Theft of Electricity Generated in the Country

Some Suggested Remedial Measures

by Md Alauddin and Mohammad Abdullah Sadeque

System loss is accepted to a reasonable level in all transmission and distribution systems of the world due to technical factors (e.g. material, length and cross section of the conductor (wire), voltage level uncontrolled length of low-tension lines, etc). The level varies in the range of 8 per cent to 10 per cent from country to country. By any judgment, this level precisely applies to our country also, should appropriate standards, both in construction and material, are adhered to in the distribution and transmission systems.

ELECTRICITY has topped the list of crises over the past few years. It was causing embarrassment to the government all over the country resulting into shuffling of the portfolio leading to the Prime Minister herself taking over the charge. The government, the other way round, has been pursuing solution to end the crisis. It has taken up a number of plans and is trying to implement those. As part of the government plan, rehabilitation programme of several power stations have already been completed, and under the private sector planning, one power station (Khulna) has already gone into generation. But as experience would have it, neither the government nor the people will be able to reap any coveted benefit out of these generation-based plans unless some basic policy reforms in the transmission and generation system (which is the central theme of this article) are initiated right away.

With the prevailing trend of theft of electrical energy going on unabated in the guise of system loss, it will only be natural that increased generation of electricity will be corresponded to by a pro-rata incumbent in theft of electricity. Even it may not remain out of possibility that pro-rata quantum of the 690 MW of electricity which is going to be added to the national grid within this year as decided in a high level meeting chaired by the Prime Minister on 17th June last, may also be swallowed up by way of theft. Practically, without any change in policy and strategy, the existing state of affairs may "achieve" quantitative change(s), but no qualitative change will usher in, because, the experience of the past few years leads us to the painful fact that on the issue of theft of electricity we are very much within a black hole. But the silver lining lies in the fact that rescue to the solid ground is very much possible through changes in strategy and development in management.

Before we proceed on to an elaborate discussion on the colossal theft of electricity going on in the country under the interpretation and cover of a tricky technical definition, a brief deliberation on the functions and responsibilities of various organisations in the power sector of the country may seem relevant.

Power Development Board or PDB: Presently all power station of the country except the one at Khulna in the private sector are under the control of this organisation. It also transmits electricity all over the country through the nationwide grid. In addition to this, responsibility of distribution of electricity all over the country except the Palli Bidyut Samity, DESA and DESCO areas is also assigned to this organisation.

Dhaka Electric Supply Authority (DESA): Having originated from PDB, this organisation distributes electricity in Dhaka city and demarcated surrounding areas.

Dhaka Electric Supply Company Limited (DESCO): This organisation under government ownership has been formed as limited company with the initial responsibility of distribution of electricity in greater Mirpur area of DESA.

Palli Bidyut Samities: Formed totally under the auspices and with the fund of the government, these bodies are distributing electricity all over rural Bangladesh.

DESCO purchases electricity from DESA and both DESA and the Palli Bidyut Samities purchase electricity from PDB.

Power Grid Company of Bangladesh Limited: Responsibility of operating the transmission system of electricity of the country will, in phases, be assigned to this organisation and the process is already on.

The jobs of meter reading and bill servicing have been contracted out to several private enterprises on commercial basis. Other than that, distribution of electricity all over the country still lies with the above organisations; no private firm is yet associated with the total commercial and system operational functions; the absolute onus of system loss in distribution, therefore, lies only with the public sector till now.

System Loss: The difference between the total electrical energy received by distribution network from the transmission system and the total sale of electrical energy properly accounted in that distribution system goes by the nomenclature of system loss in the terminology of electrical management. It is wise to take note that this 'system' does not mean any procedure or mechanism; rather it means the whole range of physical facilities of the distribution network, sometimes along with that of the transmission network, as applicable. System loss is accepted to a reasonable level in all transmission and distribution systems of the world due to technical factors (e.g. material, length and cross section of the conductor (wire), voltage level uncontrolled length of low-tension lines, etc). The level varies in the range of 8 per cent to 10 per cent from country to country. By any judgment, this level precisely applies to our country also, should appropriate standards, both in construction and material, are adhered to in the distribution and transmission systems. Below is presented a chart depicting the extent of system loss, both in electrical energy and in monetary value on the basis of various statistical models:

Extent of system loss, both in electrical energy and in monetary value on the basis of various statistical models:

Time	Load (MW)	Loss (40%) in MWHs	"Non-Technical Loss" after cutting Technical Loss (MWH, 30%)	Net "Non-Technical Loss" (KWH)	Net "Non-Technical Loss" (Taka)
0600-0900	1300	1560	1170	11,70,000	19,30,500.00
0900-1700	1600	5120	3840	38,40,000	63,36,000.00
1700-2200	2000	4000	3000	30,00,000	49,50,000.00
2200-2400	1700	1360	1020	10,20,000	16,83,000.00
2400-0600	1300	3120	2340	2340,000	38,61,000.00
Total				1,13,70,000	1,87,60,500.00

This projection takes into account the daily variation of use of electricity as per load-curve (lowest assumed at 1300 MW and highest at 2000 MW) and the monetary value has been calculated on the basis of domestic rate at its lowest slab); if the value were calculated on the bases of the rates of actually applicable classes, naturally it would rise much higher.

If it is considered that all power stations of the country will be out of operation for 65 days a year for reasons like outage, shut-down, etc., then the number of actual operational days in a year stands at 300; the calculation shown above reflects the loss in any given day. The monetary value of loss incurred in one year thus amounts to Tk. 1,87,60,500.00 X 300= Tk. 562, 81, 50,000. 00. This calculation suggests that a reduction in system loss by 10 per cent will lead to a saving of Tk. 187,60,50,000.00 over one year on the basis of the existing generation level. When generation will reach the level of 4000 MW according to government plans, a 10 per cent cut in system loss will correspond to a monetary value of Tk. 375, 21,00,000.00. If, however, unfavourable stars dominate the situation, the incurring losses over a period of one year in terms of energy and money are situation, the incurring losses over a period of one year in terms of energy and money are modeled below (chart) at different loss levels when generation will reach or exceeded 4000 MW:

Probable losses over a period of one year in terms of energy and money at different system loss levels (KWH) on the basis of generation level:

Generation (MW)	Extent of 10% non-technical system loss in KWH (Taka)	Extent of 20% non-technical system loss in KWH (Taka)	Extent of 30% non-technical system loss in KWH (Taka)
4000	288,00,00,000 (475,20,00,000.00)	576,00,00,000 (950,40,00,000.00)	864,00,00,000 (1425,60,00,000.00)
5000	360,00,00,000 594,00,00,000.00	720,00,00,000 (1188,00,00,000.00)	1080,00,00,000.00 (1782,00,00,000.00)
6000	432,00,00,000 (712,80,00,000.00)	896,00,00,000 (1478;40,00,000.00)	1296,00,00,000 (2138,40,00,000.00)

This computational presentation reveals that unless we are able to arrest the prevailing trend of non-technical system loss through changes in strategy and development in management, the corresponding monetary value of 20 per cent non-technical system loss at 4000 MW generation level will be more than Tk. 950.00 crore for a year, and for a 5000 MW generation level, it will be Tk. 1188.00 crore. The trend of investing national resources may proceed on through accruing losses, ultimately ending up in national bankruptcy.

Very relevant also here is the Himalayan profiles of the corporate bodies now 'discharging' various functions in this sector; lack of accountability and massive structure, both intrinsic of the public sector, have rendered the operating costs and different kinds of wastage reaching an alarming level.

It is imperative that the master plans already undertaken by the government must not face the consequences mentioned above, and with that end in view the following proposals may be considered:

(a) The process of handing over the generation of electricity on commercial basis to body(ies) distinctly separate from bodies responsible for distributing electricity should be fostered. It will be prudent, however, that initially generation and transmission should continue to remain with public sector body(ies), since no such private sector institution has till now developed as will be able to operate with appropriate coordination with the country-wide extensive network of generation and transmission. Hence, it may lead to a total breakdown if any private sector organisation is given this responsibility right now. If, on the other hand, foreign enterprises are given way, the question of monetary transactions in foreign exchange will surface, and some day ahead, the mechanism may tend to suck out all the foreign exchange reserve of the country and throw it into booby traps as did happen in recent years in Korea, Indonesia and Thailand. Obviously, our developing economy, dependent mostly on foreign assistance or loan, will, by no means, be able to sustain the blow.

(b) Total commercial functions along with system operation and commercial operation will have to be handed over to private firms or individuals in phases.

(c) A policy will have to be legislated in order to provide for developing small-size distribution networks of 10 to 20 MW load or of even smaller load subject to economic viability with manageable size in a demarcated geographic periphery at private or individual level, instead of extensive unmanageable distribution systems of hundreds of MWs of load. These private or individual level bodies will discharge total commercial functions along with system operation and commercial operation.

(d) The small distribution systems will purchase power from power transmitting body (ies) on commercial basis at primary voltage through primary metering at one or more points, as the case may be. In figuring out the price of the power sold, the transmitting bodies will add to the selling cost of power the depreciation cost for the transmission line upto the metering point prorata to the applicable length of transmission line. However, depreciation applicable only after starting selling will be added. No cost having accrued in the past will be taken cognizance of. This exercise of figuring out the pro-rata depreciation cost of the transmission lines will, of course, be a massive task but will not be unattainable; there is no alternative to it in determining the correct commercial price of the power transmitted. In this process, hardly any technical investment will be required. Since the transmitting authorities will sell power on commercial basis at high-voltage through one or more primary metering points, they will virtually get rid almost absolutely of system loss. On the other hand, since the small distribution systems will have to pay the transmitting enterprises against metering at primary voltage, they will have no other option to get rid of system loss than only to develop management efficiency.

(e) The primary metering device will be on a totally visible display (in a transparent water-proof covering on an open structure like HT pole or the like); this will render it tough for either parties to effect any tampering in the meter; if somehow or other such tampering does at all occur, it will be readily cognizable, hence remediable. It is worthwhile to mention that outdoor pole-metering and domestic metering are already there at consumers' level in rural electric distribution system of the country for about two decades. One of the authors of this article had the opportunity to observe detailed and analytical discussion in which the expatriate consultants working for the programme did strongly pose this very reasoning; the local experts, however, were afraid of outdoor domestic metering n the plea that such meters could be stolen or could be damaged by children or unruly boys. Time, however had its judgment inclined toward expatriates against the local ones in evaluation of the teeming rural masses. The views and predictions of the expatriates have survived the test of time against all contradicting arguments and information and have placed the rural commoners in a position of honour.

(f) The small distribution systems will pay the government a periodic royalty or other form of fee at an agreed rate for using the physical facilities obtained within the periphery of their jurisdiction. Operation of transmission and distribution systems will be open to public or private sector firms or institutions only under Bangladeshi workshop, who will be allowed to transact only in Bangladesh currency.

(g) The small distribution systems will fix the selling rate of electricity within their area of jurisdiction in their own mechanism; the government however, may determine a ceiling or lay down some mechanism in this respect. It will be better thought to set up a high-level regulatory commission outside the government machinery for overall supervision and review, and repose in it necessary powers. In order to found a broad and dynamically workable base, the proposed commission may include honorable Members of Parliament, professional experts of the relevant disciplines and representatives of the revenue-payers, i.e. the consumers of electricity (by way of selection through an appropriate mechanism).

(h) Some quarters may form an opposition to these proposals by raising the issue of unemployment of the workhorse now serving in the distribution systems. But we have to take clear note of the fact that the existing distribution systems in the public sector are being served by people who should be held responsible for the system loss as well as by people who are honest with efficiency and high sense of dedication. In a changed situation, they are the very pioneers who will be the forerunners of sound management and financial discipline being restored.

By any judgement, it has become mandatorily overdue that we must put all expenditure into a transparent and accountable framework if we have the honest intention to absolve the nation of the titanic extent of unbearable institutional expenditure, which , in plain words is nothing other than financial loss.

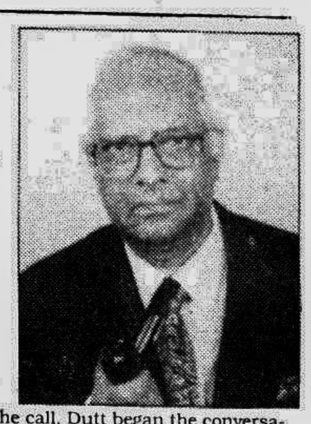
Only a small part of the expenditure the government is contemplating to incur to develop the power sector under government management would suffice to provide the nation a much greater return if such segment is spent in the development of private sector.

It is particularly mention able that implementation of the proposals will require the government to embark upon set of administrative, policy and strategic reforms and/or changes, and it is the government who has to procure such a bell as would ring loud and clear and hang it around the neck of the cat with a rope strong enough to sustain odds of the time. The pace of progress normally achieved in the implementation of any project compared against time spent would put up a definite suggestion that the high time to initiate anything is already running out; otherwise, the dismaying picture will be one of that which will show that when the generation of power will have really increased, the golden harvest will have been lost only because of weaknesses in institution, strategy and management, The single and absolute meaning of the situation would be nothing other than returning to square one at the end of a long, troubled and expensive journey.

The authors are former Deputy Directors of Rural Electrification Board

Liberation and Beyond

by J N Dixit



(The Daily Star is serialising extracts from the book through exclusive contract with University Press Limited (UPL), publisher of its Bangladesh edition).

1972: Efforts at National Consolidation

Part-IV

THEN there was the thorny question of weapons and military stores captured by the Indian Army from the Pakistanis during the liberation war. There was the equally prickly question of settling the future of the 93,000 Pakistani prisoners of war still in Bangladesh in January and February, 1972. Sheikh Mujibur Rahman wanted a majority of them to be kept in POW camps in India. He initially wanted to try for war crimes about 400 Pakistani officers and men whom he wished to retain in Bangladesh. This list of war criminals included the two seniormost Pakistani commanders, Lt. General Niazi and Major General Rao Farman Ali. The Indian military advisers were not very enthusiastic about returning the weapons and other material captured from the Pakistanis. They felt that returning these weapons to Bangladesh would become the basis for Bangladesh' future dependence on the Pakistani weapons systems rooted in Pakistan's membership of military alliance arrangements with the US and others. The armed forces view shared by D.P. Dhar was that India should compensate Bangladesh for the loss of Pakistani equipment and give them weapons and other related equipment from Indian stocks. India was willing to re-locate the Pakistani prisoners of war in India, but it also felt that Dhaka should not retain the 400 identified war crimes were finalised the wanted war criminals could be sent to Bangladesh for trial.

Sheikh Mujibur Rahman being received at Dhaka Airport, January 9, 1972.

The then Defence Secretary, K.B. Lal, and Lt. General Aurora were deputed by the Government of India to hold discussions on these matters so that some decisions could be taken when Mrs. Gandhi and Sheikh Mujibur Rahman met around the middle of March. I recall an interesting anecdote about insistence on propriety and political correctness by High Commissioner Subimal Dutt during General Aurara's visit. General Aurora had visited Dhaka twice or thrice between the surrender in December and the end of February. Whenever he came, logistical arrangements were made by the Indian army establishment in Dhaka. He flew the eastern command flag on his car. He had military outriders; traffic was cleared and he normally stayed at Command House at the Dhaka Cantonment, originally the residence of the Pakistan army's commanding generals in East Pakistan. When General Aurora came after the High Commissioner assumed charge, he called me to enquire about arrangements I have made for General Aurora's visit. I game him the details. Dutt said that the arrangements would have to be changed. He told me India should now realise that it is no longer a military entity in Bangladesh. Bangladesh is a sovereign country with an independent government to which India has accorded recognition. He said that I must tell the military wing of the High Commission to make the following modifications in logistical arrangements for General Aurora's visit. While he could display the 3 Stars of his command rank on his car Mr. Dutt instructed, no eastern command flag should be flown on his car as he is visiting a foreign country. He also said there should be no Indian military outriders clearing traffic. If the Bangladesh armed forces as a host agency wished to give him outriders it would be all right. General Aurora could have an Indian military escort for his safety but without any ceremonial display. Subimal Dutt also suggested that General Aurora should stay in the VIP Guest House in Dhaka Cantonment and not in the command House. He insisted that the previous practice of Aurora interacting with Prime Minister Mujibur Rahman directly should be discontinued. He should first call on the High Commissioner and get a briefing by him before he calls on the Prime Minister accompanied by the Mission's military adviser and political officer. I told him that these changes would have to be conveyed very tactfully to General Aurora. His response was that this was my responsibility and the responsibility of Lt. General B N Sarkar.

What was remarkable and gratifying was that General Aurora graciously agreed to these changes in his programmed. He called on High Commission Subimal Dutt. I can not forget the unusual incident that took place during the call. Dutt began the conversation with General Aurora asking him to broadly indicate what he would like to discuss with Prime Minister Mujibur Rahman. After listening to Gen. Aurora Dutt said: "Let me give you some political insights and information about undercurrents of Bangladeshi politics which you should keep in mind." The High commissioner spoke for a few minutes and startled both his listener and me by suddenly asking General Aurora: "You do not have a notebook. It would be good if you keep notes on points I am making to keep your memory fresh." Generals do not normally carry notebooks unlike Secretaries to the Government. They usually have staff officers to take down notes. Unfortunately no Staff Officer had accompanied General Aurora to Dutt's office, Subimal Dutt then remarked: "Perhaps you do not have a notebook. I will give you one." He pulled out his desk drawer, handed over a note pad and a pencil to General Aurora, who was quite bemused and a trifle intrigued at his exchange, Being courteous he took the notebook and was seen to scribble as Dutt continued with his exposition.

After the general departed I told the High Commissioner with some trepedation that handing the General a notebook was perhaps too much. Taking advantage of his age—Dutt was in his 70s—and his long experience in Government, he said to me: "Whatever your seniority or rank, you must always be well-equipped to absorb and then interpret a brief with precision. This cannot be done on the basis of memory. That is why I asked the General to keep notes." He also added that there was a definite motive in being politically correct in dealing with Bangladeshis when he ordered changes in the logistical arrangements related to general Aurora's visit.

The visits of K B Lal and General Aurora were only marginal success from Bangladesh's point of view. Only some of the military equipment captured from Pakistanis was agreed to be returned to Bangladesh. India however agreed to give defence supplies to reactivate the ordnance factory at Jadhavpur, originally established with the assistance of the Chinese. Bangladesh asked for some training assistance at the National Defence College in India, but its military establishment was not very enthusiastic about any close and extensive defence relationship in training and operational matters with India. Bangladesh wishes India to keep the Pakistani Prisoners of War in safe custody as it wished to use then (the POWs) as a leverage to gain recognition from Pakistan and if possible to extract some compensation for the economic losses it had suffered over the years. With the benefit of hindsight I feel that we should have handed over all the captured Pakistani military equipment of Bangladesh instead of retaining it. It would have been emotionally and politically satisfying to Bangladesh. By not returning these equipment, we created an undercurrent of resentment about India in the newly emerging Bangladeshi military establishment.

As far as the issue of the Prisoners of War was concerned we indicated that while no decision would be taken about them without the consent of Bangladesh, keeping them for a prolonged period in India would be a costly exercise. Our advise was that the prisoners should either be released after resumption of contacts with Pakistan under appropriate agreements, or kept in Bangladesh if it insisted on holding them for a long time. India told Bangladesh that holding of war crimes trials was its sovereign discretion, India would go along with whatever decision Bangladesh took. It was also agreed that Indian armed forces would completely withdraw from Bangladesh between march 10 and 17 with the exception of the troops located in Cox's Bazar and Chittagong Hill tracts on the request of Bangladesh.

A critical matter had to be sorted out before Mrs. Gandhi's visit to Bangladesh. This concerned the various freedom fighter groups part from the Bengali personnel of former Pakistan army, police and other trained cadres. Most of there trained men were absorbed into the armed forces and police of Bangladesh. It was the several thousands young freedom fighters not belonging to the trained cadres but possessing arms who posed a problem. In many ways, barring their common commitment to Bangladesh' freedom each group was an autonomous lot. In the two months after the surrender, internecine factionalism had emerged among these groups. Their possession of arms was partly responsible for the violence and instability in Bangladesh. It was only Mujibur Rahman's extraordinary charisma and the loyalty which he commanded from all groups of freedom fighters which prevented the situation from getting out of hand. After taking all factors into consideration, and consulting his senior political colleagues and youth wing leaders, Mujibur Rahman took two decisions to cope with the problem. He made an appeal to all freedom fighters to surrender their arms in different parts of Bangladesh to Governmental authorities. He also decided to absorb some of the freedom fighters in the police and armed forces but, importantly, he decided to create a new para-military force called "Rakkhi Bahini". Freedom fighters who were willing to join this paramilitary force were to be absorbed and deployed on internal security duties. He organized a mass arms surrender ceremony at the Dhaka Stadium in mid-February. I was present at this ceremony. A large number of arms were surrendered in the presence of several thousand people. Mujib addressed the gathering, personally met the leaders of the different freedom fighter groups and appealed to them to join the new government force which he said was crated for maintenance of national security.

(Continued)

Riding the Tiger

The new buzz word for environmentalists is eco-development, but not everyone is convinced that it can be translated into action on the ground. A tiger reserve in the Indian state of Andhra Pradesh offers an object lesson in how to go about it, writes Usha Rai

THE World Bank and the Global Environment Facility pump vast sums of money into protected areas in India to promote what has become known as eco-development. However, despite the popularity of an approach that links environmental protection to sustainable economic development, scepticism has been growing because of the difficulty of actually putting it into practice.

The doubters may want to consider the case of the Nagarjunsagar-Srisailam Tiger Reserve in Andhra Pradesh, where the assistant conservator, K Thulsi Rao, has succeeded in convincing the people living in 200 villages near the reserve that their survival depends on that of the forests. His work has earned him an award from the Tiger Conservation Programme of World Wide Found For Nature.

Nagarjunsagar-Srisailam is the largest tiger reserve in India, covering 3,600 square kilometers. It had been over-exploited by the Chenchu people and the 500,000-odd cattle that graze it, and when Project Tiger began in 1978, there were just 43 tigers there. Gradually, thanks to the efforts of the forest department, the tiger population had increased to 94 by 1989.

Unfortunately, the zealous care of the reserve by the foresters was not appreciated by the local people, who felt that Project Tiger stopped them using the forests — and they began poisoning the tigers. By 1995 there were just 35 individuals left. It was at this critical time that Thulsi Rao came to Srisailam.

The forest staff were demoralized. A range officer had been killed in his office, and timber was being looted from the forests. When officials investigated complaints of timber smuggling, they were confronted by villagers led by women blowing chillie powder into their eyes. Emboldened by the killing of the range officer, villagers distributed pamphlets banning forest officers from the forests and those who disobeyed were threatened with their lives.

Thulsi Rao adopted a conciliatory approach based on his training in eco-development. He gathered his staff and was determined to make a collective effort to understand the needs and problems of the people. He led field staff to the area round the Pecheru forest, where a forester caught a man cutting down a tree. The man whistled and several more villagers appeared with axes. Thulsi Rao instructed the forester to leave the man he had apprehended and spoke to the villagers.

He told them he knew they were cutting trees because they had no other way of making money. They said how kunhappy they were to be called looters, smugglers and villains and how they would like to find jobs. This was the beginning of a dramatic change of attitude. As a first step, the villagers drew up their own development plans, with full documentation on the natural resources of 115 villages. The villagers were then helped to create an eco-development package by ten non-governmental organisations, which advised them on how to conserve water, soil and forests while earning a living.

At Dokkuthanda village, where water shortages were a recurring problem, the construction of dams transformed the area. Three crops a year are now harvested, and the highly motivated villagers have stopped using wood for construction. Instead of a few forest guards, more than 10,000 villagers protect the reserve, and members of the eco-protection force have identity cards to denote their new status. Villagers who were earning barely 500 rupees ($12) a month now earn 2,000 ($48) and women have formed thrift and credit societies. Even those who wanted to expel Protect Tiger from the area are now enjoying the fruits of a successful eco-development project.

As for the tigers, the population is slowly increasing. According to the 1997 census it is now 43, with tigers being spotted in places where they have not been seen for several years. Thulsi Rao has shown that eco-development can work for both wildlife and people.

— WWF Feature

The author works for the WWF's Tiger Conservation Project in New Delhi.