The 'Bobbies' endear while we scare

STRAIGHT LINE

If our problems of law and order and disciplining the police can be substantially solved by making radical conceptual and structural changes in the set-up, prudence warrants that they be boldly inducted without any hitch and without any further loss of time. Mere tinkering with the problem will not do.

MUHAMMAD NURUL HUDA

POLICE excesses and highhandedness continue to attract large scale attention of both the print and electronic media. This reminds one of the "Bobbies", (in fond remembrance of Sir Robert Peel, the founder of London Metropolitan Police) the lovingly addressed policemen of London Metropolitan Police, an institution reputed for its understanding, compassion and evenhanded behaviour under trying circumstances. As against this, think of Bangladeshi policemen and there is hardly any disparaging epithet it has not been showered with despite toiling ungrudgingly for a long time. Does not this point to the necessity of making some real hard and sustained efforts to know why these aberrations occur almost unabated and why the scenario does not change for the better?

The English experience

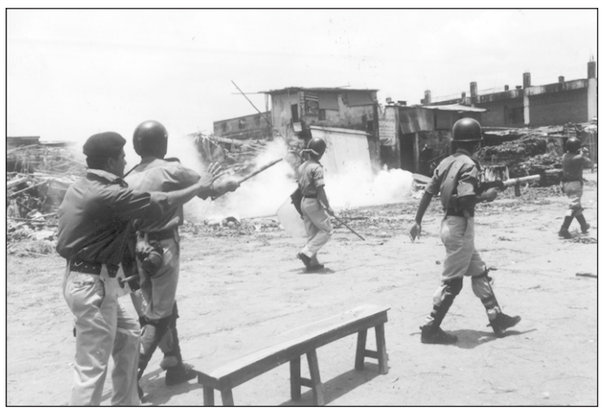
In England there is an overriding belief in the value of a liberal democracy based on the rule of law. If the rule of law is to be maintained, then the laws must be enforced comprehensively, impartially and effectively. The official and legitimate law enforcement agency is the police force. The primary role of the police is, therefore, to enforce the law, at the implicit wish of the society, so as to make legitimate government effective. The British tradition of policing is to provide a service as well as to enforce the law. Not all police forces share this position.

The norms of policing in England were, broadly speaking, that the police force should be a body of citizens in uniform, exercising their right to make arrests, be so far as possible non-military in appearance, local in their origins and accountable for their actions. The assumption was that the majority of citizens would obey the majority of laws for the majority of the time, and that police would be operating as far as possible by consent and not by force. The police operated on the strength of renewable and continual consent which they gained by the way they went about their duties. The police was invariably accountable to the law.

The Bangladesh scenario

The first purpose of our police force is a political one. The government, rather than the law is supreme; and the major enemy is the so-called political subversive. We rule by authority and not consent. Our police is accountable practically to their superiors rather than the public opinion or law. Duties are well-laid and there is hardly any room for discretion.

In Bangladesh, unfortunately, there is no agreement among the different segments of the society as to what is expected or wanted from our police agency. In such a situation, our policemen indulge in doing things which they ought not to do or in refraining from doing things they ought to do, to favour politicians in power and ask the politicians-in-power to use their influence to obtain choice postings, to avoid being transferred, to mitigate disciplinary sentences or to earn



Our police: Only the scaring stance

advancement in rank. Thus a necessary basis is provided for a mutually advantageous barter. This give-and-take between the police and the politicians thrives because superintendence and control over the police rests in the political executive.

To satisfy the political executive our policemen indulge in third degree methods and thus not only brutalise themselves but also degrade their own selves to the level of a criminal. This happens despite the fact that the law of the land punishes the practice of third degree with a punishment of 7 to 10 years of imprisonment. Interference with the statutory duties of police like maintenance of public order and investigation of cases are not fortnightly deprecated. It is not realised that statutory provisions must prevail over executive directions.

Factors causing aberration

The standard of recruitment in police has sharply declined over the years and many undeserving candidates have managed to gain entry through unfair means. Such appointees never hesitate to deviate from the expected norms of behaviour.

Training, specially, of the lower ranks, has been sadly neglected and there is a distinct lack of emphasis on various aspects of behavioural change. There is excessive stress on discipline and subordination and this orientation gets reflected in policemen's behaviour vis-a-vis the public.

Rising public expectations in an independent polity and the unsatisfactory performance of other civic agencies have abnormally increased the workload of overworked policemen. The long and irregular working hours create stresses and adversely change policemen's outlook.

Even as they are burdened with unjustified load of duties, policemen continue to remain equated with unskilled labours and remunerations are not commensurate with the job demands.

Police functioning has often been hamstrung by various constraints inherent in the legal codes enacted more than a century ago. However, apart from sporadic window-dressing, no serious attempt has ever been made to usher in effective legal and administrative reforms.

The remedy

It is high time that the police in Bangladesh get what is deservedly theirs. Their being equated with unskilled labour is untenable and ludicrous. The government must seriously consider revising the pay scales of the police commensurate with the phenomenal workload which they are enjoined to grapple with.

Police modernisation scheme should be area of high priority with more emphasis on training entailing attitudinal changes as against procurement of lethal weapons and fighting gears. Equipping policemen to adequately face the multifarious challenges should not be neglected. The tendency to slap financial fetters and bureaucratic bottlenecks in police matters must make way for a more positive approach.

Political interference in police functioning should be minimised by bringing about the necessary changes in political ethics. The code of conduct for legislators should be meticulously drafted keeping in view the gigantic scope and extent of political interference in police working. Similarly, a 'Privilege Committee' should be in place comprising retired judges, police officers and civil servants with adequate statutory powers to insulate honest and upright officials from the excesses of highhanded politicians in their day-to-day functioning.

The proposed National Human Rights Commission can play an important role to protect citizens' liberties against police excesses. Care should be taken not to push 'human rights' to an extreme.

The media could play a more constructive role vis-a-vis police by highlighting the cause and effect syndrome through investigative journalism, when mishaps of bigger dimension occur. While all misdeeds of police should be unhesitatingly exposed, the Pavlovian reflex to criticise the police at the slightest chance should be scrupulously avoided.

The need to eschew physical coercion by simultaneously making available better psychological methods evolved by the science of criminology will definitely cut much ice. The provision of scientific aids to investigation will sensitise all ranks in the desired way.

Corruption in the police should be dealt with an iron hand. All complaints of corruption should be promptly investigated and appropriate action initiated irrespective of rank.

It is essential in our situation to devise a suitable mechanism to keep close watch on the performance of the police and make it public whenever any wrongful action is observed. This may be done by creating a department of supervision which will ensure that the police use force and authority with restraint and only in unavoidable circumstances.

The need for creating an environment in which policemen can perform their legal duties with a sense of pride and fulfilment without feeling hamstrung either on account of legal hurdles or due to administrative or financial problems, can hardly be over-emphasised. When policing and police are elevated to a pedestal of well-deserved priority in the government's scheme of things and the necessary training and orientation is imparted to the rank and file of police forces, then aberrations in police behaviour can be progressively lessened and the police image in public perception will change sooner for the better.

That statutory power given to the police by the parliament cannot be taken away by a so-called executive direction in derogation of the law should be appreciated by the political executive. In other words, statutory provisions must prevail over executive instructions. Therefore, the government must not give directions or orders for performance of police duty in a manner inconsistent with specific statutory provisions.

While disciplining policemen for wrong action the department should be demonstrably hard on those who avoid taking action. Police inaction is unmistakably an image-shattering factor and this has become an integral part of Bangladesh's contemporary police culture.

With the anticipated separation of the judiciary from the executive, it may be possible to remove functions of investigation and prosecution from the control of the political executive and make the organ charged with such functions as autonomous as the Comptroller and Auditor General. If our problems of law and order and disciplining the police can be substantially solved by making radical conceptual and structural changes in the set-up, prudence warrants that they be boldly inducted without any hitch and without any further loss of time. Mere tinkering with the problem will not do.

Muhammad Nurul Huda is a former Secretary and IGP.

Nuclear energy still not safe

Better to be thrifty with our gas

Because nuclear power plants emit no carbon, nuclear power is emerging as a way of saving the earth from global warming. But the twin spectres of nuclear waste and proliferation -- nuclear material getting into the wrong hands -- cast doubt on whether nuclear power can fulfil this promise. So in a country like Bangladesh, we feel proud of and should be careful in utilising our mineral resource like gas. We need to carefully utilise it and most importantly we shall have to reduce wastage of gas in residential usage.

KHALID SHAMS

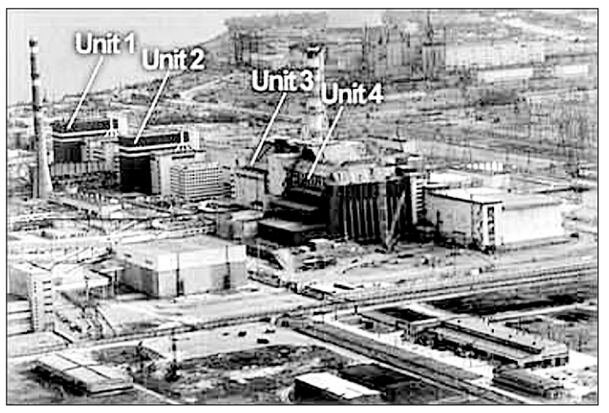
DEMAND for energy is expected to rise worldwide by 50 per cent in 20 years time with growth in down-the-middle developing nations hitting 90 percent. There is dire need among the nations to secure sources that can help to meet their future demands. It could be oil, gas or, more importantly, even nuclear sources. The prices of oil and natural gas have gone through the roof and are expected to stay there. Coal is cheap and plentiful but it's a big source of carbon dioxide, a green house gas that 157 nations are committed to reducing. And as leaders from India to Germany have declared recently -- it's nuclear power that is needed. But is nuclear energy worth of a come back?

Nuclear technology still has two potentially fatal problems; the first is the so called fuel cycle. Uranium fuel turns into radioactive waste, which must be either recycled or disposed of. Both options are problematic. Reprocessing puts pure plutonium, the staff of bombs into circulation. And disposal is politically and technically tricky. To contain the spread of weapons material, nuclear nations may allow Iran and other countries to develop civilian reactors in exchange for giving up the control over the fuel cycle.

Developing safe civil reactor is gaining momentum all over the world. Engineers have made steady improvements reactors now being built, if operated properly, could improve the industries accident rate tenfold. Advanced Boiling Water Reactors (ABWR), for instance, are made to work even when they lose coolant, without overheating. Japan now operates three ABWR and Taiwan is building two. Pebbled reactors use uranium balls that dissipate heat so well that they shut down during accident. China and South Africa are building pilot plants, which look like a basement furnace split down the middle -- 27000 balls of uranium wrapped in layers of super strong silicon carbide, ceramic material and graphite make it physically impossible for the reactor to do anything but shut down if something goes wrong. The dangerous uranium would be trapped inside the spheres, which have a melting point much higher than the temperature inside the reactor could ever reach.

The so called pebbled technology behind the Beijing test plant originated in Germany more than three decades ago, and the US nuclear power industry also pursued it. But when the public opposition to nuclear energy forced those countries to curtail nuclear research in the 1980s, Beijing took over.

The growth of China's appetite for energy in the last four years has been staggering. As the world's fastest growing and most coal-dependent economy, China's share



Chernobyl: The spectre still haunts

of world coal consumption in 2005 was 40 percent -- 2 billion tons -- more than that of the United States, India and Russia combined.

Worldwide, there are 442 nuclear power plants that supply 23 percent of the world's electricity. One tonne of natural uranium can produce over 40 million kilowatt-hours of electricity; this is equivalent to burning 16,000 tons of coal or 80,000 barrels of oil. There are currently 103 operating US nuclear power plants, producing over 20 percent of US electricity. Franc's 59 reactors, run by Electric de France, contributes 77 percent of the overall power generation. It is also the world's largest exporter of electricity, with an annual income of £3 billion.

The turn around is perhaps most startling in Europe. Most citizens remain wary, but rethinking is underway in almost every European country. In Italy, which junked its nuclear power, after a referendum 18 years ago, Prime Minister Silvio Berlusconi talked openly of reversing policy. In Germany, conservative politicians are cautiously debating the state's legal pledge to phase out nuclear power by 2020. Britain, struggling to meet its Kyoto targets, looks set for a nuclear comeback. In his New Year message, Prime Minister Tony Blair promised to make "the big choice" whether to add nuclear capacity. Britain currently depends on nuclear power for 20 percent of its electricity.

Cost overruns decimated nuclear power in the 1970s, but it is now seen as an essential ingredient to any country's energy portfolio, thanks to global warming.

Currently only India is the only country making eight reactors at a time, while nuclear plants under construction in China are 2, Russia 4, Ukraine 2, Taiwan 2, Argentina 1, Iran 1, Japan 1, Romania 1 and in Finland 1. Finland is building the first nuclear-power station in Europe since the Chernobyl disaster of 1986 -- new anxiety have emerged to offset the old safety fears. Mounting evidence of climate change has refocused attention on an energy source that won't soil the atmosphere. Meanwhile, the cost of gas and oil is soaring. Europeans don't want to be dependent on supplies from Russia, especially after Moscow's recent show of arm-twisting with Ukraine. Japan wants to wean itself off the energy imports. US citizens are fed up with relying on Middle Eastern states for their energy. Olkiluoto's output alone will meet 10 percent of all Finland's requirements.

Recent visit of French president Jacques Chirac and US president Bush to India have heavily favoured India to push the interests of corporates engaged in the nuclear reactor and fuel supply (Uranium) business. Chirac's delegates included Phillipe Guillemot, chairman and CEO of Areva T&D. The group is big contributor to Chain's nuclear energy programme -- in both reactor and design construction, and front-end and back-end services, including fuel fabrication and spent fuel processing. The company estimates that India needs at least 25-30 large nuclear power stations to meet its energy needs. The Russians are already in India as dependable nuclear suppliers, helping the country build two 1,000 MW reactors. The Americans are not far behind. That was the main reason behind Bush's high profile visit on 1 March. The American sales pitches are expected to come from Bechtel Corp, which has built over half the nuclear plants in the US, and Washington Group International. Similar interest has been voiced by Russian president Mr. Vladimir Putin as well. Global nuclear energy players appear to have already started lobbying for large orders from India.

Chinese Premier Wen Jiabao was in Australia beginning of April and signed two major agreements that will clear the way for the export of billions of dollars worth of Australian Uranium to the world's second biggest energy consumer after the United States. Australia has around 23 percent of world Uranium only after Canada where they produce 29 percent and Kazakhstan being third with 9.25 percent production. It's a clear indication that China is carefully planning its energy requirement with high emphasis on nuclear power.

Because nuclear power plants emit no carbon, nuclear power is emerging as a way of saving the earth from global warming. But the twin spectres of nuclear waste and proliferation -- nuclear material getting into the wrong hands -- cast doubt on whether nuclear power can fulfil this promise. When the uranium fuel is "spent" what's left is a mixture of radio active substances, of which 1 percent is plutonium -- a highly toxic material used to make nuclear weapons. Because plutonium stays radio active for tens of thousand of years, it must be kept in a facility that lasts a long time. Meanwhile, nuclear waste keeps pilling up and the risk of its falling into the wrong hands increases. The world's spent nuclear fuel already contains enough plutonium to make about 200,000 nuclear bombs.

Worldwide gas price is erratic based on the region. For example, Britons shivered through a cold snap in mid of March when temperatures plunged to unreasonable lows and snow dusted much of the northern half of the country. Business shook harder than most, as the frigid weather again played havoc with Britain's volatile natural gas markets. Price climbed from 59p per therm on March 10 to touch 255p on March 14, before falling back a bit. Why are British gas price so high? Besides cold snap the fire that knocked Rough, Britain's only big gas storage facility at North sea and depleting very fast anyway. Britain is desperate for new import facilities. New import facilities are being built, including a pipeline to Norway and two LNG terminals.

It's clear all the nations are hungry for energy and resources are limited. So in a country like Bangladesh, we feel proud of and should be careful in utilising our mineral resource like gas. Our gas is priceless and most important asset we do have after our human resource. We need to carefully utilise it and most importantly we shall have to reduce wastage of gas in residential usage. We do welcome all investment in the country including new companies where they are focusing to use gas as a basic ingredient for fertiliser and power but we should be very reluctant for any commitment for gas supply on price in advance. We should be fair to all investors in terms of gas supply either local or foreign and gas price should depend on real time issues and investors should not be worry because they are free to set their end product price based on the cost of their production including gas as a raw material for them.

Khalid Shams is a freelance contributor.

Atmospheric electricity, power generation and overcoming the shortage

At a time, when we are trying options like wind energy, solar energy, tidal energy as well as nuclear energy to meet our present as well as future requirement, can we not also explore possibility of exploiting atmospheric electricity with the advancement of science, to overcome the shortage?

PROF SYED FAZL-I RAHMAN

ATMOSPHERIC electricity exists since the beginning of time. But the human-produced electricity, which has been called electric energy first appeared as small sources of direct current (DC) in 1800. Later on alternate current (AC) voltage was generated. The bulk generation of 3-phase AC power and its transmission over long distances took place in the last 115 years. An evaluation has been made here of the impact of atmospheric electricity and the generated electric energy on human lives.

Electric current and electric shock: The flow of electrons through a conductor constitutes an electric current. One ampere of electric current is the flow of 6x1018 electrons per second. If a current of 100 milliampere i.e. 1/10th ampere flows through a human body for a period of 3 seconds, it is certainly going to be fatal. However, one can die for even a smaller dose. At 230V, 0.1A, the energy released through a body in 3 seconds is approximately 0.02 watt-hour.

Magnetism: The earth possesses a magnetic field, the strength of which varies with time and locality. The field is similar to that which would be produced by an enormously powerful magnet situated at the centre of earth and pointing approximately north and south.

Ionosphere: In the earth's upper atmosphere free electrons arising from ionizing occur, mainly as a result of ultra-violet radiation and X-rays from the sun. The wave length of ultra-violet radiation is in the range of approximately 4x10-7 to 5x10-8 metres i.e. between visible light waves and X-rays.

Terrestrial atmospheric electricity: It is concerned with the sources of atmospheric electrification and the resulting electrical charges, fields and current in the vicinity of the earth. The earth and the ionosphere provide highly conducting boundaries to the global electrical circuit, which consists of thunderstorm and lightning, and the fair weather field.

Thunderstorm and lightning: A brilliant flash of lightning followed by a deafening roll of thunder is one of nature's most dramatic displays. It is no wonder that in ancient times people thought that thunder and lightning had super natural causes. Today, we know that lightning is simply a series of huge electric sparks. When a large amount of static electricity builds up in a storm cloud, a giant spark appears. The lightning may jump from one storm cloud to another in the sky. The lightning we usually see jumps from the storm cloud to the earth.

Benjamin Franklin, the famous American inventor was the first person to prove in 1752 that lightning is electricity. A lightning heats the air along its path by many thousand of degrees. The heat causes the air along lightning flash to expand very quickly forming sound wave, which we hear as thunder.

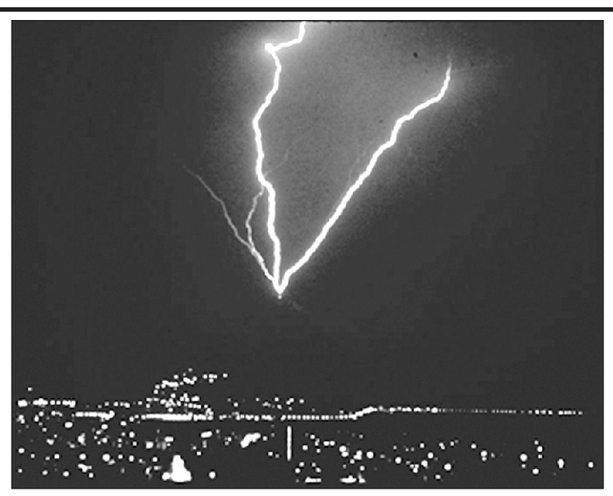
How does a cloud become charged? Laboratory experiments have shown in a mixture of water and ice, that the water has a positive charge and the ice, a negative charge, when hailstones and other heavy ice particles in the cloud collide with tiny water droplets, the ice particles become negatively charged. Because of their weight they fall to the bottom of the cloud. The light particles -- the water droplets -- rise, giving the top of the cloud a strong positive charge.

Building up an electrical charge in a thunder cloud may last for more than an hour. When the top of the cloud is positively charged and the bottom of the cloud is negatively charged, there may be a voltage difference of 100,000,000 volts or 100,000 kv.

The lightning strike: When the charges in the cloud are strong enough, electrons flow from negatively charged bottom section to the positively charged top section. That is, a rapid discharge takes place, which is the lightning flash. Cloud-to-earth lightning is of prime interest.

When the first stroke nears the ground, a strong charge from the ground surges up the jagged path to cloud. It is this return stroke that we see as lightning flash. Secondary strokes move down the same path and more return strokes result. These occur within a fraction of second. The return strokes follow each other so quickly that there may be 3 to 30 or more return strokes what we see as a single flash of lightning.

Safeguards against lightning: At any one time, as many as 2000 thunder storms are occurring in various parts of the world. About 100 flashes of cloud-to-earth lightning are occurring every second. This enormous sparks of electricity can be very destructive. In the United States alone, between 100 and 200 people are killed each year by lightning. In Bangladesh we read in the newspapers every year of the deaths in villages due to lightning strike. However, there is no statistics of such deaths. Property damage is also caused by lightning strike. The principal protection for property against lightning is the lightning rod, which was invented by Banjamin Franklin. It is generally a sharp pointed rod of about 5 ft high placed on top of a house and connected using thick wires to a plate or a pipe placed 10-12 ft below the surface of earth.



Lightning: Enormous charge in the atmosphere

Safety precaution during a thunderstorm can be, first, do not believe the old saying, "lightning never strikes twice in the same place". It can and it does. If you are out in the open, do not try to keep dry by standing under a lone tree. This can be a dangerous, because tall objects make good target for lightning strike. If you are in an open field in a village, walk back home as quickly as possible through low lands. Low places such as valleys between hills are safer than high places. During a thunderstorm walk back home following a path parallel to HT distribution lines, because these lines are protected with lightning arresters. Do not use telephone unless necessary. The safest place during a thunder storm is in the house or in a large building.

Lightning arresters: Apart from the lightning rod, three other widely used arresters are -- (i) Earth wire or ground wire on top of the transmission lines. (ii) The horn gap arresters are generally used on HT distribution lines. (iii) The thyrite arrester. The short duration high lightning voltage surges quickly discharge through this. Thyrite arresters are widely used in power stations for protection of unit transformers and generators. However, thyrite cannot stand sustained long duration overvoltages.

Fair weather field: The concept of the global electrical circuit of the earth is an electrical system powered by upward currents from thunder storms all over the earth (totaling 1500 A) reaching and flowing through the "ionosphere" about 60/70 km above the earth. The current of 1500 A returns to earth in fair-weather regions. The resistance between the ionosphere and the earth is about 200ohm, giving rise to an ionosphere potential of about 300 kv. The vertical electric field near the earth's surface is of the order of 100v/m, and the associated current density is typically several picoamperes/(metr) 2 - pico=10-12. This is the air-earth current flowing through human body all the time.

The electricity we have been considering so far is the naturally produced atmospheric electricity. The first human generated electricity or DC was obtained from the Volta's pile.

New era for electricity: In 1800 Alexandro Volta conducted his pile or battery to supply steady direct current. In 1808 Sir Humphry Davy connected a number of piles to produce strong DC. His device was called a battery, which he used to strike an arc between two carbon rods. These glowed brilliantly and thus an arc lamp supplied brilliant light. The electric generator is based on the discovery of electromagnetic induction by Michael Faradey in 1831. The electric incandescent light bulb was invented by Edison in October 1879. In 1882, Edison put into operation the first DC power station. The decade from 1880 to 1890 saw some important events unfold. Three were especially notable. The AC generator was developed by Westinghouse company. In 1885, the high voltage transformer was developed for transmission of power over long distance. In 1888 Nicola Tesla invented 3-phase induction motors and 3-phase synchronous motors.

In 1890's and afterwards many power stations were built around the world. These power stations were later interconnected to form power grids. In Bangladesh we have now have the East Grid and the West Grid, which are inter-connected by a 230 KV inter-connector.

The invention of fluorescent tubes etc. made available to people almost the daytime light at night. The introduction of rugged induction motors in factories has relieved the mankind of huge amount of manual labour. The development of high voltage transformers such as the 11/132kv, 3-phase, 50 hz, has made possible transmission of bulk power over a long distance at a minimum line loss.

Conclusion: Now, despite so much generation of electricity, we are still facing a power shortage. Because the demand for electricity is increasing day by day. The total power generation falls short of the total requirement. And in case of Bangladesh, it is by a wide margin. Therefore, we shall have to increase our conventional power generation as much as possible with our own resources as well as outside assistance.

At a time, when we are trying options like wind energy, solar energy, tidal energy as well as nuclear energy to meet our present as well as future requirement, can we not also explore possibility of exploiting atmospheric electricity with the advancement of science, to overcome the shortage?

Electric energy has improved the quality of life of mankind so much so that the per capita consumption of electricity is now considered as a measure of standard of living of a people. Electricity has become now perhaps, as essential as water for the mankind. There is enormous amount of electricity in the atmosphere. If we can exploit even a very small fraction of it, we shall be simply affluent in powers' understandably. But can we do it?

Dr Syed Fazl-i Rahman is retired Professor of Electrical and Electronic Engineering, BUET.