

ACTION TODAY FOR TOMORROW'S CLIMATE





UNDP Uzbekistan's Climate Change Portfolio United Nations Development Programme (UNDP) is the UN's global development network, advocating for change and connecting countries to knowledge, experience and resources to help people build a better life. We are on the ground in 166 countries, working with them on their own solutions to global and national development challenges. As they develop local capacity, they draw on the people of UNDP and our wide range of partners.

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Abbreviations

UNFCCC	United Nations Framework Convention on Climate Chang
WBGU	German Advisory Council on Global Change
GHG	greenhouse gas
CDM	Clean Development Mechanism
PVHS	photovoltaic home systems
DNA	Designated National Authority
ERPAs	Emission Reduction Purchase Agreements
MoU	Memoranda of Understanding
CERs	Certified Emission Reductions
MDGs	Millennium Development Goals
FDI	Foreign Direct Investment
GEF	Global Environment Facility
SGP	Small Grants Programme

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Foreword

Dear reader,

It is a pleasure to present to your attention an overview of UNDP initiatives for tomorrow's climate in Uzbekistan. The future of climate change will depend not only on reducing the level of greenhouse gases emissions but also on the use of right (better low-emission) technologies that can help people live well, preserve the nature for future generations, and achieve global environment benefits.

Since 1993 UNDP Uzbekistan has been pioneering climate change initiatives through innovative solutions that are affordable, reliable and generate clean energy. Today UNDP works to conserve globally significant biodiversity, efficiently manage land and water ecosystems, improve energy efficiency in heat and water supply systems and buildings, and promote use of renewable energy.

In this brochure we showcase to you projects that have been successfully implemented to date and give an understanding that collectively with national and international partners, private sector, communities we are making a real difference. I hope that this publication will provide you with useful information leaving you with a feeling that there is still much to be done. We must act today for to-morrow's climate.

Anita Nirody, UNDP Resident Representative in Uzbekistan



If warming is not kept below two degrees centigrade, which will require the strongest mitigation efforts, and currently looks very unlikely to be achieved, the substantial global impacts will occur, such as species extinctions, and millions of people at risk from drought, hunger, flooding."

Source: Report on Assessment of the progress of climate change, IPCC, 2007, http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf

What is Climate Change?

Climate change refers to the changes in the Earth's weather or weather-related events, which take place over an extended period of time as a result of natural causes. However, today when we discuss climate change, we are referring to the changes in the Earth's climate that have resulted, at least in part, from human activity since the early 20th century, which have altered the composition of the atmosphere and thus affected the natural climate. The 'greenhouse effect' relates to the trapped gases in the atmosphere that keep our planet warm. Again, this is a natural occurrence, but is intensified by human activity where additional gases are released into the atmosphere. It is these extra greenhouse gases (GHG) that pose the biggest threat.

The majority of climate scientists agree that should the average global temperature increase by more than 2°C (36°F), we risk catastrophic climate change. To prevent this, the concentration of GHGs in the atmosphere must be stabilised and to achieve this GHG emissions must be reduced by 50% from 1990 levels by 2050. As our current annual GHG emissions are approximately 29 Gt CO₂ equivalent, to even hope to keep the temperature below the 2°C level we must reduce these emissions to 14.5 Gt CO₂ annually¹. This will require radical changes in the way we both produce and consume energy, and the introduction of mitigation technologies that are commercially viable and will immediately impact GHG emissions. Renewable energy and energy efficiency technologies also need to be introduced, along with policies to avoid deforestation which, due to the decrease in the number of carbon sinks, results in 25–30% of the GHG being released into the atmosphere every year.

The climatic changes that affect our planet will obviously also affect the planet's inhabitants—us. Changes in the availability of and access to natural resources will create human security risks. The current economic, political and humanitarian situation in many unstable and undeveloped areas will be exacerbated. It is estimated that the risks of large-scale droughts resulting in water and food shortages will increase as the temperature of our planet increases², with the competition for these resources potentially resulting in conflict. Climate-induced changes such as harvest failure, sea-level rise, salinisation of agricultural areas, limited access to water, food and energy resources, widespread drought, combined with population growth and migratory trends and the limited capacity of governments to solve these problems, is a recipe for international political, humanitarian and social crisis.

1. Human Development Report 2007/2008: Fighting climate change: Human solidarity in a divided world, UNDP, New York.

2. UK Met Office Hadley Centre, "Improved Surface Temperature Prediction for the Coming Decade from a Global Climate Model", in Science, 10 Aug 2007.

Projected Impacts of Climate Change

Global temperature change (relative to pre-industrial)



Source: Stern (2006)

The German Advisory Council on Global Change (WBGU) forecasts that these climate-induced security risks will start to become evident from around 2025–2040³, which highlights the urgent need to introduce mitigation and adaptation strategies.

3. German Advisory Council on Global Change (WBGU), Climate Change as a Security Risk, Earthscan, UK, 2008.

Unless we, as a global family, really focus on taking radical measures to change the way we live our lives, both at home and in the workplace, we will face disastrous climatic changes within our lifetime, which will severely impact our planet and our lives. Every individual has a role to play and UNDP, along with other international organisations, is involved in assisting governments across the globe to address the issue of climate change, providing the expertise required to introduce mitigation and adaptation programmes specifically designed to reduce GHG emissions and improve energy efficiency, in conjunction with its programmes addressing poverty and developmental issues.

Climate Change Hotspots Source: Adapted from WBGU 2008



Conflict constellations in selected hotspots

- Climate-induced degradation of fresh water resources
- Solution Climate-induced increase in storm and food disasters
- Climate-induced decline in food production
- Environment
 - Environmentally—induced migration
- Hotspot
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THE UN AND UNDP





The UN and UNDP

In December 2009, 119 world leaders attended the United Nations Climate Change Conference in Copenhagen, the largest gathering of heads of state and government in the history of the UN. The Conference concluded with an agreement by participating countries to significantly reduce emissions in order to cap the global temperature rise. Countries also agreed to raise finance to assist developing countries in their efforts to address the climate change issue. World leaders agreed upon the Copenhagen Accord, which recognises the scientific view that an increase in global temperature below 2°C is required to stave off the worst effects of climate change⁴.

4. UNFCCC press release—Copenhagen, 19 December 2009.

The United Nations and its partners are fundamentally involved in assisting countries in their efforts to face the global climate change challenge. The UN is engaged in a wide variety of activities throughout the world designed to help countries adapt to the negative consequences of climate change. These activities focus on the four building blocks for strengthening the global response to climate change, established in the 2007 Bali Action Plan, namely: adaptation, mitigation, technology transfer and financial resources. A database of the UN system's global activities on climate change can be found at http://www.un.org/climatechange/projectsearch/.

UNDP is one of the lead organisations in the fight against poverty and across the globe those hardest hit by climate change will be the poor. Fighting poverty and combating climate change therefore go hand-in-hand.

UNDP is present in 166 countries, assisting each to build a low-carbon, sustainable developmental path, by providing them with access to carbon finance and the capacity development required to make maximum use of the money received.

Through each of its country offices, UNDP works together with national governments to ensure that the programmes it implements strengthen the capacities of national and local governments, non-governmental organisations and community groups, enabling them to face the multi-sectoral challenges of development and also address climate change-related issues.



WHY UNDP?

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The results of the 2009 UNDP Partnership Survey showed that UNDP Uzbekistan's reliability; knowledge and information network; presence on the ground; and ability to assist Uzbekistan in its resource mobilisation efforts, have made UNDP a valuable partner in the country."

Why UNDP?

UNDP Uzbekistan works closely with partners from government ministries, to universities, to research institutions. The country office is well know with for its ability to successfully work with the civil society, local communities and vulnerable groups, and its capacity to implement projects in the country.

UNDP Uzbekistan has also formed solid partnerships with the private sector, specifically in the area of CDM (Clean Development Mechanism). Companies such as the Mitsubishi Corporation (Japan), Macquarie Bank Ltd (Australia) and Climate Change Capital Ltd (UK), have provided both financial and technical assistance, working with UNDP to provide the training and expert knowledge necessary to build Uzbekistan's institutional capacity for managing CDM projects.

In addition local partnerships were forged with the company ENCOM and the Milk-Agro dairy farm, both of which were involved in design and construction work, for projects on solar heating and biogas respectively.

The results of the 2009 UNDP Partnership Survey showed that UNDP Uzbekistan's reliability; knowledge and information network; presence on the ground; and ability to assist Uzbekistan in its resource mobilisation efforts, have made UNDP a valuable partner in the country. UNDP provides integrated solutions to the developmental needs of Uzbekistan by bringing together partners, funding and knowledge. The Government of Uzbekistan and other development stakeholders therefore have a high level of confidence in UNDP Uzbekistan and view UNDP as a crucial partner in programme develipment and implementation, as well as in the provision of strategic policy advice.



As the UN's leading development organisation, UNDP must be deeply involved in issues related to climate change. With scientific evidence now revealing that the impacts of climate change are likely to be more severe and experienced earlier than was previously anticipated, the vulnerable and poor are already feeling the effects. Without urgent and decisive responses, climate change could reverse development gains, and undermine our efforts to achieve the Millennium Development Goals."

Helen Clark, UNDP Administrator.

UNDP'S SUPPORT TO MITIGATION OF CLIMATE CHANGE IN UZBEKISTAN





An increase in the mean annual air temperature of less than 1°C during the last century alone, was enough to reduce the mountain glaciers in Central Asia by more than one third."

Source: Second National Communication of the Republic of Uzbekistan under the United Nations Framework Convention on Climate Change, http://unfccc.int/essential_background/library/items/3599.hp?rec=j&priref=6568#beg

UNDP Uzbekistan

Uzbekistan is a dry, land-locked country, dependent on the glaciers of the mountainous region of Central Asia, not only as its only source of clean fresh water, but also as its long-term reserve.

Glacial ice-melt is one of the most visible and persuasive indicators of climate change. An increase in the mean annual air temperature of less than 1°C during the last century alone, was enough to reduce the mountain glaciers in Central Asia by more than one third⁵.

As the glacial ice continues to melt, the rivers in Uzbekistan will experience a short-term increase in level, but this will quickly be followed by a long-term decrease as the melt-water flowing into the rivers and streams lessens. This is a single example of how global climate change will affect Uzbekistan and why adaptation and mitigation action is necessary.

UNDP's country office in Uzbekistan has been assisting the Government to address the problems related to climate change. Several climate change-related projects have been successfully implemented to date, notably in the areas of biogas technology; clean energy; solar heating; energy efficiency and renewable energy.

Assistance in the Development of Biogas Technologies in Uzbekistan

Farming and livestock are the main sources of livelihood for majority of rural households in Uzbekistan. The livestock sector produces significant amount of residue and waste, including manure. International livestock experience shows, that such wastes could well be utilized by the farmers.

In 2006, UNDP undertook a feasibility study, which assessed the technical potential of biogas production in Uzbekistan at 8.9 billion m³, with the heating value corresponding to 6.5 billion m³ of that produced by natural gas (7.5 million tons of standard fuel). Additionally, the study established that the potential for the production of organic fertiliser amounted to more than 10 million tons. Based on these findings, UNDP implemented a pilot project using biogas technology on a 600-head dairy farm in the Tashkent region.

The project demonstrated that by using biogas technology the income-generation potential of the farm could be increased through the sale of fertiliser and the increased productivity of the farm's

5. This is a single example of how global climate change will affect Uzbekistan and why adaptation and mitigation action is necessary. Source: Second National Communication of the Republic of Uzbekistan under the United Nations Framework Convention on Climate Change, http://unfccc.int/essential background/library/items/3599.hp?rec =i&priref=6568#beg



greenhouses. It also showed that using biogas technology could provide sufficient energy to fulfil the requirements of the farm, as well as provide energy for several houses in the local community. Thus, additional savings were also achieved as less natural gas was used.

The publicity surrounding the success of this project raised public awareness regarding the potential of biogas technology to such an extent that numerous requests were received for more information from local farmers, businessmen and state authorities. To address this demand, a biogas technology training centre was established under the auspices of the Technology Transfer Agency.

The project demonstrated that use of biogas technology helps address several interlinked concerns, notably environmental, energy, social and economic. With apparent economic benefits, the use of biogas technology serves as a source of electric and thermal energy and bio-fertilizers, while preventing methane emissions from livestock waste. It also helps to eliminate harmful bacteria from livestock waste, thereby reducing the risk of infections, both among animals and humans. It has since been replicated on farms in Djizakh, Andijan and Kashkadarya provinces and continues to generate the interest of rural communities and stakeholders alike.

The introduction of biogas technology provides new opportunities for attracting international and national investments under the Kyoto Protocol's Clean Development Mechanism (CDM). The Government of Uzbekistan has therefore made the countrywide development of biogas technology a priority.

Clean Energy for Rural Communities in Karakalpakstan

In 2003, UNDP began a project to demonstrate that by developing a clean energy infrastructure through the use of solar energy in remote villages, improvements could be made to both the living conditions of the inhabitants and in reducing GHG emissions.

Ravshan Yuldashev, Director of Milk Agro dairy farm (Zangiota district, Tashkent region)

"While using biogas technology, annually we can produce more than 10 million tons of organic fertilizers. These fertilizers are full of natural elements which improve the structure of soil and saturate it with nitrogen. Nitrogen is such an important key nutrient for plants; it improves crop productivity and we don't have to enrich soil with minerals.



Prior to 2003 the remote village of Qostruba had no electricity. Villagers used kerosene lamps for lighting and often used diesel fuel to power the lamps due to the shortage of kerosene. Both these fuels produce toxic fumes, causing air pollution and health problems. Qostruba was therefore identified as a demonstration village for solar energy and 15 photovoltaic home systems (PVHS) and an underground water pump were installed in the village, plus an additional 9 PVHS underground water pumps were installed in Karauzyak district. As a result, in the evenings local women began producing handicrafts for local markets; information and learning opportunities became available as villagers were able to listen to radio and watch television; and children were able to use the evening light to read, do homework, and thus improve their education.

Following the success of the first demonstration project, the Karakalpakstan Government requested UNDP to begin a second project to install further PVHS to provide electricity for the remaining households in the village and the local school. This was implemented in 2005.

The success of this project was publicised at several seminars, where the benefits of renewable energy were explained and training was provided on how to establish PVHS in rural communities. A documentary on the project was also broadcast on Karakalpak TV. Following these public awareness campaigns, numerous requests were received from government bodies, businesses and individuals regarding how to operationalise renewable energy in various areas. UNDP integrated lessons from this project into its subsequent interventions and is working on expanding its engagement in the area of renewable, to the policy level.

Technology Transfer for Local Production of Solar Heating Panels

From 2000–2005 UNDP implemented several demonstration projects targeting sustainable development in Uzbekistan. Having positively assessed the availability of local materials, making solar

Parakhat Aytmuratov

Chairman of the State Committee for Nature Protection of the Republic of Karakalpakstan

Seven years on, the solar panels still bring light to the homes of people living in remote areas. This project was a first of its kind and its success laid the way for other projects being implemented in Karakalpakstan.



Shavkat Isamiddiniv, Director of ENCOM private company

The solar panels that we produce are great in terms of energy economy. The panels are charged by the energy of the sun. To this day we have provided 1500 cubic meters worth of solar panels to rural medical centres, entrepreneurs and a natural reserve. Solar panels have been installed at the natural reserve so batteries can be charged constantly to meet energy needs with environmental considerations.

panel production competitive both nationally and across Central Asia, UNDP identified several areas where the introduction of solar heating systems in district heating plants, remote housing, and larger buildings, would result in savings in natural gas usage and a reduction in CO2 equivalent emissions.

Therefore, in 2003 UNDP began the implementation of a project to develop the solar energy industrial sector in Uzbekistan. Local manufacturers were trained in Danish solar power technology, including how to produce, operate, install and maintain solar panels. Equipment was also provided to the companies. A new type of solar panel, based on locally available materials, was designed and 75 units were produced, installed and tested in the Tashkent Municipality.

A public awareness campaign was organised, publicising the project and demonstrating the energy savings of solar power. The project demonstrated the benefits of solar heating as part of a longterm strategy of renewable energy development. The Government of Uzbekistan has since requested UNDP assistance in the elaboration of a national strategy for the development of the renewable energy sector.

Demonstration of Energy Efficient and Renewable Energy Solutions in Rural Health Clinics

One of the priorities of the Uzbek Government is to establish and develop rural health clinics, as part of its national policy on primary health care. Substantial funds from both the Government and international donor organisations have been allocated for developing the rural health infrastructure. However, ensuring a reliable supply of power and heat for the regional health centres has recently emerged as a problem, specifically as some of the new medical equipment installed needs a significant amount of electricity in order to operate.



UNDP therefore became involved and, within the framework of its project "Improving Power and Heat Supply Reliability in Rural Health Clinics of Uzbekistan", carried out a technical and economic assessment to establish which energy efficiency and renewable energy systems should be installed in the regional health clinics to meet the power and heat supply requirements of the new infrastructure.

Four pilot projects were implemented in the Umarov, Baymukhamedov, Djekhanabad, and Juzim-Bog health clinics in Tashkent Province and in the Republic of Karakalpakstan. Solar photovoltaic panels, solar-powered water heaters and energy efficient hot-water boilers were installed and the clinics were provided with energy efficient electricity bulbs and better window insulation. Additionally, the staff in each of the regional health clinics was given training on how to operate and maintain the new systems. The operation of the new systems in each project site was monitored and the results were shared with the Ministry of Health and the World Bank for replication in other regions. These pilot projects demonstrated the feasibility and viability of using energy efficient and renewable energy systems in rural health clinics, warranting their use in regional health clinics throughout the country.

While this project was successfully completed in 2009, there are a number of opportunities for scaling-up that the Government of Uzbekistan is currently looking into. The findings were presented to the Government for their possible use in the future "Health-3" project with the World Bank, which is expected to build upon the proposed technical solutions of the project. The on-going UNDP/GEF project on "Promoting Energy Efficiency in Public Buildings in Uzbekistan" is using the results of this project to amend existing national building codes for schools, hospitals and rural houses.

Zulfiya Khakimova, Chief Doctor of Rural Health Clinic named after Baymukhamedov

Vaccines are delicate biological substances that can become less effective or destroyed if they are frozen, allowed to get too hot or exposed to direct sunlight or fluorescent light. The loss of vaccine effectiveness is cumulative and can't be reversed. But this is something that our rural medical centre doesn't worry about. The solar panels give reserve energy when electricity is not available. During the winter season we were able to vaccinate more than 1900 children and youth

6. Second National Communication of the Republic of Uzbekistan under the United Nations Framework Convention on Climate Change http://unfccc.int/ essential_background/ library/items/3599.php? rec=j&priref=6568#beg)

Capacity Building for Clean Development Mechanism in Uzbekistan

When Uzbekistan became a signatory of the United Nations Framework Convention on Climate Change (UNFCCC)⁶, the country showed its commitment to reducing GHG emissions. The energy sector in Uzbekistan is currently responsible for approximately 87% of the country's emissions. Promoting projects on carbon financing and development present a real opportunity for both the economy and environment.

In December 2006, the Ministry of Economy became the Designated National Authority to liaise with the Clean Development Mechanism (CDM) Executive Board and approve all CDM-related projects. A few months latter, the Ministry of Economy approached UNDP with a request to provide technical assistance to build the capacity and institutional frameworks of the private and public sector to support and facilitate the flow of carbon finance into the country.

The result was a project that worked to increase the number of CDM proposals for presentation to potential CDM investors and emission reduction purchasers, develop proposals for new regulations to encourage CDM development in Uzbekistan and raise awareness amongst stakeholders regarding carbon financing.

Since the project started over 60 projects have been approved by the Inter-Agency CDM Committee.

A manual on how to develop appropriate infrastructure and regulations for implementing CDM projects was published along with a database that monitors CDM projects. 15 Emission Reduction Purchase Agreements (ERPAs) and Memoranda of Understanding worth US\$80 million was signed between Uzbek companies and foreign carbon investors.

A Green Investment Scheme has also been established which will re-invests the proceeds from the sale of Certified Emission Reductions (CERs) into social, environmental and development projects in Uzbekistan, which contribute to the MDGs. Additionally, 10 CDM projects have been registered and a further 5 will start off once validated and registered. These CDM projects alone will account for emission reductions of 13.8 million tons of CO2 equivalent by 2012. To this day, out of 80 project initial ideas 61 have been developed and approved at the national level. The successful implementation of all these projects will result in emission reductions of 15.5 million tons of CO2 equivalent per year with an estimated income as US\$190 million per year.

Distribution of CDM projects within key categories



List of Project Idea Notes (PINs) approved by the Intergovernmental Council on CDM in Uzbekistan

Project proponents	Number of CDM projects
NHC "Uzbekneftegaz", JSC "Uztransgas"	18
Ministry of Agriculture and Water Resources of the Republic of Uzbekistan SU "Uzsuvenergo"—9 CDM projects Main Administration of Forestry—1 CDM project	10
SJSC "Uzbekenergo"	7
Khokimiyats of the cities of Nukus, Bukhara, Andijan, Feranga, Namangan	11
SJSC "Uzkimyosanoat"	6
Association of poultry farmers of Uzbekistan	2
Khokimiyat of the city of Tashkent	3
Private companies	4
Total	61

Shukhrat Ismailov, Head of Secretariat of the Designated National Authority on Clean Development Mechanism

This project was a successful pilot and laid a foundation for the future of projects in **Clean Development** Mechanisms that reduce emissions of greenhouse gases in the atmosphere. This is done with modernization, technical and technological renovation of existing production, introduction of energysaving technologies and implementing energy efficiency measures.

7. Levine, M., D. Ürge-Vorsatz, K. Blok, L. Geng, D. Harvey, S. Lang, G. Levermore, A. Mongameli Mehlwana, S. Mirasgedis, A. Novikova, J. Rilling, H. Yoshino, 2007: Residential and commercial buildings. In Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA





While the project was completed in 2010, its success highlights the importance of targeted capacity building and the effectiveness of UNDP Uzbekistan in providing programmes and expertise necessary to achieve real results. By engaging the Government and private sector, building infrastructure and identifying suitable CDM proposals, a reliable foundation has now been established for enhancing the CDM market in Uzbekistan and attracting investments. Building on the success of this project, UNDP Uzbekistan has initiated a new project with the Ministry of Economy "Supporting Uzbekistan in transition to a low-emission development path". The new project aims to support further development of CDM in Uzbekistan, as well as promote wider deployment of clean energy technologies in alignment with Uzbekistan' long-term sustainable development priorities.

Promoting Energy Efficiency in Public Buildings

As majority of public buildings in Uzbekistan were constructed many years ago, energy efficiency was often not considered. As a result, within the energy sector the building sector accounts for a significant part of energy consumption and 39%⁷ of national CO2 emissions. However, significant energy savings and CO2 equivalent emissions reductions would be possible if energy efficient technology

and design was used to renovate the old buildings and in the construction of new ones. The growing population has additionally created the pressure of lack of space, particularly in the healthcare and education sectors.

To address these issues, the Government of Uzbekistan recently commenced a large-scale public building renovation and construction programme; in 2008 spending nearly US\$450 million on buildings in the education sector alone. Rather than using outdated construction codes and practices, the programme presented the opportunity to introduce new technology instead, to reduce the energy consumption and CO2 equivalent emissions of public buildings in both the healthcare and education sectors. The Government therefore requested assistance from UNDP and, in late 2009, UNDP began implementing a project to demonstrate the effectiveness of integrated building design; recommend improvements to building codes and standards to increase energy efficiency and emission reduction and to provide the required training for local design, construction and maintenance specialists.

Within the first few months of the project a seminar was organised at which instruction on energy efficient building codes and standards was provided to a large audience of building designers, architects, engineers, construction and maintenance specialists, academia, research institutions and also the mass media. Presentations were given on international best practices demonstrating energy efficiency enhancement in buildings, and a practical implementation plan on demonstration sites and new norms for thermal insulation was designed, incorporating new approaches and practices. Six demonstration sites were chosen where the new approaches and techniques are to be applied, following which the energy performance of the buildings will be evaluated.

The project is due for completion in 2014, by which time its goals are a 25% reduction in energy consumption and associated CO² equivalent emissions; 300 architects trained in energy efficient design and technology; new energy efficient building codes and standards legislation approved; a database of technologies, materials and services in the sustainable building sector developed and disseminated to all beneficiaries; an energy information management system developed and established to collect, store and analyse data on energy consumption; and a minimum of 8 demonstration buildings retrofitted and/or newly constructed, replicating the best design and construction processes. The ultimate goal of the project is the promotion of energy efficiency in current and future state-funded construction and renovation programmes throughout Uzbekistan.

Tatyana Zimakova, ToshuyloyLITI institute, leading specialist

Exchanging ideas and learning from colleagues in Denmark was a valuable experience. The ideas that emerged after the trip are now part of the new building design codes that are being reviewed and once approved will become part of the state programme on energy efficiency. This is an important initial step to save our natural energy resources.



PARTNERSHIPS FOR CLIMATE CHANGE



Partnerships for Climate Change

Global Environment Facility—Small Grants Programme

As a signatory of the United Nations Framework Convention on Climate Change (UNFCCC), Uzbekistan is working with the GEF Small Grants Programme (GEF SGP) and UNDP Uzbekistan implements a countrywide programme of small projects aimed at introducing and promoting low-carbon energy consumption habits in rural and urban communities. The projects also focus on introducing alternative, environmentally-friendly energy production technologies; finding affordable solutions to meet energy needs.

Projects target local communities, such as providing assistance for a micro hydro-energy station in the mountainous province of Surkhandarya, where the energy from the mountain streams is harnessed and now provides power for the local mill and villagers. The GEF SGP introduces new energy solutions such as biogas, briquette-making machines (presser), solar cookers and energy efficient stoves. The use of these energy efficient technologies leads to a decrease in the consumption of wood fuel, which all rural populations depend on, and thus a decrease in logging.

The GEF SGP projects also look at changing agricultural and land management practices by introducing new methods, which are not only beneficial to the farmers, but also reduce GHG emissions. Projects in Karakalpakstan and Khorezm province are working on introducing new tillage practices, which not only save farmers time, money, fuel and water, but also increase the productivity of the soil and reduce the release of harmful GHGs, such as nitrous oxide, into the atmosphere.

Small biogas projects are under implementation in different provinces throughout the country, demonstrating how the energy requirements of rural communities can be met using this technology. This is an important area of work for the GEF SGP, as reliability in producing energy during the winter months, is still something that remains to be seen. The GEF SGP projects are therefore designed to demonstrate the energy savings and reliability of biogas to the rural communities to encourage their use, and thereby replace the conventional energy sources with biogas technology and reduce methane emissions.

UNDP's Approach to Leveraging Carbon Finance

MDG Carbon Facility

The Millennium Development Goals (MDG) Carbon Facility is an innovative partnership bringing together the private and public sector to harness vast resources of the carbon market that brings longterm sustainable development to a more diverse share of developing countries.

Established in 2007 by UNDP, the MDG Carbon Facility provides technical assistance, helping national partners develop projects that reduce greenhouse gas emissions, and ensure that these projects meet the Kyoto Protocol's agreed standards while delivering benefits to the environment and human development on the whole.

UNDP provides assistance in mobilizing resources to enhance mitigation efforts, while ensuring that the revenues generated by carbon markets are reinvested into projects on environment and others bringing social benefits to people in need.

Reduced Gas Leakage at Compressor Stations

Reducing gas leakage from the gas pipeline networks is a sound decision both in terms of economics and environment. UNDP signed an agreement with JSC "Uztransgas", Uzbekistan's natural gas transportation company, to address the problem of gas leakages from the 22 compressor stations

Ibodat Alidjanova, Uztransgaz, Department of Ecology

In gas compressor stations, there is a high risk of fire and explosion due to a combination of intense heat, pressure and vibration. This project offers reliable gas detection solutions that help maintain safety in gas compressor stations. The Green Investment Scheme is a great initiative because now we'll be able to have additional funds that we can reinvestment into projects that benefit people and the environment.

operating throughout the country's gas pipeline network. While environmental benefits are apparent, the economic benefits could further be claimed through the Clean Development Mechanism of the Kyoto Protocol, whereby reduction of leakages and associated emission reduction could be sold on the carbon market.

Therefore a project was developed to design and install a rigorous leak detection, repair and monitoring system at the compressor stations. As part of the project, a Green Investment Scheme (GIS) was established, which in essence is a fund, where part of the revenues received from the sale of emission reductions are withheld for further reinvestment into projects, which generate additional sustainable development benefits for Uzbekistan.

This project was officially registered by the CDM Executive Board in February, 2011. With an estimated emission reduction of 1.3 million tons of CO2-equivalent, this is the largest and the first registered project developed with support from the UNDP MDG Carbon Facility.

CARBON FOOTPRINT YOUR ROLE IN CLIMATE CHANGE



Carbon Footprint—Your Role in Climate Change

We each have a carbon footprint. In fact we have two. The first is the footprint created by the direct CO2 emissions we generate from burning fossil fuels in our homes and when we drive our cars or fly in a plane. The second footprint is created by the indirect emissions generated by the manufacture and breakdown of the products we use during our lives.

Thus, our carbon footprint is the amount of greenhouse gases we each produce; it is the impact of our activities on the environment and, in particular, on climate change.

We can immediately control our direct CO2 emissions by making minimal behavioural changes in our daily lives. Simple things, like turning off lights, televisions and computers when not in use; turning down the water and central heating by just a few degrees; washing clothes in cold or warm water and hanging them out to dry rather than using a tumble dryer; reducing waste by recycling paper, plastic, glass and metal, or reusing and mending items, rather then throwing them away, thus saving



Source: UNDP, "Charting a New Low-Carbon Route to Development", New York, 2009

both money and diverting waste from the local landfill. Other changes have an initial cost but then save money in the long term—installing insulation; using energy efficient bulbs; and replacing old refrigerators and boilers with new energy efficient models.

Rethinking modes of travel, habitual daily transport use and even changing your diet to eat less meat, poultry and fish and changing your purchasing habits to buy locally made products all have an affect on CO₂ emissions and thus your carbon footprint.

Many websites provide information on how to reduce one's own carbon footprint. Most also offer an online carbon footprint calculator, so one can track one's own emissions and see how successfully they have been reduced.

More information is available on the UN's Climate Change site at: http://www.un.org/wcm/content/site/climatechange/pages/gateway/take-action





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