Energy Trading as a Confidence Building Measure between India and Pakistan

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Energy Security : Dual Dimensions

South Asian countries : two crucial perspectives
sustainable development
security-militaristic angle.

Sustainable development : energy security impinges upon :
economic, environmental and social.

South Asia : very nature and direction of
sources of energy supplies,
demand, consumption and distribution and
related geo-politics call for a regional approach to energy security

Macro depiction : energy resources distribution and use.
## Oil and Gas Resources of South Asian Countries

<table>
<thead>
<tr>
<th>Item</th>
<th>Bangladesh</th>
<th>Bhutan</th>
<th>India</th>
<th>Maldives</th>
<th>Nepal</th>
<th>Pakistan</th>
<th>Sri Lanka</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oil (MTOE)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource Potential</td>
<td>0.96</td>
<td>0.0</td>
<td>5576</td>
<td>0.0</td>
<td>0.0</td>
<td>3600</td>
<td>0.0</td>
</tr>
<tr>
<td>Proved Resources</td>
<td>0.96</td>
<td>0.0</td>
<td>1570</td>
<td>0.0</td>
<td>0.0</td>
<td>107</td>
<td>0.0</td>
</tr>
<tr>
<td>Used so far</td>
<td>0.10</td>
<td>0.0</td>
<td>830</td>
<td>0.0</td>
<td>0.0</td>
<td>68</td>
<td>0.0</td>
</tr>
<tr>
<td>Available Resources</td>
<td>0.86</td>
<td>0.0</td>
<td>740</td>
<td>0.0</td>
<td>0.0</td>
<td>39</td>
<td>0.0</td>
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<tr>
<td>Current Production/Yr.</td>
<td>0.0</td>
<td>0.0</td>
<td>33.0</td>
<td>0.0</td>
<td>0.0</td>
<td>3</td>
<td>0.0</td>
</tr>
<tr>
<td>Resource/Production Ratio</td>
<td>-</td>
<td>0.0</td>
<td>22.4</td>
<td>0.0</td>
<td>0.0</td>
<td>13</td>
<td>0.0</td>
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<tr>
<td><strong>Gas (BCM)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource Potential</td>
<td>814.5</td>
<td>0.0</td>
<td>2328***</td>
<td>0.0</td>
<td>0.0</td>
<td>7985</td>
<td>0.0</td>
</tr>
<tr>
<td>Proved Resources</td>
<td>578.3</td>
<td>0.0</td>
<td>1380</td>
<td>0.0</td>
<td>0.0</td>
<td>1284</td>
<td>0.0</td>
</tr>
<tr>
<td>Used so far</td>
<td>144.1</td>
<td>0.0</td>
<td>460</td>
<td>0.0</td>
<td>0.0</td>
<td>488</td>
<td>0.0</td>
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<tr>
<td>Available Resources</td>
<td>434.2</td>
<td>0.0</td>
<td>920</td>
<td>0.0</td>
<td>0.0</td>
<td>795</td>
<td>0.0</td>
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<tr>
<td>Current Production/Yr.</td>
<td>11.9</td>
<td>0.0</td>
<td>32</td>
<td>0.0</td>
<td>0.0</td>
<td>34</td>
<td>0.0</td>
</tr>
<tr>
<td>Resource/Production Ratio</td>
<td>36</td>
<td>0.0</td>
<td>29</td>
<td>0.0</td>
<td>0.0</td>
<td>23</td>
<td>0.0</td>
</tr>
</tbody>
</table>
# Coal and Hydro Resources of South Asian Countries

<table>
<thead>
<tr>
<th>Item</th>
<th>Bangladesh*</th>
<th>Bhutan</th>
<th>India</th>
<th>Maldives</th>
<th>Nepal</th>
<th>Pakistan</th>
<th>Sri Lanka</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal (MT)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Resource potential</td>
<td>2715</td>
<td>0.0</td>
<td>245,690</td>
<td>0.0</td>
<td>5.0**</td>
<td>185,000</td>
<td>0.0</td>
</tr>
<tr>
<td>Proved Resources</td>
<td>724</td>
<td>0.0</td>
<td>91631</td>
<td>0.0</td>
<td>5.0</td>
<td>3300</td>
<td>0.0</td>
</tr>
<tr>
<td>Used so far</td>
<td>0.0</td>
<td>0.0</td>
<td>NA</td>
<td>0.0</td>
<td>0.1</td>
<td>~ 200</td>
<td>0.0</td>
</tr>
<tr>
<td>Available Resources</td>
<td>724</td>
<td>0.0</td>
<td>91631</td>
<td>0.0</td>
<td>4.9</td>
<td>3100</td>
<td>0.0</td>
</tr>
<tr>
<td>Current production/Yr.</td>
<td>1</td>
<td>0.01</td>
<td>~ 410</td>
<td>0.0</td>
<td>0.1</td>
<td>3.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Resource/Proved Ratio</td>
<td>724</td>
<td>0.0</td>
<td>~ 200</td>
<td>0.0</td>
<td>49</td>
<td>939</td>
<td>0.0</td>
</tr>
<tr>
<td>Hydro Potential (MW)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource potential</td>
<td>775</td>
<td>50,000</td>
<td>301,000</td>
<td>0.0</td>
<td>42,915</td>
<td>40,000</td>
<td>2000</td>
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<tr>
<td>Utilized Resources</td>
<td>230</td>
<td>420</td>
<td>29500</td>
<td>0.0</td>
<td>527</td>
<td>6500</td>
<td>1250</td>
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<tr>
<td>Used so far</td>
<td>*30</td>
<td>1.4</td>
<td>10.2</td>
<td>0.0</td>
<td>1.2</td>
<td>16</td>
<td>62.5</td>
</tr>
</tbody>
</table>

* Data for Bangladesh includes both coal and hydro resources.
Macro depiction: energy resources distribution and use.
Sources: Skewedly distributed.
Therefore - no individual nation in South Asia could ensure and endure energy security alone.
Interdependence and sustained cross border exchanges: the only way out.

Energy security: entangled in the geo-politics of the region.
India’s centrality: size and its exclusive geographical location.

Shares common border with all
No other two countries have common borders.
17 provincial states (out of 28) have international land borders.

Borders - represent the galore of opportunities.
Also - how various cooperation / integration ventures including various energy related ideas, projects and linkages could be hindered by narrow politico-strategic interpretations of these borders.

Cooperation implies: sharing of resources, geographical locations and even physical and social infrastructures.

This also means sharing of national control over them. Abandoning of national control: imply loss of national sovereignty.

Bangladesh (gas) and Nepal (hydel resources).

Brings an element of reluctance and introduces withdrawal syndrome from regional cooperation process.
Examples: gas from Bangladesh
Hydel power projects like Karnali, Pancheswar and Rapti in Nepal.
Tackling of this perception about losing national sovereignty is major issue

Equally true of India:

Tripartite Agreement between India-Myanmar-Bangladesh to import pipeline gas from Myanmar via Bangladesh – Jan 2005

India: a major policy shift:
1) Bilateral to trilateral
2) Given the negotiation to Ministry of Petroleum
Ministry of External Affairs will be consulted
India did not agree to Bangladeshi conditions:

i) trade corridor to Nepal and Bhutan,
ii) Direct power import from Bhutan and management of trade deficit

These are reasonable demands in context of steady liberalization and economic integration initiatives in the region. India has to now bear a very heavy cost of diverting gas pipeline through its own territory alone in Assam. Or forget the pipeline.

In the process it has forgone opportunity to make substantive geo-strategic and socio-economic gains in the long run.
Including: Access to gas in Bangladesh,

Transit corridor to North East India through Bangladesh

And Cross border movement of people in search of better livelihood.

For India, reduce a huge transaction/transport costs in its development supplies to NE region.

Will also open up other vistas of cooperation: use of Bangladeshi ports, industrial cooperation based on exchange of local raw materials from across the border and the possibility of gas trading.
Electrification of Households in South Asia

Security- militaristic plane: energy insecurity could bring large-scale instability in South Asia

<table>
<thead>
<tr>
<th>Country</th>
<th>Population (Millions)</th>
<th>% of Rural Population</th>
<th>Total No. of Households (Millions)</th>
<th>% of Electrified Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>22.2</td>
<td>80</td>
<td>4.4</td>
<td>6</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>143.8</td>
<td>78</td>
<td>28.76</td>
<td>33</td>
</tr>
<tr>
<td>Bhutan</td>
<td>0.7</td>
<td>79</td>
<td>0.14</td>
<td>31</td>
</tr>
<tr>
<td>India</td>
<td>1064</td>
<td>72</td>
<td>199.7m</td>
<td>56.0</td>
</tr>
<tr>
<td>Maldives</td>
<td>0.34</td>
<td>90</td>
<td>0.068</td>
<td>90</td>
</tr>
<tr>
<td>Nepal</td>
<td>23.15</td>
<td>84</td>
<td>4.63</td>
<td>31</td>
</tr>
<tr>
<td>Pakistan</td>
<td>148.7</td>
<td>80</td>
<td>29.74</td>
<td>50</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>19.3</td>
<td>84</td>
<td>3.86</td>
<td>67</td>
</tr>
</tbody>
</table>
Import Dependence of Energy Sector in South Asia Region

<table>
<thead>
<tr>
<th>Countries</th>
<th>Import Dependence with respect to Total Energy</th>
<th>Import Dependence With respect to commercial Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>3</td>
<td>60</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>13</td>
<td>30</td>
</tr>
<tr>
<td>Bhutan</td>
<td>9</td>
<td>24</td>
</tr>
<tr>
<td>India</td>
<td>22</td>
<td>29</td>
</tr>
<tr>
<td>Maldives</td>
<td>59</td>
<td>100</td>
</tr>
<tr>
<td>Nepal</td>
<td>11</td>
<td>87</td>
</tr>
<tr>
<td>Pakistan</td>
<td>18</td>
<td>26</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>41</td>
<td>78</td>
</tr>
</tbody>
</table>

External front: predominantly dependent on external sources
Supply and price risks: inject insecurity and increase economic vulnerabilities
Therefore from both conceptual perspectives essentiality of rational management of natural resources in the South Asian countries aimed at optimizing socio-economic benefit and minimizing the security-militaristic instabilities are very germane and critical.

Directly implies: choice is singularly limited to cooperation and integration.
Scope for Cross Border Energy Trade

Two primary hypotheses:

i) Cross border Energy trade with a comprehensive regional grid and pipeline network will act as a major confidence building project in making the process of economic integration in SAARC a reality.

ii) Cross border energy trade could ultimately be a panacea for many of the development ills in this region particularly for the LDCs.
Basic Premise
Cross border energy trade can lead to:

- Bridging of seasonality gaps
- Reduced cost per unit of energy supplied and losses in the systems
- Accelerated availability of supplies to meet suppressed demand.
- Improved system reliability and quality of supply
- Integrated transmission and distribution systems that could reduce energy supply costs
Equally vital: generation of chain of stakeholders

Confidence Building:
New and sturdy agents and stakeholders:
power producers, distributors, traders,
transmission and grid operators, pipeline builders,
credit donors, technology exporters,
managerial and users like industries, households, transports and agriculture.

They have tremendous absorptive capacity of shocks emanating from any major political actions, apprehensions and dislocations. They prevent conflictual precipitations.
Positive Stake holding as a CBM

Most glaring aspect in contemporary South Asia non-existence of peace and cooperation constituency

Therefore CBMs used in the past in South Asia need to be reevaluated, redesigned and rebuilt.

So far India and Pakistan extensively depended on military and political CBMs.

Last 50 years no political and military CBMs have sustained.

Or even if they have sustained they have remained totally emasculated

CBMs were addressed to only those who had serious stake holding in perpetuating conflict and keeping conflict alive.
They are in microscopic minority, they have somehow been able to closely align with the power echelons and marginalize overwhelming majority.

So, **Non-Military CBMs are very critical**

This makes us ponder over vital question of designing new CBMs like Gas Pipeline and Cross Border Power Inter-connections

As there are stake holders in keeping the conflict alive, there are stake holders for building the peace. We have never addressed ourselves to the latter.

Need of the day: Emphasis on Economic & commercial CBMs

Stakeholders outside the government – state conglomeration are emerging to be vital and decisive.
However in the same South Asia, the CBMs built by the economic stakeholders have mostly sustained.

India’s relations with the smaller neighbours including Nepal, Bhutan, Bangladesh and Sri Lanka have several examples to offer.

There have been serious political crises these countries have faced vis-à-vis India but they have been remarkably momentary and have showed urgent recovery mainly because of large scale economic stake holding on both sides of the border.
Contrastingly striking: India-Pakistan relations: there has been no such stake holding in economic-commercial sector.

Whatever stake holding they have, they are unfortunately all on the side of keeping the conflict alive.

For example, the arms purchase lobby, smuggling syndicates and the Dubai based traders.

So, higher the possibility of conflict between India & Pakistan, the better and wider are opportunities & avenues for these negative stake holders, to maximise their gains.

This is despite close physical proximity, cost effectiveness, product complementarities, socio-cultural bonds and availability of basic infrastructure developed during the pre-independence period.
Gas pipeline and power inter-connections will bring positive stakeholding into prominence.

It will be a win-win situation for the region and the world.

There will be conscious and constant efforts to thwart and abort this process. We can in fact see this happening in Iran-Pakistan-India Gas pipeline project.

However, the changing nature of economic actors and their increasing support base in the civil society are rather forcing policy designers on both sides of the border to procreate modalities for such positive stakeholding.
Energy availability & trade: all pervasive impact.

- revenue generation,
- foreign exchange savings,
- transformation in the contents of export basket
- health and education standards,
- opportunities for income, employment generation &
- cross border and internal migration

- gross domestic income
- environment
- Gender equalities
Increasing Demand-Supply Gaps in energy sector

Likely to deepen further

SAARC countries: largely energy importers

Adversely affected productive activities, social development and investment climate.
**Existing Arrangements**

1. **India-Nepal Power Exchange**

   Systematic power exchange has been underway since the last three decades (50-150 MW)

   Exchange of Power between India and Nepal

<table>
<thead>
<tr>
<th></th>
<th>1993</th>
<th>1995</th>
<th>1997</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bulk energy sale to</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>India (GWH)</strong></td>
<td>46.1</td>
<td>39.5</td>
<td>100.2</td>
<td>126.0</td>
</tr>
<tr>
<td><strong>Bulk energy purchase from</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>India (GWH)</strong></td>
<td>82.2</td>
<td>113.8</td>
<td>154.0</td>
<td>226.5</td>
</tr>
<tr>
<td><strong>Revenue from bulk sale to India (Rs million)</strong></td>
<td>75.5</td>
<td>97.6</td>
<td>249.3</td>
<td>441.0</td>
</tr>
</tbody>
</table>
ii) Bhutan: Chukha Project

336 MW Chukha project: power exported to India
Earned Nu 2367 million ($ 52 million) in 2002-2003

45 percent of Bhutan’s exports to India and
11 percent of Kingdom’s GDP.

Chukha model: worked very well:
76 percent of generation exported.

Region should take note of this success story

Bhutan keen to diversify the power market
Clear situation of monopsony: India is the only buyer.
iii) West Seti Project of Nepal: New Direction

Third type of power exchange (750 MW):
Likely to take place in the region.

Unique feature:
First dedicated export project by private agency
Meant primarily for exports to India
Agreement designed if implemented: on schedule

Nepal realizes total revenue of Rs 1403 crore in 2007 and Rs 5681 crore in 2031.

Currently power trading: infancy in South Asia region.
Basically bilateral exchanges
IV) Option:

Regional Trading through a SAARC Grid

Bring Power from Generating Units in Bhutan, Nepal and the North East region of India

Pool them in a Regional Grid like Southern African Power Pool (SAPP)

Wheel them into Load centres of Sri Lanka, Bangladesh, Pakistan and even Afghanistan

Establish: Regional Power Trading Corporation “SAARC-RPTC”.
### Existing Regional Power Pools

<table>
<thead>
<tr>
<th>Regional Arrangement</th>
<th>Member Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Union for the Coordination of Transmission of Electricity (UTCE)</strong></td>
<td>Spain, Portugal, France, Belgium, Italy, Netherlands, Luxemburg, Austria, Germany, Switzerland and now extended to Poland, Czech Republic, Slovak Republic, Hungary, Slovenia and Croatia.</td>
</tr>
<tr>
<td><strong>Nord Pool</strong></td>
<td>Norway, Sweden, Finland &amp; Denmark</td>
</tr>
<tr>
<td><strong>North American Electric Reliability Council (NERC)</strong></td>
<td>United States and Canada.</td>
</tr>
<tr>
<td><strong>Southern African Power Pool (SAPP),</strong></td>
<td>South Africa, Lesotho, Mozambique, Namibia, Malawi, Zimbabwe, Zambia, Botswana, Angola, Swaziland &amp; Tanzania</td>
</tr>
<tr>
<td><strong>The Commission of Regional Power Integration (CIER)</strong></td>
<td>Jordan, Bahrain, Tunisia, Algeria, Saudi Arabia, Syria, Libya, Egypt, Morocco, Mauritania, Yemen, Iraq, Lebanon, Palestine, Dubai and Qatar</td>
</tr>
<tr>
<td>South America, power trading</td>
<td>Argentina, Paraguay &amp; Uruguay. Central America</td>
</tr>
</tbody>
</table>
India's proposed Power Import from Pakistan
1998 Pakistan’s offer to India to sale surplus power

Discussions: Power Grid Corporation of India Limited (PGCIL) and WAPDA led various independent power producers (IPPs) in Pakistan

2nd Draft of the Interconnection and Operating Agreement was discussed on 1 February 1999

Tariff: major stumbling block
WAPDA offered: US 7.2 cents/KWH
While Indian side offered: US 2.25 cents
Negotiations broke off
Transmission Arrangement

Pakistan - 500 KV primary transmission system
Extending from Jamshoro in the south to Tarbela and Peshawar in the north.
Lines run very much near to the adjoining borders of India
May not require complex transmission extensions:

Designated substations
Dinanath (Lahore) in Pakistan and Patti (Punjab) in India.
"There is a complete network on our side and of course on their (India) side as well. What we need are the connections, which would take only a couple of weeks".

Statement by the Power Minister of Pakistan Gohar Ayub Khan,
Key issues

- cost of transmission line and sharing mechanism
- determination of power tariff
- payment mechanism
- power supply sustainability and
- Geo-political immunisation.

Urgent need to Prepare the South Asian:

Regional Energy Sector Master Plan
Feasibility Plan for establishing Regional Power Grid
New Feature : Non – SAARC Linkages
Import of Power from Iran by Pakistan

• Agreement signed in Nov 2002
• Voltage of inter connection
  – Jachigur (Iran) - Mand (Pakistan) : 132kV
  – Taftan 20kV
  – Mushkhel 20kV
• Maximum Power Demand
  – For Mand 30MW
  – For Taftan/Mushkhel 1MW
• Price
  – Price of electricity per kWh US$0.03 (for 3 years)
  – Min monthly invoicing US$210,000
Inter connection with Afghanistan

- Afghanistan is keen to have an interconnection with Pakistan for import of power
- 3 delivery points at 132 kV have been identified
- Commercial agreement and technical details are yet to be worked out
Cross Border Gas Trading

Expected: Sizable gas shortfall expected in India and Pakistan
Quantum jump in gas consumption of other neighbouring countries

Optimal techno-economic solution:
India, Pakistan and other countries to jointly pose their demands to potential suppliers

Major Option:
Gas Import mainly through Pipeline

UNDP Study 1998: in case of a joint project tariff cost of pipeline project could go down by about 26%
Nothing concrete has emerged because of:

- huge financial implications,
- geo-political apprehensions,
- unsure confirmation of natural gas reserves,
- pricing of supplied gas,
- third country approval of transits and
- environmental fall outs.

Extra regional influences: US-Iran tug-of-war and influence on India
Indian concerns:
safety of pipeline and assured supply

Could be addressed:
Through dialogue and
Legally binding guarantees by multilateral institutions.
Even ensured by extending pipeline to Nepal, Bhutan, Bangladesh, Sri Lanka and western region of China

Initiatives: Right Direction
Steady Reforms in Oil and Gas Sectors
India: laying gas pipeline into Nepal
IOC: to sell petroleum products in and construct pipeline to Sri Lanka.
Political Inhibitions

Projects having cross-border implications are more often treated on political lines rather than on commercial considerations.

India, Pakistan and other countries in the region are yet to appreciate new dynamics of global energy politics.

Governments need to only provide enabling agreements covering the project and sector at large.

Depoliticisation of deals though hard to practice, will also do away with unnecessary national prejudices.

One regional project should be used as a breakthrough project.
Capacity Building

Critical question is to build the capacities of the policy makers in the energy sector across the region by re-skilling and reorienting them to the advantages of cross border energy exchanges.

Large scale transformation the energy sector is undergoing and the varieties of cross border stake holders created therein. Policy makers in the region lack information, sensitization and the alternative options require more of a regional outlook rather than the traditionally followed national or at most bilateral outlook.
Thank You