

Some Observations on Governance Issues in Energy Sector of Bangladesh

by

Dr. M. Nurul Islam

Former Professor, Chemical Engineering Department and Institute of Appropriate Technology, Bangladesh University of Engineering & Technology

Dhaka-1000, Bangladesh

E-mail:nurul@iat.buet.ac.bd

Dr. Engr. M.A. Rashid Memorial Lecture

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3 May, 2014

Tributes to Dr. Engr. M.A. Rashid

I consider it a great honour to have been invited to deliver the Dr. Engr. M.A. Rashid Memorial Lecture for the second time in my life. During last 50 years, I have tried my best to follow the ideals of Dr. M.A. Rashid. During 1963-67 when I was an undergraduate student at BUET, I saw him as a noble teacher and the founder of modern engineering education in our country. When I joined as a lecturer in 1968, I had the opportunity to observe him as a great leader and an efficient administrator. In mid 1970s, I had the opportunity to work with him closely in BUET Alumni Association, I saw Dr. Rashid as an excellent human being. His death on 6 November 1981 was a great loss for the nation and the engineering community in particular. I humbly pray to Allah for him in my daily prayers. On 17 February 2001, for the first time I delivered the Dr. Engr. M.A. Rashid Memorial Lecture at the 45th Convention of IEB held at Khulna on: “Energy Security for the People of Bangladesh Must be Given Priority Over the Export of Natural Gas”. I express my deep gratitude to Allah that Bangladesh did not get into the ‘Trap of Gas Export’. It is well recognized that Dr. Rashid established BUET as the apex engineering institution of the country through Good Governance. This is why, I have decided to deliver the second Dr. Rashid lecture of my life on “Some Observations on Governance Issues in Energy Sector of Bangladesh” with the sincere hope that it may contribute in improving the governance in the Energy Sector for the benefit of the people of Bangladesh.

Some Observations on Governance Issues In Energy Sector of Bangladesh

- 1.0 Introduction**
- 1.1 Energy-Economy Nexus in Bangladesh**
- 1.1 Energy-Economy Nexus in Regional Countries**
- 1.2 Governance & Good-Governance**
- 1.3 Energy Crisis of Nigeria**
- 1.4 Sustainable Energy Development in India**
- 1.5 Energy Crises in Bangladesh**

- 2.0 Conceptual Issues on Governance of Energy Sector**
- 2.1 Organizational Framework**
- 2.2 Legal Framework**
- 2.3 Planning Framework**

- 3.0 Governance in Energy Sector of Bangladesh**
- 3.1 Global Energy Scenario**
 - 3.1.1 Import of Energy**
 - 3.1.2 World Energy Situation**
- 3.2 Energy Situation in Bangladesh**
 - 3.2.1 Energy Conservation & Efficient Energy**
 - 3.2.2 Governance of Natural Gas Sector**
 - 3.2.3 Governance of Coal Sector**
 - 3.2.4 Governance of Petroleum Sector**
 - 3.2.5 Governance of Renewable Energy Resources**
 - 3.2.6 Governance of Nuclear Power**
 - 3.3.7 Governance of Power Sub-Sector**
- 3.3 Overall Governance of Energy Sector**

1.1 Energy-Economy Nexus in Bangladesh (1)

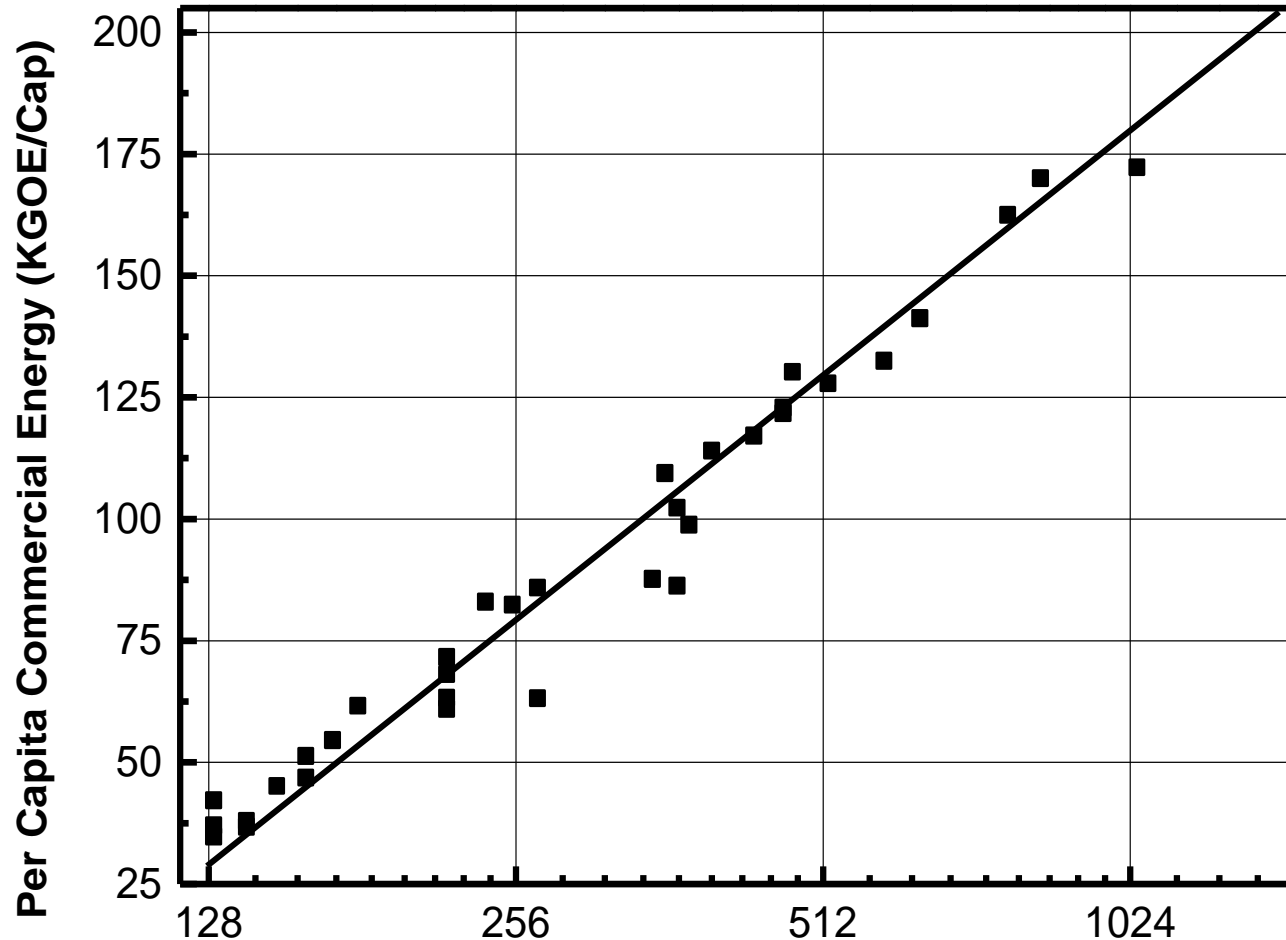


Figure 1: Per Capita Commercial Energy Consumption Vs Per Capita GNI of Bangladesh During 1980-2013

1.1 Energy-Economy Nexus in Regional Countries (2)

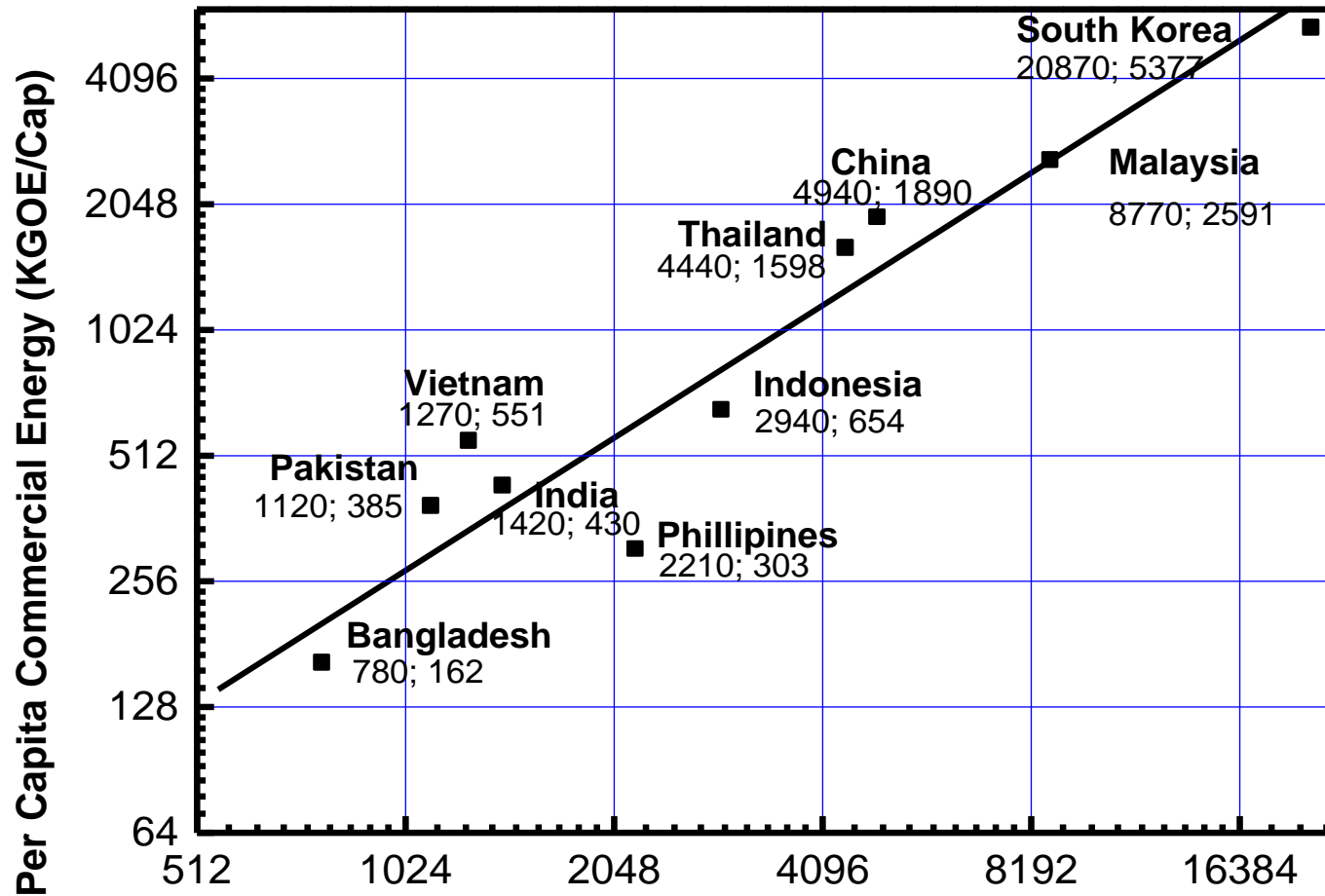


Figure 2: Per Capita Commercial Energy Consumption Vs Per Capita GNI in 2011

1.1 Energy-Economy Nexus (3)

Economic Status in 2011	Per Capita GNI (US\$/Cap)
Low-Income	571
Lower-Middle-Income	1772
Middle-Income	4149

- **In 2011 per capita GNI of Bangladesh: US\$ 780 & per capita commercial energy consumption (162 kgoe/Cap) and total energy consumption 24.4 mtoe.**
- ❑ **By 2020 Bangladesh wants to reach the level of middle income country: US\$/Cap 4149. It may be very difficult to attain the level.**
- ✓ **By 2020 it may be possible to reach lower-middle-income country: US\$/Cap 1772 level. Per capita commercial energy consumption to reach (500 kgoe/Cap) and total energy consumption 82.75mtoe.**

1.1 Energy-Economy Nexus (4)

- ❖ Abundant reserves of commercial energy resources may not be able to ensure energy security and sustainable economic growth in the absence of Good Governance.
- ❖ Coordinated actions (good governance) of three inter-related policy measures are necessary to Ensure Sustainable Energy Security. **They are:**
 - **Availability of Energy (from domestic & imported sources)**
 - **Accessibility to Energy (to different areas of the country)**
 - **Affordability of Energy (to different categories of consumers)**
- ❖ Examples of Energy Crisis of Nigeria, Sustainable Energy Development In India and Energy Crisis in Bangladesh have been presented to highlight the Importance of Good Governance in Ensuring Energy Security.

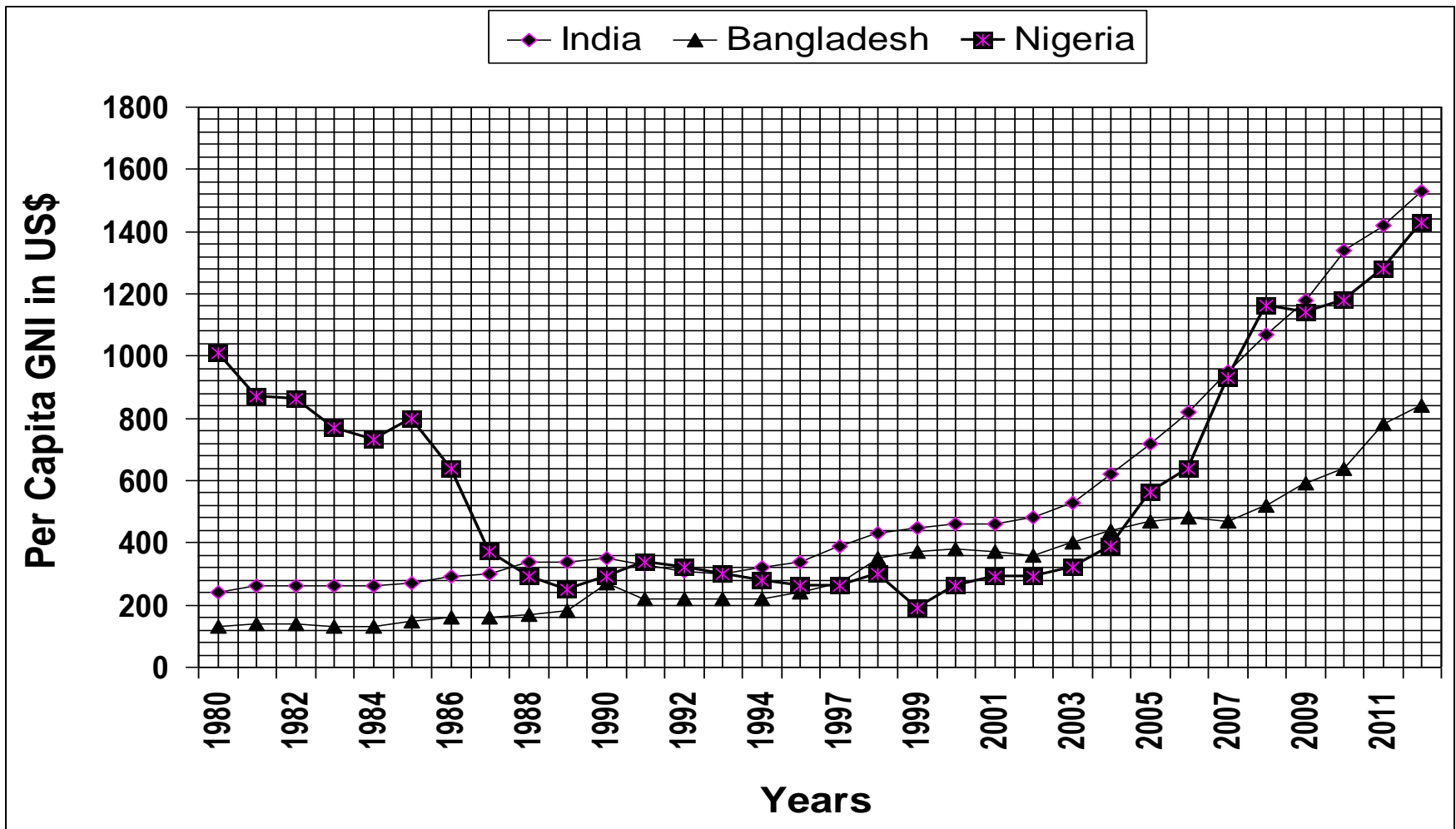
1.2 Governance & Good-governance

- ❖ **Governance** is “the process of decision-making and the process by which decisions are implemented (or not implemented)”. The term governance can apply to corporate, international, national, local governance or to the interactions between other sectors of society.
- ❖ **Good governance** is an indeterminate term used in international development literature to describe how public institutions conduct public affairs and manage public resources.

1.3 Energy Crisis of Nigeria

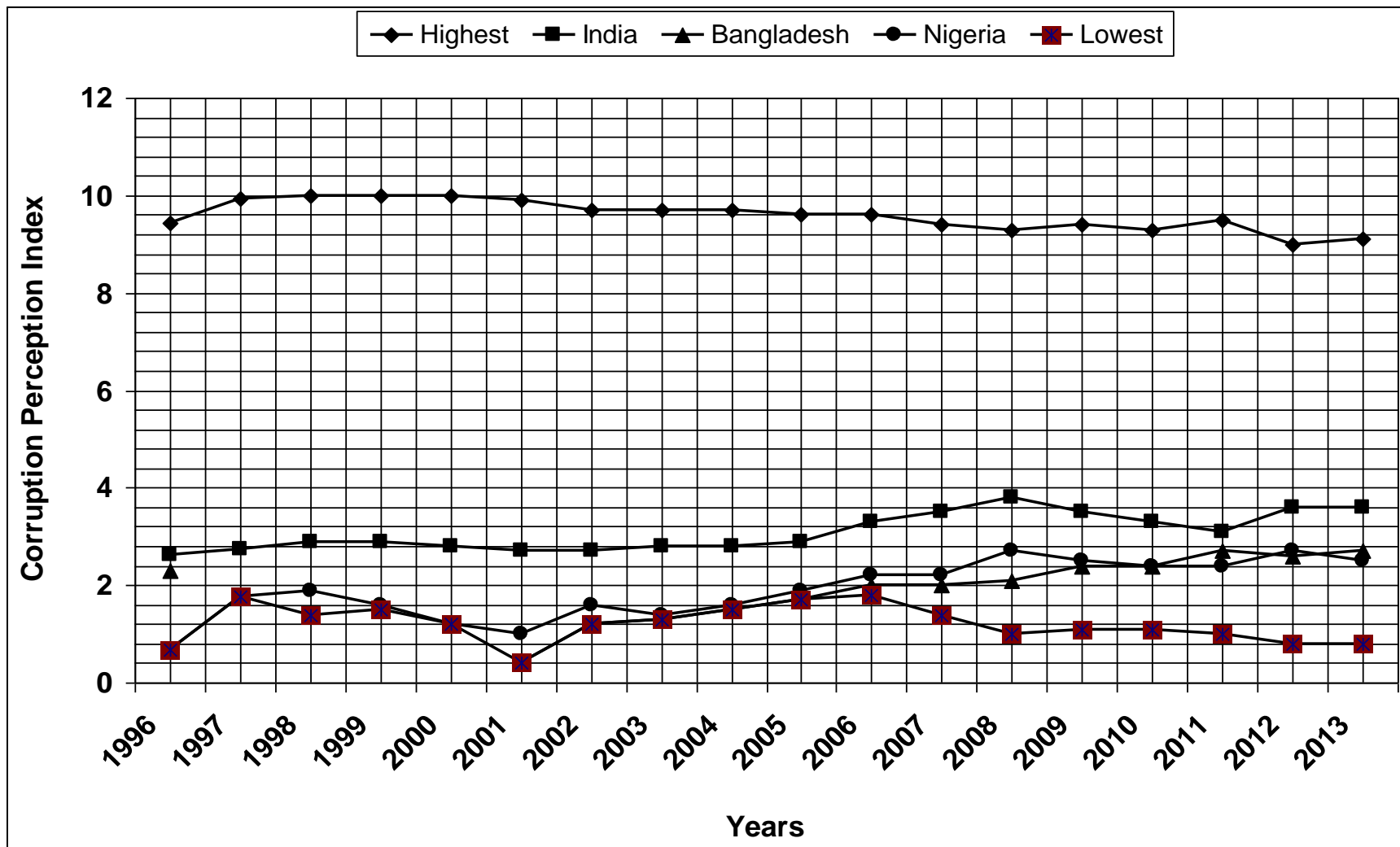
- ❖ **Nigeria is a member of OPEC and is the largest oil producer in Africa and among the top ten globally. Recoverable reserves of oil and natural gas were reported as 5 billion tonnes and 182tcf respectively. Nigeria is also well endowed with other mineral resources.**
- ✓ **Per capita GNI of the country was US\$ 1010 in 1980 and decreased to US\$ 190 in 1999 due to absence of good governance. Nigeria suffered both Economic & Energy Crises. Per capita GNI of Nigeria increased to US\$ 1430 in 2012. Starting from 2004, Nigeria made remarkable economic gain (rapid increase of per capita GNI) by deciding to join EITI.**
- ✓ **In the scale of 10 (no corruption), Nigeria's CPI scores during 1996 to 2013 varied between 0.69 to 2.7, which was similar to that of Nigeria.**

Per Capita GNI of Bangladesh, India and Nigeria During 1980 to 2012



Source: Compiled by the Author from World Development Reports

Corruption Perception Indices (CPI) of Bangladesh, India & Nigeria During 1996-2013



Source: Compiled by the Author from CPI Reports of Transparency International [Energy Data of IEB & BCIM-14.xls]

1.4 Sustainable Energy Development in India

- In India long-term energy demands of the country assessed & energy development programs implemented in a co-ordinated manner by the following energy related ministries:
 - ✓ Ministry of Coal (MoC),
 - ✓ Ministry of Petroleum and Natural Gas (MoPNG),
 - ✓ Ministry of New and Renewable Energy (MNRE),
 - ✓ Ministry of Power (MoP),
 - ✓ Department of Atomic Energy.
- Good Governance helped India to ensure assured supply of energy (from local and imported sources), which helped them to maintain high economic growth on a sustainable basis.
- Policy Planners, Decision Makers and Energy Professionals are aware about energy security issues. Undertook coordinated actions to ensure energy security.
- Starting from 2003, India's per capita GNI increased rapidly from US\$ 530 to US\$ 1530 in 2012.
- India's CPI Scores during 1996-2013 varied between 2.63 to 3.6. India's CPI Scores were better than Nigeria.

1.5 Energy Crises in Bangladesh (1)

- In the absence of a comprehensive energy development plan based on assessment of long-term energy demands, attempts have been made by the vested interest groups to export natural gas and coal.**
- ❑ Floating on gas in 2000; natural gas crises since 2005. Since 2006, Propaganda to extract coal by open cut mining and export.**
- Present energy crises due to lack of Good Governance of all the governments that governed the country during last thirty years (JP/BNP/Awami League/BNP/Caretaker Government/Awami League). Decisions on energy and power development made on ad-hoc basis and influenced by vested interest groups.**

1.5 Energy Crises in Bangladesh (2)

□ Attributes to lack of Good Governance (1)

- **Absence of institution(s) to prepare long-term energy plan.**
- **Absence of Institute (NEI) for undertaking policy research.**
- **Lack of attention for balanced development of primary energy sources (e.g. exploration, production, processing, transmission/ transportation, distribution etc.).**
- **Lack of attention for balanced development of power sector (e.g. generation transmission, distribution etc.).**
- **Lack of transparent and rational energy tariff policy (e.g. coal, oil, gas, electricity, renewable power etc.).**
- **Lack of capability for assessing techno-economically extractable quantity of non-renewable energy (e.g. coal, oil, natural gas) and Nuclear Power Plant.**
- **Lack of capability for assessing techno-economically harnessable quantity of renewable energy resources.**

1.5 Energy Crises in Bangladesh (3)

□ Attributes to lack of Good Governance (2)

- Absence of apex organization for promotion of renewable energy and efficient energy technologies. Need for SREDA was identified in NEP 1996. SREDA Act 2012 was passed; in 2014 SREDA is in the process of institutionalization.
- Absence of legal framework for promotion of efficient energy programs (e.g. Energy Conservation Rules).
- Absence of technology specific Research-Development & Demonstration (RD&D) organizations for different RETs.
- Absence of comprehensive HRD program for energy sector.
- Absence of sustainable recruitment policy.
- Absence of Capacity Development Program through need based training programs (local and foreign).
- Lack of transparency in making decision(s) to undertake and implement energy development projects.
- Lack of coordination among different ministries.
- Lack of commitment to ensure continuity of policy.
- Politicization of energy institutions.

1.5 Energy Crises in Bangladesh (4)

- Economic growth of Bangladesh has been constrained due to energy crises.**
- Bangladesh is not an EITI complaint country.**
- Bangladesh should try to be an EITI complaint country for transparent operations of coal, oil and gas industries.**
- According to Corruption Perception Index (CPI) of Transparency International (TI), performance of Bangladesh has never been satisfactory. In the scale of 10 (no corruption), Bangladesh's CPI scores during 2001 to 2012 varied between 0.4 to 2.7, which was similar to that of Nigeria.**

2.0 Conceptual Issues on Governance of Energy Sector

2.1 Organizational Framework

- Organogram for Governance of Coal, Oil & Gas Sub-Sectors.
- Organogram for Governance of Power Sub-Sector.

2.2 Legal Framework

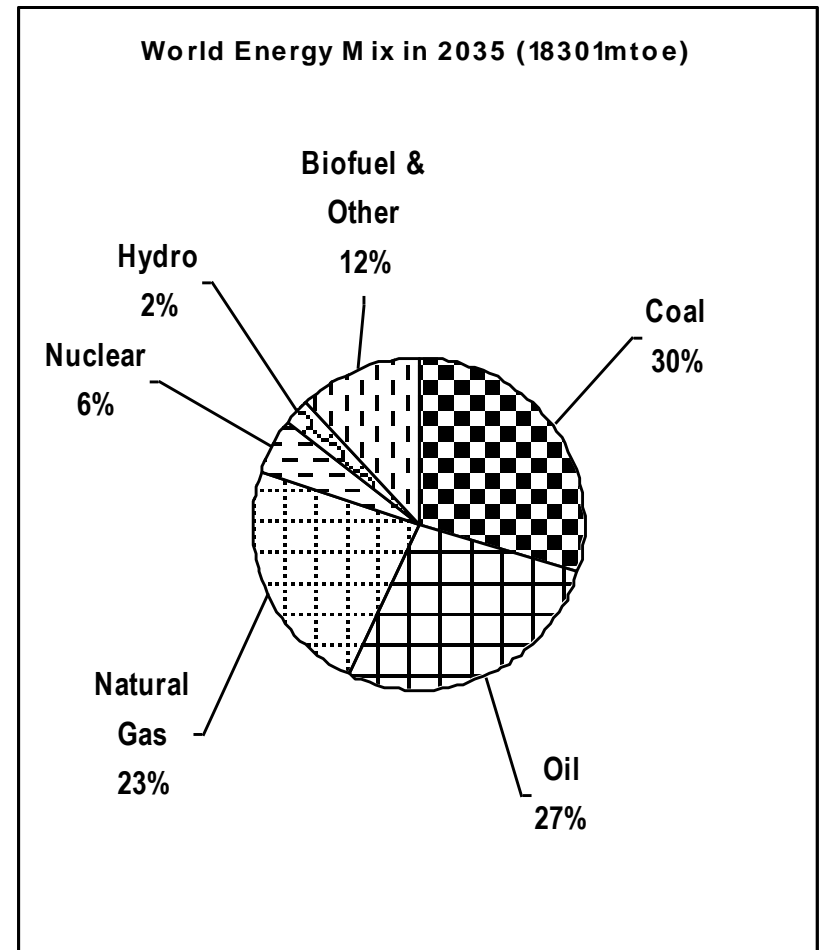
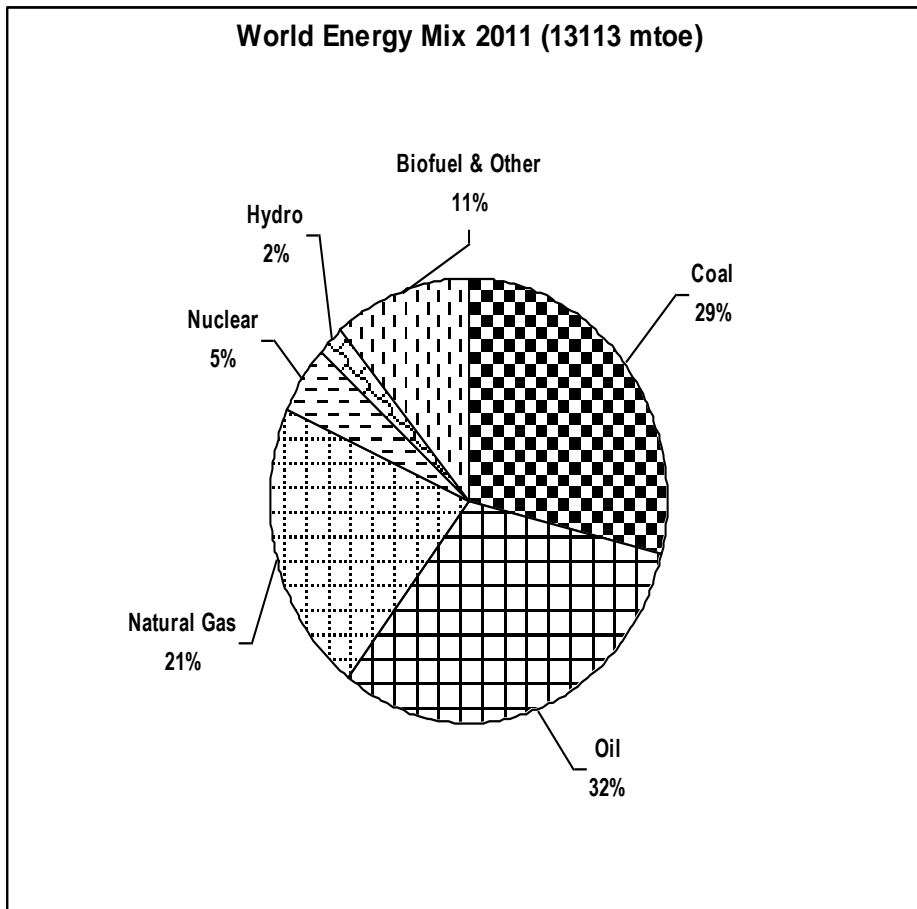
- ✓ The Constitution
- ✓ The Laws; The Rules and Regulations
- ✓ Sectoral & Sub-sectoral Policies

2.3 Planning Framework

- Integrated Energy Planning
- Dimensions of Energy Security
- o Imported Energy will Play Important Roles in Future.

3.0 GOVERNANCE IN ENERGY SECTOR OF BANGLADESH (1)

3.1 World Energy Situation



3.0 GOVERNANCE IN ENERGY SECTOR OF BANGLADESH (2)

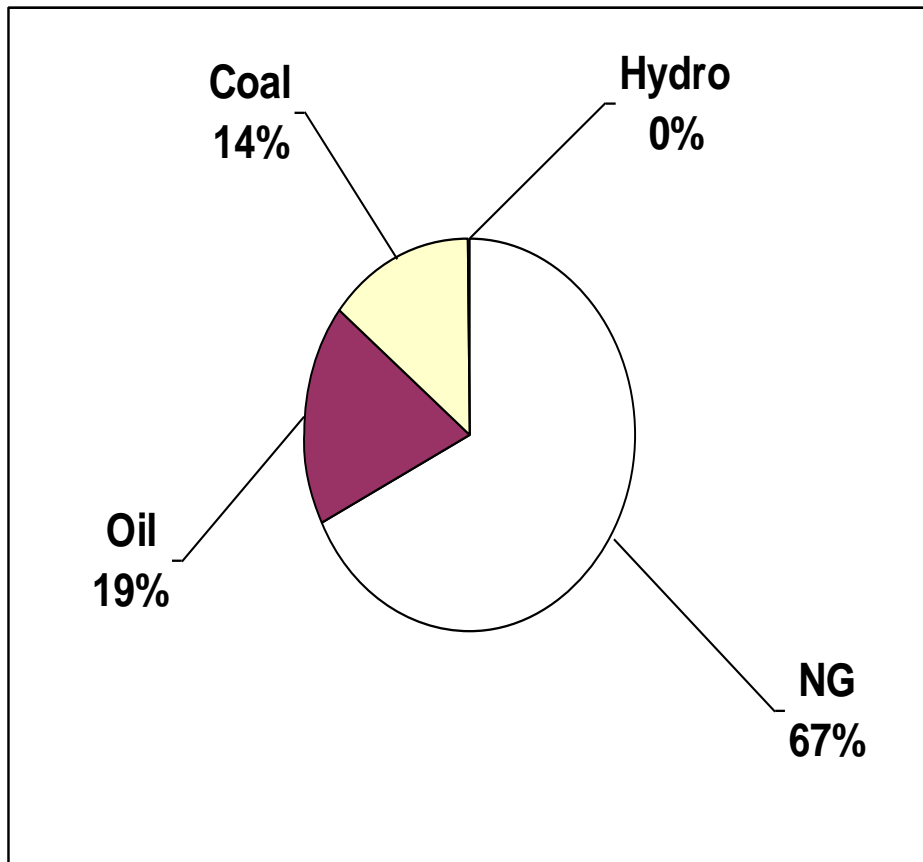
3.1 World Energy Situation in 2011 and 2035

- ❖ **Geo-political Factors: price of fossilfuels (coal, oil & gas), results of climate change negotiation, promotion of efficient technology, RE, Nuclear**
- ❖ **Reserves of Fossilfuels are finite, future demand should be met by Renewable & Nuclear.**
- ❖ **Decrease Fossilfuels Consumption to Reduce GHG Emissions**
- ❖ **Increase Renewable & Nuclear Power to Reduce GHG Emissions**

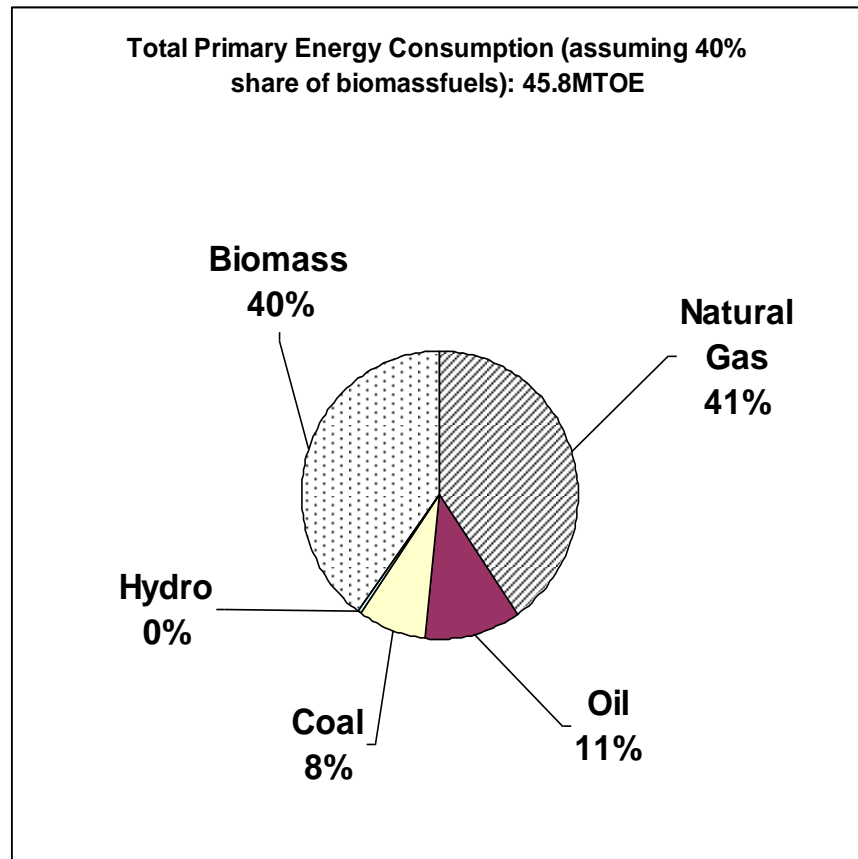
Particulars	2011	2035
Total Energy (mtoe)	13113	18301 (+39.6%)
Fossilfuels (percent)	82	80
Renewable (percent)	13	14
Nuclear (percent)	5	6

- **World's Dependence on fossilfuels will continue**
- **R/P of coal = 109 years, R/P of oil=53 years and R/P of gas=56 years**

3.2 Energy Consumption of Bangladesh in 2013



Total Primary Commercial Energy Consumption



Total Primary Energy Consumption Including Biomassfuels

3.2.1 Energy Conservation & Efficient Energy Programs

- Good potential to reduce energy demand through energy conservation and efficient energy programs.**
- Due to the absence of Energy Conservation Act & Rules, appropriate institutions for implementation of programs and rational energy tariff policy; various attempts made during last 30 years could not achieve desired success.**
- Enactment of SREDA Act 2012, establishment of Sustainable and Renewable Energy Development Authority, approval of Energy Conservation Rules will help in achieving success.**
- JICA has undertaken a project for development of Energy Efficiency and Conservation Master Plan for SREDA in 2014.**

3.2.2 Governance of Natural Gas Sector (1)

- **Gas production in 2013=0.801tcf**
- **(RR/P) on July 2013 $= (17.12/0.801)=21.37$ years. Actual number of years, gas will last, depend on the rate of consumption. Production of gas may start decreasing from 2016.**
- **Average daily production $= (0.801/365) \times 10^6 = 2194$ mmcfd**
- **Daily Shortage of gas more than 500mmcf**
- **Gas Produced by 3 International Oil Companies (IOCs)=55%**
- **Gas Produced by 3 National Gas Companies=45%**

3.2.2 Governance of Natural Gas Sector (2)

- **IOCs' gas are purchased by Petrobangla at wellhead price indexed to international market price of oil.**
- **BGFCL (34%) & SGFL (7%) gas are purchased by Petrobangla @ Tk. 7 per mcf (fixed on arbitrary basis).**
- **BAPEX (4%) gas are purchased @ Tk. 25 per mcf (fixed in 2008). In 2014, average production costs of gas produced by BAPEX are about Tk. 66 per mcf. Purchase price of BAPEX gas should be increased to at least Tk. 70 per mcf.**
- **EMRD should allow, BGFCL, SGFL and BAPEX to prepare & implement DPP of gas development projects (similar to all development projects) on cost plus profit basis; and average wellhead price of national gas should be determine by a Upstream Regulator.**

3.2.2 Governance of Natural Gas Sector (3)

- **Planned to import LNG and to establish re-gasification plant to meet the shortage of gas.**
- **Currently international market price of LNG varies between US\$12 to US\$15 per mcf.**
- **Much cheaper (US\$1.0 to US\$1.2 per mcf) to produce natural gas by national gas companies.**
- **Establish National Exploration and Production Company (NAPEX) by merger of BAPEX, BGFCL & SGFL. NAPEX should be provided with sufficient funds from Gas Development Fund (GDF) to carryout exploration activities.**
- **At present BAPEX has 5 sets of drilling rigs with necessary manpower. Petrobangla should ensure effective use of infrastructural facilities available with the national gas production companies with the fund available from Gas Development Fund (GDF).**
- **Recently a Foreign Company was engaged by Petrobangla to drill 5 gas wells within BAPEX franchise areas at much higher costs.**

3.2.2 Governance of Natural Gas Sector (4)

- **Petrobangla purchases gas from the IOCs at international market price. Similarly, gas sale to export oriented international companies in Bangladesh, should also be linked with the price of exported products (e.g. cement, fertilizer etc.).**
- **Unsolicited offers should not be considered to avoid litigations.**
- **As per Article 11 of the Bangladesh Petroleum Act 1974, EMRD should publish Model PSC as the rules of the act in Gazette.**
- **Accounts of all the IOCs should be audited by the office the CAG as per provision of the Constitution (Article 128).**
- **EMRD should designate an upstream regulator to approve an average wellhead price of natural gas for subsequent computation of consumers level price approved by the downstream regulator (BERC).**
- **EMRD should interact with the major stakeholders (NBR, BERC, Petrobangla and Petrobangla Companies) to develop a transparent method of computation of gas tariffs and distribution gas revenues among the stakeholders.**

3.2.3 Governance of Coal Sector (1)

3.2.3.1 Coal Resources

- **Total Coal Resources in 5 Fields: 3300 million tonnes.**
- **Jamalganj Coal (1053Mt) not Extractable Because of High Depth (640-1158m).**
- **Total in-situ coal resource in 4 Coal Fields: 2247 million tonnes**
- **Proved in-situ reserve: 884 million tonnes**
- **Barapukuria Coal Deposit: 303Mt. Underground Coal Mine in Operation with Design Capacity: @ 1 Mt per year. Total coal extracted during 2005-2012 = 5.2 million tonnes.**
- **Phulbari Coal Development Proposal Submitted by Asian Energy Corporation (AEC) : Total Reserve 572 million tonnes. Extractable Reserve by Opencast Method: 475million tonnes Over a Period of 35 Years (@ 15Mt Per Year).**
- **Khalaspir Coal Deposit (143 million tonnes) : A Consortium of Chinese and Bangladeshi Company Proposed to Develop Coal Field by Under Ground Mining Method @ 2 million tonnes Per year.**
- **Dighipara Coal Basin (150million tonnes) : Petrobangla has got Exploration License for development of Dighipara Coal Basin.**

3.2.3 Governance of Coal Sector (2)

3.2.3.2 Legal and Policy Aspects for Development of Coal

- ❖ **The Mines & Mineral Resources Act. 1992 and The Mines & Mineral Rules 2012 are the legal framework for the development of all the mines (Including Coal Mines).**

- **It is not legally obligatory to have and approved Coal Policy for the development of Coal Mines.**

- **Even then Energy and Mineral Resources Division have been trying to get a Coal Policy approved by the cabinet. EMRD has prepared 11 versions of Coal Policy during the period of three political governments (2005-2013).**

- ❖ **For further information you may read Prof. M. Nurul Islam's Articles published in the Prothom-Alo on 13th & 23rd December, 2010. Coal Policy prepared to give undue favor to foreign company.**

3.2.3 Governance of Coal Sector (3)

3.2.3.3 Strategies for Coal Development(1)

- **In 1973 all the privately owned coal mines of India (more than 500 mines) were nationalized. Since 1973, in India all the mines have been developed and managed by state owned Coal India Ltd. (CIL).**
- **Because of serious negative environmental impacts, Mining of Coal should not be allowed by private sector.**
- **In Bangladesh a State-owned Mining Corporation (Khanibangla) should be established for overall supervision and sustainable development of all the minerals including coal. Existing two mining companies (BCMCL, MGMCL) and the development of all other coal basins should be given to Khanibangla.**
- **Following the experiences of development of hydrocarbon under Production Sharing Contract, in future Development of Coal Mines Should Also be Considered Under Production Sharing Contract [PSC-Coal].**

3.2.3 Governance of Coal Sector (4)

3.2.3.3 Strategies for Coal Development(2)

- Hydro-geological (100-150m aquifer over the coal seams), geological (very thick coal seams located below aquifer), spatial (all the four coal basins are located within a smaller area), socio-economic (high population density and three cropped areas) & environmental conditions of the coal zone of Bangladesh are very complex for open cut coal mining. Experiences of open cut mining can not be transferred from other countries. As for example: **Population Densities (Person/Sq.km) of the countries (in 2011) practicing Open Cut Coal Mining are: Australia-3, Canada-4, USA-34, Indonesia-134, China-144, Germany-235, India-418, Bangladesh- 1156 (Highest in the World).**
- Because of special characteristics of coal zone it is necessary to undertake pilot study for open cut coal mining at northern part (shallow depth) of Barapukuria Coal Mine under the supervision of BCMCL under PSC. If the result of PILOT STUDY found satisfactory, open cut mining may be adopted on commercial basis for other coal basins. This was recommended in 2007 (draft coal policy).

3.2.3 Governance of Coal Sector (5)

3.2.3.3 Strategies for Coal Development(3)

- **EMRD should decide about the Phulbari Coal Development Project as Per Law and the Suggestions of the Expert Committee Report Submitted in 2006.**
- **Future Decision on Open Cut Mining on Commercial basis should be considered on the basis of the experiences of the PILOT STUDY at the North of Barapukuria.**
- **As per Article 18A protection of environment essential; must be ensured by DOE.**
- **Surface Mining Control & Reclamation Act 1977, USA was enacted for surface mining (www.osmre.gov, www.epa.gov). Bangladesh should also enact similar law for reclamation of mined lands.**
- **Considering the scarcity of lands; Enact Law For Return of Reclaimed Land to Original Owners At No Cost.**

3.2.3 Governance of Coal Sector (6)

3.2.3.3 Strategies for Coal Development(4)

- **Mandatory to establish mine-mouth power plant for use of coal. Extraction of coal should be synchronized with due attention to local demand of coal, to avoid export.**
- **Government should establish the office of the Chief Inspector of Mines as per mining rules to oversee the safety aspects of the two existing mines (BCMCL, MGMCL) and mines to be developed in future.**
- **Bureau of Mineral Development (BMD) should be strengthened to carryout its existing functional responsibilities effectively and BMD should be assigned to oversee the reclamation of used mining lands as per the proposed reclamation law.**
- **Department of Environment (DOE) should approve Standard Guidelines for carrying out EIA for Coal Mining, Storage, Transport and Power generation.**
- **DOE should be strengthened to monitor and evaluate the performance of Mining Operations and a office of DOE should be established in the mining zone with laboratory facilities.**

3.2.4 Governance of Petroleum Fuels (1)

3.2.4.1 Financial Performance of BPC During 2002-2013

(In Taka Million)

Financial Year	Profit(+)/ Loss (-)	Contribution to Exchequer
2001-2002	-7801.60	30330.00
2002-2003	-76.10	27660.00
2003-2004	-9589.30	30872.70
2004-2005	-23178.80	24589.50
2005-2006	-33377.80	26202.60
2006-2007	-23146.30	27565.50
2007-2008	-70503.00	30036.10
2008-2009	-10226.30	19089.90
2009-2010	-25712.20	23242.50
2010-2011	-97999.10	35085.00
2011-12 (Provisional)	-105517.40	46916.30
2012-13 (Provisional)	-53687.00	50223.10
Total	-460814.90	371813.20

Source: BPC

3.2.4 Governance of Petroleum Fuels (2)

3.2.4.2 Governance of Petroleum Sector

- BPC is responsible for overall management of Petroleum Sector. Total quantity of petroleum products consumed in 2012 was 5.18million tonnes and the value of the products were Tk. 3,80,370 million. Of the total petroleum consumed 1 million tonne was imported as crude oil and 4.18million tonne as refined petroleum products (e.g. diesel, furnace oil etc.).**
- Various challenges BPC are facing to supply the growing demand of petroleum products should be given due consideration for sustainable supply of petroleum fuels.**
 - ✓ Mobilize finance to import crude and petroleum products in due time on a sustainable basis.**
 - ✓ Establishment of a deep sea port at Kutubdia Channel for transportation of crude oil and refined products.**
 - ✓ Establishment of increased refining capacity (existing capacity of ERL is 1.5 million tonnes).**
 - ✓ Transportation of products within the country.**
 - ✓ Establishment of increased storage facilities at different locations (existing storage capacity is 0.899 million tonnes which is equivalent to about 60 days consumption).**

3.2.5 Governance of Renewable Energy

- ❑ Traditional biomassfuels (about 40% of total fuel). No program for sustainable supply of biomassfuels. Clean cook stoves program may reduce demand of cooking fuels.
- ❑ Conventional hydropower (230MW) limited scope to increase capacity due to inundation problem in CHT.
- ❑ New-renewable resources (e.g. solar PV, wind, biogas etc.) of energy [130MW up to 2014].
- ❑ Contribution of hydro+new renewable= $[(360/10341) \times 100] = 3.48\%$
- ❑ Renewable Energy Policy 2008; SREDA Act 2012 (SREDA in the process of institutionalization).
- ❑ Target 2015: 800MW (5% of total installed power).
- ❑ Target 2020: 2000MW (10% of total installed power).

3.2.6 Governance of Nuclear Power (1)

- ❑ Nuclear power is characterized by very large up-front investments, technical complexity, and significant technical, market and regulatory risks, but have very low operating costs and can deliver large amount of base load electricity while producing almost no CO₂ emissions. Typical construction times are between five and eight years from first concrete poured.
- ❑ Fukushima Daiichi, Nuclear Power Accident on 11 March 2011 has resulted a set back for the promotion of nuclear technology in the world. Reactions of different countries [iea 2011]:
 - (a) to review the existing nuclear power program,
 - (b) to continue with nuclear power,
 - (c) to phase-out nuclear power,
 - (d) to delay the program up to 2020 (Indonesia & Thailand),
- ❑ Bangladesh has decided to establish 2x1000MW NP at Rooppur with assistance of Russia.

3.2.6 Governance of Nuclear Power (2)

- ❑ Major decisions taken by the government for RNPP.**
- ❑ The resolution for immediate establishment of nuclear power plant was passed in the National Parliament in 2010.**
- ❑ A National Committee on RNPP, headed by the Honorable Prime Minister was formed in 2010.**
- ❑ The Government formed (1) a Technical Committee in 2010 on RNPP headed by the Honourable State Minister of the Ministry of Science & Technology (MOST) and (2) a Working Group and Eight Sub-Groups, headed by the secretary, MOST, formed to initiate and coordinate activities of different Organizations/Ministries for establishing required infrastructures as outlined in IAEA Milestone documents.**

3.2.6 Governance of Nuclear Power (3)

- ❖ For nuclear power (project idea to de-commissioning): 100 years.
- ❖ In Bangladesh, concern about governance issues on nuclear power expressed by Dr. M. A. Matin, former Chief Engineer, BAEC. Should Bangladesh Go for Nuclear Power Now?, Paper presented at BRAC University Seminar, 13 March, 2014
- ❑ Rooppur NPP- No Genuine Concern by Dr. Mohammad Shawkat Akbar, Director, NPED, BAEC; Energy and Power, April 16, 2014 [www.ep-bd.com].
- ✓ Initial studies 2009-2013, Various activities to obtain the construction license will be completed by 2015.
- ✓ First concrete pouring expected at the end of 2016.
- ✓ Electricity from RNPP (2000MW) may available from 2021.
- What is the investment Costs for RNPP?
- What is the unit cost of electricity from RNPP?
- How many trained persons are now engaged in the project?
- What are the total number of professionals required for 2000MW plants?
- Nuclear Power & Energy Division (NPED) should initiate a pro-active website to provide answers to Frequently Asked Questions (FAQ) about RNPP.

3.2.7 Governance of Power Sector (1)

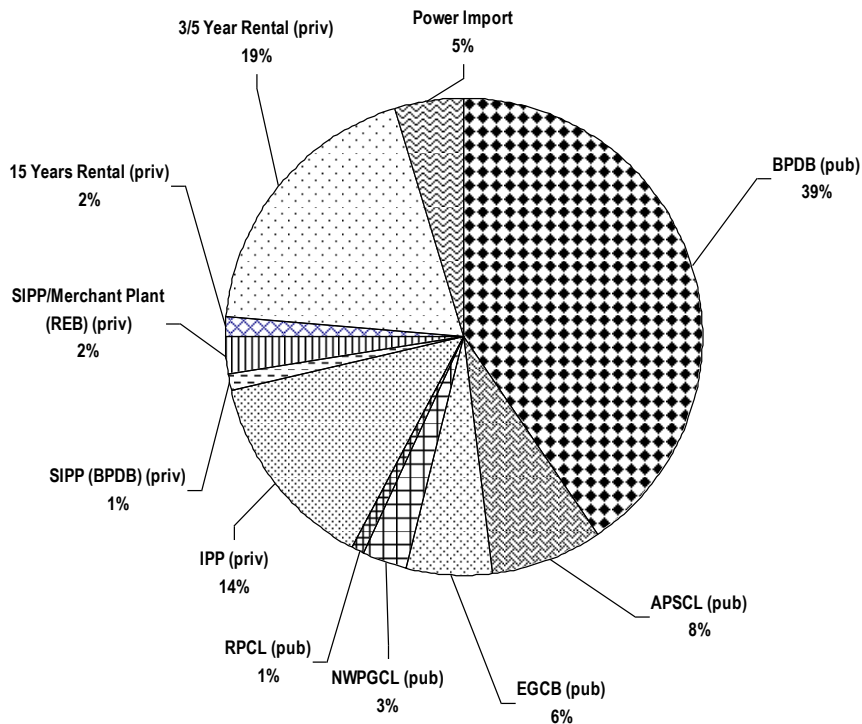
□ Status of Power Sector of Bangladesh in 2008 and 2014

Particulars	2008	2014
Electricity Growth (%)	7	9
Generation Capacity (MW)	4931	10341
Maximum Generation (MW)	4130	6884
Total Consumers (million)	10.8	14.5
Transmission Lines (cktkm)	7991	9322
Distribution lines (km)	260369	300000
Per Capita Generation (kWh)	220	321
Access to Electricity (%)	47	62

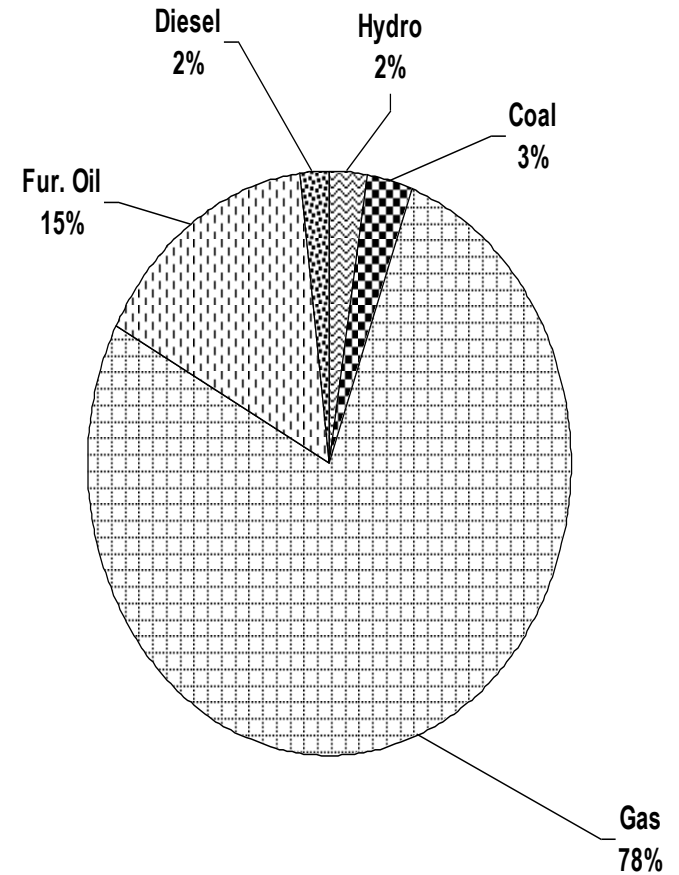
- ❖ Notable increase of power generation capacity from 4931MW in 2008 to 10341MW in 2014 $[(10341/4931)=2.1]$. Public 58%, Private 42%
- ❖ Maximum generation capacity increased from 4130MW in 2008 to 6884MW in 2014 $[(6884/4130)=1.67]$.

3.2.7 Governance of Power Sector (2)

**Total Generation Capacity=10,341MW
(public 58%+private 42%)**



Distribution of Generation Capacity Between Public & Private Sector



Energy Mix for Electricity Generation in 2013: 36482GWh

3.2.7 Governance of Power Sector (3)

□ Cost of Generation, Bulk Supply Cost, Bulk Tariff and Difference

Particulars	Cost of Supply for Bulk Electricity (Tk. /kWh)			
	2010-11	2011-12	2012-13	2013-14
Generation (net)	4.06	5.16	5.73	5.98
Average Bulk Supply Cost	4.20	5.35	5.94	6.21
Bulk Tariff	2.61	4.02	4.70	4.70
Difference	1.59	1.33	1.24	1.51

Source: Hossain (2014)

Notes: BPDB make submission to BERC for average bulk supply cost
BERC approves Bulk Tariffs
Difference is paid by government as subsidy and/or borne by BPDB

3.2.7 Governance of Power Sector (3)

❑ Resource Allocation in Energy Sub-Sector (in million TK.)

Particulars	2008-09	2009-10	2010-11	2011-12	2012-13
Development Budget of EMRD	2410	13680	10550	7760	16140
Subsidy	15000	9000	40000	90000	62000
Total Government Expenditure	17410	22680	50550	97760	78140
Subsidy as a % of Gov. Exp.	86.16	39.68	79.13	92.06	79.34

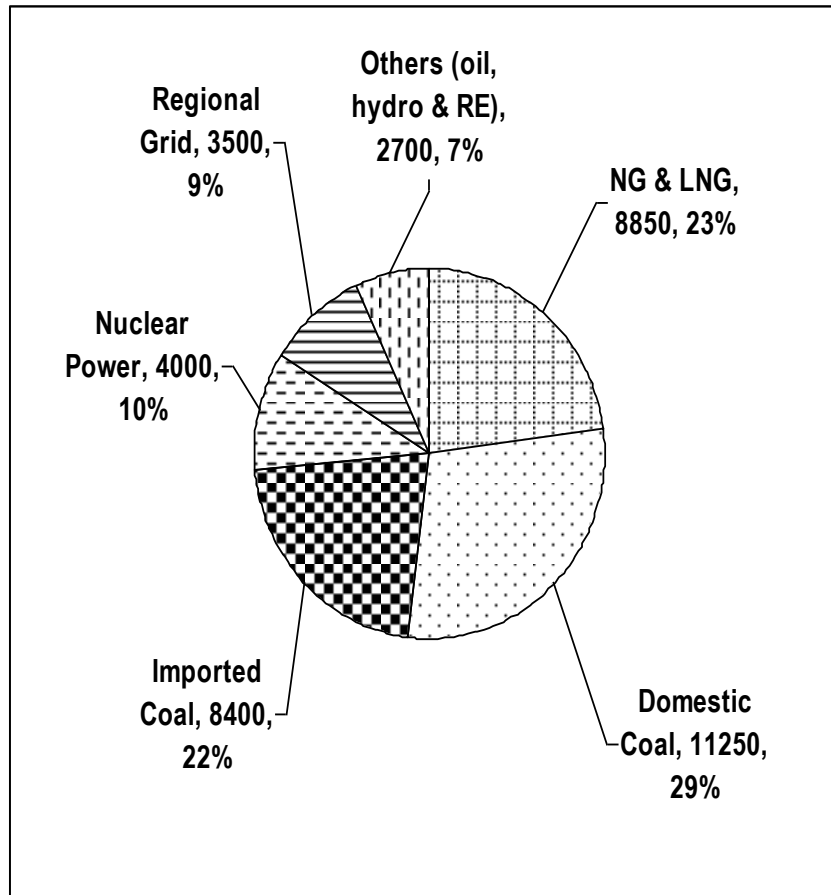
❑ Resource Allocation in Power Sub-Sector (in million TK.)

Particulars	2008-09	2009-10	2010-11	2011-12	2012-13
Development Budget of Power Div.	23083	21022	59819	71858	81510
Subsidy	10070	9940	42000	60000	64000
Total Government Expenditure	33153	30962	101819	131858	145510
Subsidy as a % of Gov. Exp.	30.37	32.10	41.25	45.50	43.98

Source: Ministry of Finance, 2012

3.2.7 Governance of Power Sector (4)

□ Projected Power Generation in 2030



(Generation Capacity: 38700MW)
Source: Hossain 2014

3.2.7 Governance of Power Sector (5)

□ Different Challenges of Power Sector

- (a) Shortage of primary fuel.**
- (b) Shortage of fund.**
- (c) Subsidy.**
- (d) Difficulty of transportation of equipment and fuels within the country in different mode of transport (e.g. river, railway, roads).**
- (e) Short of experts in managing large projects.**
- (f) Lack of coordination among different entities during planning, implementation and operation.**
- (g) Shortage of trained manpower.**

3.3 Overall Governance of Energy Sector (1)

- **Overall governance of the energy sector requires intensive and constant attention to various issues. In this context, it may be appropriate to assign a Senior Minister to undertake the governance of the Ministry of Power, Energy and Mineral Resources. Considering the strategic importance of the Ministry, the Honorable Prime Minister can review the activities at a shorter interval.**
- **Unsolicited offers should be avoided and procurements should be made as per procurement laws and rules.**
- **As per provision of the Constitution all the accounts of IOCs should be audited by the office of the CAG.**
- **National gas production companies and IOCs should carry out more exploration in onshore and offshore areas.**
- **Development of domestic coal should be given priority attention as per suggestions presented under governance of coal sector,**

3.3 Overall Governance of Energy Sector (2)

- **Long-term Energy Plan**
- **Law for no Export of Energy**
- **Environmental Issues should be given serious consideration in all energy and power development projects as per Article 18A of the Constitution.**

- **Multi-dimensional approach should be considered to import different commercial energy:**
 - (i) Electricity,**
 - (ii) Coal,**
 - (iii) Import of crude/petroleum by bulk container,**
 - (iv) Import of petroleum via pipeline,**
 - (v) Natural Gas via pipeline, and**
 - (vi) Natural Gas as LNG.**

3.3 Overall Governance of Energy Sector (3)

- **EMRD should increase purchase price of BAPEX gas from Tk. 25 per mcf (fixed in 2008) to at Tk. 70 per mcf.**
- **Subsequently EMRD should allow, BGFCL, SGFL and BAPEX to prepare & implement DPP of gas development projects (similar to all development projects) on cost plus profit basis; and average wellhead price of national gas should be determined by an Upstream Regulator.**
- **EMRD should designate an Upstream Regulator to approve an average wellhead price of natural gas for subsequent computation of consumers level price approved by the downstream regulator (BERC).**
- **EMRD should interact with the major stakeholders (NBR, BERC, Petrobangla and Petrobangla Companies) to develop a transparent method of computation of gas tariffs and distribution gas revenues among the stakeholders.**
- **BERC should be allowed to function as per BERC Act. 2003.**
 - ✓ **Petroleum Tariffs Revision through BERC**
 - ✓ **Coal price should also be regulated by BERC (revision of BERC Act will be necessary).**

Thank you for your kind attention

The text "Thank you for your kind attention" is rendered in a stylized, outlined font. Each word is a different color, following a rainbow spectrum: "Thank" (purple), "you" (red), "for" (orange), "your" (yellow), "kind" (green), and "attention" (blue). The letters are thin and have a slight 3D effect, with long, soft shadows cast to the left and slightly forward. The background is plain white.