
**STRATEGIC PROGRAMME FRAMEWORK
2006-2010**

ENERGY AND CLIMATE CHANGE



Content

1. Context.....	2
2. UNDP Mandate for Support	4
3. Energy and Climate Change Focus (2006-2010).....	5
3.1 Mission Statement:.....	5
4. Programme Areas.....	6
4.1 Access to Modern Energy Services: Encouraging the Expansion of Rural Energy Services and Development of Renewable Energy Technologies	7
4.1.1 <i>Policy Support, Capacity Development and Advocacy</i>	7
4.1.2 <i>Rural Energy for Livelihood Security</i>	7
4.1.3 <i>Mainstreaming Renewable Energy Technologies</i>	8
4.2 Rationale Use of Energy: Promoting Energy Conservation and Energy Efficiency ..	8
4.2.1 <i>Policy Support, Capacity Development and Advocacy</i>	9
4.2.2 <i>Energy Efficiency in Brick Making Industries</i>	9
4.2.3 <i>Standard and Labeling for Energy Efficient Equipment and Appliance</i>	9
4.3 Mitigating Climate Change: Identification of Mitigation Potentials and CDM Project Development.....	10
4.3.1 <i>Policy Support, Capacity Development and Advocacy</i>	10
4.3.2 <i>CDM Project Development Support</i>	10
5. Programme Management	11
5.1 Operating Strategies of Implementation	12
5.1.1 Policy Advice and Technical Support.....	12
5.1.2 Capacity Development.....	12
5.1.3 Knowledge Generation & Management	12
6. Partnerships and Cross-Cutting Strategies.....	13
6.1 Gender equality	13
6.2 Managing and expanding knowledge	14
7. Energy and Climate Change Indicators	14

Tables

Table 1: Potential Collaboration by Clusters.....	15
Table 2: Projects of Energy and Climate Change Cluster	16
Table 3: Programme Component indicators (cluster level indicators)	17
Table 4: CPAP Indicators on different Outcomes (project level indicators).....	17

1. Context

Energy plays a vital role in our society, underpinning all areas of economic activity. It is fundamental to virtually all aspects of human endeavors. The economic growth of Bangladesh is highly depended on access to affordable and reliable energy services in order to increase their productivity and enhance competitiveness. Without access to modern and sustainable energy services, poor people are deprived of opportunities for economic development and improved living standards. This is because modern energy services provide lighting, cooking, heating, refrigeration, transportation, motive power, and electronic communication that are indispensable to increasing productivity, creating enterprises, employment, and incomes. There is now growing understanding that none of the MDGs can be met without major improvement in the quality and quantity of energy services. In fact, access to energy services affects practically all aspects of sustainable development, including access to water, agricultural productivity, population levels, health care, education, job creation, gender equality and climate change impacts.

Bangladesh has made great strides over the past decade, including steady economic growth, improved macroeconomic indicators, to some extent integration with the world economy, and progress on key social indicators including reduced child mortality rate, enhance education for girls, poverty reduction and improved rural infrastructure. However, Bangladesh has fallen short of its growth potential compared to some other low-income countries, in part because of the lagging state of infrastructure development which is out striding the needs with each year, especially in the power sector. Persistent power sector problems include extremely low coverage, frequent supply disruptions, which effect industrial growth and

continued fiscal drains due to the loss-making operations of power utilities (0.3% of total GDP in FY03).

The hydrocarbon sector is not without problems either, including lack of comprehensive information on hydrocarbon reserves, high non-technical losses, price caps depressing the level of private sector investment in exploration, and excessive subsidies to some consuming sectors (e.g., residential usage and CNG for transport). It may be noted that the accumulated deficit of state owned Bangladesh Petroleum Corporation (BPC) is around US\$ 1.7 billion until 2006 for selling the petroleum products at prices lower than import costs. Rising demand of petroleum products will accentuate country's vulnerability to supply disruptions and price shocks. High and volatile oil prices are especially damaging through their link to loss of real income and adverse impact of budget deficit, balance of payments, gross domestic product and per capita incomes. A study indicates that a sustained price increase of US\$ 10 per barrel would deliver an economic shock equivalent to a 1.47 percent of GDP for the poorest countries. Strengthening national security is essential to alleviate some of the macroeconomic concerns of developing countries by diversifying supply and rationalizing energy use.

In spite of severe demand-supply gap in energy sector, many factors - energy subsidies that distort the perceived value of energy, prices that do not reflect marginal costs, institutional arrangements preventing the end-user from being exposed to energy costs, use of traditional processes that are inefficient compared to modern technology, and outdated or obsolete infrastructure - contribute to excess and unnecessary energy consumption. In Bangladesh there is tremendous scope to rationalize present patterns and levels of end-use consumption

through straightforward improvements, such as metering all forms of end-use consumption, elimination or better targeting of energy price subsidies, reducing avoidable leakage and unnecessary losses, use of energy efficient lighting and other appliances, and pricing consumption at its economic cost, including time-of-day and area variations. Beyond these basic reforms there is additional scope for technical improvements in the efficiency of end-use consumption. In fact, improvement of effectiveness of energy use has three-fold impact of improving energy security, reducing costs and decreasing environmental impacts.

Still a majority of the population in Bangladesh relies on biomass energy sources, such as fuel wood, dung or crop residue, to meet their cooking and heating needs. Of the total energy consumption in Bangladesh, biomass fuels account for 54 percent and balance come commercial fuels, namely natural gas, oil, electricity and coal. Use of biomass is not itself a cause for concern. But when resources are harvested unsustainably and energy conservation technologies are inefficient, there are serious adverse consequences for health, environment and economic development. Again, energy needs of women are quite different from those of men. Men use energy predominantly for agriculture, transportation and industries, while women need energy inputs for their household chores such as cooking and heating for post-harvest processing and small and micro-enterprises. Women are disproportionately burdened by lack of access to modern energy fuels and electricity. Women and young girls spend many hours each day collecting biomass fuels and manually processing staple foods before they can be cooked. Furthermore, indoor air pollution from inefficient biomass burning causes respiratory diseases to women and child and ultimately causes premature death.

In January 2000, the government published its Vision Statement on Power that envisages complete electrification of all villages, about 87,000, by the year 2020 in an effort to use energy provision as a tool for poverty alleviation. However, about 65 percent of the urban areas and only 22 percent of the rural areas had access to electricity. It is well understood that most of the poor both in urban and rural areas, although living in areas that are declared electrification by definition have no/limited access to electricity and modern energy services. Still imported kerosene is the major source for the poor people to meet their lighting requirement. Although World Bank supported IDCOL programme has successfully installed more than 100,000 solar home systems, the total generation of renewable energy in Bangladesh is below 5 MW including Bangladesh Power Development Board's 1.8 MW windmills. Lack of access to reliable and affordable energy services is hindering country's opportunities to achieving economic growth and poverty reduction.

Poor energy planning and intervention has serious adverse impact on climate change. There is now strong scientific evidence that climate change is happening and that is being accelerated by human activity. The bulk of greenhouse gases emissions caused by human activity come from the energy sector, primarily as a result of burning fossil fuels (coal, oil, and natural gas) to provide electrical power, heat, transportation, and energy for industrial production processes. Being one of the most vulnerable countries of climate change impact, the attention on climate change issues in Bangladesh is mainly limited to Vulnerability and Adaptation. The Government has set up a Climate Change Cell at Department of Environment with the assistance of UNDP and DFID through the Comprehensive Disaster Management Programme. The major focus of the Climate Change Cell is

till now on disaster risk management related climate change adaptation.

Climate change mitigation is not considered as priority with the assumption that as a developing and low energy intensity country, Bangladesh has nothing/very little to contribute in climate change mitigation. Although emissions from Bangladesh are very low in per-capita terms (0.3 metric tons), the CO₂ emission growth rate is high and it is 55.6% between 1990 and 2003. Under the Kyoto Protocol several new market-based instruments have emerged that are designed to deliver cost effective greenhouse gases emissions reductions. One of these new instruments, the Clean Development Mechanism (CDM), offers the opportunity to increase the flow of technology and finance to the environment and energy area and assist in promoting sustainable development. However, till now Bangladesh has registered only 2 projects with UNDP support for CDM financing.

It can be concluded that the current energy trend in Bangladesh is not sustainable: economically, socially and environmentally. Moving to more sustainable energy systems, based on more efficient and clean fossil-fuel technologies and renewable energy options, is an absolute necessity for long-term human survival and economic development.

2. UNDP Mandate for Support

UNDP is a world of development experience that is on the ground in 166 countries, working with them on their own solutions to global and national development challenges. It advocates for change and connecting countries to knowledge, experience and resources to help people build a better life. UNDP helps developing countries attract and use aid effectively and also develops local capacity.

UNDP works with multiple stakeholders from the public and private sectors, technical experts, civil society and grassroots people. The multi-dimensional development perspective, cross-sectoral working ability and inclusiveness in constituency building are UNDP's greatest strengths as a partner and define its development niche in the country. It enjoys a position of significant trust amongst the Government and Civil Society.

UNDP's neutrality and trusted relationship with the Government enable donor coordination and resource mobilization in critical but sensitive areas. The interventions of UNDP will place emphasis in infusing an MDG perspective in support of PRS monitoring and reporting processes, and in promoting greater public participation and awareness in the PRS performance.

Due to the importance of energy in promoting sustainable development, and increasing concerns about the threats climate change, UNDP's sustainable energy and climate change portfolio has been growing rapidly. UNDP sustainable energy activities have increased significantly over the past fifteen years, supporting initiatives in developing countries around the world. UNDP supports energy activities to reduce poverty and achieve sustainable development objectives at the local, national and global levels. Its work is focused on strengthening national policy frameworks to support energy for poverty reduction; promoting energy services to support growth and equity with specific focus on the situation of women; promoting clean energy technologies to mitigate climate change; and increasing access to investment financing for sustainable energy, including through the Clean Development Mechanism. In addition, UNDP conducts advocacy and

analysis on energy trends and its linkages with development and promote south-south and north-south knowledge exchanges to maintain UNDP's cutting edge presence on sustainable energy and development issues and expand energy and development dialogue in the international community.

With evidence of global warming mounting and effects of climate change being felt globally already, UNDP has taken climate change mitigation to heart and is dedicating its Human Development Report of 2007 to Climate Change. UNDP will have an important role to play in mitigating the impact of climate change and it will be an essential element of the Strategic Plan for 2008-2011. In keeping with this mandate, UNDP Bangladesh has recently realigned its programming areas to create the Energy & Climate Change cluster in order to focus on this major area of intervention. The value added of UNDP's involvement in Energy and Climate Change is from its ability to bring to bear a vast repertoire of the worldwide knowledge and practical experience related to the sector in Bangladesh.

3. Energy and Climate Change Focus (2006-2010)

3.1 Mission Statement:

The strategic framework on Energy and Climate Change will contribute the development results based on the national development priorities in the sector. Support to Bangladesh from UNDP's Energy and Climate Change programme will follow the UNDP Country Programme Action Plan (CPAP) 2006-2010 outcome 2.1: Sustainable Environment and Energy Development, United Nations Development Framework (UNDAF) 2006-2010 outcome 2: Survival and development rights of vulnerable groups are ensured within an environmentally sustainable frame-work.

It will be also in line with the proposed UNDP Strategic Plan for 2008-2011. UNDP's strategy will focus on strengthening national policy frameworks for energy sector development, mainstreaming energy needs of the poor in the national development plans, supporting government to align their budgets and development assistance to the energy needs of the poor, capacity development at national, sub-national and local levels for sustainable energy and climate change mitigation, promoting clean energy technologies, mobilizing financing to transition to cleaner energy systems including Clean Development Mechanism (CDM).

UNDP will support the Bangladesh Government to integrate energy within national development strategies to address the combined energy needs for productive and consumptive uses through cost-effective energy service delivery mechanisms. This will be done through prioritizing programmes and coordination across ministries like finance & planning, power & energy, local government & rural developments, agriculture, health, education and communication.

UNDP will create a platform for an advocacy and awareness raising campaign aimed at future development and expansion of pro-poor sustainable energy options, technologies, practices and climate change mitigation measures in Bangladesh. The UNDP will seek policy dialogues with relevant government, civil society, academia, private sector, professional bodies, NGOs and development partners. As knowledge based organization, UNDP will promote knowledge product development for sustainable energy and climate change mitigation through effectively consolidate the learning from country and best practices across the region. It will support the government in policy formulation, development of strategic action plans and

policy implementation in line with the MDGs and PRS. This will include MDG-based diagnostics and investment planning for energy and as well as government target to achieve electricity for all by 2020.

UNDP will support capacity development in three levels: national, sub-national and community levels in order to develop and rapidly scale up energy services and climate change mitigation measures through energy and climate change related education, training and action research. UNDP's intervention will enhance both human and institutional capacities of the relevant government organizations, regulators, policy makers, financing institutions, engineers, technicians, community outreach workers, and people with local business skills/entrepreneurs to support the delivery of services.

UNDP will help demonstrate renewable/clean energy and energy efficient projects and energy conservation measures for the poor and low-income communities and also for the industrial and commercial sectors of Bangladesh through greater market orientation. In order to reduce dependence on external funding, UNDP will work aims at developing a linkage between the financial institutions and energy clients through building a service delivery mechanism in this sector with information dissemination and capacity building. UNDP will help government and private sector to adopt a flexible approach, which will help the end-users to select from a wide range of technologies as well as a wide range of institutional structure for the delivery of energy services.

UNDP will play major catalyst role to mainstreaming gender in energy and poverty concerns. Issues related to women's drudgery would be addressed through provision of energy efficient stove for cooking and other forms of modern energy for productivity of women-owned

small-scale enterprises and agricultural farms. UNDP will facilitate women's participation at all points of the project, policy and development planning process both as energy providers and energy users. UNDP's interventions will contribute to enhancing equitable access to appropriate, reliable and affordable sustainable energy services in order to reduce human and income poverty and mitigating climate change. These supports are expected to raise the income of the targeted rural communities, diversify their livelihood options and significantly improve their quality of life.

4. Programme Areas

The programme framework of UNDP Energy and Climate Change is designed to move forwards the efforts of the Government of Bangladesh and the private sectors towards a more sustainable energy and low carbon economy path, which provides expansion of energy services to the poor, rationale use of scared energy resources and mitigation of climate change. Energy and Climate Change interventions can be instrumentals in:

- ✓ Encouraging the expansion of rural energy services and development of renewable energy technologies;
- ✓ Promoting energy efficiency on 88both supply and demand sides; and
- ✓ Identifying climate change mitigation potentials and assisting in developing opportunities available under the Clean Development Mechanism (CDM).

4.1 Access to Modern Energy Services: Encouraging the Expansion of Rural Energy Services and Development of Renewable Energy Technologies

Outcome:

Human and income poverty reduced through expansion of clean modern energy services in rural areas.

UNDP will continue its support to the Government of Bangladesh, in particular the Ministry of Power, Energy and Mineral Resources on strengthening national policy framework which will increase the access to modern energy services by expansion of rural energy services and development of renewable and clean energy technologies. UNDP has already demonstrated that energy initiatives offer an important mechanism for expanding access to energy services that aim to improve human development, economic growth and achieve the MDGs. UNDP will further test different innovative local-level community energy initiatives and upscale and replicate the tested model with greater market transformation. There are three key areas which will contribute the access to modern energy services.

- Policy support, capacity development and advocacy
- Rural energy for livelihood security
- Mainstreaming renewable energy technologies

4.1.1 Policy Support, Capacity Development and Advocacy

UNDP has been supporting the Government of Bangladesh in harmonizing the National Energy Policy and developing the Strategic Action Plan to implement the sub-sector policies in close collaboration with GTZ. UNDP will keep on support on finalizing the National Energy Policy and Strategic Action Plans. UNDP will address the energy issues in

ways that support growth and equity for poverty reduction, sustainable development and attaining the MDGs. It will underscore promotion of sustainable energy, rural energy for livelihood security, and commercial production of renewable energy amongst other issues in the energy sector. UNDP's intervention will influence GoB to mobilize more resources to expansion of energy services for attaining MDGs.

UNDP will support to build the national capacities through advocacy & awareness campaign, policy dialogues, media campaign, targeted messages, publications and other events like workshops, knowledge fairs, etc. UNDP will facilitate creation of a Bangladesh Sustainable Energy Knowledge Network involving all Bangladeshi professionals and experts working in Bangladesh and abroad as well as international and region professionals and experts working in the energy sector in Bangladesh. It will also support the sub-national level and local level capacity development. UNDP's technical assistance will help Bangladesh Government in developing a national knowledge and data bank and MIS for sectoral coordination and promotion of sustainable energy.

4.1.2. Rural Energy for Livelihood Security

Motive power – energy services that can be used for agricultural, manufacturing, transport and other livelihood activities – is a particularly important service to the rural poor. It helps free up women's time and enables local income generation through enhanced agricultural productivity and the formation of micro-enterprises. UNDP's technical assistance will help in expansion of the modern rural energy services in supporting the value-added activities of the poor. This will include promotion of rural growth centers and individual/community based productive uses of renewable/clean energy

technologies and integrating energy with small and medium enterprise development. The energy interventions will have a judicious mix of grant and contribution/credit to support the poor people's energy need. UNDP will follow a programmatic approach to expand the energy for rural livelihood security that is easy to replicate, demonstrates economic and technical viability of energy generation systems, based on locally available renewable and/or clean energy sources, identifies income generation activities, creates sustainable local enterprises that can deliver energy services and builds on linking energy services with productive use activities.

4.1.3 Mainstreaming Renewable Energy Technologies

Renewable energy is not yet mainstreamed with national development agenda and the interventions are mainly limited to the lower end SPV technology. Although generation from these initiatives do not even measure up to 0.1% of total country generation in Bangladesh, these initiatives brought about a reasonable level of understanding of renewable energy technologies. Bangladesh needs to move forward towards the large-scale generation from the renewable energy sources to fulfill its target mentioned in draft National Energy Policy to replace at least 5% of the fossil fuel based electricity generation.

UNDP will explore the funding from Global Environment Facility to accelerate sustainable wind power generation in Bangladesh by leveraging private sector investment for the installation of 15 MW of grid-connected wind machines. It will assist in formulation of an institutional model for wind power development to introduce competition in the development of wind-based power facilities. This will be done by supporting the development of a proper tariff structure and financing

schemes to promote wind power development and undertaking capacity building and other technical assistance activities that would lay the foundation for a strong market infrastructure for wind project development. The intervention in turn is expected to generate global benefits of 19,200 t CO₂/yr in avoided greenhouse gas emissions, by displacing fossil fuel-based (initially gas, followed by coal -- it is the Government's intention to move from the present gas-based electricity generation to coal-based, with gas earmarked for high-value use in industry, transport, fertiliser production, etc.) electricity generation.

UNDP will contribute in transferring knowledge and technology to develop an efficient, sustainable and pro-poor biofuels industry in Bangladesh. UNDP will play the catalyst role by demonstrating the economic, social and environmental opportunities of biofuels in limited areas.

4.2 Rationale Use of Energy: Promoting Energy Conservation and Energy Efficiency

Outcome

Energy conservation and energy efficiency integrated with energy planning process and increased market penetration of energy-efficient technologies, practices, products and materials.

The cheapest, cleanest and safest way of addressing the increasing demand of energy is to use less energy or use in an efficient way. However, modern energy conservation and efficiency initiatives for effective demand management are still low priority in Bangladesh. Energy conservation and efficiency can boost Bangladesh economy by reduced energy imports, improved balance of trade, conservation of foreign exchange, improved use of national resources, reduced capital requirements for new

energy production facilities, and reduced environmental pollution from energy use and production.

UNDP will support in three key areas of energy conservation and energy efficiency in Bangladesh. These are:

- Policy support, capacity development and advocacy
- Energy efficiency in brick making industries
- Standard and labeling for energy efficient equipment and appliances

4.2.1 Policy Support, Capacity Development and Advocacy

UNDP assistance will focus on energy conservation and energy efficient options through both conventional and renewable energy. It will help in building national capacities through advocacy & awareness, policy dialogues, media campaign, seminar, workshop which will lead people's broad based understanding and knowledge on options for energy saving, reduction in energy wastage and more efficient utilization of the energy. UNDP will help in promoting energy auditing in industries to identify potential of energy savings and related economic viability to take corrective measures.

Dhaka is the one of the rapidly growing cities in the world. Reckless and unrestricted urbanization, with its haphazard buildings, has a serious critical impact on eco-friendly habitat development. With the economic development and improvement of the living conditions, the needs for the energy services are growing fast. Energy efficient building can reduce significantly the energy needs. UNDP will promote widespread adoption of energy-efficient design, technologies and low-GHG emitting materials and practices in the building sector by developing new national building codes. UNDP will help the

government and private sector to adopt energy efficiency in buildings through a multi-pronged approach involving adoption of bioclimatic architectural principles responsive to the climate of particular location, use of materials with low embodied energy, reduction of transportation energy, incorporation of efficient structural design, implementation of energy-efficient building systems and effective utilization of renewable energy sources to power the building.

4.2.2 Energy Efficiency in Brick Making Industries

The brick making industries is the fastest growing infrastructure in Bangladesh. Total brick production in Bangladesh is estimated to be over 8.66 billion bricks annually and there are more than 4,000 kilns operating in Bangladesh. Most of the brick making industries are using outmoded, inefficient and poorly constructed kilns, which consume high imported coal. It is also one of the largest sources of air pollution in urban and peri-urban areas. UNDP will support the brick making industries to transform into energy efficient clean brick making industries under GEF Operational Programme 5 from mid 2007 to mid 2012 through 'Improving Kiln Efficiency in the Brick Making Industries' project. The interventions will create an enabling environment for the removal of barriers that have so far inhibited adoption of cleaner and more efficient kiln technologies and molding techniques by brick makers in Bangladesh.

4.2.3 Standard and Labeling for Energy Efficient Equipment and Appliance

Bangladesh is far lagged in development and implementation of energy standard and labeling programs. UNDP will also join with the UNDP-GEF Regional Initiative 'Barrier Removal to the Cost-Effective Development and Implementation of Energy Efficiency

Standards and Labeling Project' from end 2007. UNDP will work with the Bangladesh Standard and Testing Institute (BSTI) on selected home appliances and equipment. This will provide the opportunity to BSTI to work together with other countries like China, Indonesia, Malaysia, Thailand and Vietnam on training, technical analysis, compilation of reports on lesson learned, development of model standards and procedures. Bangladesh will use these regional outputs to develop and implement their own standards and labels, address the policy/regulatory barriers and establish a legal basis for standards and labels. It will provide technical assistance the manufacturers and suppliers in promoting market for energy efficient products and to locally produce such products.

4.3 Mitigating Climate Change: Identification of Mitigation Potentials and CDM Project Development

Scope

Climate change mitigation is integrated with energy and other development sector planning and more ODA funding under the Clean Development Mechanism (CDM).

Climate change mitigation in Bangladesh is not yet received due attention and both the government and private sectors have limited knowledge and expertise to identify the possible mitigation measures and to replace the carbon intensive technologies with modern efficient low carbon technologies. Very limited analytical works have been carried out on present and future GHG emissions from different sectors and practical measures to mitigate the GHG emissions. UNDP strategy will be to help Bangladesh in climate change mitigation to shift the current carbon-intensive paths towards less carbon intensive paths through successful

development and transformation of markets. UNDP will intervene in two major areas related to climate change mitigation. These are:

- Policy support, capacity development and advocacy
- CDM project development support

4.3.1 Policy Support, Capacity Development and Advocacy

UNDP Bangladesh will initially focus in identifying the key sectors and initiatives which have significant GHG reduction potential in a cost-effective way for a given carbon price based on social and environmental cost pricing and discount rates, including energy savings. It will support different national level knowledge activities on climate change mitigation related to energy supply, transportation, buildings, industry, agriculture, forestry and waste. It will also review different mechanisms like government support through financial contributions, tax credits, standard setting, market creation etc. in other countries in order to create incentives for producers and consumers to significantly invest in lower carbon products, technologies and processes. UNDP will support different national and sub-national levels seminars and workshops to create awareness on climate change mitigation. UNDP will work with the other development partners to develop a common country assistance strategy on climate change mitigation.

4.3.2 CDM Project Development Support

Although Bangladesh has enormous potential to access carbon financing to upgrade its technology and help reducing GHGs, CDM project preparation includes many complex legal, financial and technical issues and Bangladesh with limited institutional capacity is facing a significant challenge in taking a pro-active

approach to participate as equal and reliable partners in CDM with other countries. UNDP will provide assistance to build host country capacity particularly energy professionals and private sector in developing projects, subsequent registration, linking with potentials investors and CER buyers. UNDP will work closely with recently established UNDP MDG Carbon Facility, which is designed as a unique product providing integration opportunities between emissions reductions and sustainable development, which is the first and overriding priority for developing countries as identified in the United Nations Framework Convention on Climate Change (UNFCCC).

5. Programme Management

The implementation of energy and climate change mitigation related projects under the CPAP is managed via the Energy and Climate Change Cluster through a streamlined management structure in compliance with UNDP's Results Management Guide. The Cluster is headed by the Coordinator (Assistant Country Director), who acts as the Senior Programme Manager. This person works under the guidance of the Deputy Country Director and the Country Director. Each member of the cluster will be responsible for contributing: 1. Policy and strategy formulation and support; 2. Programme development support services; 3. Project monitoring, assurance and oversight; 4. Advocacy and marketing; and 5. Strategic partnerships and resource mobilization.

The portfolios under the Energy and Climate Change Cluster are primarily managed by the Programme Managers. As such the Programme Manager is responsible for the programme portfolio in terms of planning, implementing and managing the delivery of innovative policies and practices, program

development, capacity building, project monitoring and assurance, marketing and advocacy and knowledge services.

The role of the Programme Manager is to provide strategic advice and management. The overall vision is a team of Programme Managers who are on top of the development discourse and are fully acquainted with contemporary research.

In managing the portfolio, Programme Managers plays the function of project assurance, which involves assuring that the projects comply with the Annual Works Plans (AWPs) and quarterly work plans (including HR and procurement plans), reporting, monitoring and evaluation plans and rules and regulations. Quality assurance is an aspect as well as financial soundness and general compliance to governing documents (plans, AWPs, rules/regulations etc.). The philosophy is to let the Project Manager do what he/she is good at – that is managing a project, and limit UNDP interventions in projects to setting the wider perimeters for the project (AWPs) and assure that the project delivers according to the plans and in accordance with the financial requirements.

The Cluster Support Team comprises of two support staff (Programme Associate and Programme Assistant) that assists in terms of providing information to the Programme Manager so that he/she can fulfill the assurance role. In addition to this, the Team provides other support functions like keeping files up to date, assisting in organizing missions, gather information relevant for policy advice etc.

All in all the new realigned structure and business processes of UNDP, Bangladesh and Energy and Climate Change Cluster constitutes a system which is more lean, simple and efficient and gives increased responsibility to the Project Manager, and strengthens the accountability in terms of

the delivery of project results. The traditional production of project outputs is in the new structure supplemented by a strengthened policy dimension. This more holistic approach – project outputs backed by policy interventions - will increase the likelihood of achieving the intended project and programme outcomes.

5.1 Operating Strategies of Implementation

UNDP support programme countries to strengthen their own capacities to design and implement development strategies that reflect specific national circumstances and goals, within an overall framework of internationally agreed development goals. The work is intended to be strategic, integrative, focused on intersectoral linkages, and always aimed at strengthening national institutions, governance capabilities and citizen participation. Partnerships with government, other national stakeholders, United Nations and other non-UN organizations, donor organizations and international and regional bodies underpin this strategy of engagement at country level.

UNDP will adopt a programme approach to implementing the Energy and Climate Change Cluster strategic framework for the Bangladesh Country Programme. In doing so UNDP will collectively with government and donor partners, develop and design projects responding to the needs and priorities outlined in the CPAP and elaborated in the Programme Framework. The programme will be implemented around four operating strategies: Policy Advice and Technical Support; Capacity Development; Knowledge Generation and Management; and Partnerships

5.1.1 Policy Advice and Technical Support

Upstream policy advice and advocacy provides a vision for and complements strategic interventions at downstream levels. UNDP will provide timely and high-quality advice, expertise and comparative lessons to national policy makers and other partners via tapping into its global network of development practitioners etc.

5.1.2 Capacity Development

Capacity Development is one of the single most important UNDP services. All UNDP work must be targeted toward improving national capacity. Capacity development is seen as the ability of individuals, institutions, and societies to perform functions, solve problems, and set and achieve objectives in a sustainable manner. Capacity development strategies are designed to help countries diagnose capacity constraints and cost capacity building strategies. UNDP will mainstream issues and concepts of capacity development into programme designs and related activities and outputs.

5.1.3 Knowledge Generation & Management

Current design and implementation of programmes, rarely take into account the need to extract, retain and develop knowledge in specific areas of intervention, be it electoral reform, parliamentary development, or local economic development. Building knowledge retention capacities are crucial in the context of the overall objective to build and improve national capacities. Knowledge generation and management will be pursued as a key component of programme design and implementation.

Moreover, one area hitherto underemphasized is cross-programmatic, cross-sectoral integration. The programmes will focus on developing this

overall partnership strategy within the proposed areas of focus.

6. Partnerships and Cross-Cutting Strategies

UNDP will broaden its base for potential partners to work together to respond to national priorities under the energy sector, specifically targeting promotion of sustainable energy and climate change mitigation. The partnerships will learn as they develop, generate knowledge products, and work to ensure public availability of information and knowledge so that all levels in society can take better informed decisions on how they impact on energy and climate change issues. The strategy will also widen partnerships through networking so that they may sustain after project funding ends. UNDP will primarily work with government agencies for bringing about any change in policy and practice and their sustainability. UNDP will also work with the local government, communities, civil society, financing institutions and private sector for expanding the energy services for livelihood security, market transformation for clean energy and energy efficient equipment, understanding the linkages of climate change mitigation with other development priorities. The involvement of the different sectors will be assessed during the formulation phase of the project.

Strengthening cross-practice linkages within UNDP is also essential to the success of this strategy. Specifically it is expected that the interventions of energy and climate change mitigation will complement the interventions of UNDP Clusters projects in the area of governance, local governance, poverty and pro-poor initiatives, ICT, disaster management and Chittagong Hill Tracts Programme. At the community level, the linkages will seek to strengthen the capacity of the proposed

micro-utilities and promote income generating activities in rural areas through energy dependent and energy related employment for poor people. The table below highlights these and other proposed collaborations that are included in the strategy.

On the other hand, UNDP, as a multilateral development partner, is also well-placed to bring together other development partners, including bilateral/multilateral agencies, the private sector, Foundations, NGOs, etc., to participate in a given activity or programme. Moreover, Paris Declaration on Aid Effectiveness in 2005 has created opportunity for UNDP to be the sector leader for harmonization and coordination between the donor community for effective aid management in sustainable energy and climate change mitigation. In the recently concluded 15th Session of the United Nations Commission on Sustainable Development (CSD-15) held at UN Headquarters in early May 2007, the World Bank (WB), United Nations Environment Programme (UNEP) and UNDP expressed their commitment to work together to strengthen cooperation on energy access, an important step toward more efficient and effective support to poverty reduction and sustainable development. The cooperation will build on existing partnerships such as the UNDP/UNEP Poverty Environment Facility and the broad collaboration between UNDP and the World Bank on strategies for reducing poverty. UNDP will also cooperate at country level and globally with these two organizations to best utilize the development assistance in the field of energy and climate change in Bangladesh.

6.1 Gender equality

The Strategic Framework sets out initiatives designed to address key gender equality priorities in the UNDP context. Those initiatives will be integrated into the

work plans under each of the governance projects. Future activities of different project will, to the widest possible extent, be gender neutral and will extend support to research and capacity-building needed for gender issues to get the deserved attention.

6.2 Managing and expanding knowledge

Sound, extensive and relevant information is fundamental to Democracy and Governance activities, both for external audiences and internal policy and programme use. This will lead to well-coordinated information across the staff, enabling the Cluster to measure, assess and monitor that the work is up to standard. Tools of information technology will be used as appropriate to ensure successful knowledge management and expansion.

7.

Energy and Climate Change Indicators

As per Country Programme Action Plan requirements, a set of indicators (Table 3) has been incorporated for Energy and Climate Change. UNDP draft Strategy Plan 2008-2011 also requires development of country specific indicators, which will assist to monitor progress in the specific development field

Table 1: Potential Collaboration by Clusters

Clusters	Potential areas of collaboration
Environment & Sustainable Development	Emission reduction Guidelines to be developed with DOE Integrating energy and environment programs at local levels
Policy Advocacy & Support	Promoting sustainable energy and climate change as one of the major policy advocacy agenda of UNDP Bangladesh
Democracy & Governance	Creation of a Sustainable Energy Development Caucus at the Parliament Integration of Energy & Climate Change concerns into Public Administration Training Centre
E-Governance & Development	Powering ICT and internet in remote areas for educational purposes
Local Governance	Sustainable Rural Planning : Incorporation of energy in Planning Guidelines to be developed for Union Parishads - Linking with the Local Government Support Programme (LGSP)
Pro-Poor Growth	Initiative on urban energy for slum dwellers as part of Urban Partnerships for Poverty Reduction – Local Partnership for Urban Poverty Alleviation Project
Local Poverty Reduction	Linking energy with Rural Employment Opportunity for Public Assets Project (REOPA)
Disaster Management	Linking sustainable energy to climate risk reduction activities Renewable Energy for remote disaster alarming/shelter centers
Peace & Development	Integrating energy interventions with human and livelihood security in CHT areas

Table 2: Programme Component indicators (cluster level indicators)

Component	Expected Outcome	Indicators
Energy and Climate Change	Bangladesh moved towards a sustainable energy and low carbon economy path, which included expansion of energy services to poor, rationale use of scared energy resources and mitigation of climate change.	<ol style="list-style-type: none"> 1. Approved policy and strategies for promotion of sustainable energy and development. 2. MW electricity generated from clean and renewable energy sources. 3. GWh electricity and TJ biomass and coal saved from energy conservation and energy efficiency initiatives. 4. Nos. of poor people have increased access to modern energy services. 5. Nos. of communities benefited from productive usages of energy. 6. Reduction of kilotons of Green House Gases (GHGs) emission. 7. ODA fund received through carbon trading.

Table 3: Projects of Energy and Climate Change Cluster

Area of Program/Project	Areas of coverage	Financial and other information	Partnership
Rural and Renewable Energy for livelihood security	Expansion of modern energy services to rural areas, integrating with development agenda, livelihood security, policy support, organizational reform, promotion of renewable energy, knowledge network, advocacy and awareness, capacity development at national, sub-national and community level, community level project financing, assurance, monitoring and evaluation	Total estimated project budget: US\$ 16 million UNDP TRAC: US\$ 4 million Inception Phase 2007 Project Period: 2008-2010 (1 st Phase)	Executing Agency: Ministry of Power, Energy and Mineral Resources Implementing Partners: Sustainable Energy Unit, Local Government Engineering Department, Bangladesh Energy Regulatory Commission Development Partners: TBD
Commercial grid-based wind power generation	Policy, legal and regulatory issues for private sector participation in grid-connection wind power generation, tariff structure and financing schemes, advocacy and awareness, capacity development, green house gas reduction, monitoring and evaluation	Total estimated project: US\$ 19.0 million (including US\$ 15 million parallel private financing) PPG: US\$ 100,00 PPG Period: January-March 2008 Full Period: July 2008 to June 2012	Executing Agency: Ministry of Power, Energy and Mineral Resources Implementing Partners: Bangladesh Power Development Board, Private Sector Expected funding from Global Environment Facility
Promotion of energy conservation and energy efficiency	Advocacy and awareness, policy dialogues and intervention, reduction of energy wastage, energy conservation and efficient way of energy usages, energy auditing, energy efficient building codes, green house gas reduction, assurance, monitoring and evaluation	Total estimated project budget: US\$ 2 million UNDP TRAC: US\$ 1 million Inception Phase 2007 Project Period: 2008-2010 (1 st Phase)	Executing Agency: Ministry of Power, Energy and Mineral Resources Implementing Partners: Sustainable Energy Unit, Energy Audit Cell, Private sector Development Partners: TBD
Energy efficiency in Brick Making Industries	Energy efficient brick kiln technology transfer, assessment of technology, clay resources, development of local engineering and consultancy services, feasibility studies, bankable proposal preparation, technical design, construction supervision, trouble shooting etc, capacity building, advocacy & awareness, Information Center, Energy Awards, business links, policy support for energy efficient brick industries and minimizing land degradation, compliance with emission standards, Green House Gases (GHGs) reduction, monitoring and evaluation	Total budget: US\$ 14.04 million including US\$ 11.04 million parallel financing of private sector and other partners Project Period: mid 2007 to mid 2012.	Private Sector Implemented. Responsible Parties: Clean Energy Alternative and Xian Institute of Wall Building Materials (XIAN), China Funding from Global Environment Facility
Standard and Labeling for Energy Efficient Equipment and Appliance (Regional Project)	Energy Standard & Labeling policy and regulations, capacity of national institutions, testing and certification infrastructure, strengthening data collection and reporting procedures, local manufacturing support, regional cooperation and network, monitoring and evaluation	Total budget: US\$ 1 million plus co-financing Project Period: 2008-2012	Implementing Agency: Bangladesh Standard and Testing Institute (BSTI) Funding from Global Environment Facility
Climate Change Mitigation and CDM Project Development	Identification of climate change mitigation potentials in different sectors, national climate change mitigation strategy, advocacy and awareness, capacity development, Green House Gases (GHGs) reduction, CDM project development, priority to MDG liked CDM projects, linking financiers and selling carbon credits, monitoring and evaluation	Total estimated project budget: US\$ 8 million UNDP TRAC: US\$ 3 million Inception Phase 2007 Project Period: 2008-2010 (1 st Phase)	Executing Agency: Ministry of Environment and Forest Implementing Partners: Department of Environment, CDM Board, Sustainable Energy Unit UNDP MDG Carbon Fund Development Partners: TBD

Table 4: CPAP Indicators on different Outcomes (project level indicators)

Expected Outcomes	Expected Outputs	Indicators
Human and income poverty reduced through expansion of clean modern energy services in rural areas.	<ol style="list-style-type: none"> 1. Suitable policy interventions to integrate rural and renewable energy development within national development strategies through prioritizing programme and projects. 2. Functional regulatory framework for promotion of rural and renewable energy and active participation of private sector 3. Capacity developed at national, sub-national and rural levels for mainstreaming rural and renewable energy 4. Enhanced livelihood security of targeted rural communities through energy interventions 5. Grid-connected renewable energy based electricity generation demonstrated 6. Increased awareness and national know base on rural and renewable energy developed. 	<ol style="list-style-type: none"> 1. Single National Energy Policy finalized and 2 strategic action plans for rural and renewable energy developed at end of 1st year. 2. Institutional arrangement for prioritization and effective coordination of energy related issues across relevant ministries established at end of 2nd year. 3. National regulatory framework for proper tariff structure, balance between consumer and investor interest, production & purchase obligation, environmental concerns etc. at end of 2nd year. 4. Number of institutions, staffs and community trained on number of issues per year. 5. Nos. of 'energy for income generation' projects implemented at community levels per year. 6. Numbers of poor people have access to modern energy services. 7. Types of productive use of rural and renewable energy in rural areas. 8. % of income increase of targeted population. 9. MW electricity generated from renewable energy sources at end of project period. 10. Numbers of advocacy and awareness events, national campaign, workshop and seminars. 11. Bangladesh Sustainable Energy Knowledge Network established within first 6months. 12. Fully functional information exchange service programme operated at end of 2nd year.

Expected Outcomes	Expected Outputs	Indicators
Energy conservation and energy efficiency integrated with energy planning process and increased market penetration of energy-efficient technologies, practices, products and materials.	<ol style="list-style-type: none"> 1. Broad based understanding and knowledge on options for energy savings, reduction of energy wastage and more efficient utilization of energy use. 2. Energy efficient building codes developed and piloted. 3. Local capacity built design, supervision, operation & maintenance and monitoring energy efficient kilns. 4. Implementation of kilns with private sector financing and pro-active financing institutions to support the brick owners. 5. Standard and labeling for energy efficient equipment and appliances developed and implemented. 6. Regional common standard and new market opportunities for local manufactures. 	<ol style="list-style-type: none"> 1. GWh of energy savings through a number of energy conservation and energy efficiency initiatives and projects commissioned. 2. Approved laws and policy document setting clear principles for energy efficiency by end of 2nd year. 3. Nos. of energy audit completed in industrial sector per year. 4. Nos. of building newly constructed and converted following new energy efficient building codes. 5. At least 30 brick making companies developed and followed energy performance reporting 6. 2 trained local manufacturers producing equipment and/or components 7. 2 trained local engineering firms registered and profitably engaged in BMI support industry 8. BMI information services established 9. About 9% of brick kilns (including expected replications) are EEKs 10. At least 12 banks/institutions offering loans/credit facilities for EC&EE projects, 11. Strategies and regulations for energy efficient brick kilns and minimizing land degradation. 12. GHG emissions reduced by 186 kilo tons CO₂ (direct) compared to business-as-usual scenario, cumulative energy savings from brick kilns by about 61,000 TJ or 3,629 ktons coals by introducing energy efficient brick kilns. 13. Energy standard and labeling for at least 2 appliances at end of 2nd year and another 4 appliances at end of 4th year. 14. New testing standard and testing facilities in place and operational by year 4. 15. Regional common standard established for 2 products by year 4. Total numbers of local manufacturers adopting technical assistance recommendations by year.

Expected Outcomes	Expected Outputs	Indicators
Climate change mitigation is integrated with energy and other development sector planning and more ODA funding under the Clean Development Mechanism (CDM).	<ol style="list-style-type: none"> 1. A complete scenario of GHG emissions in Bangladesh and mitigation potentials and common understanding on importance of climate change mitigation 2. A set of recommendations to the Government for adopting suitable policy measures to promote the Climate Change Mitigation measures and to explore carbon financing 3. Common Country Assistance Strategy to support Climate Change Mitigation 4. Trained professionals in climate change mitigation and emission reduction trading made available both in public and private sector. 5. Institutional capacities in Designated National Authority strengthened to assess and approve sustainable energy projects 6. CDM projects developed and registered in UNFCCC for financing by private sector 	<ol style="list-style-type: none"> 1. Inventory of emissions in 5 key sectors is completed by year 1. 2. The mitigation opportunities from these 5 key sectors are estimated at end of 2nd year. 3. Clear principles and policy measures adopted by government to mitigate climate change by 2nd year. 4. A common country assistance strategy endorsed by key development partners to support Bangladesh in climate change mitigation by year 2. 5. Number of trained professional in public and private sector for climate change mitigation and emission trading. 6. Number of professional engaged in CDM project development. 7. Total number of projects reviewed and cleared by DNA. 8. At least 10 project baselines designed for candidate CDM projects developed directly with project support. 9. At least 7 projects registered in UNFCCC directly with project support. 10. Total reduction of Green House Gas through Climate Change Mitigation Measures. 11. Amount of ODA fund received through carbon trading.