

Report No. 7

**NEGOTIATING STRATEGIES FOR THE  
DEVELOPMENT OF BANGLADESH'S  
ENERGY RESERVES**

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*The Centre for Policy Dialogue (CPD), established in 1993, is an innovative initiative to promote an ongoing process of dialogue between the principal partners in the decision making and implementing process. The dialogues are designed to address important policy issues and to seek constructive solutions to these problems. The Centre has already organised a series of such major dialogues at local, regional and national levels. These dialogues have brought together ministers, opposition front benchers, MPs, business leaders, NGOs, donors, professionals and other functional groups in civil society within a non-confrontational environment to promote focused discussions. The expectation of the CPD is to create a national policy consciousness where members of civil society will be made aware of critical policy issues affecting their lives and will come together in support of particular policy agendas which they feel are conducive to the well being of the country. The CPD has also organised a number of South Asian bilateral and regional dialogues as well as some international dialogues.*

*In support of the dialogue process the Centre is engaged in a research programme which is both serviced by and is intended to serve as an input for particular dialogues organized by the Centre throughout the year. The Independent Review of Bangladesh's Development (IRBD) is a central component of the CPD's research programme. The CPD also carries out periodic public perception surveys on policy issues and developmental concerns.*

*As part of CPD's publication activities, a CPD Dialogue Report series is brought out in order to widely disseminate the summary of the discussions organised by the Centre. The present report contains the highlights of the dialogue held on January 25, 1998 on the theme of **Negotiating Strategies for the Development of Bangladesh's Energy Reserves.***

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## **Dialogue on Negotiating Strategies for the Development of Bangladesh's Energy Reserves**

### **i) The Dialogue**

As part of its on-going dialogue programme, the Centre for Policy Dialogue (CPD) organised an in-house dialogue on *Negotiating Strategies for the Development of Bangladesh's Energy Reserves*. The dialogue took place on 25th January, 1998. A background paper prepared by Mr. Azimuddin Ahmed, former Secretary, Ministry of Energy and Mineral Resources was presented to the participants. The paper is annexed (Annexure A).

The dialogue was moderated by *Professor Rehman Sobhan*, Executive Chairman, CPD. A cross-section of policymakers and experts participated in the dialogue. The present report provides a summary of the discussion which took place in the course of the dialogue. The list of participants is annexed (Annexure B).

### **ii) Discussion**

#### ***Transparency***

The dialogue focused on exploration of Bangladesh's gas reserves and the negotiating strategies to be pursued by the country. The dialogue participants put high emphasis on the need for ensuring transparency in the process of negotiation between *Petrobangla* and the expatriate companies bidding for contracts to explore Bangladesh's energy resources. Transparency was seen to be highly important both in terms of establishing credibility of the GOB and also for ensuring integrity of the negotiating process. Dialogue participants were unanimous in their assertion that citizens of a democratic country should be kept adequately informed as regards the basis for negotiations between the Government and the bidders. It was felt by the participants that local experts should be more effectively involved in the negotiation process and that public opinion needs to be carefully studied and taken into consideration whilst designing strategic positions for exploitation and development of this vitally important national resource.

#### ***Preparing for Negotiations***

Initiating the discussion some of the participants suggested that the dialogue should shed light on the modalities for improving the procedures for negotiating contracts with the bidding companies. This was important in ensuring transparency, and would be helpful in extracting more favourable terms for Bangladesh in the course of such negotiations. It was thought that recommendations should focus on identification of ways and means by which such contracts could serve the greater national interest of Bangladesh.

A number of dialogue participants were of the opinion that maximum use should be made of

information pertaining to similar contracts negotiated by other countries of the South and Southeast Asian region. Such contracts could be readily available from some of the data banks which maintain and regularly update records of all the contracts signed between the various negotiating parties. These data banks could provide information on the implicit rates of return realised by the contractors from all such contracts. These insights would be useful for making comparisons with rates of return realised on contracts which had already been negotiated by Bangladesh and could also be useful in evaluating proposals for contracts which are to be negotiated in future. A realistic assessment of Bangladesh's needs and options (e.g. purchase of gas from Tripura, purchase of electricity from India and Nepal etc.) should also be made in order to enable the country to firm up her negotiating positions and to establish her strategic priorities.

A number of participants suggested that the various blocs should be prioritised in accordance with their economic importance and these should then be negotiated subsequently according to a strategic plan based on an informed assessment of Bangladesh's supply and demand scenario. This would also substantially improve Bangladesh's negotiating strength. It was argued by some of the dialogue participants that since the geological risk of drilling for gas in Bangladesh was relatively low, Bangladesh could design a strategic position whereby she is able to get the best out of any deal with potential bidders – for example, putting a cap on the share to accrue to the foreign bidders.

A number of participants suggested that the GOB should spell out, in a transparent manner, the principles which would guide selection of contractors, including the weightage assigned to each of the variables on the basis of which such a selection process is to be executed. Once the ground rules had been established, the country should strictly adhere to these declared guidelines in the execution of the bidding process and during negotiations. It was argued by a number of participants that it was both feasible and desirable that the government make the bidding criteria public. One of the participants opined that the government did indeed use a weightage system for selection of potential contractors, and that the criteria according to which the bidders were invited was not confidential.

According to a number of participants, it was not advisable to have local agents of the expatriate contractors at the negotiating stage. If such local agents were to be associated at all they should be required to register as is the usual practice in the U.S.A. The general public should be informed about the names and interests of such local agents.

Dialogue participants addressed the issue of potential implications of putting a brake on the negotiation process, and whether it would be advisable to put a moratorium on the drilling of the twelve blocs which were under negotiation, and whether such a moratorium would serve as a

disincentive to prospective foreign investors interested in Bangladesh's energy sector. In responding to this issue, it was observed by some of the participants that such a postponement may annoy potential foreign investors but was unlikely to have a long term negative impact since the bottom line for private investors was the potential scope for generation of profit. If invited to bid again, foreign oil and gas companies would at the time assess the prospect of profitability from the investment and if and when such investment was perceived to be cost effective and profitable they were likely to go for it. It was suggested by some of the participants that Bangladesh could consider asking the bidders to return after a year or so and in the meantime, should design a strategic plan to develop her oil and gas sector after taking into account the projected demand. Contesting this line of argument some of the other participants argued that putting a temporary embargo on the drilling activities for one or two years would hardly enrich the information stock of *Petrobangla*. Bangladesh should undertake more intensive drilling activity in order that a realistic assessment of her commercially exploitable gas reserves could be made. To this end it was argued that drilling activity should go ahead with whatever information was available unless it could be demonstrated that the information available to the GOB was imprecise, and as such could potentially compromise the government's negotiating position.

It was emphasised by a number of participants that *Petrobangla* should undertake an objective and scientifically based assessment of the reserves in the country and should propose the pace at which the reserves are to be exploited. Such an exercise should precede the process of negotiations with potential bidders. It was thought that Bangladesh's policy makers should take into account the alternative modes of using energy resources in order to ensure its optimal use. According to some participants, whilst discussing the prospective negotiating and energy development scenarios, the following policy issues ought to be kept in mind by GOB policy makers:

- (a) What are the best options, given the technological resources available, to ensure least cost exploitation of Bangladesh's energy reserves?
- (b) What are the financial resources available to the government to execute gas exploration?
- (c) What is the current degree of exploration risks i.e. geological risks and political risks involved in exploring for gas in the Bangladesh context?
- (d) What is the negotiating brief of the GOB policymakers when they sit down for negotiations with bidders?

Drawing upon Bangladesh's earlier experience with negotiations, it was observed by the participants that *Petrobangla* could face serious problems in dealing with the international bidders as the latter appeared to be much better prepared for such negotiations on account of their huge resources and the wealth of experience at their disposal. Therefore, it was vital that the GOB had proper institutional backing, possibly through establishment of an *independent energy commission*.

This *commission* could draw upon recognised professional expertise available in Bangladesh, and could assist the GOB to reassess Bangladesh's energy scenario.

It was suggested by some participants that the GOB should be advised not to proceed further until the proposed *commission* reviews the evidence pertaining to (i) energy situation, (ii) outcomes of past negotiation, (iii) available reserves and (iv) prospective energy demand in Bangladesh. It was suggested that the government should actively interact with the proposed *energy commission*. It was hoped that this would allow the policymakers to best utilise the best technical expertise available in Bangladesh.

All the participants were in agreement that to cope with the new responsibilities arising from negotiations and management contracts for the development of the gas sector *Petrobangla* needs to restructure and upgrade its technical and managerial capabilities.

### ***The Cairns Contract***

The dialogue participants were informed that the *Kutubdia* gas field had substantial proven reserves and hence was highly prospective in terms of yielding a substantial amount of gas. It was observed by some participants that for some unknown reasons *Petrobangla* had decided to offer *Sangu Valley* gas field to *Cairns* for commercial development prior to the development of *Kutubdia*. The logic behind such a decision ought to be clearly stated.

Some participants cautioned that the Bangladesh government should be careful about buying gas at prices set by the bidders since power generation in Bangladesh was largely gas-based, as also was the production of urea. Under gas contracts thus far negotiated by the GOB, the government was to buy gas from *Cairns* at world market prices for fuel oil. This was bound to lead to an increase in the domestic price for fertilizer as well as the energy. Alternatively, the GOB would be required to provide large budgetary subsidies to consumers of urea and power.

With regard to the extent to which the high price of gas paid to *Cairns* would affect the cost of production for the local fertilizer factories, it was pointed out that the inefficient plants (such as those in *Fenchuganj* and at *Palash*) would be substantially affected, whilst others would remain unaffected if urea prices were also adjusted upwards simultaneously. However, one participant was of the opinion that barring *Zia Fertilizer Factory*, all other plants would be negatively affected by this and that this would lead to a fertilizer crisis in the medium to long run. The need for careful planning of energy use and pricing of urea was thus of crucial importance if Bangladesh was to pay the international market price for buying her own gas from foreign contractors. It was also pointed out that the payment schedule negotiated with *Cairns* under the terms of the contract was very strict so that such payments were to be made within 45 days. This was expected to pose problems for

Bangladesh's foreign exchange reserves since gas offered by *Cairns* would need to be promptly paid for in foreign currency on submission of invoices by the exploring companies.

The issue of gas exports also came under discussion during the dialogue. It was pointed out by a participant that under the production sharing contract (PSC) with *Cairns*, if the company (*Cairns*) wanted to export gas, it could indeed do so. However, this interpretation of the PSC was open to question since under the contract the GOB retained the *right of first refusal* on the use of gas accruing to *Cairns* under its share. It was however pointed out that an export provision may eventually become necessary during the first ten years since *Petrobangla* may not be able purchase more than 20 per cent of the gas extracted under a situation where all the 12 blocs under negotiation yielded commercially marketable gas.

A question was raised as to how it was expected that the Bangladesh's government would be able to meet the rising national demand for energy if it did not immediately exploit to the fullest extent the gas reserves presently available in the country. Under the circumstances, would Bangladesh have enough power over the next five years, on the basis of the present amount of gas available, to meet her projected demands? In response to this concern it was observed by some participants that offshore gas which was to be generated from the gas fields under development by *Cairns* could fully meet the prospective needs of gas over the next few years. However, under the present contract, purchasing such gas from *Cairns* could put a severe budgetary strain on the GOB.

Questions were raised about the production capacity of the fields being developed under the *Cairns* contract. Some of the participants enquired whether the production was enough to allow the GOB to buy time to firm up her future negotiating position. Some of the participants observed that this was indeed the case. Because of this some of the participants argued against revoking of the *Cairn* contract since Bangladesh would need this gas to buy time for negotiating better contracts.

Given the strategic value of the *Cairns* contract, many participants thought that this particular contract ought to be carefully monitored in order to ensure that it does not over-charge for the cost which is payable in full by the *Petrobangla* under the terms of the contract. Overestimation of costs was a well known practice in such PSCs. *Petrobangla*, thus, needs to acquire special skills in analysing the cost estimates submitted by the contractor. According to some dialogue participants, it was vital to monitor *Cairn's* return from the negotiated contract with Bangladesh, and to undertake a study to determine whether it was unusually high or not. The tax payments due to the GOB from the contractors were also important for the purpose of assessing the returns from the contract. Mechanisms for cost recovery should therefore be carefully assessed since these impacted on the profits as well as the tax liability of the contractor.

It was pointed out that to date four contracts had been negotiated for exploration to be carried out in eight blocs. In response to a query as to whether the same terms of the PSC signed with *Cairns* was applicable for other PSCs negotiated by the GOB, it was pointed out by some dialogue participants that the PSCs for all these blocs were more or less similar. However, it was observed by some participants that the contract for the *Shahbazpur* gas field may be considered to be more favourable to Bangladesh compared to the *Cairns* contracts.

### ***The Role of BAPEX***

A question was raised pertaining to the possibility of including BAPEX in any deal negotiated with expatriate companies since BAPEX appeared to have considerable technical expertise at its disposal which was lying underutilised. This expertise had been used in the past and had resulted in a number of valuable discoveries. However, many of the BAPEX personnel were now being absorbed by the expatriate oil companies. Thus, it was opined that BAPEX should be associated with drilling activities in a partnership capacity. This would stimulate transfer of technology and sustain the morale of the organisation. Participants were in general agreement that BAPEX should be kept involved in the ongoing and future negotiations.

### ***Hydro Power***

The question was raised as to whether enough effort was made to explore Bangladesh's potential in the field of generating hydro-power. Responding to this a participant commented that hydro power could not be a substitute for gas, particularly, in the Bangladesh context. However, there was a huge potential for generating exportable hydro-power in Nepal, Bhutan and N.E. India which needed to be taken into account whilst planning Bangladesh's future energy scenario.

### ***The Issue of Diversifying the Use of Gas***

The dialogue addressed the issue of whether BCIC had ever explored the idea of using gas in producing petrochemicals. The dialogue participants were informed that earlier a Japanese company was interested in developing the petrochemical sector in Bangladesh based on gas resources. However, subsequently the investment was perceived to be non-viable from an economic perspective and the Japanese group was compelled to abandon the idea. The participants were of the opinion that notwithstanding the change of heart by the Japanese company, the aforementioned option merited renewed and further indepth investigation in order to help ascertain the technological implications and economic viability arising out of such alternate uses of Bangladesh's gas resources.

### ***The Issue of Gas Exports***

As regards the issue of export of gas it was argued by some participants that the proposition that domestic resources in Bangladesh should be consumed in its entirety only within the country

was not a valid one. This was bad economics. As a principle, if imports of particular items were cheaper compared to cost of domestic sources then such items should be imported. Correspondingly, if it was profitable for Bangladesh to export her natural resources Bangladesh should obviously go for it. Given the fact that energy could now be treated as a tradeable good, Bangladesh could take initiatives to mobilise external resources for investment in the sector. Private investors could play a crucial role here, and their involvement would take the pressure off the GOB which was severely resource constrained.

The dialogue emphasised that the contracts must also take into account the highly volatile nature of the energy market, and ensure some stability in the costing formula that guides the buy back arrangements. It was argued that if Bangladesh had excess natural resources it should not be kept secret, rather it should be used to earn foreign exchange. In future this resource might lose its value in the context of a fast changing global resource and technology scenario.

The meeting was informed that the present contracts only allowed for export of gas in the form of LNG. An LNG plant was highly capital intensive, and the discovered gas reserves in Bangladesh did not justify such large investments. In such a context careful attention should be given to the economic costs and benefits of exporting gas to adjacent countries through pipelines.

All such issues regarding export and diversification in gas use merited careful study in the context of an energy policy for Bangladesh which remained overdue. It was the absence of such an energy strategy which was provoking ill-informed debate on the issue of the appropriateness of gas exports. Such a strategy should spell out the optimal use of Bangladesh's gas resources in the light of both the local and regional supply and demand scenarios for energy.

*CPD Dialogue on*  
**Negotiating Strategies for the Development of  
Bangladesh's Energy Reserves**  
(January 1998)

*Negotiating Strategies for the Development of  
Bangladesh's Energy Reserves:  
The Current Situation*

Background Paper Prepared by  
**Mr. Azimuddin Ahmad**  
Chairman, Ansar-VDP Unnayan Bank  
and former Secretary, Ministry of Energy

## Bangladesh Energy Scenario

Mr. Azimuddin Ahmed

### 1. *Oil Bill*

Average processing at ERI 12 m tons at average \$ 18 Barrel  
Diesel consumption 50 per cent of total 3 m tons consumed - 15 m tons  
Kerosene consumption 16 per cent of total 3 m tons consumed - 0.5 m tons  
Petrol consumption 0.3 m tons  
Balance F.O. and other low consumption products  
Taking total average price per ton as \$ 130 ton Annual Oil Bill - \$ 400 m

### 2. *Gas: Replacement Value*

On BTU equivalent gas at approx 800 MMCFD (Annual 242 BCF) - 7 m tons of oil - \$ 900 m annually.

### 3. *Gas: Major Consumers*

Based on current approx 800 MMCFD at 44 per cent power consumes 350 MMCFD approx.  
Based on current approx 800 MMCFD at 33 per cent Fertilizer consumers 260 MMCFD approx.

Domestic plus commercial (7 per cent) industries (7 per cent) tea + brick fields (9 per cent) are minor consumers. Therefore, annual gas demand and future demand projections have to be assessed vis a vis power and fertilizer expansion. Any projection based on hypothetical demand increases on percentage basis would therefore be misleading.

### 4. *Bangladesh's Current Gas Reserves without Considering Gas Contracts Awarded since 1993*

Total Reserve : 22 TCF  
Total Recoverable : 13 TCF  
Total Recovered : 0.3 TCF since 1955, the year of first production

On present production basis of 290 BCF should last 30 years.

Note: It is believed that as a result of vastly improved detecting and exploratory techniques, such as satellite imaging, both total and recoverable reserves would be considerably higher than the figures indicated above.

BAPEX is at present producing gas from 38 wells in 9 fields, and has programme of increasing its production to 1100 MMCFD by the year 2000.

**5. Power and Fertilizer Power brake-up = 230 hydro 2678 thermal**

<u>Total Installed Capacity</u>		<u>Germination Capability</u>	
2908 MW		<u>Gas</u>	<u>Others</u>
<u>GAS operated</u>	<u>Others</u>	<u>1736 MW</u>	<u>412 MW - 2148 MW</u>
2095 MW	813 MW		

Due to poor maintenance and non-rehabilitation work, lost capacity - 760 MW

GAS powered lost capacity = 359 MW others - 401 MW

Fuels for others are HSD/SKO/FO/IDO plus hydro

Peak hour power demand 2114 MW Peak hour supply 1900 MW

(rounded to 2200 MW) shortfall - 200 MW

**6. *Assuming Generation Capability Loss Due to Maintenance Work/break-down/non-availability of Fuel the following Resultant Scenario Emerges:***

1736 MW at 20 per cent loss - 347 MW - Available 1389 MW

412 MW at 20 per cent loss - 82 MW - Available 330 MW

2148 MW                                      1719 MW availability

1736 MW at 10 per cent loss = 1/3 MW = Availability 1563 MW

712 MW at 10 per cent loss = 41 MW = Available 371 MW

214 MW = 1934 MW total

1736 MW at 5 per cent loss - 86 MW = Availability 1650 MW

412 MW at 20 per cent loss - 41 MW = Availability 392 MW

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2042 MW

7. From the above, the following picture emerges: Availability of power from gas operated plants can be maximum of 1736 MW, at 20 per cent loss it will be 1389 MW at 10 per cent loss it will be 1563 MW, and at 5 per cent loss it will be 1650. From other plants, availability can be maximum of 412 MW, at 20 per cent loss it will be 330 MW, at 10% loss it will be 371 MW, and at 5% loss it will be 392 MW.

8. Since it is not possible for all plants to function at 100 capacity, we may work on the basis of 10 per cent loss. Therefore, maximum availability from gas operated plants will be 1563 MW, and 371 MW from non-gas operated plants totaling to 1934 MW. Against peak hour demand increased to a round figure of 2200 MW, the supply is 1900 MW, thus falling short by 300 MW. This figure can be accepted as quite accurate as approximately 1900 MW is being supplied against current peak demand of 2200 MW. We therefore, arrive at the disturbing conclusion that the present predicament of the power sector is really not so much

on account of gas shortage as the result of extremely poor management, resulting in the actual loss of 760 MW due to non-rehabilitation of less efficient power plants. The current deficit of approximately 300 MW against peak demand of 220 MW is therefore due to power sector deficiency. Had this power been available from even gas operated plants, it would have required approximately 66 MMCFD only.

9. Assuming current average gas production as 800 MMCFD, average supply (44 per cent) for power is 352 MMCFD. As we have seen the current maximum power supply from gas operated plants is around 1563 MW and 371 from others. This actually accounts for the 1900 MW being currently supplied during peak hour demand. At maximum of 22 MMCFD per 100 MW, gas for 1563 MW should not exceed 352 MMCFD. The massive load shedding which the people are being made to hear is the difference between the actual supply of 1900 MW and the 2200 MW peak hour demand. On the basis of this calculation also we come to the same finding - that the present power crisis is not due to insufficient gas but due to serious mismanagement resulting in decline of total (both gas and non-gas) power availability. Since demand rises to 2200 during peak hours and supply is 1900 MW, the shortfall is distributed among other consumers, fertilizer, industries, commercial concerns, domestic concerns, etc. If total supply of gas (for whatever reason) is less than 800 MMCFD (actual may be closer to 785 MMCFD), supplying 352 MMCFD to power (during peak demand), would result in less supply of gas to other consumers. Therefore, it is possible that during peak hours, there may be marginally less production in some fertilizer plants - but this should be negligible.

### ***Gas Exploration Contracts***

10. My Cairn gas contract study has shown the loss in fiscal and economic terms resulting from one gas contract, apart from heavy drainage of the meager foreign exchange available to the country. The expected massive gas price increases from April '98 onward is a testimony to the predictions the study had made. The resultant tariff increases in power, impact on industrial production and pricing, the consequential rise in production cost of export goods and those meant for domestic market are going to be incalculable. Whether these gas deals starting from 1993 (to Occidental) have made a crippling impact or not on the Bangladesh economy, I leave the economists and the experts to judge.
11. I am going to end this very brief paper with a few key comments.
  - (a) I have commented in my Cairn study on the profit sharing formula of Kutubdia discovered gas which would have yielded Bangladesh 90 per cent PG (Profit Gas) and Cairn 10 per cent (PG). Instead, Cairn was allowed to exploit Sangu, yielding the company 48 of PG after claiming 60 as CR (Cost Recovery), thus leaving Bangladesh not more than 20 per cent (PG).

- (b) Recently, Oxy (Occidental) has been allowed renewal of contract of 1993 (Jalalabad) without reportedly altering 75:25 PG. First question is whether this contract should have been permitted to be renewed and, if renewed for whatever reason, whether the PG should have been brought in line with the formula for discovered gas of 90:10 ex-Kutubdia under the Cairn contract.
- (c) What are the grounds for not fully exploring the 9 gas fields under BAPEX, having at least 10 TCF available, and thus not meeting the country's incremental demand for another at least 15 years. Why was BAPEX not allowed to develop 333 BCF it discovered in Shahbazpur in Bholia and the 1 (one) TCF discovered by Scimitar in Jalalabad. All the discoveries BAPEX had made were from undiscovered areas, whereas Jalalabad was not only discovered but even the quantum was known.
- (d) Of the two major consumers of gas Power and Fertilizer (close to 80 per cent of total production), demand rise for fertilizer would be at least marginal, since there are no fertilizer plants in the offing and since it would take 4/5 years from the date of project approval even if there be any such project lined up.  
In the light of power analysis given earlier, rise in gas consumption being projected for power may therefore be misleading.
- (e) In order to meet the country's rise in power demand, very costly power supply arrangements are being made with private foreign companies. I am sure an indepth analysis of these contracts would reveal in terms of power tariff (in addition to the one resulting from gas price increases), operational profit margins being allowed over 15-20 years (apart from very high capital cost), and the foreign exchange remittances involved on return on investment plus profit, a very serious economic impact. The key question here why the much easier option, namely rehabilitation of 760 MW, was not acted upon. If given to BAPEX, both Shahbazpur and Jalalabad, would have produced sufficient gas to meet any incremental requirement for power and other consumers. The additional gas coming from further development of gas fields under BAPEX would have the over-all gas situation extremely satisfactory.
- (f) One statement prepared by *Petrobangla* shows gas demand increasing from actual 792 MMCFD in 1995/96 to 1231 MMCFD by 2004/5, indicating average gas demand rising to 532 MMCFD for power. But peak power demand for gas has been shown as 1000 MMCFD with total gas demand rising to 1728 MMCFD. In the light of what has been stated about power earlier in this paper, this figure needs re-examination.
- (g) Given the above demand projections being correct, total gas demand for the year 2000/01 (on the basis of peak power demand) has been shown as 1273 MMCFD. It appears that BAPEX has a programme of increasing production from the percent around 800 MMCFD to 1100 MMCFD by 2000, with *Cairn* 200 MMCFD from Sangu alone and *Oxy* 100 MMCFD the supply would be 1400 MMCFD, thus it would be in excess of demand by at least 130

MMCFD. With Semutang (where *Cairn* has already discovered gas) coming on-stream soon, contracts under the PSC awarded to United Meridian, Oakland-Rexwood etc. it is quite possible that their total discovered gas might exceed 10 TCF by 2005. Based on 7.5 annual production of the total discovery allowed under the PSC, their productions would exceed 2000 MMCFD, totalling 2000+200+1000= 2400 MMCFD, thus leaving an excess of at least 600 MMCFD over total demand including peak power requirement.

- (h) Information is that the government is negotiating award of more gas blocks. One can clearly see that there is indeed no scope for a gas purchase contract with any of those companies. Even those already awarded, the government should exercise its first right of refusal, exploring possibility of exportation of all excess gas. In arriving at what should be the excess gas, the government should revise its policy of neglect of BAPEX and ensure development of as much gas as possible by BAPEX and reduce to almost zero its purchase under the PSC.
  - (i) Bangladesh should seriously re-consider whether it is justified to fritter away its precious resource by giving 80 per cent of its gas to the so-called investors. Therefore, any further contract even for exportation is not recommended.
12. BAPEX, the two gas producing and their gas distribution companies have been virtually starved over the years supposedly for lack of sufficient funds. Gas prices have been kept artificially down, thus yielding these companies very little margin under the price break-up to enable them to undertake any meaningful development work. Even debt servicing have been done by the government. It is indeed a profound irony that in order to meet the claims of foreign gas companies, the government is having recourse to an unprecedented price increase of almost 60 percent.

***H: Some Calculation at a Glance***

CAIRN-SANGU:	AT \$ 2/MCF	
Undiscovered Gas	Total Value of 848 BCF	: \$ 1696 Billion (approx)
	On 60% CR Cairn's claim	: \$ 910 Million (13 years)
	On 48% of remaining 40%	: \$ 288 Million (approx ) (13 years)

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*Cairn's Take* : Total US\$ 1.196 Billion

At US\$ 3/MCF Total Value : \$ 2,544 Billion

Cairn's 60% take	: \$ 1,526 Billion
Cairn's 48% of remaining 40%	: \$ 488 Million

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Cairn's Total	: \$ 2014 B (13 years) approx out of total value of gas of \$ 2.544 Billion
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1. Recently, the PSC applicable to *Cairn* is being followed in other gas contracts also for all undiscovered gas regions (block). If so, the following calculations would give an idea of the Contractor's margin vis a vis Bangladesh. If part or even whole is exported, the split of 80:20 in favour of the Contractor should remain valid. The *Cairn* has also given calculations on the basis of less than 60 per cent CR; but this assumes not only a very high *degree of efficiency*, but integrity also on the part of those monitoring the Contractor's cost claims. Having reasonable doubt on both scores, it is very likely that the result arrived at on 60 per cent CR basis are going to be more accurate.

2. Assuming 10 TCF is discovered by *Cairn* ex-Sangu, *Semutang*; by Oakland-Rexwood; by *Oxy* and UNOCAL and *United Meridian* from blocks already awarded, the following calculations may be of interest.

Value 10 TCF at \$ 2/MCF	= US\$ 20 Billion
Contractor's 60% CR claim	= US\$ 12 Billion (over 13-15 years)
Contractor's 48% of remaining 40%	= US\$ 3.84 Billion (over 13-15 years)

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Total	= US\$ 1584 Billion out of \$ 20 Billion
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Value of 10 TCF at \$ 3/MCF	= US\$ 30 Billion
Contractor's 60% CR claim	= US\$ 18 Billion
Contractor's 48% of remaining 40%	= US\$ 5.76 Billion

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Total	= US\$ 23.76 Billion out of \$ 30 Billion
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The above will be the impact Bangladesh would face over 13-15 years.

### ***Summing-up***

1. In the backdrop of paragraph 11 (g), some observations appear to be in order. In *Petrobangla's* projections peak power demand in the year 2004/05 has been shown as 1000 MMCFD, which is approximately 4500 MW. This appears to be on the high side. For example, peak power demand for this year 1998/99 has been assessed at 641 MMCFD, which comes to approximately 2900 MW. This is way above the 2200 or 2250 MW being currently estimated. Even if there is a suppressed demand of 200 MW, the total demand would not exceed 2450 MW. Therefore, the cautionary note here is that the total gas availability is going to be excess of demand by 2000; and appreciably so, by 2004/05 - may be in the region 1000 MMCFD.
  
2. Very optimistically, we have estimated BAPEX's production increase from the present around 800 MMCFD to 1100 MMCFD by 2000. With BAPEX's financial and manpower depletion, more realistic estimate would be 900 MMCFD. It is not that BAPEX (given financial and manpower support) is not capable of exceeding even 1100 MMCFD in 3 years time, BAPEX is. But the unfortunate situation (already discussed) is that BAPEX is being virtually replaced by foreign gas operators. Therefore, it is quite possible that almost all excess demand (as Cairn and other companies are already claiming) in the coming years would be met by the foreign gas companies. The following calculations based on approximations of *Petrobangla's* projections may be of interest.

### **Bangladesh's Supply/Demand Projections**

Maximum Production	1996/97	1997/98	1998/99	1999/20	2000/01	2001/02	2002/03	2003/04	2004/05
	784	1000	1395	1433	1423	1418	1418	1443	1413
Demand with power peak	1022	1100	1170	1273	1274	1400	1601	1610	1728

3. The above projections appear to be inaccurate on two counts. Gas demand is on the high side. Secondly, maximum productions indicated are also unrealistic for two reasons - the one year production jump of 395 MMCFD from 97/98 does not conform to the expected yields from the blocks already awarded. The gas rich blocks (other than *Cairn's* Sangu, *Semetang* and *Oxy's* Jalalabad) are expected to be on stream not earlier than 2000 or 2001. Therefore, the almost static production profile shown from 98/99 onward is also inaccurate in fact, gas supply is expected to be higher than demand, even if demand rises as per *Petrobangla's* projections. The following calculations are based on this assumption, and keeping BAPEX's

production static at 900 MMCFD.

BAPEX's Production	<u>2000/01</u>	<u>Foreign Gas Companies Contribution</u>
	900	Demand 1274-900 = 374 MMCFD
	<u>2000/05</u>	1728-900 = 828 (say 800) MMCFD
	900	

The above shows bangladesh's gas purchase under the PSC starting from 260 MMCFD (*Cairn* 160 + *Oxy* 100) this year (1998) would rise to 374 MMCFD in the year 2000 and reach approximately 800 MMCFD in 2004/05. The financial involvement of these purchase are as follows:

**4. 1998/99**

Total 160 MMCFD at \$ 2.50/MCF = \$ 400,00/DAY  
*Cairn's* claim at \$ 2.50/MCF = \$ 3,20,000 approx 60% CR 48% PG

Total 100 MMCFD at \$ 2.50/MCF = \$ 2,50,000/day  
*Oxy's* claim 60% CR 25% PG = \$ 1,50,000 CR + \$ 25,000 = \$ 1,75,000  
 \$ 4,95,000/day

Total gas companies' claim = \$ 180 million/year approx

**2000/2001**

Additional from undiscovered field  
 114 MCFD at \$ 2.50/MCF = \$ 2,85,000/day  
 = \$ 1,71,000 = 60% CR  
 = \$ 54,000 = 48% PG

Gas Company Claim = \$ 2,25,000/day  
 = \$ 82 million/year approx

\$ 4,95,000 + \$ 2,25,000 = \$ 7,20,000/day = \$ 262 m/year (approx)

**2004/2005**

800 MMCFD - 374 MMCFD = 426 MMCFD = 1.06 m (say \$ 1.00 m)  
 60% CR = \$ 6,39,000/day

48% PG of remaining 40% \$ 1,92,000/day = \$ 812280/day

Total Demand 1728 (say 1700) MMCFD - 900 MMCFD = 800 MMCFD  
= \$ 7,92,000/day  
= \$ 289 m/year

Total gas company's claim \$ 262 m + \$ 280 = \$ 551 m/year

5. The above calculations are based on \$ 2.50/MCF. As per Singapore FO price formula, the current price is already \$ 2.50 / MCF (may be even marginally more). This gas price range is even lower than the current very low crude oil price of US\$ 18/barrel. One must remember that the price of crude oil (and consequently refined oil price) was almost double of this price (US \$ 34/barrel for Bright Arabian) in 1983. Therefore, it is very likely that both oil and gas prices may register very substantial rise. At this moment Bangladesh, being 100% importer, is getting the benefit of very low oil price. Even then the country is having to cough up almost US\$ 400 million annually. If prices rise by 50 per cent by year 2000, Bangladesh's annual oil bill would be 600 million US Dollar.

### ***Denouement***

1. In the final chapter, some observations on the worst energy scenario may be a fitting conclusion. Unfortunately, this scenario appears to be a very real possibility.
2. There being at present, or in the immediate future, no plans for exportation, the gas produced by the allottee companies would have to be sold to Bangladesh. It is quite possible that BAPEX's production (in case BAPEX exists) may have to be curtailed to accommodate supplies under the PSC.
3. It is very possible that instead of the increasing production, BAPEX may almost disappear by the year 2005. As the present trend shows, whatever the foreign operators are demanding they are getting, however outrageous their demands might be. Since BAPEX's existence is not in their interest (because their sale quantum to Bangladesh is affected by the quantum produced by BAPEX), it does not appear possible for BAPEX to survive in such a hostile atmosphere.
4. The following calculations are based on \$ 3/MCF by 2000 and onwards:

#### **Bangladesh Demand**

**2005**

1700 MMCFD

#### **Demand**

**2010 (at 10% annual increase)**

3000 MMCFD

= \$ 1.8 Billion (approx) year                      = \$3.2 Billion (approx) year

Bangladesh (on the basis of the existing PSC) would be buying 80% of the above gas in US Dollar.

5. The above is clearly indicative of Bangladesh reaching on untenable situation in seven years time. What appears to be a clear possibility is the country reaching a state of almost bankruptcy as early as 2005. In the event the country not being able to pay for its gas demand, it would be obliged to curtail supply to even essential consumers, and thus reaching a situation of a serious demand / supply gap, leading to an economic and financial collapse. It is not difficult for any one to work out various facts of such a situation.
6. There is another clear possibility emerging out of the current policy. There is no doubt that all the 23 blocks are not gas rich. Of these 8 more attractive blocks have already been allotted. The remaining gas rich blocks are on the allotment list. Since all gas prove blocks would have been given to foreign operators very soon, it could be said without fear of contradiction that at the end of the day Bangladesh would be left with almost nothing of its only real resource, having palmed off 80 per cent to the foreigners. Whatever the reserve (and it is very unlikely to exceed 30 TCF), at 7.5 per cent of annual extraction of total discovered reserve, it would all be exhausted by the year 2011 or thereabouts.
7. In addition, augmentation of power generation by private foreign investment is certain to have a manifold economic and fiscal impact, apart from seriously depleting the foreign exchange reserves of the country. Compared to the plants set up by the P D B (despite all lapses), the capital cost, the operating expenses and the return on investment are going to be very high. Needless to mention, all these are going to be remitted in foreign exchange.
8. The power generated by these operators are, therefore, going to be costly for the user, both private and public. Initially these plants would perhaps be using more expensive fuel than natural gas at current prices. At a later stage, they would run on natural gas, but by that time gas prices would have risen four to five times.
9. Ironically, the private operator being entrusted with generation only, the power it would sell to the PDB would be equally vulnerable to the high system losses involved in transmission and distribution under the PDB's network. The only difference would be the PDB purchasing power at a much higher cost than from the plants under its own management. It was therefore not surprising to see a news item recently, stating that the P.D.B. would be purchasing 1200 MW of power by the year 2000 at US\$ 400 million annually. One can well visualize the high cost of this power by the simple fact that, following the rule of the thumb,

setting up 1200 MW of power should not cost more than US\$ 1200 million; whereas, the PDB would be spending the same amount in the purchase of power in three years only. Under the purchase terms with the private operator, the PDB would be buying power at this high rate (even without taking escalation factor into account) for a period of fifteen years or so.

10. To conclude, in case of natural gas, we have seen that its need for power augmentation was misconceived and over-blown. We have seen that augmentation of gas supply by BAPEX was the wisest thing to do and that BAPEX had this capacity. We have also seen that the power crises was the consequence of neglect and mismanagement; and that the private sector generation of power has serious pitfalls.  
Without question, this is the most serious issue facing the country today.

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