

CONCEPT NOTE

Workshop on GREEN JOBS INITIATIVES IN BANGLADESH

Jointly Organized by
Ministry of Labour and Employment
Government of the People's Republic of Bangladesh
and

International Labour Organization

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Concept Note on Green Jobs Initiatives in Bangladesh

1. Background and Justification

Many countries have developed national programs for sustainable development including addressing the challenges of climate change. There is a growing awareness that employment and labor market policies can contribute to a smooth transition to more sustainable growth by identifying opportunities for green jobs, greening existing jobs and easing the phasing out of unsustainable jobs. Strategies for green jobs are set to become increasingly important part of employment generation efforts in many countries.

“Green jobs” does not lend itself to a precise definition but includes the direct employment which reduces environmental impact ultimately to the levels that are sustainable. This includes jobs that help to reduce the consumption of energy and raw materials, decarbonize the economy, protect and restore ecosystems and biodiversity, and minimize the production of waste and pollution. Thus green jobs could lead to lower environmental impacts directly or indirectly. The range of profiles of green jobs includes highly skilled research and development and management functions as well as low skilled work. The largest number of already existing and future green jobs is concentrated in sectors directly linked to the use of energy and the recovery of raw materials. These include:

- Improvements in the energy efficiency;
- Renewable energy;
- Mass transportation contributing to reduced number of use of individual means of transport;
- Recycling and reuse;
- Sustainable use of natural resources: agriculture, forestry and fisheries; and
- Environmental services.

Since the concept of green jobs is a new one, the ILO organized an international meeting in Nigata, Japan from 21 to 23 April 2008 for the countries of Asia and the Pacific. The Ministry of Labor and Employment participated in the conference together with other countries of the Asia and Pacific region. As follow up to that conference, Ministry of Labor and Employment has started the process of consultation with stakeholders. The response to date has been very encouraging and it has been agreed among the stakeholders that the green jobs initiative should be taken further starting with stocktaking of the ongoing initiatives and identifying the challenges and prospects in Bangladesh.

Bangladesh is vulnerable to and facing the dangers and problems of climate change, environmental degradation, pollution, and man-made and natural disasters. To address these problems, ever increasing national response is being mobilized to face them. These interventions can be classified as follows:

- Initiatives and responses at the national spearheaded by the Government. These include setting up the Ministry of Environment and Forest, Department of Environment, Disaster Management Bureau and allocating resources to address the problem of environmental degradation and climate change;
- Formulation of policies and programs and their implementation by the various agencies and departments to reduce pollution, degradation of environment, respond to the natural disasters, support to afforestation and planting of trees, embankments and protection of coastal areas through infrastructure development, support to sustainable agriculture and livelihoods, protection of common properties and raising awareness on these issues. Government has also introduced a law that all the new industries must obtain clearance from the Department of Environment before they start operating.
- Initiatives by the various organizations (public and private sector) to develop new technologies and processes to reduce consumption of fuel and energy, alternative use of energy and popularizing new technologies and processes such as bio gas, improves stoves, solar and wind power, sustainable agricultural practices, planting of trees and afforestation, etc. Main agencies include BCSIR, Grameen Shakti, Waste Concern.

- Due to higher level of pressure by the consumers and policy makers, ever increasing focus by the private sector to protect environment, improve working conditions at factories, and safe and environment-friendly waste disposal and effluent treatment as a part of corporate social responsibility. For example textiles, garments, leather and leather products and other factories are now required by legislation to set up waste treatment plans as a part of social compliance and new regulations introduced by the government.

From the above, it is clear that green jobs are already in existence in Bangladesh but organized and systematic information is not available on the subject. Also, to date there has not been any attempt to bring in the stakeholders together to share their experiences and mobilize coordinated response to address the green jobs initiatives in holistic manner.

2. Description of the programs and projects in the sector

A number of cases of establishments/projects/programs creating green jobs in Bangladesh were identified by the Ministry of Labor of GoB, ILO and Waste Concern Jointly to understand the present situation. To know more, a brief questionnaire survey was carried among these projects within a very short time. Out of 5 (five) sectors identified, 10 (ten) projects/programs were surveyed. Among them 2 (two) are from government sector, 2 (two) are from NGOs, 4 (four) are from private sector enterprise and 2 (two) are from private sector associations. The identified industries are shown below:

	INDUSTRY	PROJECTS/PROGRAMMES	INVOLVED ORGANIZATION/ENTERPRISES
1	Transportation	CNG use as fuel	• RPGCL • Dept. of Explosive, GOB • BERC • BRTA • Importers • Conversion & filling station owners
2	Agriculture & Forestry	Nursery	National Nursery Consortium
		Organic Tea	Kazi & Kazi Tea
3	Waste Recycling	Composting of Organic Municipal Waste	Waste Concern
		Lead acid Battery recycling	Informal sector
		Municipal solid waste recycling	Informal sector
4	Electricity, gas, water	Renewable energy	Rahimafrooz
		Solar Power generation	Grameen Shakti
		Biogas	BCSIR
		Biomass Electricity generation from Rice husk	Dreams Power Ltd
5	Manufacturing	Green technology Compact Fluorescent Lamp	Energy Pac

3. Employment creation (including green jobs)

The survey shows that a number of private sectors are already active in creating green jobs. As per Bangladesh Bureau of Statistics (BBS) Labour Force Survey 2005-06, total employed labor force is 47.4 million and the labor force among the selected sectors are 32.8 million. Compared to these number the green jobs created in the country is only 2,01,767 which is only 0.62% of the employed labor force under the selected sectors and 0.42% of the total employed labor force. In the survey it was also found that green job related employment in the transportation sector is the highest and manufacturing sector is the lowest (Table 2.1)

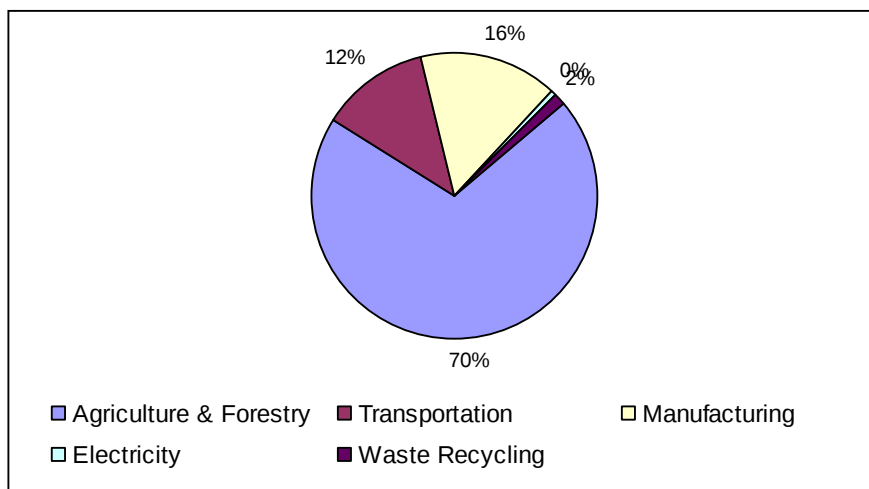


Figure 2.1 Showing Sector Wise Distribution of Jobs in Bangladesh

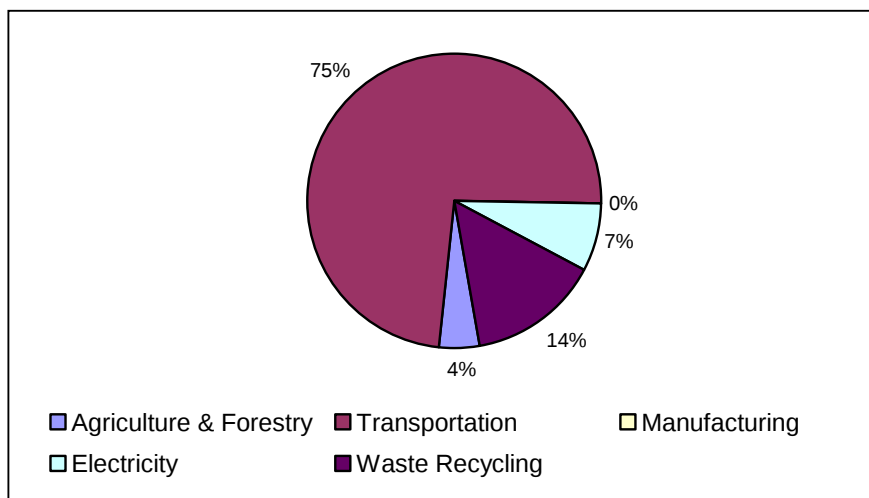


Figure 2.2 Showing Sector Wise Distribution of Green Jobs in Bangladesh

Table 2.1 Showing Sector Wise Distribution of Jobs in Bangladesh

Sl.	Sector	Total Jobs	Green Jobs
1	Agriculture & Forestry	23000000	8725
2	Transportation	4000000	147987
3	Manufacturing	5200000	147
4	Electricity	100000	14966
5	Waste Recycling	500000	29942
		32800000	201767

Source: Field Survey by Waste Concern (July 2008)

3.1 Transportation Industry

3.1.1 CNG fuelled transport facilities:

Use of Compressed Natural gas as transportation fuel in Bangladesh had started as a project of DoE and UNEP called “Compressed Natural Gas as a Transport Fuel for poverty reduction”. This project implemented in Dhaka has successfully demonstrated that the conversion of vehicular transport fuel to Compressed Natural Gas (CNG) has reduced costs of public transport, created new jobs, and reduced the health costs of poor households as a result of lower levels of air pollution in the city. CNG fuelled transports can reduce greenhouse gas emissions also. Research shows that CNG operated cars, for instance, emitted around 10-20% less carbon dioxide; up to 25% less nitrous oxide; and 80% less carbon monoxide, non-methane hydrocarbons and other smog-forming emissions in comparison to a modern catalyzed gasoline car. According to a study by ADB, the air pollution parameter PM is 60% less in 2004 than in 2001.

Hence, the Rupantarita Prakritik Gas Company Limited (RPGCL), a company under Petrobangla, the Petroleum Corporation of Bangladesh was tasked with the development of cost-effective ways to commercialize CNG in the transport sector in Bangladesh and acting now as one of the main regulatory body along with Dept of Explosive and BERC. At present only 4% of the total gas produced daily in the country is being used for CNG fuelled vehicles. According to BRTA statistics, throughout the country 10, 52,299 motor driven vehicles are running and 13% of them are run by CNG according to RPGCL at present.

During the survey, information from the Bangladesh CNG Filling Station & Conversion Workers Owners Association shows that there exist 250 nos. of filling stations and 121 conversion centres exist under this association. They created 147,987 new jobs in this sector.

3.1.2 Agriculture & forestry

Kazi & Kazi Tea Estate Ltd.

Kazi & Kazi Tea Estate Ltd. produces organic tea for local and overseas market, being the only garden of its kind in Bangladesh. The garden is located in Tetulia, in the northernmost district of Panchagarh, only 50 km south of Darjeeling. Incorporated in the year 2000 it acquired virgin lands which had never before been used for cultivation. After extensive research and consultation with the Bangladesh Tea Board, plantation began on August 6, 2000. The garden is certified organic by the SGS Organic Production Standard in accordance to the EU Regulation 2092/91. Organic refers to:

1. Applying only natural pest & weed controls.
2. Using methods that do not harm human health.
3. Employing renewable resources.
4. Protecting wildlife.
5. Maintaining the fertility of the soil.

They are producing 230 tons of tea every year and so far have created 725 new green jobs in this sector.

National Nursery Consortium

With an objective of promoting plantation which helps combat climate change impacts across the country, this enterprise produces saplings and markets them commercially. If the use of chemical fertilizer can be replaced by organic once and natural pest and weed control is ensured then the whole labor force employed in this industry can become green.

3.1.3 Electricity, gas, Water

Grameen Shakti

Grameen Shakti (GS), established in 1996, has developed one of the most successful market based program with a social objective for popularizing Solar Home Systems (SHSs) including other renewable energy technologies to millions of rural villagers. As of June 2008, GS has installed 170,000 SHSs in rural areas with more than 8000 SHSs installed per month. GS engineers train women technicians and provide them with employment, they administer a scholarship program for school children, and they collect damaged batteries to ensure that these do not hurt the environment. GS started its biogas program in 2005 and Improved Cook Stoves Program in 2006. GS's biogas program is the first market based program in Bangladesh. Both programs have become popular with the rural people and show an accelerating trend.

Rahimafrooz Solar & RSF

The strategic reasons behind formation of these establishments were to increase management focus on renewable energy technologies (RETs), increase knowledge and skills to expand business opportunity in this area. Rahimafrooz Solar & RSF will be offering a wide range of solar photovoltaic solutions, including Remote Rural Home lighting, Water Pump, Medical Refrigerator, Computer Solution, Navigation, Telecommunication, Signalling, Lantern, Street Light and Water Heater. By 2010, R R E aims to transform lives of over 1 million people in remote rural areas by providing energy need

Dreams Power Ltd.

With an intention to generate electric power and supply to the rural areas, Dream's Power Ltd., a Kapasia, Gazipur based private company with the financial assistance of World Bank and technical expertise from India installed a power plant at Kapasia, Gazipur at the end of 2007. The main features of the power plant are two bio-gas generating units and three diesel or gas-based power generators (100KV, 110KV and 80KV). Rice-husks are being used as input to the bio-gas generation. The main purpose of the project is to generate electricity where REB or PDB power supply are absent and rice-husks are abundant and under-used or un-utilized, to serve the rural & make profit.

Institute of Fuel Research and Development, BCSIR

Institute of Fuel Research and Development (IFRD) of BCSIR have been actively engaged in R & D works on renewable energy and conservation of energy sources. The Institute has successfully developed a fixed dome model biogas plant suitable to Bangladesh and different models of improved cook stoves which have been disseminated throughout the country. Other renewable energy technologies such as solar hot box, solar water heater, solar dryer etc have also been developed by IFRD.

Under biogas pilot plant projects (Phase 1 and 2) implemented by IFRD of BCSIR, a total of about 22000 biogas plants were constructed throughout the country and under fuel saving project, more than 300000 improved stoves were set up all over the country. People are using biogas for cooking, lighting and generation of electricity and the residues from biogas plants are being used as organic fertilizer for crop production. The Institute has also trained up 10205 and 1250 nos. of people on improved stoves and biogas technology respectively under these projects.

3.1.3 Manufacturing industry

Energy Pac

Energy Pac is Bangladesh's largest private sector entrepreneur in power engineering equipments & extensively engaged in designing, manufacturing and marketing high technology electrical products and services related to power generation, transmission, distribution as well

as executing turnkey projects. Energy Pac Engineering Limited is an ISO 9001: 2000 & 14001: 2004 certified leading manufacturer of Electro mechanical goods in Bangladesh. One of its products is the Energy saving Lamp or CFL.

3.1.5 Waste Recycling

Waste Concern

Waste Concern, a research organization was founded in 1995 with the motto "Waste is a Resource". Waste Concern aims to achieve a vision to contribute to waste recycling, environmental improvement, climate change, renewable energy, poverty reduction through job creation and sustainable development. Waste Concern is working with government agencies, private sector, international agencies and different communities to reach its mission as widely as possible. It is specialized in small and medium scale waste management projects especially composting. Until today, Waste Concern is involved in design and implementation 47 nos. of compost/recycling plants distributed in 26 cities and towns of Bangladesh. Apart from Bangladesh, this model is being replicated in Sri Lanka and Vietnam.

Recently, using Clean Development Mechanism (CDM) of the Kyoto Protocol Waste Concern in partnership with a Dutch waste recycling private company, is establishing a number of composting plant of 700 tons/day capacity compost plant around Dhaka city. By 2009, this project will be producing environment friendly product compost produced from city organic waste.

Plastic Recycling Industries

According to Bangladesh Plastic Goods Manufacturing and Exporters Association (BPGMEA), there are 2997 plastic industries located in different parts of Bangladesh and major portion of these industries are using recycled plastic resin. In Dhaka, it has been found that 66% of plastic disposed by the households are recycled. Plastic recycling industries are creating about 22,292 nos. of new jobs for the poor. Recycled plastic has the following benefits for the country:

- Less land filling requirement
- Large recycling industry creates new jobs and economic opportunity
- Directly saving foreign currency.

This recycling industry use 2,44,833 tons of recycled resin which is about 55% of the total resin demand and this recycled resin is saving US \$ 350 million in the national exchequer in foreign currency every year only by avoiding import of virgin resins in the country.

Used Lead Acid Battery by Informal Sector

Use of lead acid battery (LAB) has been on steep rise as vehicle use has been increasing sharply in the country with the growth of GDP. With the overall increase of resource-recovery activities in the country, collection of used LABs and their smelting to recover lead have also become widespread. But no study has yet documented these activities. Whereas the economic gains being accrued to the society in the form of gainful employment and foreign exchange savings due to lead import reduction are relatively easy to trace, more technically investigative study is necessary to know if recycling of used lead-acid batteries is taking place at its fullest potential. It is also important to analyze whether all activities related to used lead acid battery recycling are taking place in an environmentally sound manner keeping in view the health hazards of exposure to lead.

Around the country 6000 tons/year lead from used lead acid batteries are recycled per month in the country. Total manpower involved in this sector is about 6000.

4. National Laws and Policies

Presently, the existing laws and policies do not directly address the concept of 'Green Jobs', but a number of policies, strategies and associated legal & administrative instruments are found, which can be linked with green jobs. Existing policies and laws related to green jobs are shown below:

1. The National Environment Policy, 1992 and Implementation Programme
2. The National Energy Policy, 1996
3. The Draft Renewable Energy Policy (officially yet to be approved)
4. The National Agriculture Policy and Pesticide Rules
5. The National Conservation Strategy
6. The National Biodiversity Strategy and Action Plan
7. The National Environment Management Action Plan (NEMAP), 1995
8. The Environment Conservation Act (ECA), 1995 and its subsequent amendments
9. The Environment Conservation Rules (ECR), 1997 and its subsequent amendments
10. The Environment Court Act, 2000 and its subsequent amendments
11. Ozone Depleting Substances (Control) Rules 2004
12. A Gazette Notification under ECA on recycling of Lead Acid Battery
13. National CDM Strategy 2003
14. Poverty Reduction Strategy Paper (PRSP)

Initial review under this study finds that most of these policies are addressing the issues of pollution control, sustainable environment, renewable energy, sustainable agriculture, green house gas mitigation etc. with indirect links with green jobs.

5. Constraints and challenges (linked to 2 & 3 above)

- All the existing initiatives are surviving in the absence of effective policy support;
 - Lack of awareness and capacity building to understand the concept of Green Jobs;
 - Insufficient incentives & promotional measures;
 - Inadequate research and development initiatives; and
 - Insufficient Public Private Partnerships.

6. Way Forward

- Sufficient baseline information including inventory on Green Jobs.
- Advocacy and awareness
- Capacity building and training.
- Promotion of cleaner technologies including R & D.
- Measures to include existing informal sector operators .
- Promotion of Public-Private Partnerships.
- Mobilization of resources (CDM, GoB and others).
- Target setting for increased Green Jobs.

Annexure 1: General Profile of Industries Creating Green Jobs:

Industry Type	Name of the surveyed organization/ enterprise	Production Capacity/yr	Year of Estd.	No. of Beneficiaries	No. of Jobs created	Proportion of female	Any Occupational Health and Safety (OHS)* or PPE**Training provided	Barriers (Problems faced)	Development Opportunities
Transportation	Bangladesh CNG Filling Station & Conversion Workshop Owners Association (250 filling station,121 conversion centres)	32 filling stations /yr 14333 vehicles /yr (estimated from the average of 2002-2007 data)	1983	Users of 137987 vehicles	147987	Negligible	-100% trained service centre workers. -No PPE needed. -DCFP- Safety codes & standards. Feb 2000 by RPGCL & ADB is enforced by executive order. -First aid provision. No need for PPE	-Inadequate supply of gas, -Inadequate supply of land at appropriate location. -Accidents due use of sub-standard Cylinder and mal-practice by end-users	-Extension of Tax Holiday -Increase of gas supply dedicated to CNG from 4% -Increase in profit margin from 75 paisa to 2 taka.
Agriculture & Forestry	Kazi & Kazi Tea	2,30,000 kg (40% increase rate)	Estb. 2000 Prod. 2004	.84% of local consumers1 (27.5 million kg tea consumed locally	725	50%		N/A	N/A

Industry Type	Name of the surveyed organization/ enterprise	Production Capacity/yr	Year of Estd.	Number of Beneficiaries	No. of Jobs created	Proportion of female	Any Occupational Health and Safety (OHS)* or PPE**Training provided	Barriers (Problems faced)	Development Opportunities
Agriculture & Forestry	National Nursery Consortium	150,00,000 Saplings		20,000/month	8000	37.5%	In Basic level some training is given	• Should be a Nursery policy by GOB. • Ensuring Quality • Finance source • Marketing • Technical know how and • Lack of Training Facilities • Lack of awareness about green culture among the people. • Bureaucratic bottle neck • Scarcity of the Land. • Controversy of genetically modified plants and Food.	
Electricity, gas, water	Dreams Power Ltd (biomass generated electricity production & distribution)	300 KW	December 2007	500 households	22	data not available	data not available		
	Grameen Shakti (Solar Home Systems & Improved cooked stove)	32MW/yr.	1996	1500000	2500	4.9%	Employees are insured	Facing vat , tax problem, Import of PV problem, Transportations, Back up service, High cost, Awareness.	Increasing Solar Home System, Biogas, Improve cook stove. And also Bio fertilizer, Hydro, wind, Solar related technology.

Industry Type	Name of the surveyed organization/ enterprise	Production Capacity/yr	Year of Estd.	Number of Beneficiaries	No. of Jobs created	Proportion of female	Any Occupational Health and Safety (OHS)* or PPE**Training provided	Barriers (Problems faced)	Development Opportunities
	IFRD,BCSIR (Biogas plant &stove)			3,73,889 households	11994	data not available			
	Rahimafrooz (solar power generation)			30000 households	450	data not available			
Manufacturing	Energy Pac	CFL 20,00,000 Pcs EB 10,00,000 Pcs	2004	customers	147	36.7%	provided	There is no policy for mandatory use or CFL imposed by the Govt.	Presently occupied 50% facilities only for CFL & EB but more 50% can be possible to employ in renewable energy like Solar System development.
Waste recycling	Waste Concern	16425 tons/year compost produced	1995		1150	50%	provided	Requires several permissions and compliance to establish recycling project	Within the year 2009 will produce 50,000 tons/year compost There is a potential to attract carbon trading based investment in the country
	Plastic Recycling Industries	244833 tons/year recycled resin processed			22792			Informally done and needs better health and environment for the workers	
	Used Lead Acid Battery by Informal Sector	6000 tons/year lead recycling from used lead acid battery			5000			Informally done and needs better health and environment for the workers	

Annexure 2 Green Job Survey summary:

	Industry	Projects/programmes	Involved Organization/enterprises	Employment created	Sectoral employment (Million)***	Percentage of green jobs
1	Transportation	CNG use as fuel	• RPGCL • Dept. of Explosive, GOB • BERC • BRTA • Importers			
			• Conversion & filling station owners	1,47,987	4	3.7%
2	Agriculture & Forestry	Nursery	Nursery Association	8000 ¹	23	.04%
		Organic Tea	Kazi & Kazi Tea	725		
3	Waste Recycling**	Composting of Organic Municipal Waste	Waste Concern	1150	.5*	5.8%
		Lead acid Battery recycling	Informal sector	5000 ¹		
		Municipal solid waste recycling	Informal sector	22792 ¹		
4	Electricity, gas, water	Renewable energy	Rahimafrooz	450	.1	15%
		Solar Power generation	Grameen Shakti	2500		
		Biogas	BCSIR	11994		
		Biomass Electricity generation from Rice husk	Dreams Power Ltd	22		
5	Manufacturing	Green technology Compact Fluorescent Lamp	Energy Pac	147	5.2	.003%
Total employment				2,01,767	32.8	

Source: Field Survey by Waste Concern (July 2008)

- *1% of the total employment
- ** Waste Recycling is a newly developed sector, formal sector employment in this sector is very nominal till now.
- *** data source: BBS, Labour Force Survey 2005-06

Note:

1. These jobs are not fully green because although they are emission reducing activities no OHS is existing at present at the working environment.

