitation, incorporating a human rights-based approach.
- 46 countries that are working with UNDP to mainstream biodiversity into production sectors and policy and regulations have improved biodiversity and ecosystem management covering over 150 million ha. These projects have a particular focus on six sectors: forestry, agriculture/livestock, mining, tourism, fisheries and energy.
- 61 countries have been working with UNDP to implement projects that have led to reduced high-risk exposure to hazardous waste and chemicals, such as Persistent Organic Pollutants (POPs), mercury (Hg) and methyl bromide, used in important sectors such as energy, health and agriculture. From 2006-2012, 23 national POPs regulative instruments have been adopted, over 193,000 people have been trained in POPs management /alternatives, 3,014 metric tons of POPs have been safely disposed, and 1,948 metric tons of POPs have been safeguarded.
- UNDP has been supporting 71 countries in phasing out the production and consumption of ozone-depleting substances, resulting in global compliance with the Montreal Protocol, avoidance of technology obsolescence and job losses, and bringing substantive climate mitigation co-benefits. During 2008-2012, the Montreal Protocol programme eliminated over 20,700 tonnes of ozone depleting substances on a cumulative basis.
- UNDP, in partnership with UNDESA, supported national debates, multi-stakeholder dialogues, and stocktaking exercises ahead of Rio+20 in over 80 countries.
- Under the auspices of the UN Environment Management Group (EMG), UNDP supported the development of the *Framework for Advancing Environmental and Social Sustainability in the UN System*. UNDP also launched a new project-level *Environmental and Social Screening Procedure*, which provides an integrated environmental and social sustainability safeguard approach that is consistent with international best practice.

Bangladesh: Tackling Poverty through Integrating Environmental and Climate Issues into National Development Processes

Bangladesh is one of the most vulnerable countries in the world to the impacts of climate change. The country has experienced high environmental degradation and increased frequency of natural hazards. Although the country has made significant progress in reducing poverty over the past three decades, approximately one third of its 140 million people still live below the poverty line. These poor households are especially vulnerable to cyclones and flooding. Abdul Mazid, who lives in the flood-prone Sunamgonj district of the country, says the region experienced a severe drop in fish stocks which affected his livelihood: "Our parents could catch fish in two or three hours, now we need at least three days to get the same amount of fish."

To support Bangladesh in its efforts to become more resilient to the effects of climate change, the UNDP-UNEP Poverty-Environment Initiative (PEI) has been working with the Ministry of Planning, the Ministry of Environment and Forests, and the Ministry of Finance since 2008 to mainstream pro-poor, gender-sensitive environment and climate change issues in national development processes, budgets and economic decision-making. As a result of this technical and capacity building support, poverty-environment-climate issues have been incorporated into key national and sectoral planning documents such as the *Sixth Five Year Plan 2011-15*, the *Perspective Plan (2010-21)*, *Making Vision 2021 a Reality, and the National Sustainable Development Strategy*.

The PEI also supported the Government of Bangladesh to undertake a Climate Public Expenditure and Institutional Review (CPEIR) in order to influence how the government prioritizes its spending. The exercise analyzes how much the Government is spending to address climate change within a broader context of attempting to achieve development outcomes. Contrary to popular assumptions, the budget review showed that it is the Bangladesh government, not international donors, who is picking up the climate bill; three-quarters of all money spent on climate change in the country comes directly from the government. The Review also found that poorer and landless household spending on climate change adaptation is far more than had been expected where expenditure often exceeds their income, some by more than double the amount. Undertaking this Review allowed the Government to draw attention to the required levels of investment in different sectors as well to ensure money spent to adapt or mitigate climate change is allocated the best way.

Another key achievement of PEI in the country has been to introduce government procedures for new projects seeking public funds. As a result, all ministries that submit project proposals for funding must demonstrate the percentage of poor people who will benefit, what the impact on natural resources will be, and the extent of resilience of new infrastructure to climate change. "More projects are coming up that reflect an awareness of climate change impacts on development, as well as environmental sustainability and poverty alleviation," says Ms. Nurun Nahar, a planning expert in Bangladesh. Efforts are also being made to strengthen the capacity of government officials that propose these projects so that they can design more sustainable interventions. Training topics vary from the value of mangroves to the economy, to concrete examples of climate adaptation measures such as coastal reforestation with community participation.

The PEI is continuing its engagement with the government on interventions that build the resilience of poor people to the effects of climate change. For example, in partnership with UNCDF, the PEI is working with the Ministry of Local Government to develop a climate fiscal framework for local government in selected areas.

PEI at a Glance

The UNDP-UNEP PEI is a global programme that supports country-led efforts to mainstream poverty-environment linkages into national development planning, from policymaking to budgeting, implementation and monitoring. With both financial and technical support, PEI assists government decision-makers and a wide range of other stakeholders to manage the environment in a way that improves livelihoods and leads to sustainable growth. The overall aim is to bring about lasting institutional change and to catalyze key actors to increase investment in pro-poor environmental and natural resource management.

Key Facts:

- PEI currently supports programmes in 18 countries in Africa, Asia-Pacific, Europe & Central Asia, and Latin America & the Caribbean, and provides technical advisory services to an additional five countries.
- As a joint UNDP-UNEP programme, it aims to promote the objectives of 'Delivering as One.'
- 28 countries have strengthened their institutional frameworks for planning, policy making, budgeting and reporting to deliver on sustainable development with PEI support.
- 21 countries have integrated sustainable development principles and environmental management issues as priority areas into PRSP/National Development Plans.
- The PEI programme has mobilized over US$ 25 million and leveraged an additional US$ 25 million in country level financing in support of poverty-environment mainstreaming.
- Donors: European Commission and governments of Belgium, Denmark, Ireland, Norway, Spain, Sweden, United Kingdom and the United States.

Cambodia: Conserving Biodiversity and Creating Sustainable Livelihoods

The Northern Plains of Cambodia—a refuge for key populations of 40 species on the IUCN Red List—are of exceptional global importance for biodiversity conservation. Overexploitation, particularly from uncontrolled commercial hunting of large mammals, logging of forests, and destructive fishing practices has posed a significant threat to this biodiversity. These threats all relate to the unsustainable production sectors operating across the Northern Plains: agriculture, wildlife trade, non-timber forest product (NTFP) collection, timber production and fishing. The loss of this biodiversity particularly affects the poor rural communities that comprise the majority of the inhabitants in the Northern Plains as they depend on ecosystem goods and services for their survival and well-being.

To address the problem of escalating biodiversity loss, UNDP with funding from the GEF and in partnership with the Royal Government of Cambodia and Wildlife Conservation Society (WCS) initiated the Conservation Areas through Landscape Management (CALM) project in 2006. The GEF-funded project aimed to integrate biodiversity conservation objectives into relevant sectors, including tourism, forestry, agriculture, fishing and hunting using a three-pronged approach: (1) introduction of biodiversity considerations into provincial level land use management processes; (2) demonstration of specific mainstreaming interventions at key sites; and (3) strengthening of biodiversity management by the local government at the key sites.

As a result, biodiversity and ecosystems considerations have been integrated into a number of government development plans and processes, such as the Preah Vihear Provincial Development and Investment Plan for 2011-2015, and 23 Commune Development Plans and the associated District Development Plans. This is helping to ensure that the real value of biodiversity and ecosystems is taken into account in decision making. The project also trained over 5,000 government officials and local community members to participate in conservation planning processes and strengthened their capacity to implement laws and regulations on the ground. Furthermore, with project support, 32 Community-based Organizations (CBOs), including five indigenous representation committees, were established to map, develop rules and regulations for, and manage natural resources and land within the CALM landscape. Collectively these actions have reduced threats, for instance, in the Preah Vihear Protected Forest there has been a 94.5% reduction in the number of logging incidences and an 88.5% decrease in hunting incidences over a six year period.

To address the high incidence of rural poverty, the CALM project helped create sustainable alternative livelihoods by promoting nature-based tourism initiatives that generate income for local communities. A notable example is the Tmatboey Ibis project that has been remarkably successful in promoting a community-managed approach to ecotourism. This ecotourism initiative aims to address rural poverty and the escalating loss of critically endangered wildlife species, including the Giant and White-shouldered Ibises which are among the rarest birds in the world. Using the Ibises as 'flagships', the initiative established a local tourism enterprise that directly links conservation and poverty reduction, using revenue from ecotourism as an incentive for the local community to protect and manage wildlife. WCS and local NGO partners trained community members to maintain the accommodations and work as tour guides. A village development fund, with monetary contributions from tourists, was established to support infrastructure projects that benefit the entire community.

UNDP's Ecosystems & Biodiversity Programme at a Glance

The strategic objective of UNDP's ecosystems and biodiversity work is to maintain and enhance the goods and services provided by ecosystems and biodiversity in order to secure livelihoods, food, water and health, enhance resilience, conserve threatened species and their habitats, and increase carbon storage and sequestration. UNDP is working with developing countries through three interconnected Signature Programmes to achieve this objective: Integrating ecosystem and biodiversity management into development planning and production sector activities to safeguard biodiversity and maintain ecosystem services that sustain human wellbeing; Unlocking the potential of protected areas, including indigenous and community conserved areas, to conserve biodiversity while contributing to sustainable development; and Managing and rehabilitating ecosystems for adaptation to and mitigation of climate change. UNDP's ecosystems and biodiversity work is supported by the GEF and other partners.

Key Facts:

- UNDP manages 512 projects on ecosystems and biodiversity in 146 countries, worth US$1.5 billion in funding from the GEF and other sources, and US$ 3.5 billion in co-financing from a range of partners.
- Over 2,000 protected areas in 85 countries, covering 272 million hectares have been established since the programme was initiated.
- UNDP launched its "Biodiversity & Ecosystems Global Framework 2012-2020", which aims to advance the sustainable development agenda and leverage UNDP's experience with integrated programming that links ecosystems and biodiversity with crisis prevention, governance and poverty reduction.
- Partners: GEF and other donors; governments; and the private sector.

The ecotourism initiative has made significant contributions to both the people and biodiversity of Tmatboey. There have been major decreases in the hunting and trade of wildlife species. Over the first four years, tourism bookings increased by over 25% annually, stimulating the local economy; the number of bookings has recently plateaued, which will help to ensure sustainability. Tourist contributions of nearly US$ 44,000 to the village development fund have also benefited the entire community through investments in community development projects, including agricultural support, road improvements and the construction of new wells.

The community clearly recognizes that the region's endangered wildlife is of value for ecotourism and should be protected. "Eating a bird I can only fill my family's stomach once, but guiding tourists to see the bird I get $5 each time. Our community is earning thousands of dollars showing the same birds over and over again", says Yin Sary, a former poacher who now works as a tour guide. Due to the success of the initiative, Tmatboey won the Wild Asia Foundation's prize as best community-based ecotourism initiative. This accolade in turn brought the initiative to the attention of Cambodia's Ministry of Environment, which subsequently requested a further six sites be identified and developed for nature-based tourism.

Eating a bird I can only fill my family's stomach once, but guiding tourists to see the bird I get $5 each time. Our community is **earning thousands of dollars showing the same birds over and over** again.

– Yin Sary, tour guide and former poacher

Uganda: Supporting Sustainable Land Management in the Cattle Corridor

The Uganda Cattle Corridor covers an estimated area of 84,000 km^2, which is 43% of the country's total land area, and is home to 6.6 million people. The rainfall is irregular and the region experiences periodic drought and increasing frequency of floods. The corridor is host to nomadic pastoralists, agro-pastoralists and subsistence farmers; all subsisting in the drylands with a production system characterized by unclear, insecure land and resource tenure; increasing demand for biomass energy; low levels of economic growth; an increasing population; and uncertain climatic conditions. The corridor exhibits serious land and resource degradation driven by overgrazing, inappropriate agriculture and deforestation resulting in the disruption of ecosystem services, particularly provisioning services. The absence and/or gaps in policy and policy implementation, inadequate institutional capacity to guide land use planning and the lack of income generating activities to support local economic development and sustainable land management have

been some of the barriers to the adoption of Sustainable Land Management (SLM) systems in the Cattle Corridor.

To address these issues, in 2009 the Integrated Drylands Development Programme (IDDP) managed by the UNDP Drylands Development Center supported the Government of Uganda in mainstreaming SLM principles into district and local development plans and budgets, and identifying and implementing priority SLM interventions to improve livelihoods of local communities in six Cattle Corridor Districts. Paul Mwambu, Programme Manager from the Ministry of Agriculture, highlighted the importance of this intervention: "*The initiative will tackle the problem of severe land degradation in the cattle corridor districts of Uganda, which has reduced land productivity, resulting into abject poverty.*" He further noted that the intervention will enable districts to integrate sustainable land management adding that the implementation of the initiatives will ultimately contribute to improved livelihoods in the cattle corridor. The programme is already seeing results.

The IDDP has facilitated environment action planning processes, including establishment of task forces; sensitization at community, sub-county and districts levels; identification of environment and SLM issues through wide reaching stakeholder consultations, which has led to their prioritization in the Action Plans. Over 200 Environment Action Plans have been developed in all sub-counties and districts. These have supported the integration of local environmental issues into development planning and budgetary frameworks, and the process has catalyzed significant developments that ensure sustainability. For example, the District of Nakasongola has integrated water harvesting at household levels into its Development Plan and allocated a budget of up to 12 million UGX for 2012. The district has also adopted a new policy requiring all new building plans to include rainwater harvesting structures before these are approved. The District of Kamuli has adopted construction of fuel-wood saving stoves as a practice to reduce the rate of

IDDP at a Glance

The UNDP Drylands Development Center is dedicated to fighting poverty and achieving sustainable development in the drier regions of the world, contributing to the effective implementation of the United Nations Convention to Combat Desertification (UNCCD). Through its Integrated Drylands Development Programme (IDDP), the Center helps meet the challenges faced by dryland populations in a holistic and strategic manner. IDDP provides financial, policy and technical advice for mainstreaming of drylands issues into national and sub-national development and planning frameworks; making markets work for the poor; strengthening drought risk management; enhancing land governance; and improving decentralized governance of natural resources.

Key Facts:

- Over 40% of the world's land surface is drylands where 2.3 billion people live in 100 countries.
- About half of dryland inhabitants are poor.
- IDDP is implemented in 16 countries in Sub-Saharan Africa and the Arab States.
- From 2008-2012, the IDDP scaled-up its operations through the mobilization of partners and resources for UNCCD implementation in partner countries. It has evolved into a multi-donor platform in support of drylands development. Prominent developments during this period are: i) the establishment of the Africa-Asia Drought Adaptation Network to facilitate South-South Cooperation in drought risk management; ii) the focus on building resilience of drought-affected communities in the Horn of Africa; and iii) the expansion of activities in the Arab States with focus on drylands livelihoods, gender equity and women's empowerment, and sustainable energy.
- Donors: Governments of Denmark, Finland, Japan, Norway, Turkey and Cyprus; and the European Union, Department for International Development (UK), and Stockholm International Water Institute (Sweden).

indiscriminate harvesting of trees for charcoal. Furthermore, it has set aside a budget of up to 3 million UGX to establish a tree nursery that can be used to rebuild wood stocks. The District of Sembabule approved a law which is attached to construction of schools to ensure effective roof water catchments and the replacement and re-planting of trees on cleared sites. It also received additional budget support from the Ministry of Finance and Economic Development and an extra allocation of local government funds which rewards districts that integrate environment concerns in Development Plans.

The IDDP is also promoting sustainable livelihoods and land management practices in all the six beneficiary districts which are being adopted by local communities. For example, resource user groups have been trained in conservation agriculture practices and supported to pilot these practices. Community group leaders have also been trained on conservation agriculture practices including minimum tillage, weed management, fertilizer application, soil and water conservation and planting techniques, and small scale irrigation. These group leaders are now providing outreach and overseeing activities of other farmers practicing conservation agriculture. The programme is also ensuring that gender is taken into account; over 50% of women are engaged in the programme. To promote learning through demonstration of better sustainable land management practices, "farmer to farmer" exchanges and visits have been held between districts. Of particular interest is the cross learning on water harvesting, food storage, management of invasive weeds and conservation agriculture practices.

The programme also initiated the capture of weather data to support decision making at local levels: rain gauges have been installed in 36 sub-counties by the National Department of Meteorology (NMD) – contributing partner to the programme – to collect rainfall data. Seventy-two sub-county personnel have been trained as rainfall observers and they have been monitoring and collecting rainfall data which is sent to NMD for further processing.

China: Addressing the use of Ozone Depleting Substances in the Solvent Sector

In 1997, the solvent sector in China accounted for about 11,500 tons of Ozone Depleting Substances (ODS) or 16% of the country's total ODS consumption. ODS, a group of man-made chemicals, when released into the atmosphere can cause the depletion of the Ozone Layer. This in turn allows increased levels of ultraviolet (UV) radiation to reach the earth's surface, which poses significant threats to human health by compromising immune systems and causing higher levels of skin cancer and eye cataracts. ODS also disturbs the ecological balance of watersheds, agricultural lands and forests.

To address these issues, in 2000, the Government of China requested the assistance of UNDP to tackle ODS use in solvents. At the time there were over 2,200 widely-dispersed small and medium-sized enterprises (SMEs) using ODS solvents to clean printed circuit boards and precision instruments in a variety of applications including aviation, electronics, machinery, medical appliances, motor manufacturing, telecommunications and textiles.

UNDP through its Montreal Protocol Unit assisted the Chinese State Environmental Protection Administration (SEPA) and the Ministry of Information Industry in the development of a multi-year (2000-2012), performance-based solvent sector phase-out plan with a total funding of US$ 52 million from the Multilateral Fund for the Implementation of the Montreal Protocol (MLF). The plan supported development of viable alternatives for cleaning processes and ensured market availability of the most advanced high-quality/low-cost equipment through international and national competitive bidding processes. Technical assistance and training programmes, targeted at SMEs, were combined with public awareness campaigns and helped support the introduction of new cleaning processes. At the same time, the phase-out plan supported national legislative measures and their enforcement, through control and monitoring of production and use of ODS solvents, and the phased reduction of ODS usage in the sector. To date, the solvent sector has phased out over 4000 Ozone Depletion Potential (ODP) tonnes.

UNDP is continuing to work proactively with the Ministry of Environmental Protection to carry out China's Hydro-Chlorofluorocarbons (HCFC) Phase-out Management Plans (HPMP) and reduce consumption in both the solvents and industrial and commercial refrigeration sectors.

In 2012, the Vienna Convention for the Protection of the Ozone Layer and its Montreal Protocol on Substances that Deplete the Ozone Layer recognized UNDP's contribution to ODS phase out and presented an award to the UNDP Administrator in recognition of UNDP's "exceptional contribution to the success of the Montreal Protocol." Chief Officer of the Multilateral Fund for the Implementation of the Montreal Protocol, Maria Nolan, praised UNDP and its Montreal Protocol Unit for their vital role in setting international policy and stressed that UNDP's guidance in multiple countries was critical to achieving the protocol's goals.

UNDP's Montreal Protocol Unit (MPU) at a Glance

Since 1991, UNDP through its Montreal Protocol Unit has supported developing countries and countries with economies in transition to implement their commitments under the Montreal Protocol. Ratified by 197 parties, the Montreal Protocol is an international treaty designed to protect the ozone layer by phasing out the production and consumption of numerous substances responsible for ozone depletion.

Key Facts:

- Through capacity building, technology transfer, formulation and implementation of country and sector strategies, combining and sequencing funding from different sources, and brokering public and private partnerships, UNDP is supporting 106 countries to comply with Montreal Protocol targets.
- UNDP/MPU has supported 134 countries since 1991 in eliminating over 68,000 tonnes of ODS and avoiding over four gigatonnes of carbon dioxide equivalent emissions.
- Partners: Multilateral Fund for the Implementation of the Montreal Protocol (MLF), GEF (Ozone) and other donors; governments; and the private sector.

Mobilizing Environmental Finance

Environmental challenges continue to disproportionately affect the world's poorest communities that largely depend on ecosystem services and goods for their survival. To address these challenges, a key response must include an integrated approach to environmental financing that will enable the delivery of multiple benefits including poverty reduction and sustainable livelihoods, green employment and biodiversity conservation. To deliver these environmental finance services, UNDP helps national and sub-national governments prepare sustainable development action plans to identify priority measures, and provides guidance to public authorities on how to design the most appropriate financing schemes and policies to implement these priority measures.

UNDP helps countries access a variety of funds for global environment management such as the Global Environment Facility (GEF) Trust Fund, Multilateral Fund for the Implementation of the Montreal Protocol (MLF), Least Developed Countries Fund (LDCF), Special Climate Change Fund (SCCF), Nagoya Protocol Implementation Fund; and the Adaptation Fund, and in combining this with other sources of public and private financing (domestic resources, carbon finance, etc). UNDP-established environment facilities also assist countries in accessing sources of environmental market finance – such as the Green Commodities Facility, MDG Carbon, and UN Multi Partner Trust Funds managed by the UN – such as the UN-REDD Programme and the UNDP Environment and Energy Thematic Trust Fund. This financing is used to develop capacity, remove policy and regulatory barriers, and expanded transform green markets in order to increase resilience, reduce poverty and make green, low emission climate resilient development possible.

Sample Results (2008-2012)

- During the GEF-4 phase from 2006 to 2010, UNDP helped developing countries access more than US$ 3.3 billion in project financing from the GEF and associated LDCF and SCCF Trust Funds, and leveraged an additional US$ 9.2 billion in co-financing. Since 2010, UNDP has mobilized an additional US$ 1.06 billion in grant financing for 146 countries.
- UNDP mobilized grant funding in the amount of $153.3 million from the MLF to support 71 countries in phasing out the production and consumption of ozone-depleting substances in important economic sectors.

- UNDP has played a leading role within the UN System in providing input into various high-level climate finance forums, including the UN Secretary General's Advisory Group on Climate Change Financing in 2010, and the G20 process during 2011 and 2012. This has been important for advocating that all developing countries should benefit from climate finance, and that sources of climate finance should be balanced between public, private and market-based sources, and that countries should have direct access to these funds.
- Following a UNDP-supported study and project, the governments of China and the Republic of Korea committed to a regional Strategic Action Programme including a series of governance reforms and investments to reduce nutrient discharges and overfishing in the Yellow Sea and to establish a regional network of Marine Protected Areas. These commitments represent cumulative investments totaling US$ 10.86 billion compared to an initial GEF investment of US$14.74 million for a catalytic finance ratio of 737 to 1.
- A series of publications in multiple languages codifying UNDP's methodology for integrated green, low-emission and climate-resilient development strategies (Green LECRDS) have laid the foundation for the mobilization of US$ 35 million of fast-start climate financing from the European Union and bilateral donors to support UNDP-implemented projects. The project also catalyzed US$ 7.8 million from sub-national governments in developed countries to support sub-national governments in six developing countries to prepare green LECRDS which aim to strengthen capacities of authorities to integrate climate change into long term sustainable development planning and programming.
- Since 2009, US$165 million has been mobilized to support 46 UN-REDD Programme partner countries in implementing readiness activities and build effective and inclusive institutions to lead REDD+ efforts.
- The Environment and Energy Thematic Trust Fund (EE TTF) provides UNDP with a source of discretionary finance to fund innovative, catalytic and strategic interventions. The EE TTF has disbursed over US$ 40 million since 2008.

UNDP's global presence, expertise in capacity development, and extensive development finance experience allow us to help countries to **develop the capacities** to attract and drive **investments towards sustainable human development**.

– Rebeca Grynspan, UNDP Associate Administrator

The UNDP Global Environment Facility (UNDP-GEF)

The GEF was established in 1991 to assist countries to protect the global environment and promote environmentally sound development. UNDP has been a GEF Implementing Agency since 1991, supporting over 150 countries in accessing grant funds from the GEF in order to transition to green, inclusive and climate compatible development. The GEF administers five funds: The GEF Trust Fund; the SCCF (Special Climate Change Fund); the LDCF (Least Developed Countries Fund); the NPIF (Nagoya Protocol Implementation Fund); and the Adaptation Fund.

Key Facts:

- The UNDP-GEF Unit has over 20 years of experience in implementing more than 2,000 projects in 150 countries representing a total investment of US$ 16 billion of which US$ 4 billion is grant funding from the various trust funds administered by the GEF.
- Countries have increasingly turned to UNDP for assistance in accessing GEF resources – during the GEF-4 period (2006-2010) UNDP was responsible for more than 42% of the programmed resources of the GEF. As of today, UNDP's resource utilization in GEF V stands at 33%, with the highest resource mobilization in ecosystems and biodiversity. Other areas of work are: climate change adaptation and mitigation, international waters, land degradation, and cross-cutting capacity building.
- Partners: GEF and other donors; governments; other UN Agencies, and the private sector.

UNDP and the Multilateral Fund for the Implementation of the Montreal Protocol

Ratified by 197 parties, the Montreal Protocol is an international treaty designed to protect the ozone layer by phasing out the production and consumption of numerous substances responsible for ozone depletion. The Multilateral Fund is the dedicated financial mechanism for the implementation of the Montreal Protocol and it began its operation in 1991. The main objective of the Multilateral Fund is to assist developing country parties to comply with the control measures of the Protocol.Since 1991, UNDP with funds from the MLF has supported developing countries to implement their commitments under the Montreal Protocol. UNDP's Montreal Protocol Unit (MPU) coordinates the programme at the global level and works together with national governments and country offices to deliver results.

Key Facts:

- Since its start in 1991 UNDP/MPU has assisted partner developing countries to access a total of US$ 650 million in funding from the MLF to eliminate ozone depleting chemicals.
- MLF funded Programme disbursement (cumulative as of December 2011): US$ 517 million.
- MLF funded Programme disbursement 2008-2012 period: US$ 176 million.
- Partners: MLF, donors; governments; UN Agencies, and the private sector.

Ghana: Expanding Livelihoods for Cocoa Farming Communities

Agricultural commodities are a main engine of economic growth in rural areas in emerging economies (where 70% of the world's poor live) and they account for 10% of developing countries' GDPs. It is expected that global population increases and economic growth will give rise to sharp increases in demand for agricultural commodities in the coming decades. Yet climate change, water scarcity, soil degradation and competition for land threaten future crops. This combination of factors puts key agricultural sectors and livelihoods at risk.

Efforts to date by companies and NGOs to change agricultural production have tended to operate independently of national governments. But governments are key to the goal of sector transformation and companies are also vital in terms of their buying power, their interest to purchase sustainable products and to bring their technical expertise directly down to the farmers. Through the Green Commodities Facility, UNDP is bringing governments together with the private sector and producers in an effort to help make entire agricultural sectors both more productive and more sustainable.

In Ghana, the Green Commodities Facility has created partnerships linking farmers, government and business to transform the cocoa supply chain and build more sustainable agricultural techniques to reinvigorate communities. Cocoa is a major export crop for Ghana but for several decades it has increasingly been cultivated using an unsustainable 'zero-shade' technique. This has improved yields in the short term but it is a method that has reduced the quality of the soil and has led to major deforestation – with an 85% loss of original forests.

Through an innovative 'Cocoa Life' partnership with the Government of Ghana, the Ghana Cocoa Board, Cadbury (a subsidiary of Mondeléz Foods), IUCN, World Cocoa Foundation, CARE International, VSO International, World Vision Ghana and others, the UNDP Green Commodities Facility is working to transform the cocoa sector in Ghana. The partnership aims to improve the income of approximately 500,000 farmers by helping them increase their yields and produce top quality beans in a more sustainable manner. As a critical step, the Green Commodities Facility supported the development of Ghana's first-ever environmental strategy for the cocoa sector, which was since adopted by the Ghanaian Cocoa Board.

The partnership provides technical training to farmers to improve both yields and sustainability of cocoa crops. Mr. Kingsford Kpogo who has farmed cocoa for many years in rural Ghana said the programme's interventions in the last three years have transformed the lives of farmers as well as their community. "We used to plant at very short intervals between the cocoa crops. But with education from extension officers we now plant leaving very wide distances allowing us to grow other food crops in between," Mr. Kpogo said.

In addition to training in agricultural practices, the programme is introducing new sources of rural income through microfinance and business support to kick start rural businesses. "Indeed, on the advice [of Cocoa Life], farmers decided to set up the loans and savings scheme to enable them to put away some of their earnings and to also support them in their time of needs to improve lives," Mr. Kpogo said.

Green Commodities Facility at a Glance

Launched in 2009, the goal of UNDP's Green Commodities Facility is for global markets, trade and governments to integrate sustainability into the production and sale of agricultural commodities. The objective is to promote national-level commodity-focused programmes and platforms, in key commodity producing countries, that remove barriers and institutionalize systemic approaches and resources for scaling up the production of sustainable commodities.

Key Facts:

- UNDP supported the establishment of the first National Commodity Platform on Pineapple in Costa Rica. The Platform includes the top 5 producers and buyers in the country - Walmart, Tesco, Del Monte, Dole and Chiquita. The International Labour Organization (ILO) is a partner leading on labour issues.
- 7 additional National Commodity Platforms are now under planning and development with national governments and donors. These Platforms are for soy in Paraguay, beef in Honduras, cocoa in Ghana, the Dominican Republic and Cote D'Ivoire, palm oil in Indonesia and coffee in Ethiopia.

New income streams are emerging as farmers are encouraged to grow other crops around the cocoa trees. The partnership is also investing in community-led development programmes to improve life in cocoa communities which has also raised awareness on issues such as child labour and gender equality. As a result, 40 percent of farmers aligned with the programme are women and cocoa yields for farmers across the programme have increased by an average of 26 percent.

In 2012, the private sector made a commitment to invest an additional US$ 400 million on its cocoa supply chain in the next ten years, US$ 100 million of which will be allocated to Ghana. At the start of 2013, the Green Commodities Facility is launching "Green Cocoa", a new programme to complement the ongoing work on social issues with a greater focus on the environmental side of cocoa production.

Farmers decided to set up the loans and savings scheme to enable them to put away some of their earnings and to also **support them in their time of needs** to improve lives.

– Kingsford Kpogo, cocoa farmer

Rwanda: Eco-Friendly Water Treatment as a Source of Carbon Credits

The global carbon market offers potentially vast resources for sustainable development. The Clean Development Mechanism (CDM) of the Kyoto Protocol allows developed countries to meet their emission caps by purchasing Certified Emission Reductions (CERs) from projects that reduce greenhouse gas emissions in developing countries. Although these mechanisms have rapidly grown into a billion-dollar, international market for CERs, CDM projects have so far been limited in geographic reach, restricted mainly to the largest developing countries. UNDP is supporting a wider range of developing countries, in particular least-developed countries, to harness the resources of the carbon market through an innovative programme called MDG Carbon.

UNDP supports project proponents in developing countries to originate CDM projects that reduce emissions of greenhouse gases and deliver real, sustainable co-benefits to the environment and broader human development. The projects are then assisted to achieve United Nations Framework Convention on Climate Change (UNFCCC) registration and be successfully implemented.

MDG Carbon assistance resulted in the successful registration of the **world's first CDM project for water treatment.**

MDG Carbon successfully applied this approach to attract much needed funds to the water sector in Rwanda. Few Rwandans have running water in their homes. Some families can access water through community water points however many cannot afford clean tap water. Waterborne diseases are common and diarrhea is one of the top three causes of death among children. Many households regularly boil water to make it safe but to do so requires significant energy and in most cases the source of energy is firewood, which is both expensive and often comes from non-renewable woodlots.

Under the Rwanda Natural Energy Project, Rwanda is taking advantage of solar power and low-carbon technologies to purify water. UNDP has been working with the Government of Rwanda, Manna Energy Limited, Engineers Without Borders, and others to install solar-powered water purification systems in selected schools and for rural communities. Residents now have a local source of reliable, clean water, which will improve health outcomes and boost school attendance. By avoiding the burning of firewood and replacing the main purification method with a low-carbon alternative, the Rwanda project was eligible for CERs. UNDP's MDG Carbon provided the technical assistance to the CDM project to help with meeting the UNFCCC requirements for registration. While the project treats all the water consumed in the coverage area, the CERs generated are tied to the actual verified reduction in the use of wood fuel use by the fraction of residents that previously boiled some of their drinking water.

UNDP also assisted the project proponents to identify buyers to purchase the CERs generated by the project. The Swedish Energy Agency (SEA) has committed to purchase CERs produced by this project, which is in turn helping Sweden comply with its Kyoto Treaty obligations. A generous grant from Global Water Challenge during the initial phase of the project helped employ Rwandan engineers and technicians, working in several communities across Rwanda. It is estimated that the revenue generated by the CERs will help to ensure the sustainability of the project for at least a decade, providing the time to build local capacity and promote more widespread community adoption.

MDG Carbon at a Glance

Launched in 2007 UNDP's MDG Carbon provides direct, specialized technical assistance for carbon finance activities in all regions of the world. MDG Carbon provides CDM capacity development for policy makers, the financial sector and other stakeholders and acts as a "one-stop-shop" for technical assistance to achieve CDM registration for third party carbon projects. UNDP has focused on assisting first-of-a-kind and/or high-sustainable development carbon projects, which can then act as demonstration projects for the private sector to replicate.

Key Facts:

- Over 200 third party carbon projects have been screened and assisted by MDG Carbon since 2007.
- 12 third party carbon projects were registered as a result of advanced technical assistance provided by MDG Carbon over the 2008-2012 period, estimated to generate approximately 7.6 million carbon credits and emission reductions up to 2020, catalyzing and underlying investment in clean energy totaling over US$ 180 million.
- In Africa, UNDP supported CDM project developers to access carbon finance in 6 countries. A study for the Ugandan charcoal sector was conducted to help shape its future low-carbon development. Technical supportwas provided to the Kenya Tea Development Agency to achieve CDM registration for hydropower, the first of its kind in East Africa.
- In Europe and Central Asia, Designated National Authorities were established and supported in 7 countries. In Uzbekistan, UNDP facilitated the signature of 15 emission reduction purchase agreements and memoranda of understanding worth US$ 80 million between Uzbek companies and foreign carbon investors.
- In Latin America and the Caribbean, UNDP provided assistance to 16 feasibility studies in 7 countries and in Honduras, a small cooperative of palm oil producers successfully registered a biogas waste water treatment project, contributing to emission reductions of more than 240 thousands tonnes CO_2 during the crediting period.
- In the United Arab Emirates MDG Carbon succeeded in registering 5 CDM projects. These projects, spanning a range of industrial and commercial sectors and involving innovative renewable energy and energy efficiency solutions, will reduce a total of 1.3 million tonnes of CO_2, equivalent to approximately 2% of Dubai's annual greenhouse gas emissions.
- Funding Sources: Governments of Norway, Spain, Sweden and Finland, Environment and Energy Thematic Trust Fund, Client Payments
- MDG Carbon Programme Funding 2008-2012: US$ 6.8 million

Zambia: Developing a National Forest Monitoring System

REDD (Reducing Emissions from Deforestation and Forest Degradation) is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development. "REDD+" goes beyond deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks. These efforts have direct implications for stakeholders that rely on forests for their livelihoods and well-being, including Indigenous Peoples and other forest dependent communities as REDD systems could offer benefits, particularly in terms of increased, stable and long-term financial and non-financial benefit flows.

The UN-REDD Programme, a joint partnership between the Food and Agriculture Organization (FAO), UNDP and the United Nations Environment Programme (UNEP), supports national REDD+ readiness efforts in partner countries, through providing effective technical support, capacity building, policy advice and financial resources. The Programme supports the full and effective engagement of Indigenous Peoples and other forest dependent communities, civil society and other relevant stakeholders in REDD+ processes and helps in establishing transparent and accountable REDD+ strategies that recognize and respect the rights of, and respond to the concerns of, these stakeholders.

In Zambia, forests cover 60% of the country—about 45.8 million hectares of land—and the deforestation rate is approximately 300,000 hectares per year. The escalating loss of forest cover has exacerbated poverty and increased food insecurity. Given the extensive forest cover and the high rate of deforestation in the country, gaining information on the extent, quality and quantity of forests is vital for supporting Zambia's REDD+ readiness activities. National REDD+ implementation depends on reliable and credible systems for monitoring and measuring, reporting and verifying changes in carbon stock and greenhouse gas emissions in the forest sector. Zambia's capacity for measuring and reporting on carbon stocks and greenhouse gas emissions has been central in the development of the country's UN-REDD National Programme.

Zambia's work in the area of Measuring, Reporting and Verification (MRV) for REDD+ has focused on the development of a decentralized national forest monitoring system. This has required extensive in-country capacity building and infrastructure development. With support from the UN-REDD Programme, ten provincial forest monitoring laboratories have been established and equipped with tools for forest monitoring, including computers with Geographic Information System (GIS) software, Geographical Positioning System (GPS) units for forest monitoring field activities, and printers and plotters for field map production. Each provincial laboratory is staffed by a group of trained cross-sectoral technicians from the forestry, agriculture and planning sectors who provide a decentralized hub of MRV expertise. The laboratories will provide near real-time spatial data on deforestation and forest degradation that can be relayed to the central national forest monitoring laboratory in Lusaka to inform national reporting. "The creation of decentralized Geographic Information System Laboratories has not only provided a basis for reliable field data on deforestation and forest degradation, but has empowered provincial staff and has greatly improved their ability to practice effective forest stewardship in the provinces, creating a win-win situation for MRV reporting and improved forest management," says Deuteronomy Kasaro, National REDD+ Coordinator, Ministry of Lands Natural Resources and Environmental Protection, Forestry Department of Zambia.

The UN-REDD Programme at a Glance

The UN-REDD Programme is the United Nations collaborative initiative on Reducing Emissions from Deforestation and forest Degradation (REDD) in developing countries. It supports nationally-led REDD+ processes and promotes the informed and meaningful involvement of all stakeholders, including Indigenous Peoples and other forest-dependent communities, in national and international REDD+ implementation, with particular focus on forest monitoring systems, governance, stakeholder engagement, safeguards, as well as promoting the multiple benefits of forests. The Programme builds on the expertise of FAO, UNDP and UNEP to deliver as one UN and provide reliable and effective technical support, capacity building, policy advice and financial resources to REDD+ countries.

Key Facts:

- UN-REDD Programme supports national REDD+ readiness in 46 partner countries.
- 56% of the world's tropical forests are located in UN-REDD Programme partner countries.
- Since 2010, over 3,600 REDD+ practitioners have been trained on MRV, governance, gender, transparency and accountability, stakeholder engagement, multiple benefits and green economy scenario analysis.
- Working in close collaboration with the Forest Carbon Partnership Facility, the UN-REDD Programme has developed Guidelines on Stakeholder Engagement to support Indigenous Peoples and other forest dependent communities to participate fully in REDD+ processes.
- Donors: The Governments of Denmark, Japan, Luxemburg, Norway and Spain, and the European Commission. and development with national governments and donors.

Along with this infrastructure development, the UN-REDD Programme has also carried out extensive capacity building of provincial technicians in GIS, GPS, MRV and greenhouse gas reporting methodologies. In 2012, intensive training of technical staff in Lusaka was conducted at Brazil's National Institute for Space Research. Brazil's Terra Amazon platform, which allows different users to work simultaneously on forest cover classification and monitoring, will be used as the basis of a land cover classification system that will be country tailored and adapted to Zambian needs.

Coordination with existing initiatives is also a key factor in the success of REDD+ initiatives. The development of the MRV system in Zambia is closely aligned with the Zambian Integrated Land Use Assessment.[3] With over 4,000 sampling sites across Zambia, the Assessment will evaluate forests and integrated land-use practices to provide new qualitative and quantitative information on the state, use, management and trends of natural resources. It will provide technically-sound information on the physical characteristics of forests and the socio-economic condition of communities living in and around these forests. The information collected will satisfy local, national, regional and international reporting requirements, and will help to improve decision making at all levels.

The creation of decentralized Geographic Information System Laboratories has not only provided a basis for **reliable field data** on deforestation and forest degradation, but has **empowered provincial staff** and has greatly **improved their ability to practice effective forest stewardship** in the provinces, creating a win-win situation for MRV reporting and improved forest management.

– Deuteronomy Kasaro, Forestry Department of Zambia

3 Zambian Integrated Land Use Assessment phase II (ILUA II) is implemented through the country's Forestry Department. ILUA II receives technical assistance from FAO.

Indonesia: Fostering Public-Private Partnerships for Market Transformation

Indonesia is the largest economy in Southeast Asia and growing fast, with a population of over 200 million. Due to its hot and humid climate, the country faces an increasing demand for air conditioners, with a market estimated to reach 2.5 million units annually by 2015. The current refrigerants used in the air-conditioning sector in Indonesia are hydrochlorofluorocarbons (HCFCs), which deplete the ozone layer and also have up to 2000 times the global warming potential of CO_2.

As a signatory country of the Montreal Protocol, Indonesia has committed to phase out HCFCs and switch to technologies and substances that do not deplete the ozone layer. The country has also pledged to voluntarily reduce CO_2 emissions by 26% by 2020 from the 2005 level. To help Indonesia ensure its air-conditioning industry is environmentally sustainable and select climate-friendly alternatives to HCFCs,

UNDP provided technical advice for the government to make informed policy choices. Experts analyzed available and viable alternatives which would bring benefits to both the global climate and the ozone layer and informed their Indonesian counterparts.

UNDP also acted as a broker to forge a public-private partnership between Japan's Ministry of Economy, Trade, and Industry; Indonesia's Ministries of Environment and Industry, and Daikin and Panasonic, two of the largest Japanese air conditioner manufacturers. Panasonic Indonesia, with about 40% Indonesian ownership, is the sole manufacturer of room air conditioners in the country and accounts for about 22% of the market share. The partners agreed to introduce, support and promote a new climate-friendly technology, with lower global warming potential and enhanced energy efficiency, which will be the first of its kind to be commercially implemented in the world. Fujitsu General, Hitachi, Toshiba and other Japanese air conditioner manufacturers have also joined the partnership.

As one of the implementing agencies of the Multilateral Fund for the Implementation of the Montreal Protocol (MLF) and the lead agency for Indonesia's HCFC Phase-out Management Plan UNDP also played a key role in helping Indonesia access funding from MLF. MLF approved Indonesia's HCFCs Phase-out Management Plan in July 2011, shortly after the announcement of the partnership. This new technology is expected to result in direct and indirect CO_2 emission reductions of over 15 million tonnes annually from 2015 and is also expected to bring about a deep market transformation throughout the Asia-Pacific region, where demand for air conditioners has sky rocketed.

UNDP's **vital role in setting international policy** and UNDP's **guidance in multiple countries** was critical to achieving the protocol's goals.

– Maria Nolan, Chief Officer, MLF

Promoting Adaptation to Climate Change

Climate change is one of the greatest development challenges of the 21st century. The planet is experiencing greater weather extremes, sea-level rise, heat and cold waves, and increasing droughts and floods. These phenomena adversely affect food and water supplies, human health, and ecosystems and biodiversity and therefore threaten the progress that has been made on the Millennium Development Goals. Marginalized groups, including women, in the poorest regions are particularly affected, even as they are least responsible for these changes.

As the leading global organization in the fight against poverty, UNDP is responding on the front lines of climate change – where it hits the world's 2.6 billion poorest people the hardest. UNDP works with national, regional, and local planning bodies to help them respond effectively to climate change and promote low-emission, climate-resilient development.

UNDP is supporting developing countries to understand the complexity of climate change, address its root causes and adapt to the impacts on communities, with a focus on least developed countries, small-island developing states and vulnerable groups. As the understanding and impact of climate change grow, so too has the demand for UNDP's work in this area, with total global expenditures in climate change increasing by 300% between 2008-2011.

UNDP promotes pro-poor adaptation that encourages climate-resilient economic development and sustainable livelihoods. That means supporting countries to integrate climate-related risks and opportunities into national planning and poverty reduction efforts, while addressing the needs of more vulnerable groups like women and indigenous peoples. It also means ensuring that those efforts are flexible and resilient enough to navigate the challenges that climate change may bring in the future. With this aim, UNDP supports the creation of robust and responsive state institutions, capable public and private sector management, and skilled human resources able to innovate, adapt and deliver to the changing conditions. Independent evaluations of country programmes (Assessments of Development Results) show that UNDP is well recognized for its work in the climate change sector.

Sample Results (2008-2012)

- The Africa Adaptation Programme, a US$ 92 million initiative funded by the Government of Japan, has supported the governments of 20 countries to strengthen the effectiveness of their development efforts and improve resilience to climate change.
- Since 2010, through a strategic UNDP core initiative, Boots on the Ground has supported 26 low-income countries, including 23 Least Developed Countries to build capacity on climate change policy.

For example, through this initiative, UNDP is working to assist the governments of the Democratic Republic of Congo, Djibouti, Liberia, Samoa and Tanzania to mainstream climate change into their national poverty reduction and development strategies.

- During 2008-2012, UNDP supported over 70 countries with accessing more than US$ 400 million in grant financing – from the GEF Trust Fund, Least Developed Countries Fund, Special Climate Change Fund, Adaptation Fund, and bilateral sources - to carry out adaptation initiatives covering various sectors such as food security and agriculture, water resource management, coastal zone management, early warning and disaster risk, among others.
- The UNDP-GEF Small Grants Programme's Community-Based Adaptation to Climate Change Initiative has piloted over 90 community driven climate risk management projects in 10 countries. UNDP's support includes the provision of technical assistance for the assessment of vulnerability to climate change and community capacity to adapt to negative consequences, design of feasible and cost-effective projects as well as monitoring and oversight services. Lessons from projects are also extracted, documented and disseminated to the development community.
- UNDP supports 103 countries in the preparation of National Communications to the UN Framework Convention on Climate Change (UNFCCC). These documents help to identify priorities at the country level and provide technical inputs for integrated planning.

Nigeria: Government Adopts National Climate Change Policy

For the past 10 years Nigeria has experienced serious challenges from climate change, from flash floods, to changes in temperature and marked shortages in rainfall. The north of the country, which forms part of the Sahel, is at risk of further drought and desertification. The country is densely populated along its low-lying coastline which is also home to a high concentration of industry, agriculture and infrastructure. Therefore sea-level rise along the coast would result in devastating socio-economic costs.

Through the Africa Adaptation Programme (AAP), an innovative partnership between UNDP, UNIDO, UNICEF and the World Food Programme, UNDP has been supporting Nigeria and 19 other countries across the continent to prepare for climate change in a proactive and strategic way. Although government officials were becoming more aware of the threats of climate change, what was needed in Nigeria was to build the political will to address the problem in a comprehensive manner. The Africa Adaptation Programme helped government officials to more fully understand the risks of climate change and the need to set up programmes and budget lines across sectors to proactively adapt to the changes ahead.

Great progress has been made in bringing together national interests to address climate change in Nigeria in the four years since the AAP was launched in 2008. In September 2012, the Government of Nigeria adopted a National Policy on Climate Change and Response Strategy. The policy seeks to minimize risks, improve local and national adaptive capacity and resilience, leverage new opportunities, and facilitate collaboration with the global community, all with a view to reducing Nigeria's vulnerability to the negative impacts of climate change.

A central part of the AAP methodology is helping participants develop the professional capabilities they need in their challenging work of bringing about change within their countries. The national climate change policy provides a foundation for integrating climate change considerations in development plans for all sectors. Mainstreaming of adaptation measures into the national development processes assists key ministries to integrate the national policy into the budget cycle. Such synergy will engender the formulation of coherent policy and strategy development processes; while also encouraging robust information sharing, especially data and statistics across ministries. For instance, an AAP-supported study on water supply and sanitation predicts a decrease in groundwater supplies noticeable in hand dug wells and boreholes and an increase in incidence of water borne diseases. By identifying these issues, Nigeria's Integrated Water Resources Management (IWRM) plan will be strengthened to address them. To date, guidelines have been developed for the health, energy, agriculture and infrastructure sectors.

An effective adaptation plan must go beyond government. It was important to ensure Nigerian citizens were engaged and informed of the climate challenges ahead as well as the plans to address them. Therefore, AAP also focused on media development in the country and brought together Nigerian journalists from print,

broadcast and online media in a series of local and international AAP training workshops. The journalists were exposed to issues such as the elements of climate change reporting, climate change and gender, social media, and investigative journalism. AAP Nigeria, through the Climate Change Department of the Federal Ministry of the Environment, helped establish the AAP Media Network. Members of the network have been recognized nationally, continentally and globally for their work.

Adaptation actions need to be taken at all levels. Citizens, particularly women, need to be empowered to be active players in defining solutions to climate change adaptation. Moving from sensitization to action, the AAP successfully established a network of NGOs on climate change and gender-sensitive leadership to strengthen the coordination of climate change adaptation responses between donors, civil society and women-focused NGOs. The AAP also supported Nigeria to use Automated Weather Stations advisory services to support community-based co-operative farmers associations to enhance rice production.

Africa Adaptation Programme at a Glance

The Africa Adaptation Programme was launched in 2008 with support from the Government of Japan to assist 20 African countries to strengthen their abilities to deliver a development agenda that makes steady progress towards the MDGs while at the same time preparing for and adapting to the effects of climate change. The Progamme was implemented between 2008-2012 and focused on developing the institutional and professional capabilities to bring about the changes needed within the countries, namely: data and information management, institutions and leadership, policy analysis and implementation, innovative finance, and knowledge management.

Key Facts:

- Over 10,000 key individuals with leading roles in ministries, parliaments, academia, meteorological departments, the media, business and civil society were trained in undertaking climate vulnerability assessments, climate modeling and high-performance computing.
- All 20 countries advanced the development of adaptation plans and seven countries have approved climate change adaptation plans and strategies.
- AAP supported countries to integrate gender considerations into their adaptation initiatives to ensure these address the needs of women and men equitably. Eleven countries received assistance on mainstreaming gender in national adaptation plans.
- National workshops in climate change journalism were conducted in all 20 AAP countries and a total of 448 journalists were trained.
- US$ 92.1 million disbursed (2008-2012)
- Donor: The Government of Japan
- Partners: United Nations Industrial Development Organization (UNIDO), the United Nations Children's Fund (UNICEF) and the World Food Programme (WFP) Programme (WFP)

Sudan: Adapting to Climate Change

In the deserts of northern Sudan, farmers and pastoralists have practiced a form of subsistence agriculture that depends solely on the erratic floods of the Atbara River. During periods of exceptionally high flooding, they could expect to grow enough sorghum to provide for their families while using the leftover stalks to feed livestock. But such flooding is very unpredictable, and climate change has had a serious impact on the region, with available land for grazing and cultivation quickly shrinking due to irregular rainfall and desertification. Across the country, agriculture provides the primary means of livelihood for more than 80% of the population and the sector is roughly 90% dependent on rain fed agricultural practices.

A UNDP initiative that is part of a broader, so-called "National Adaptation Programme of Action" – adopted by the Government of Sudan and supported by UNDP and the Global Environment Facility (GEF) – is helping people in the area to adapt to the new realities of climate change and its effects on this fragile ecosystem. The project is funded under the GEF Least Developed Countries Fund, which focuses on reducing the vulnerability of those sectors and resources that are central to development and livelihoods, such as water; agriculture and food security; health; disaster risk management and prevention; infrastructure; and fragile ecosystems. For example, since 2011, UNDP has been assisting farmers in Sudan with learning and using new kinds of water harvesting techniques, and training them in the use of irrigation pumps, tractors and drought resistant seeds.

> This initiative has provided me with the tools to **better grow my crops and expand my income**.
>
> – Ahmed Eldaw, farmer

Within months of the project's start, the villagers have seen substantial improvements in their everyday lives. Groups of 15 farmers now each have one irrigation pump, reducing their total dependence on unreliable flooding and allowing them to cultivate their crops year round, including food for their livestock. Propane gas heats their cook stoves, instead of expensive charcoal or wood from the surrounding land, and livestock are receiving regular vaccinations. Throughout all of the project's work, villagers are picking up a crucial education and understanding of the issues associated with climate change in their region and how to adequately prepare and respond to a new and unexpected future.

Ahmed Eldaw, like his fellow farmers and pastoralists in northern Sudan, is also receiving help in planting trees and shrubs that create critical "shelterbelts," which reduce sand encroachment onto his farming and grazing lands. Most importantly, specialized training in sustainable farming methods have given farmers the tools to plan for the future in the face of escalating climate change effects.

For Eldaw and his fellow villagers the results have been striking. As a direct result of the project, Eldaw has been able to recently – and successfully – plant sorghum on half of his 5.4 hectares of farmland and the rest with tomatoes and crops for animal feed.

"I am happy now," he says. "This initiative has provided me with the tools to better grow my crops and expand my income."

The Least Developed Countries Fund at a Glance

Under the Least Developed Countries (LDC) Work Programme of the United Nations Framework Convention on Climate Change, LDCs are required to develop National Adaptation Programmes of Action (NAPAs) to identify priority activities that respond to their urgent and immediate adaptation needs in areas such as Food Security and Agriculture, Water Resources, Coastal Management and Early Warning and Disaster Risk, among others. NAPAs are then implemented through the support of the LDC Fund (LDCF), which is managed by the Global Environment Facility (GEF).

Key Facts:

- UNDP currently implements the largest share of the LDCF, having supported 33 NAPAs and currently supporting over 60 projects which implement NAPA priorities.
- Overall 48 Least Developed Countries are implementing projects totaling US$ 334.6 million and leveraging US$ 1.59 billion in co-financing.
- Donors: Global Environment Facility (GEF), Governments of Germany, United Kingdom, United States, Sweden, Denmark, Australia, Belgium, Canada and Norway, among others.

Bhutan: Reducing Climate Change Risks from Glacial Floods

Studies suggest that the warming trend in the Himalaya region has been greater than the global average. The most severe threat for the region is the increased rate of glacial melting. As glaciers retreat and glacial lakes rapidly fill with water, the ice or sediment dams containing the lakes could break suddenly, leading to a release of huge volumes of water and debris with peak flows as high as 15,000 cubic meters per second. These glacial lake outburst floods pose serious threats to lives, livelihoods, infrastructure and economic assets for the exposed population. Mountain communities near glacial lakes and glacier-fed rivers are particularly at risk, as they live in remote and marginalized areas and depend heavily on fragile ecosystems for their livelihoods.

Communities in Bhutan's Punakha-Wangdue and Chamkhar Valleys have been living with the threat of potential glacial floods. These areas are home to hydropower plants, infrastructure projects and farmland and they could suffer extreme human and economic devastation should a flood occur. A UNDP-supported planning process helped to identify this and other immediate needs for Bhutan to address the risks of climate change, a process which led to the adoption of a National Adaptation Programme of Action in 2006. As a direct follow up to the plan UNDP is now supporting the Royal Government of Bhutan with implementing an initiative to reduce climate change risks and vulnerabilities from glacial lake outburst floods, with financing from the Least Developed Countries Fund (LDCF) and co-financing from the Royal Government of Bhutan, Government of Austria, UNDP and WWF Bhutan.

One component of the project has successfully reduced flood risks from Thorthormi Glacier Lake, one of Bhutan's most dangerous glacier lakes. Preparatory studies for the artificial lowering of this lake were carried out in 2008. Since 2009, a multidisciplinary team of approximately 350 workers (both men and women) have trekked to Thorthormi Lake from July to October every year to drain water out of the lake to release the pressure on the moraine dam and reduce risk of a potential flood. Since use of heavy machinery at the site would further de-stabilize the moraine dam of the glacial lake, the excavation work is done manually with simple tools. Workers dig through ice and remove boulders to create a channel through which water is drained. This approach also generates income for the workers, allowing them to contribute to local enterprise development.

Facing the challenges of a harsh, high-altitude working environment above 4,200 metres has resulted in a strong partnership between the workers, several government agencies, the Royal Bhutan Army, and district authorities. As a result of this project, the target to lower the water level of Thorthormi Lake by 5 metres was achieved at the end of 2012. While initial surveys conducted before the beginning of the project have predicted a flood event from Thorthormi Lake as

Strengthening Climate Information and Early Warning Systems for Climate Resilient Development

UNDP supports the development of climate information and Early Warning Systems (EWS) across a range of countries in Africa, Asia and the Pacific in order to help them respond to both short-term/rapid onset climatic hazards (e.g. cyclones, floods and storms), as well as long-term/slow onset hazards (e.g. drought and long-term climate change). Initiatives under this Signature Programme aim to generate effective EWS by integrating the following four main elements:

i. Risk knowledge: Systematically collecting data and undertaking risk assessments.

ii. Monitoring and predicting: Developing hazard monitoring and early warning services, including the deployment of weather and hydrological monitoring equipment, improving forecast capabilities and the use of these technologies and information within agricultural advisories, flood risk monitoring and supply chain management.

iii. Disseminating information: Communicating risk information and reliable warnings to potentially affected locations (e.g. via radio, mobile phones, etc.).

iv. Responding to warnings: Building national and community response capabilities to act effectively when warnings are received.

early as 2010, the project has successfully managed to avert this disaster. Two subsidiary lakes adjacent to Thorthomi have also been lowered by 197 and 271 centimetres, thereby reducing water pressure on the thinning moraine dam between the lakes.

Another achievement of this initiative is the construction and installation of a new automatic flood Early Warning Systems (EWS), including sirens, automatic water level and weather stations. A Flood Warning Control Station is monitored 24 hours a day and shares water level data with neighboring Assam and West Bengal states in India. The system covers more than 90% of households in the 21 vulnerable communities downstream of the Punatsangchu River in the Punakha-Wangdue valley. To complement the EWS, awareness raising activities have been conducted engaging over 2,500 people from vulnerable communities, schools, government and religious institutions, the armed forces, and nearby hydropower projects, to build capacity for effective disaster prevention and preparedness. Seventy national and district disaster risk management focal points have been trained (40% of which are women). Community Based Disaster Risk Management Plans were also formulated in the majority of the villages.

At the national level, UNDP, in consultation with other organizations, organized an independent review of a new Disaster Management Bill, which was endorsed by the National Council and the National Assembly and the bill is tabled for adoption in the spring session of 2013.

Expanding Access to Environmental and Energy Services for the Poor

Many of the more than one billion men and women living in poverty depend on ecosystems and natural resources for food, clean water, fuel, medicine, shelter, and reduced vulnerability to shocks and disasters. The lives and livelihoods of people in rural and urban areas can either be threatened or improved depending on how natural resources are managed. Poor countries and people suffer disproportionately from both the gradual and sudden degradation of terrestrial and marine ecosystems and other natural resources. Population growth, urbanization, unsustainable production and consumption, and growing competition for limited resources, combined with climate change, are pushing people and nature to the limit.

Access to environment and energy services is essential for poverty reduction and economic growth. Expanding access to these services requires effective ownership and empowerment of local actors who are chief users and guardians of the world's ecosystems. The scaling up of environment and energy service delivery requires considerable institutional capacity development. UNDP works to strengthen the capacity of national and local institutions to manage the environment and expand environment and energy services, especially for the poor. UNDP works with local communities across thematic areas, including biodiversity and ecosystem services, land, water, energy, deforestation, and community-based adaptation to climate change.

A majority of the 2010-2012 Assessments of Development Results (ADRs) positively recognize UNDP's work with local communities on natural resource management and sustainable livelihoods. For instance, in Ghana "the ambitious agenda of community-based interventions such as the Sustainable Rural Livelihoods Programme and the Millennium Village Project have provided space for testing alternative approaches to development in the most deprived areas of the country. UNDP has, through these interventions, created the potential for achieving the goals set for sustainable development."

Access to energy, in particular, has recently been prioritized by the United Nations for the central role it plays in sustainable development. The multiple benefits of achieving universal access to modern energy services are transformational: lighting for schools, functioning health clinics, pumps for water and sanitation, cleaner indoor air, faster food-processing and more income-generating opportunities, among others. Still, one person in five on the planet lacks access to electricity and nearly 3 billion people are using wood, coal, charcoal, or animal waste to cook. Access to modern energy services for cooking and heating, lighting and communications, and mechanical power for productive uses is a vast area of unmet need. The energy access

challenge is particularly acute in the least developed countries, in South Asia and Sub-Saharan Africa. To reinforce efforts in this area, the UN General Assembly designated the year 2012 as the International Year for Sustainable Energy for All and subsequently the decade 2014-2024 as the Decade of Sustainable Energy for All, underscoring the importance of energy issues for sustainable development.

Sample Results (2008-2012)

- UNDP has played an important role in defining, preparing for and implementing the UN Secretary-General's Sustainable Energy for All initiative both globally and at the country levels, including its three global energy targets for 2030 and its goal of providing more than one billion people with access to modern energy.
- UNDP has supported energy projects in 83 developing countries. In Burkina Faso, Ghana, Guinea, Mali, Senegal and Uganda, for instance, some 3.5 million people have gained access to mechanical power generated by over 2,300 multifunctional platforms for water pumping, agro-processing, and other income generating uses.
- Every Drop Matters is a water partnership of UNDP and The Coca-Cola Company that is improving access to water and sanitation in 20 countries in South Asia, Central Europe, Central Asia, the Middle East and Black Sea Basin - for example improving sanitation and hygiene for 45,000 students and impoverished residents of Bangladesh, saving 20,000 cubic meters of drinking water in Kazakhstan through improved irrigation techniques and restoring traditional water harvesting sites in Jordan.
- Since 2008, the UNDP-GEF Small Grants Programme (SGP) supported 4,287 community based projects in 127 countries for a total amount of US$115 million in grants and leveraged over US$175 million dollars in cash and in kind co-financing working in the areas of biodiversity, climate change, persistent organic pollutants (POPs), international waters and land degradation. SGP also supports Indigenous Community Conserved Areas (ICCAs), helping to strengthen local management capabilities in the estimated 16 million square kilometers of ICCAs that exist globally.
- The Community Water Initiative (CWI) was launched by UNDP to foster water security for local populations in a carbon neutral and climate resilient manner. The program is implemented through the UNDP-GEF Small Grants Programme and has provided more than US$ 1.2 million in funding through 62 projects in four countries, bringing water supply and sanitation services to more than 600,000 people.
- The Equator Initiative is a partnership that brings together the United Nations, governments, international and local civil society, businesses, and grassroots organizations to raise the profile and build the capacity of local efforts to reduce poverty through the conservation and sustainable use of biodiversity. Since 2002, the Equator Prize has recognized 152 local community initiatives from 66 countries, awarding over US$ 1.2 million and attracting extensive attention of the international press.

Iraq: Implementing a Master Plan for Water Management

After three decades of war, armed conflict, sanctions and neglect of infrastructure the water and sanitation sector in Iraq has seen steady and devastating deterioration. Iraq's limited capacity to react to climate change, trans-boundary water issues and environmental degradation has severely affected a population already upset by conflict.

Issues such as water salinity and scarcity, inadequate sanitation infrastructure, and the shrinking of agricultural areas due to worsening soil quality, as well as the increased severity of dust storms have all exacerbated already poor water access for the majority of Iraqis. Currently 20% of households in Iraq use an unsafe drinking water source and a further 16% report that they have daily problems with supply.

Water is a resource fundamental to all aspects of life, and improvements in the management of the country's water resources, including at the household level, will have a profound effect on Iraq's efforts to achieve the Millennium Development Goals, by reducing poverty and hunger, child mortality and ensuring environmental sustainability.

– Christine McNab, former United Nations Resident and Humanitarian Coordinator for Iraq

UNDP is leading the implementation of a US$ 10million joint UN initiative, Water and Sanitation Master Planning and Capacity Building Programme that is supporting the Government of Iraq to modernize the public sector and reform service delivery in the water and sanitation sector. The Programme aims at addressing the complex causes affecting access to potable water and adequate sanitation in six targeted governorates.

In Iraq, 50% of water produced is lost due to seepage, leakage and wastage as a result of system inefficiencies and domestic wastage. Furthermore, Iraq's growing population continues to impact water supply, highlighting the need to systematically include issues like water supply, waste water collection and treatment, rainwater management, flooding protection and potential environmental and climate change impacts into urban development plans.

Master planning is a vital process to analyze the water and sanitation situations in the different governorates with the analysis serving as a foundation for future outcomes and priorities in providing improved services to residents. UNDP is providing technical support to develop sector master plans for water, sanitation and solid waste management.

UNDP has been working to strengthen the capacity of the Ministry of Water Resources through a series of trainings in collaboration with UNESCO-IHE Institute for Water Education in helping transfer knowledge of intensive state-of-the- art water soft ware on hydrology, water demand management, GIS mapping, and water modeling to experts of the Ministry of Water Resources. In addition, UNDP continues to support the development of a draft National Water Council legislation that will enable Iraq to establish inter-ministerial committees for trans boundary and domestic water resources management.

At the grass roots level, UNDP is also assisting the Ministry of Water Resources in establishing Local Water Committees to improve water governance at the sub-regional level, ensuring that the water supply and quality issues specific to each sub-region can be properly tackled by the full range of water users.

The programme includes activities to promote sanitation and hygiene such as awareness campaigns. A joint UN approach has proven to be an effective way to pool skills, expertise and human resources

of UNDP, UNICEF, UN-Habitat and WHO while coordinating and consolidating support to Iraqi counter-parts, local authorities and communities. The partnership has yielded results, such as the rehabilitation of Samarra City's Water Treatment Plant, thereby resolving issues around the quality and quantity of potable drinking water for residents of Samarra and associated electrical problems of the old water facility. The new facility daily provides clean potable drinking water to 100,000 residents in Samarra City. Moreover, specialized equipment and machinery have been procured, including garbage compactors and garbage collection containers.

"Improved governance and water resource management are critical to maximizing the reliability of water supplies and water quality", said Christine McNab, former United Nations Resident and Humanitarian Coordinator for Iraq, adding that "Water is a resource fundamental to all aspects of life, and improvements in the management of the country's water resources, including at the household level, will have a profound effect on Iraq's efforts to achieve the Millennium Development Goals, by reducing poverty and hunger, child mortality and ensuring environmental sustainability".

UNDP's Water and Ocean Governance Programme at a Glance

The Water and Ocean Governance Programme (WOGP) assists countries to develop capacities and implement integrated approaches to water resources management and development. WOGP uses a human rights-based approach and promotes mainstreaming of gender issues and the empowerment of women.

Key Facts:

- UNDP-WOGP works in 150 countries, with a current portfolio of over US$ 500 million.
- The WOGP provides policy support, capacity building and advisory services in four major strategic areas: Integrated Water Resources Management, Water Supply and Sanitation, Ocean and Coastal Area Governance, and Capacity Development and Knowledge Management.
- Through programmes like MDG GoAL-WaSH, CapNet, the Community Water Initiative and Every Drop Matters, and others, UNDP promotes and facilitates equitable access to Water and Sanitation services as a fundamental contribution to enhancing human development.
- Human Development is more closely linked to access to water and sanitation than other development drivers UNDP has examined, including spending on health or education, and access to energy services. Investment in water supply yields an average economic return of US$ 4.4 to US$ 1 and investment in sanitation yields an average economic return of US$ 9.1 to US$ 1.
- Funding Sources: GEF, Government of Sweden, private sector and other sources.

Croatia: Energy Efficiency Programme Generates Huge Savings

Early in 2011, the energy efficiency team in the Croatian Ministry of Justice was alarmed at abnormally high rates of water use recorded at Lepoglava Prison, a penitentiary dating back to the Austro-Hungarian Empire. A probe of the underground pipes identified a huge leak that was fixed with a repair costing US$ 4,000. The resulting savings: US$ 225,000 per year. Without the vigilant monitoring and quick diagnosis provided by the energy efficiency programme run by UNDP, this loss would have gone unnoticed.

The Lepoglava Prison story is just one example of the savings that the energy efficiency programme is generating all across Croatia's public sector. After six years of operation, it has reduced annual public spending by an estimated US$ 18 million—savings that for a single year well exceed the total costs of the programme so far. At the same time, it has cut emissions of greenhouse gases by 12 percent in 5,900 public-sector buildings.

Launched in 2005 with US$ 4.4 million from the Global Environment Facility (GEF), the programme set out to remove barriers to energy efficient practices and technologies. As is the case in many countries emerging from state socialism, energy use remains wasteful: per unit of GDP, Croatia consumes 12 percent more energy than the European Union (EU) average.

Winning political commitment to the project was a crucial first step. Over two years, 24 demonstration projects in the city of Sisak reduced energy consumption by 13 percent and saved the city US$ 220,000 per year. The savings quickly attracted attention from other towns. The project encouraged city mayors and county prefects to sign an 'Energy Charter' in which they pledged to implement systematic energy management in all the facilities under their jurisdiction. Within eight months, all 127 mayors and all 20 county prefects had signed, and the charter is now on proud display in virtually every city hall in Croatia. At the central level, 15 of 16 ministries made the same commitment.

To complement these efforts, the programme created a network of six information centres to give citizens hands-on advice on making their homes more energy efficient and to provide construction materials and appliances donated by the private sector as demonstration equipment. The project has also erected scores of informational displays; in all, 98 'info-points' have been set up in 43 towns and 12 counties.

Building public support was just the beginning; the programme also worked to encourage the adoption of policies conducive to energy efficiency, building on the momentum created by Croatia's drive to meet the requirements for EU accession. UNDP expertise helped shape the Law on Efficient Use of Energy that was passed in 2008, the Croatian Energy Strategy that was adopted in 2009, the National Energy Efficiency Programme covering 2008-2016, and the First National Energy Efficiency Action Plan for 2008-2010. The programme also helped to draft legal regulations and textbooks governing 'energy audits' of buildings.

These energy audits were a vital tool as the programme set out to identify inefficiencies in public-sector buildings that could be addressed through modest investments. Between 2006 and 2010, UNDP supported1,069 energy audits covering 2.5 million square meters in 1,346 buildings. This helped build a thriving audit industry numbering 17 companies and more than 150 energy-audit experts. In addition, the energy audits spurred investment projects worth US$ 30 million, a figure that also underlines the potential for 'green job' creation in a country struggling with an unemployment rate of almost 20 percent.

But the real heart of the programme is the web-based Energy Management Information System (EMIS), which enables real-time monitoring of energy consumption and water usage (which requires energy for pumping) in public-sector buildings. EMIS is available to all Croatian public-sector institutions free of charge. In six years, 10,000 Croatian civil servants have received specialized energy- efficiency training from the programme, and UNDP is now working to ensure that 'energy manager' is recognized as a standard public-sector position. The reach of the system is impressive. More than 5,900 separate facilities (2,400 under ministries and 3,500 in cities and counties) have so far been hooked into EMIS, meaning that 52 percent of all public-sector buildings in Croatia are now covered by the energy efficiency programme.

With cities, counties and ministries all reaping big savings that can be channeled to urgent needs in health, education and welfare, it's no surprise that what once started as a UNDP project now has the status of a national programme. Since 2008, the project has received government funding through the Fund for Environmental Protection and Energy Efficiency and the Ministry for Economy, Labour and Entrepreneurship. The project has already been replicated, at the Government's request, in neighboring Montenegro, and a similar programme is being prepared for Bosnia and Herzegovina and parts of Serbia. Expertise developed in the project has also been sought in countries as diverse as Belarus and Tajikistan.

UNDP-GEF Urban Infrastructure: Promoting Low Emission and Climate Resilient Urban and Transport Infrastructure

Through this programme, UNDP-GEF promotes low emission urban and transport infrastructure and systems by enhancing the quality, affordability and security of energy and optimizing its use. This is achieved by integrating energy efficiency in buildings; by promoting sustainable, climate-resilient urban and transport system planning and design, clean energy production, waste management and synergies in select industries. A major emphasis of the team's work is on promoting energy efficiency in buildings, in particular through the introduction of building codes.

Key Facts:

- As of 2012, 44 countries were implementing 68 projects with a total value of US$ 2.5 billion. US$ 252 million is grant funding from the GEF Trust Fund, the remainder from a variety of co-financing sources, including national governments, other multi- and bilateral donors and the private sector.
- Since 1992, 40 projects, in 35 countries, for a combined GEF contribution of US$ 125 million have focused exclusively on energy efficiency in buildings, with a concentration in Europe and Central Asia and Asia-Pacific together representing 2/3 of the portfolio.
- A smaller, but growing share of the portfolio focuses on sustainable transport systems, with some 22 projects to date, in 16 countries, including Brazil, Russia, India and China, for a combined value of US$ 1.2 billion, of which US$ 90 million from the GEF Trust Fund, illustrating the high leveraging potential of these interventions.

Nicaragua: Electricity Empowers Rural Communities

Ten years ago less than half of all Nicaraguans had access to electricity. The electricity that was available was generated by power plants relying on fossil fuels, with extremely high maintenance and operational costs, all factors contributing to an unsustainable system of power generation. The lack of access to electricity was particularly severe in rural areas which were difficult to connect to the national grid. In response the Government of Nicaragua joined forces with UNDP in developing an initiative that would use the country's abundant natural resources, to transform the energy sector and the rural economy by introducing renewable hydropower in remote areas of the nation.

Building on a previous US$ 3.5 million grant from the GEF, the project is working to electrify rural communities currently off-the grid and to combat poverty while contributing to Nicaragua's efforts to reduce greenhouse gas emissions in the power sector. The project provides communities with a clean, sustainable source of energy, which in turn gives people new opportunities to learn and to generate income for their families. In 2012, the project had leveraged US$ 20 million in co-financing for up to 28 microturbines.

Maribel Ubeda's is among the 4,400 families from eight rural communities in Nicaragua who gained access to electricity in 2012 when a new 300 kilowatt micro-hydropower plants was inaugurated by local authorities in her village. Funding for this project was obtained from UNDP and the Swiss and Norwegian Governments.

"When they first told us about this project, people in my community didn't believe it would become a reality because we were too far from Waslala [the closest village]…Now we have energy all day", said Maribel.

The project is having a transformative effect on the entire energy sector and it is producing multiple development benefits. It has contributed to policy design and market development for micro turbines. It has also contributed to catalyzing a culture of sustainable power generation. The project spurred new legislation for the promotion of electricity generation with renewable sources and also influenced the design of fiscal incentives and the inclusion of hydroelectric power in rural electrification planning. Training programs were developed with two national universities to strengthen the capacities of engineering students in renewable energy.

The social and environmental benefits are also significant. Over 48,000 people in rural communities now have access to electricity. Micro enterprises are emerging as local community members, including women, are trained and empowered with the management and maintenance of the micro-hydro plants and as they gain access to electricity and new business opportunities. Overall the project has introduced 2.7 megawatts of electricity capacity and added over 80 km of electrical networks and it will reduce over 6,500 MT of CO_2 emissions each year. Ten local committees for watershed management have been established to protect and secure the ongoing water supply for all 28 micro-hydro plants.

Maribel Ubeda says that her three children with ages ranging from 13 to 15 will benefit the most from this project because they now have access to the internet. "They will learn, play and discover the world beyond our community thanks to the

UNDP Universal Energy Access at a Glance

UNDP's goal in the area of energy is to achieve universal access to affordable, clean and modern energy services for sustainable development, with a focus on the poor. To meet the energy challenges of poor communities, UNDP supports developing countries in enhancing their capacity in three areas:

1) Strengthening national policy and institutional frameworks by integrating energy access needs of the poor, for example programmes geared towards rural electrification, within national development strategies, poverty reduction strategies and low carbon development plans;
2) Mobilizing and expanding financing options, including through micro-finance, public-private partnerships and carbon finance;
3) Developing effective approaches for scaling up energy service delivery at the local level, though community-driven initiatives using a variety of technological solutions.

Key Facts:

- The overall portfolio of UNDP energy-related projects over the last two decades is over US$ 4 billion, including over 2,500 off-grid energy projects.
- About 10 million people, mostly rural poor, have gained access to modern energy services through UNDP-supported projects over the past decade.
- As part of UNDP's support to the Secretary General's Sustainable Energy for All initiative, UNDP has facilitated commitments from over 65 developing countries to join the initiative and work towards achieving its objectives.

arrival of electricity". Other women, like Maribel, have been able to develop their micro enterprises and increase the income for them and their families.

Today around 70% of the population has access to electricity, but in rural areas access to electricity is still lower than 40%, particularly in the Caribbean region of the country. The project has laid the foundation for additional work and the Government has set targets to reach 90 percent of the population with electricity and to shift the current dependence on fossil fuels by 90 percent, both by 2017.

They will learn, play and discover the world beyond our community thanks to the arrival of electricity.

Without this project we would be left behind.

– Maribel Ubeda, community member

Sri Lanka: Tackling Air Pollution in Urban Transportation

Colombo is a bustling city with 25% of Sri Lanka's population, 60% of its motor vehicles, and a major air pollution problem. Inefficient vehicles, especially motorbikes and three-wheelers, both contribute to toxic air pollution and emit large amounts of CO_2. Being a compact city with abundant supplies of relatively inexpensive electricity, electric vehicles have great potential in the city's mass transit sector.

A pilot project supported by UNDP has successfully laid the foundation for the introduction of zero-emission electric vehicles to the dense core areas of Colombo – improving the quality of the air while decreasing the greenhouse gas emissions from the transport sector. With a grant of less than US$ 29,000 from the GEF Small Grants Program (SGP), the Lanka Electric Vehicle Association aimed to demonstrate the viability of commercial three-wheeled electric vehicles in Colombo.

From the outset, it was evident that policy barriers were far greater than technical ones. Immediately on importing the chassis for the first prototype vehicle, the project ran into an unexpected challenge when it discovered that there was no Sri Lankan customs code covering electric vehicles, and the prototype could not be cleared for entry. Initially planned as a demonstration and capacity building project, the local association had to switch focus, approaching the project from a policy standpoint. They first had to lobby for an amendment to the customs code to allow for the import of the vehicles. Once this was eventually granted, the vehicle was brought in, and a team of 10 youths was hired by the Lanka Electric Vehicle Association to be trained in assembling and servicing the vehicle.

Though the vehicle was granted access to the country, it was further hindered by yet another policy barrier: as there was no provision in the Motor Traffic Act covering electric vehicles, the vehicle could not be registered to drive on Colombo's roads. Finding itself in a lobbying role once more – this time with the Ministry of Transport – the local association succeeded in securing an amendment to the code, permitting the vehicle on the streets of Colombo. The vehicles were then demonstrated to Sri Lankan national government officials, as well as Colombo municipal city officials. Being well aware of Colombo's air quality problems and suitably impressed by the vehicle trials, the government decided to throw its support behind increased electric vehicle transport in Colombo. A cabinet subcommittee was set up to make recommendations relating to the lowering of import duties on electric vehicles.

As a result of the project, a number of large-scale private firms started to invest in the electric vehicles sector and by 2007, when the Colombo municipal government decided to renew its fleet of buses they choose to use new buses designed to run on electricity. In addition, the ecotourism sector also started using electric vehicles to transport tourists in the Elephant Corridor and electric golf carts and three wheelers are now used in some hotels. The improved regulatory framework and awareness-raising on electric vehicles as a result of the efforts of the Lanka

GEF Small Grants Programme at a Glance

Implemented by UNDP, the Global Environment Facility Small Grants Programme (SGP) provides grants of up to US$ 50,000 and technical support to local community projects that conserve and restore the environment while enhancing people's well-being and livelihoods. SGP has demonstrated that small community-led projects can ultimately produce big and lasting impacts. Small projects often serve to demonstrate technologies and approaches for replication. They also lay the ground work for changes in regulations and help attract funding for larger scale projects.

Key Facts:

- Since it first began in 1992, GEF SGP has supported 14, 500 initiatives in 125 countries, making it the world's largest environmental effort dedicated to civil society and community organizations
- GEF SGP funding over 20 years totals approximately US$ 450 million. This has been matched with cash and in-kind contributions from community, NGO, government, private sector, and donor partners for a total financial commitment of over US$ 900 million since the programme's inception.

When my daughter started to **suffer from asthma** [it] inspired me to search for an **environment-friendly transport system.**

– Dhatusena Senanayake, project member

Electric Vehicle Association and the GEF Small Grants Programme in Sri Lanka gave the private sector the opportunity to invest in the technology and gave birth to a flourishing business community that started to manufacture and import electric vehicles. By 2011, there were approximately 15,000 electric motorcycles in Sri Lanka.

The use of electric vehicles has the potential to improve respiratory health in the population by reducing pollution. Indeed, improving urban air quality was a primary rationale for the project's founders. "When my daughter started to suffer from asthma [it] inspired me to search for an environment-friendly transport system" said Dhatusena Senanayake, one of the members of the project.

As another indicator of its success, in 2012 the project was recognized by the UNFCCC as one of nine winners in "The Momentum for Change – Lighthouse project contest" for its contribution to bringing social and environmental benefits to the urban poor. The prize provided the opportunity for delegates from the Lanka Electric Vehicle Association to explain the results of the project, explore further possibilities for scaling up and create opportunities for other countries to follow the example and replicate this success. By taking a flexible approach the project has been the catalyst for change in Colombo that extends beyond transportation to the potential to improve public health, create jobs and stimulate the economy.

The Way Forward

UNDP's work in environment and energy is becoming increasingly relevant and in demand, as a means to improve lives and livelihoods, transform economies, change production and consumption patterns and redirect public and private financing towards long term sustainable investments. The United Nations Conference on Sustainable Development (Rio+20) held in Brazil in June 2012 called for a greening of economies within the framework of sustainable development and poverty eradication and a better integration of the three dimensions of sustainable development. Ongoing global climate change negotiations also highlight the need to transform economies and societies towards greater sustainability, and curb threats to development through reduction in emissions by putting in place better systems for adaptation. Guided by the overall commitment to ensuring that environmental and climate change interventions benefit the poor and reduce environmental degradation, UNDP will continue to work with all partners to move towards a more sustainable world.

Sustainable Development underpins the foundation of UNDP's work. As UNDP is discussing its future work with partners, the proposed strategy clearly envisages a more integrated approach that will draw from UNDP expertise in the areas of governance, poverty reduction, environment, gender, capacity development, and conflict and risk prevention. Key elements of this work include:

- The promotion of a broader development agenda for reducing poverty and inequality, and linking inclusive green growth and related social, environmental and economic issues.
- Mainstreaming environmental and climate considerations into national and sub-national planning, programming and project work.
- Creating an enabling environment and supporting investments in renewable energy and energy efficiency.
- Putting systems in place for more efficient and sustainable management of ecosystems and natural resources that benefit the poor and other marginalized groups.
- Assistance in redirecting relevant revenues from extractive industries and commodities in support of job creation and longer-term economic and social transformation.
- Measures to manage global public goods to secure sustainability of supply chains, protect livelihoods and meet common objectives such as conflict prevention.

Furthermore, emphasis is put on:

- Promoting adaptation to climate change: UNDP will continue its support to developing the capacity of national and subnational governments to formulate, finance and implement Green, Low-Emission, Climate-Resilient Development Strategies (LECRDS). An increasing number of policy initiatives and programmes addressing both adaptation and mitigation at the country level are building blocks to achieve a transformational change. Increasingly, there is a need to build up dedicated core policy advisory capacity at the country level and support the development and implementation of climate change strategies at all levels of governance.

- Expanding access to sustainable energy for the poor: The Secretary General's Sustainable Energy for All (SEFA) initiative is an opportunity for UNDP and the UN system to raise sustainable energy to the top of the international agenda and to galvanize a global response to make sustainable energy for all a reality in every country. UNDP is fully committed to supporting the achievement of the three interlinked objectives of the SEFA initiative: universal energy access; doubling of gain in energy efficiency; and, doubling of renewable energy share in the global mix.

- Supporting the participation of local communities in development: The upscaling of local and community work activities is one of the promising avenues of work for the future. Going forward, UNDP will increase its work with local communities and indigenous peoples to ensure that their voices are heard and their rights are respected in the development process.

- Strengthening the "Delivering as One" approach: Future development challenges make intra-UN system cooperation crucial. UNDP has a number of assets, including the ability to bring together expertise across a broad spectrum of areas; its ability to partner with a wide range of state, non-state and multi-lateral institutions, and an unparalleled capability to put boots on the ground, even in the most difficult contexts. Moving forward, UNDP will build on existing experiences and further strengthen its collaboration with UNEP and other UN agencies, the Bretton Woods system and other partners.

Rio+20 reaffirmed the need for adopting integrated approaches which advance social, economic, and environmental objectives simultaneously. UNDP will continue to support countries to make progress on the MDGs and to define a post-2015 agenda which will adopt such integrated and inclusive approaches that lead to long-term sustainability in the 177 countries and territories in which we work—empowering lives, reducing poverty, enhancing sustainability and advancing resilient nations.

Acronyms

AAP	Africa Adaptation Programme
ADR	Assessment of Development Results
CBO	Community-Based Organization
CDM	Clean Development Mechanism
CERs	Certified Emission Reductions
CPEIR	Climate Public Expenditure and Institutional Review
CWI	Community Water Initiative
EMIS	Energy Management Information System
FAO	Food and Agriculture Organization
GEF	Global Environment Facility
GIS	Geographic Information System
HCFC	Hydrochlorofluorocarbons
ICCAs	Indigenous Community Conserved Areas
IDDP	Integrated Drylands Development Programme
ILO	International Labour Organization
LDCF	Least Developed Countries Fund
LECB	Low Emission Capacity Building
LECRDS	Low-Emission and Climate-Resilient Development Strategies
MDG	Millennium Development Goals
MLF	Multilateral Fund for the Implementation of the Montreal Protocol
MRV	Measuring, Reporting and Verification
NAMAs	Nationally Appropriate Mitigation Actions
ODP	Ozone Depletion Potential
ODS	Ozone Depleting Substances
PEI	Poverty-Environment Initiative
POPS	Persistent Organic Pollutants
REDD	Reducing Emissions from Deforestation and forest Degradation
SCCF	Special Climate Change Fund
SEFA	Sustainable Energy For All
SGP	Small Grants Programme
SIDS	Small Island Developing States
SLM	Sustainable Land Management
SME	Small and Medium-sized Enterprises
TACC	Territorial Approach to Climate Change
UNCCD	United Nations Convention to Combat Desertification
UNCDF	United Nations Capital Development Fund
UNEP	United Nations Environment Programme
UNFCCC	UN Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
WCS	Wildlife Conservation Society
WFP	World Food Programme

Acknowledgements

Adriana Dinu
Ajiniyaz Reimov
Alex Forbes
Alexandra Soezer
Ana Maria Currea
Andrew Bovarnick
Andrew Hudson
Anna Bexell
Anne Juepner
Bahareh Seyedi
Bogachan Benli
Cândida Salgado Silva
Cathy Maize
Charles McNeill
Chris Briggs
Daniel Buckley
Denise Martinez
Elson Decolongon
George Bouma
Girma Bekele
Gordon Johnson
Helen Negret
Holly Mergler
Jennifer Stephens
Jessie Mee
Joakim Harlin
Joseph Appiah-Gyapong
Joseph Corcoran
Julian Fox
Leif Pedersen
Leonie Arguello
Loise Nganga
Lucy Wanjiru
Marcel Alers
Margarita Arguelles
Margarita Bernardo
Maria Fernanda Sanchez
Marielza Oliveira
Marjolaine Coté
Martin Krause
Monica Gaba
Nancy Bennet
Nicki Mokhtari
Nik Sekhran
Parviz Fartash
Paul Steele
Paula Pelaez
Razi Latif
Richard Hillard
Robert Kelly
Ruth Mwathi
Ryan Laddey
Sameer Karki
Sarah Anyoti
Shireen Samarasuriya
Stephen Gitonga
Stephen Gold
Suely Carvalho
Terence Hay-Edie
Tim Scott
Walter Lacayo

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United Nations Development Programme
Environment and Energy Group
Bureau for Development Policy
One United Nations Plaza
New York, NY, 10017 USA
Tel: +1 212 906 5081

For more information: www.undp.org/

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