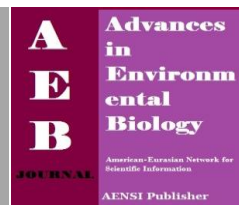




AENSI Journals

Advances in Environmental Biology

ISSN-1995-0756 EISSN-1998-1066

Journal home page: <http://www.aensiweb.com/aeb.html>

Green Economy and its Implication in Bangladesh

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ARTICLE INFO

Article history:

Received 25 January 2014

Received in revised form

2 June April 2014

Accepted 6 June 2014

Available online 15 June 2014

Key words:

Economy, Green economy,
Implication, Bangladesh

ABSTRACT

Nowadays, environmental issues affecting almost all arena of analysis. All disciplines of study included the "green" concept into their literature. This is also true for economy as well. Economy always deals with the best utilization of scarce resources. But, gradually, those scarce resources become insufficient. Considering this issue, modern economist focused on sustainable use of resources and social equity. To ensure this sustainability and human welfare, economist has to focus on environment friendliness. This in other word is known as "green economy". Terms like "Green economy" appear frequently in the popular press. Many governments around the world have become so concerned about green economy activities that they have attempted to apply and regulate them. Some of the countries already successfully applied it too. In Bangladesh, Green economy is a new issue. This study will focus on what is all about green economy and its possible implication in Bangladesh.

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To Cite This Article: Mohammad Ataur Rahman., Green Economy and its Implication in Bangladesh. *Adv. Environ. Biol.*, 8(9), 570-577, 2014

INTRODUCTION

Bangladesh is a developing country. The growth of this country is not steady enough. The major reasons behind the unsteady growth are lack of energy resources, poor infrastructure, slow implementation of economic reforms, and overpopulation. The above reasons create social unrest, poverty and huge unemployment. Besides that, Bangladesh is a low-lying river irrigated country along with vast Bay of Bengal sea basin in south. Frequently, the country affected by floods, tornadoes and cyclones etc. This rapid climate changes impacting the country's ecology and making it imbalance. So, it is high time for Bangladesh to focus on green economy and apply it. Because, the green economy promotes steady growth in income and employment which is driven by targeted investments in a range of cleaner approaches that lead to enhanced resource efficiency, reduced carbon emission and pollution, and prevention of biodiversity loss and ecosystems degradation. The green economy also promotes the development of basic services and infrastructure as a means of alleviating poverty and improving overall quality of life (i.e. access to energy through renewable energy technology). This paper tried to reveal the possible implication of green economy in Bangladesh, its implication problems and the required steps to solve those problems.

2.0 Objectives of the study:

1. To know what is all about green economy.
2. To look at implication possibility of green economy in Bangladesh
3. To recommend required steps for the proper implication of green economy in Bangladesh

3.0 Scope and Methodology:

This research is a conceptual analysis of green economy and its possible implication in Bangladesh. No research has been conducted in our country related to this issue before. Though, few studies have been accomplished in other countries especially in developed countries. And, those researches have been used in this study as conductor. A digital Library research method (Archive) has been used in this study. Only secondary data is used in this study. The secondary data collected from various books, reference Journal, seminar papers and articles, and various web links.

4.0 Concept of Green Economy:

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The concept of the green economy has gained currency to a large extent because it provides a response to the multiple crises that the world has been facing in recent years. There is no unique definition of the green economy, but the term itself underscores the *economic* dimensions of sustainability. Recent UNEP report on the Green Economy, it responds to the “growing recognition that achieving sustainability rests almost entirely on getting the economy right”. It also emphasizes the crucial point that economic growth and environmental stewardship can be complementary strategies, challenging the still common view that there are significant tradeoffs between these two objectives – in other words, that the synergies prevail over the tradeoffs. [1]

UNEP [1] has provided some of the fundamental elements defining and explaining the core principles and concepts underlying a green economy. The main tenants of this green economy initiative are: investing in natural capital; de-carbonizing the economy; and creating green jobs. The sectors analyzed in the UNEP report are: agriculture, cities, forests, renewable energy, transport, water, buildings, fisheries, industry, tourism, and waste management [1].

A green economy is historically understood as an economic system that is compatible with the natural environment and thus, is environmentally friendly. Today, the concept of green economy has evolved to consider also social issues. By using clean technology and clean energy, the green economy is expected to provide safer and healthier environments, create alternative green jobs and preserve the development of societies [2].

Green economy is a fair and resilient economy, which provides a better quality of life for all, achieved within the ecological limits of one planet (Green Economy Coalition)

Green economy is founded on the principles of: 1) Sustainable development; 2) Equity and poverty alleviation; 3) Resilience; 4) Inclusiveness; 5) Environmental limits.

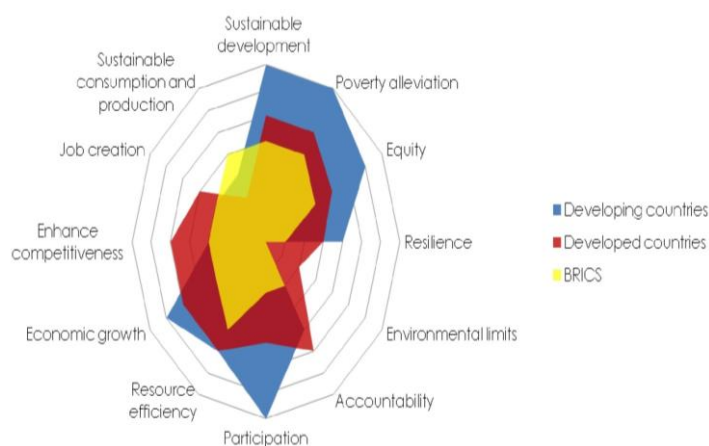


Fig. 1: How are governments framing a green economy? [Source: Green Economy: ‘Everyone’s talking about it’]

Finally, we can say, the green economy presents an alternative vision for growth and development, in which economic growth and improvements in people’s lives are generated in ways consistent with sustainable development. While there are varying visions of what the green economy encompasses, this concept has piqued the interest of policymakers and businesses alike because it presents the possibility of new opportunities for economic growth [6].

5.0 Benefits of Green Economy:

Green economy mainly focuses on the sustainable development and social equity. Adaption of green economy brings several benefits for a country.

1) New growth:

Going green means new possibilities for sustainable economic growth. This growth is different from traditional economic growth which in turn brings new technology and innovative minds to design the technology, meaning new jobs, and new businesses to create. New jobs will be created in various sectors to support the new businesses. Green energy, organic agriculture, eco-friendly textiles, green building. Not only will new green businesses benefit, but all the businesses that create the products for these businesses will benefit from new customers.

2) Efficiency makes financial sense:

Going green translates into efficient, streamlined practices. Much of the problem with conventional agricultural, manufacturing, and even office space practices stems from inefficiency and waste. Energy is wasted, paper is wasted, materials are wasted, and Buildings are not energy-efficient. Again, Expensive chemicals are used, even when natural methods are more practical. Also, Conventional farming methods are unsustainable over the long-term. Green solutions save businesses so much money; it is only a matter of being aware of more practical, efficient methods and the development of eco-friendly methods. Here are two examples of eco and cost-efficient changes.

- Hemp fibers are more sustainable and less expensive to grow than cotton.
- Making workspaces green, with energy-efficient light bulbs, solar lighting and heating options, using recycled office supplies and recycling office supplies, cut costs and waste.

3) *The green society:*

Green economy will bring a green society as well. A green society will indirectly improve the economy as well. Sustainability and efficiency are the products of eco living. The product of conventional living is stagnancy. Awareness of how practical and cost-effective these changes are is the first step in the great transformation to a greener society.

4) *Green economy and sustainable development:*

Moving towards a Green Economy is an important driver in the promotion of sustainable development. Green Economy can be considered as the path for the transition towards sustainable development.

5) *Green economy and poverty eradication:*

By increasing attention to the resources that are used by poor to earn their livelihood, the shift towards a green economy is aimed at boosting employment in low-income areas. The green economy also promotes the development of basic services and infrastructure as a means of alleviating poverty and improving overall quality of life (i.e. access to energy through renewable energy technology).

6.0 *Requirements for transition to green economy:*

The transition to a green economy requires a workforce with the right skills. This includes not only skills in the low carbon and environmental goods and services sector, but also those needed to help all businesses use natural resources efficiently and sustainably and to be resilient to climate change.

Table 1: Main elements of the green economy.

Generation and use of renewable energy	Refers to any source of usable and renewable energy intended to replace fossil fuel sources without the undesired consequences of greenhouse gas emissions and other pollutants derived from fossil fuel combustion
Energy efficiency	Seeks to adopt means and a more efficient technology that uses less energy to provide the same level of energy service
Waste minimization and Management	Considers different approaches from prevention, minimization, reduction, reuse, recycling, waste conversion and disposal in order to ensure that the use of materials and waste generation remains within the regenerative and absorptive capacities of the Planet
Preservation and sustainable use of existing natural Resources	Recognizes the importance and economic value of natural resources, such as freshwaters, forests, soils, coral reefs and ecosystem services provided by functional and healthy Ecosystems
Green job creation	Promotes decent jobs that offer adequate wages, safe working conditions, job security, reasonable career prospects and workers' rights

[Source: Payment of Environmental Externalities to Remuneration, p.4]

These five elements of change can be implemented in all economic sectors: the primary sector which transform natural resources into primary products and includes agriculture, forestry, fishing, and all mining and quarrying industries; the secondary sector which takes the output of the primary sector and manufactures finished goods; and the tertiary sector that provides information and services. For all sectors, the aim is to establish – to the extent possible - closed or semi-closed nutrient and energy cycles and at least, minimize waste and boost recycling. (Payment of Environmental Externalities to Remuneration, p.4)

The idea of this economy is to promise environmental protection, while being profitable. Aside from using energy responsibly, it has a focus on global warming, use of resources, deforestation and reforestation, and overall prevention of environmental pollution and damage. Transition of economy basically means the transition of current product and services into environment friendly product and services. Elberts says about the following issues [7].

For products and services, transition includes:

1. Environmentally friendly and enhancing products and services
2. Renewable energy products and services
3. Clean transportation and fuels
4. Green buildings

For products processes, transition includes

1. Energy efficient manufacturing, distribution, and construction
2. Reduction of energy, materials, and water consumption through high efficiency strategies
3. Switch from carbon to non-carbon components.

Transition of green economy in essence does some reforms of the economic policies of a country. The reforms include the followings:-

National reforms:

- a) Abolition of perverse subsidies, taxes and incentives;
- b) Rationalization of land use and urban policies;
- c) Introduction of integrated resources and water management;
- d) Improvement and implementation of environmental legislation;
- e) Appropriate implementation of the stimulus packages.

International political architecture:

- a) Trade regimes promoting the flow of environmental goods and services;
- b) International support to the countries that incorporate the

7.0 Implication possibility of Green Economy in Bangladesh:

Bangladesh is a developing country. In real terms Bangladesh's economy has grown 5.8% per year. Bangladesh's economic freedom score is 52.6, making its economy the 132nd freest in the 2013 Index. The country is struggling hampered by the fragile rule of law, Corruption and marginal enforcement of property rights. It also suffered by various natural disasters which is the output of global warming. Bangladesh is trying to improve its situation by incorporating various environment friendly policies for its current economies. This study will try to focus only with those forms of policies and activities that can help Bangladesh to transitioning its current economy into green economy.

1. Renewable energy:

Solar energy is the most readily available and free source of energy in our country and traditionally solar thermal energy has been utilized in different household and industrial activities in Bangladesh. Several organizations have installed low capacity wind turbines, mainly for battery charging in the coastal region of Bangladesh. However, progress in the wind energy sector of Bangladesh is not impressive. Micro Hydro Power Plants can be installed in the north-eastern hilly regions and in the existing irrigational canal system with a sufficient head. The only hydro power station of the country, the Karnafuly Hydro Power Station with a generating capacity of 230 MW by 7 units, is located in Kaptai across the river Karnafuly. There are scopes of integrated small tidal power plants in the coastal regions. Biomass is the fourth largest source of energy worldwide and provides basic energy requirements for cooking and heating of rural households in developing countries like Bangladesh.

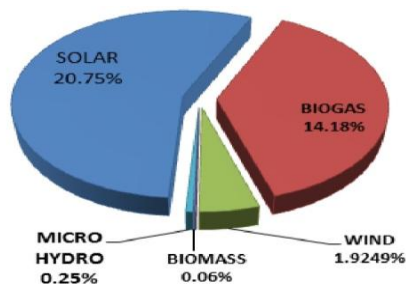


Fig. 2: Contribution of different implemented renewable sources in Bangladesh.

[Source: Nahid-ur-Rahman Chowdhury *et al.*, [8].

Ministry of Power, Energy and Mineral Re-sources, Power division (2008) has published the National Renewable Energy Policy draft. The aims of renewable energy policy are to set policies aiming for developing renewable energy resources (solar, wind, hydro) to meet 5% of the total power demand by 2015 and 10% by 2020.

2. Energy Efficiency:

Power is an essential factor for developing the socio-economic conditions of our country. Demand for power is increasing day by day. Moving towards energy sustainability will require modifications not only in the way energy is supplied, but in the way it is used as well. Reducing the amount of energy required to deliver various goods or services is also essential in this regard. Energy efficiency and renewable energy are said to be the twin pillars for sustainable energy. The power division of Bangladeshi government has taken a number of initiatives for efficient energy use and reduced consumption of energy.

- Steps have been taken to revise the 'Building Code' inserting energy efficiency and solar energy issues
- Initiatives have been taken in order to build awareness amongst the students, by incorporating Energy Efficiency and Solar Energy issues in the academic curricula of schools, madrasas and colleges
- Installation of solar panels in the government, semi government and autonomous organizations within the next 3 years
- Use of CFL bulb in all ministries and power sector entities
- Conventional street lights to be replaced by LED and solar lights subsequently
- Public awareness for energy conservation
- The gradual discontinuation of incandescent bulb and electric heater
- Limiting the use of air conditioners, or keeping temperature within 25 degrees C
- Encouraging the business community for using solar energy
- Introduction of energy star rating system in the electric appliances through BSTI
- Discouraging the use of neon sign in the markets and shopping malls at night
- Closing of markets and shopping malls within 8 p.m.

3. Climate resilience:

Bangladesh Climate Change Resilience Fund (BCCRF) is a coordinated financing mechanism by the Government of Bangladesh, development partners and the World Bank to address the impacts of climate change. The fund was established in May 2010 with financial support from Denmark, European Union, Sweden and United Kingdom. Switzerland, Australia and United States subsequently joined the fund. This mechanism is enabling the Government to channel in over \$170m grant funds to millions of Bangladeshis to build their resilience to the effects of climate change. The Bangladesh Government leads on the management and implementation of BCCRF.

4. Waste minimization and waste management:

Bangladesh is trying to minimize Waste by 3R strategy. Waste minimization can be achieved in an efficient way by focusing primarily on the first of the 3Rs, "reduce," followed by "reuse" and then "recycle."

Table 2: Current Situation of Wastes in Bangladesh – at a Glance.

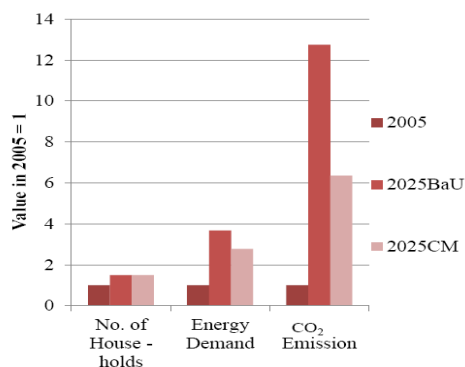
Category	Statistics	Data Source
TOTAL VOLUME OF WASTES (tons/year)		
Total volume of municipal solid wastes in urban areas	4,866,505 (2005) = 13,332.89tons/day x 365 3,000 tons/day in Dhaka (2005)	Waste Concern (2005) JICA (2005)
Agricultural Waste	65 million metric ton per year	Waste Concern and Swiss Contact 2007
Industrial waste (hazardous) from seven selected sectors*	109.47 million/cubic meter/year (waste water) 0.113 million ton/year (sludge) and 26, 884 tons/year (solid waste)	Waste Concern and ADB (2008)
Hazardous Medical Waste	12,271 metric ton per year (2007)	Waste Concern and ADB (2008)
WASTE PER CAPITA (kg/per/day)		
	Urban: 0.41 (2005) Dhaka City: 0.56 (2005) Agricultural:1.68 (based on 2008 rural population)	Waste Concern (2008) JICA (2005)
FUTURE WASTE PROJECTIONS (Total Waste Generation)		
By 2025 (solid waste) 2012 (hazardous waste)	17,155,000 tons/year = 47,000tons/day x 365 0.60 kg/per/day in Urban Areas 2472.07 million/cubic meter/year (waste water), 2.81 million metric ton/year (sludge) and 53,874 metric ton/year (solid waste)	UMP (1999), as cited by Waste Concern (2008) Waste Concern and ADB (2008)
SOLID WASTE MANAGEMENT		
Collection of waste (% of waste generated)	44.30% - 76.47% in major urban cities 43.5% for Dhaka City	Waste Concern (2005) JICA (2005)

Solid waste disposal Facilities	Mainly uncontrolled land-filling (except for the sanitary landfill at Matuail site in Dhaka, supported by JICA). No site or facility for treatment, recycling and disposal of hazardous waste.	Dhaka City Corporation and JICA (2007)
E-WASTES		
Use of electronic goods in year 2006	Mobile phones: 22,000,000 Personal computers: 600,000 Televisions: 1,252,000	Waste Concern (2008)
RECYCLE		
Informal Sector	120,000 urban poor from the informal sector are involved in the recycling trade chain of Dhaka City. 15% of the total generated waste in Dhaka (mainly inorganic) amounting to 475 tons/day are recycled daily.	Waste Concern (2005)

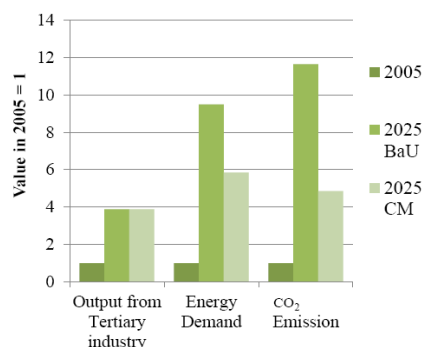
*These are textile, hospital clinics, tannery, pesticides, fertilizer, oil refinery and paper and pulp)
[Source: National 3R Strategy for Waste Management, 2009]

5. Low carbon society:

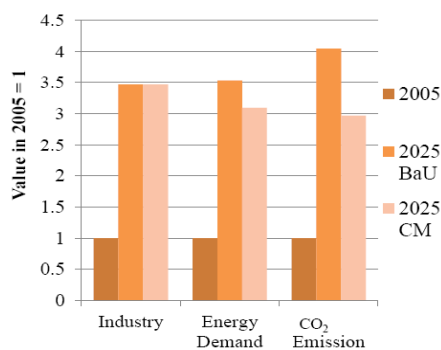
Bangladesh is trying to reduce the carbon emission from its economic society. Several precautionary steps have been taken already. And some policy will be undertaken soon. Bangladesh is forecasting the reduction of carbon emission from its economic society in the following manner.



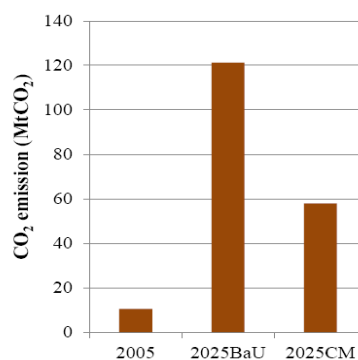
(a) Residential sector



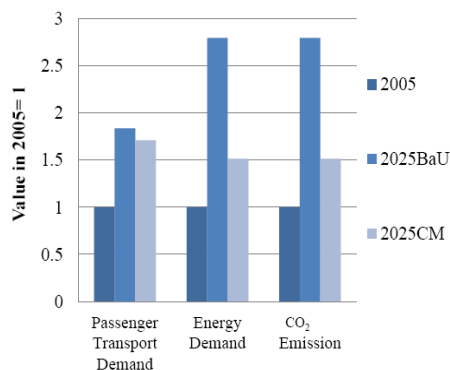
(b) Commercial sector



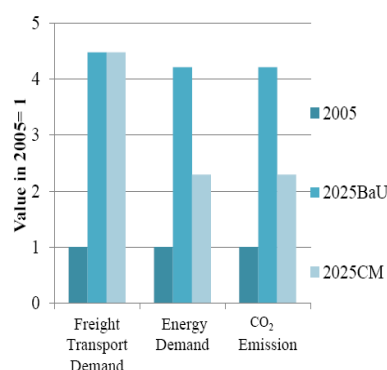
(c) Industrial sector



(d) Power supply sector



(e) Passenger transport sector



(f) Freight transport sector

[Source: Yuzuru Matsuoka *et al.*, [9]

6. Sustainable Agriculture:

The economy of Bangladesh largely depends on the agriculture. Bangladesh has some future targets on agriculture that are as follows:

1) Self-sufficiency in food: 2013

2) Ensuring food security: 2017(a+a+n)

(a+a+n=Availability, accessibility and nutrition).

According to the National Commission of Agriculture report (unpublished), 7% of GDP growth need of 3.1% increases in demand for food crops. Targets are to increase storage capacities by building additional sizes of 50,000 tons by 2015 and 1 million ton by 2021 to facilitate safe storage of rice.

Significant growth in the livestock sector has been observed, in which main contributor is commercial poultry sector. The demand for livestock products will be increased through the growing population, restrained growth of per capita income and higher income elasticity. The demand for milk, eggs, and mutton are increased by 6%, 5.2%, and 5.6% respectively with the growth rate of 4.4%. Annual growth rate for sheep and goat will be about 2%. There is a huge gap of 2 and 1/2 times, higher than country's milk production level, estimated in 2002. Therefore the target is to bridging this huge gap by 2021 [9].

8.0 Recommendations for implication of Green Economy in Bangladesh:

Following are the recommendations for several sectors in establishing the green economy in Bangladesh.

Residential and commercial sector; - Energy efficient lighting (compact fluoresce lights, CFL) and electric fan. - Efficient cooking system (improved cooking stove, using metered gas). - Efficient refrigerator. - Efficient cooling system.	Industrial sector; - Energy efficient furnace, steam boiler and motor. - Fuel switch from oil to natural gas
Transport sector; - Energy efficiency improvement in old and reconditioned engines of road vehicles. - Modal shift from private vehicle to public transport and railway.	Power sector; - Fuel Switch. - Reduction of transmission loss.
Agricultural sector; - Enteric fermentation. - Manure management.	- Managed soil. - Rice cultivation.

9.0 Final Comments:

The study shows that there exists a high potentiality for Bangladesh to transitioning its economy into green economy. Again, Green economy is a different economic concept than the traditional economic model and it is very important in terms of Bangladesh. Government agencies must be responsive in implementing a green economy policy. But, the real roles have to play by the entire private and public organizations that involved in the economic growth of Bangladesh. In present situation, every sector is suffering from environment hazardous. Now, it is the right time to protect all the environmental hazardous and should convert all the environmental hazardous works into environment friendly works which can keep environment fresh for the next generation and similarly Bangladesh can able to establish green economy.

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