

# **Understanding Green Economy in the context of South Asia**

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# **Green Economy:**

**Green economy is one which is low carbon, resource efficient and socially inclusive.**

**Economy “that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities”(UNEP)**

# **Green Features:**

- **Low-carbon energy (renewable energy , energy efficient technologies)**
- **Sustainable production and consumption**
  - **Farming and food production (organic, biodynamic farming and sustainable practices for livestock)**
- **Conservation and sustainable use of biodiversity;**
- **Sustainable transport system**
- **Sustainable tourism**
- **Green jobs, sustainable lifestyles and livelihoods providing social justice and equality**
- **Sound Environmental Governance**

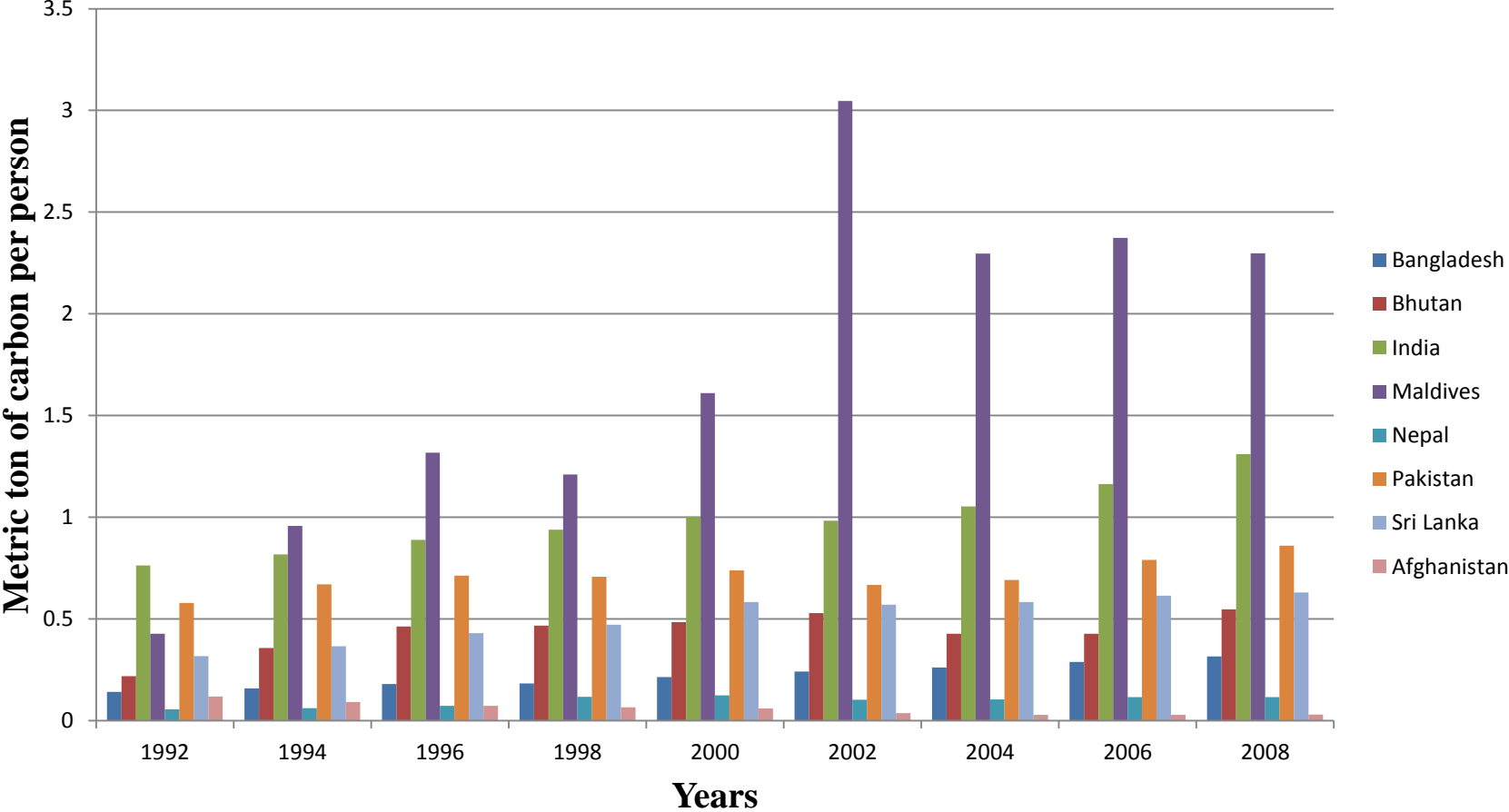
# **Greening Policies: Green growth path to development**

- **The goal is to create incentives and institutions that increase well-being by improving resource management(OECD 2009)**
  - **Pricing mechanism e.g. phase-out of inefficient subsidy, monetary valuation of resources and taxing behavior taxes**
  - **Public procurement policies encouraging sustainable and environment friendly production methods**
  - **Tax reform in favor of environment : pollution tax**
  - **Public investments in infrastructure, based on SD principles**
  - **Public investment to restore, maintain and natural capital**
  - **Government support for R & D for creation of environmentally sound technologies; innovations recognizing the value of natural capital as factor of production**
  - **Social policies to promote equity and inclusiveness**

# **Developing countries and Green Economic Growth: South Asia**

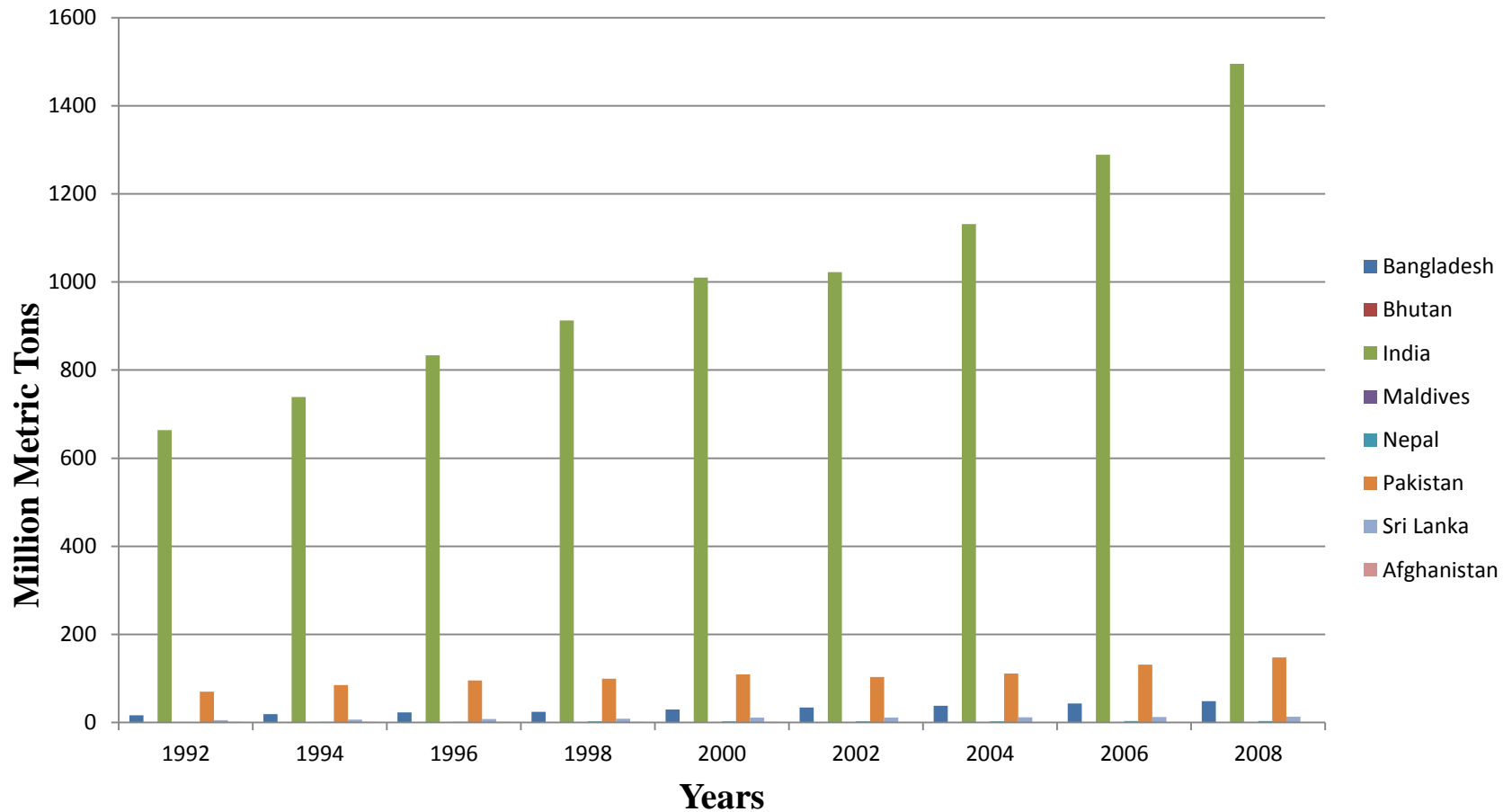
- **Rapid economic development : Necessity for development and poverty alleviation**
  - **Developing countries are seen as the key to achieving global green growth; becoming sources of global economic growth, with growing emissions and more intensive use of natural resources.**
- **Dependence on Natural resource**
  - **economic and social impacts of environmental degradation are particularly serious for developing economies**
- **Vulnerability to climate change**
- **To ensure low carbon development without compromising food, livelihood, water and energy security of people**

# Per capita CO2 Emission: South Asia



Data Source: <http://www.titudorancea.com>

# CO2 Emission from Energy: South Asia



Data Source : <http://www.titudorancea.com>

# Agriculture and Green Economy

- **Given the present concerns regarding the threat to food security due to climate change, attention has focused on how agriculture is impacted by such a change and also how agriculture leads to GHG emission as the sector has been found to contribute nearly 14% to global emission.**
- **Transformation of (Bangladesh) agriculture due to technological change and economic imperatives becoming more energy-intensive and more market-oriented. These also mean that it has become more green house gas (GHG) emission-intensive than before.**
- To ensure low carbon development without compromising food, livelihood, water and energy security of people which are the cornerstones of the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) 2009.



## GHG Emission due to Parboiling and Milling of Paddy(mn mt)

<b>Agent</b>	<b>Emission due biomass</b>			<b>Emission due electricity</b>		<b>Total CO<sub>2</sub></b>
	<b>CO<sub>2</sub></b>	<b>CH<sub>4</sub></b>	<b>N<sub>2</sub>O</b>	<b>CO<sub>2</sub> for drying</b>	<b>CO<sub>2</sub> for milling</b>	
<b>House holds</b>	<b>4.94</b>	<b>0.014</b>	<b>.000003</b>	<b>0</b>	<b>0</b>	<b>4.94</b>
<b>Comm ercial</b>	<b>884.41</b>	<b>2.65</b>	<b>0.035</b>	<b>0.042</b>	<b>0.13</b>	<b>884.58</b>
<b>Both</b>	<b>889.35</b>	<b>2.66</b>	<b>0.035</b>	<b>0.042</b>	<b>0.13</b>	<b>889.52</b>

**Asaduzzaman and Mahmud (2012), Carbon Footprint of Bangladesh Agriculture: An Exploratory Life Cycle Analysis of GHG Emission from Selected Crops**

# GHG Emission by Farm Size

<b>CO2 Emission due to Diesel and Electricity Operated Irrigation Activity (mt)</b>	<b>Crop/fuel</b>	<b>All</b>	<b>Small</b>	<b>Medium</b>	<b>Large</b>
	<b>Rice-D</b>	<b>6772538</b>	<b>3560937</b>	<b>2580019</b>	<b>631581.5</b>
	<b>Potato-D</b>	<b>274621.2</b>	<b>139783.1</b>	<b>110317.4</b>	<b>24520.65</b>
	<b>Rice-E</b>	<b>176355.2</b>	<b>92725.92</b>	<b>35324.23</b>	<b>3294.205</b>
	<b>Potato-E</b>	<b>7151.004</b>	<b>3639.886</b>	<b>1462.17</b>	<b>130.5557</b>
	<b>Rice</b>	<b>6948893</b>	<b>3653663</b>	<b>2615343</b>	<b>634875.7</b>
	<b>Potato</b>	<b>281772.2</b>	<b>143423</b>	<b>111779.6</b>	<b>24651.21</b>
	<b>Electric</b>	<b>183506.2</b>	<b>96365.81</b>	<b>36786.39</b>	<b>3424.76</b>
	<b>Diesel</b>	<b>7047159</b>	<b>3700720</b>	<b>2690337</b>	<b>656102.2</b>
	<b>Both</b>	<b>7230666</b>	<b>3797086</b>	<b>2727123</b>	<b>659526.9</b>
<b>IndirectCO<sub>2</sub> Emission due to Urea Application(mn mt)</b>	<b>Paddy</b>	<b>3.98</b>	<b>2.16</b>	<b>1.49</b>	<b>0.35</b>
	<b>Potato</b>	<b>0.18</b>	<b>0.09</b>	<b>0.07</b>	<b>0.01</b>
<b>Nitrous Oxide Emission from Urea Use (Th. Mt)</b>	<b>Rice</b>	<b>14.13</b>	<b>7.66</b>	<b>5.28</b>	<b>1.25</b>
	<b>Potato</b>	<b>0.62</b>	<b>0.32</b>	<b>0.25</b>	<b>0.05</b>
<b>Methane emission</b>			<b>175 (53%)Gg</b>	<b>121 (36%)</b>	<b>37 (11%) Gg</b>

## **Summary View of GHG Emission from Rice and Potato on a Life Cycle Basis(mn mt)**

Activity	CO <sub>2</sub>			CH <sub>4</sub>	N <sub>2</sub> O
	Direct	Indirect	Total		
<b>Tillage</b>	<b>0.82</b>	<b>0</b>	<b>0.82</b>		
<b>Irrigation/water management</b>	<b>7.05</b>	<b>0.18</b>	<b>7.23</b>	<b>0.33</b>	
<b>Fertilisation</b>	<b>0</b>	<b>2.41</b>	<b>2.41</b>		<b>0.009</b>
<b>Threshing</b>	<b>0.3</b>	<b>0.02</b>	<b>0.32</b>		
<b>Potato cold storage</b>	<b>0.005</b>	<b>0.03</b>	<b>0.035</b>		
<b>Paddy parboiling/drying</b>	<b>889.35</b>	<b>0.042</b>	<b>889.39</b>	<b>2.66</b>	<b>0.035</b>
<b>Paddy milling</b>	<b>0</b>	<b>0.13</b>	<b>0.13</b>		
<b>All (gross)</b>	<b>897.52</b>	<b>2.81</b>	<b>900.03</b>	<b>2.99</b>	<b>0.049</b>
<b>All (net)</b>	<b>8.17</b>	<b>2.81</b>	<b>10.64</b>	<b>2.99</b>	<b>0.049</b>
<b>GWP</b>	<b>8.17</b>	<b>2.81</b>	<b>10.64</b>	<b>62.79</b>	<b>15.19</b>

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# Policy Implication in Agriculture

- **Energy efficiency**
  - **First, while lowering emission intensity may not be the major objective of the processes and policies of economic development in the country, given the resource base, its limited extent and possible degradation, it should be a major goal of the public policy to improve energy efficiency, raise resource use efficiency and lower emission intensity as a positive consequence.**
- **Mitigation potential**
  - **Tillage**
  - **Water management and irrigation**
  - **Fertilizer application**
  - **Parboiling**

# SMEs and Green Economy

- **SMEs are the biggest employment generator and produces a massive part of the GDP in the developing countries**
- **“ Transition to the green economy may be a gigantic step for the SMEs. The challenges lie in , which is not at all an easy task and will be met with a handful of rather severe challenges” (*SMEs and Green Growth, OECD, 2010*).**
- **Major Challenges**
  - **Technical skills shortage**
  - **Knowledge gap and financial ability**
  - **External dependence- technology, fund**
  - **Regulations**
  - **New market competition**

## **What Developing countries are already doing?**

- **Green growth through farming, plantation forestry and aquaculture:**
  - “Nepal’s small green enterprises and the ‘promotion of collective organic farming – vegetables, vegetable seeds, spices, cash crops etc. – through contract/ leasehold and cooperative farming; production of organic essential oils such as chamomile, grass and natural fibres; tourism – rural/home-based/eco-tourism with training and investments on diversifying the tourism products’” (UNCSD submission, Nepal, 2012).

## **What Developing countries are already doing?**

- **Green growth through biodiversity and non-provisioning ecosystem services:**
  - “ Costa Rica’s Payments for Environmental Services program, created by law in 1996 and financed through taxes on fuel and water, discourages deforestation by paying forest owners for the environmental services that the forest produces, such as watershed and biodiversity protection and greenhouse gas mitigation.”( OECD 2012)

# What Developing countries are already doing?

- **Urban systems and green growth:**
  - **7-10 % of non-grid area is covered by solar home in Bangladesh(BIDS study 2012)**
  - **3-R waste management study by the Bangladesh government (GOB)**
  - **“WasteConcern, a social enterprise founded in 1995 in Bangladesh, transforms roadside organic waste into agricultural compost. From 2001 to 2006, USD 1.24 million in foreign currency were saved by avoiding the import of chemical fertilizer. 124,400 tonnes of waste was processed, 986 direct jobs were created annually, and USD 1.10 million was raised in compost sales.” its model ([www.wasteconcern.org](http://www.wasteconcern.org)).( OECD 2012)**
- **Energy systems and green growth:**

**Improved cook stoves ( Bangladesh)**

**In Ghana Toyola manufactures and sells cook stoves which are 40% more efficient than the traditional models, to date supplying 35,000 households, offsetting 15,000 tonnes of carbon dioxide emissions and employing over 200 employees**



# What Developing countries are already doing?

- **Manufacturing systems:**
- **Example**
  - **Brandix, Sri Lanka's largest clothes manufacturer – known for its high social and environmental standards.**
  - **“The restructuring of its showcase EcoCentre factory brought a reduction of 80% in carbon emissions, 46% energy saving, 58% reduced water consumption, earning it the highest rating ever awarded under the US Green Building Council's LEED rating system ([www.brandix.com](http://www.brandix.com)).” (OECD 2012)**

# Transition to a green economy

- **Mainstreaming green growth in development plans**
  - for example, Bangladesh government has been working on mainstreaming climate change in development programs and investments)
- ***Policy instruments that deliver green growth for key sectors/resources.***
  - **Low carbon development in agricultural practices**
  - **public procurement, and payments for ecosystem services, within market mechanisms**
  - **roles of NGOs**
  - **As demand for energy and transportation is growing rapidly, investment in energy efficiency can reduce demand growth and low carbon tech can reduce the impact on climate change**
- **Transfer to technology through national agenda and international cooperation**

# **Transition to a green economy**

- **Fiscal Reform**

- **Energy price and taxation reform – favoring investment in more efficient and low-carbon technologies as they can support other development priorities and encourages co-benefits from mitigation policies including energy security and improves air quality**
- **Carbon pricing is essential to influence investment decisions in low carbon technologies- including renewable energy and carbon capture and storage. CDM very relevant though not without limitations**
- **Reduction of tariff barriers**

# **Areas for cooperation among South Asian countries**

- **Developing cooperation for long-run energy security**
  - **Technology cooperation**
  - **Developing projects (carbon market-based-mechanisms development)**
- **Common position on climate change negotiations reflecting reality**
- **Research on economics of climate change and sustainable development**

# Final Words

- **Learn, act , revise, learn and then act**