Water: Demand, Development and Management in South Asia

by Dr M. Monirul Qader Mirza

South Asia is a water scarce region especially in the dry season. In future, increased water supply will be needed for agriculture, industry, rural and urban sectors mainly driven by increases in population and economic growth. Possible changes in climate will affect the water resources of this region in two ways. First, changes in hydrology and water resources will result in changes in the pattern and magnitude of flow. Second, global warming and climate fluctuations will have a direct effect on lifestyles, and hence on human behaviour. Increases in population, economic growth and climate change related factors will eventually exacerbate stress on water use and widen the gap between demand and supply. This prognosis suggests that the sustainable development of water resources is an imperative that requires water management issues to be addressed in a more judicious way than now.

CHANGES in climate could produce water resources problems in many parts of the world. Higher temperatures may increase evaporation, change snowfall and snowmelt patterns, and eventually lead to alterations in water demand and supply. Changes in precipitation could affect water availability in soils, rivers and lakes, with implications for domestic and industrial water supplies, hydro-power generation, agricultural productivity and ecological requirements. Rising sea level may pose threats to low-lying coastal areas with flooding, erosion, intrusion of saline water and contamination of coastal freshwater aquifers.

There are, however, many uncertainties regarding global warming as well as its impacts on water resources. Most climate models point towards increasing global mean annual temperature and precipitation changes, but their ability to accurately forecast changes in regional precipitation is poor. Despite this limitation, research in the past few years suggests that relatively small climate changes could significantly affect water resources in various parts of the world. On a regional basis, some parts of the world will experience a greater surplus of water and some greater scarcity.

In many parts of South Asia, scarcity of water has already become a pressing problem. This may further be compounded in future with increases in population, economic growth and climate change. Increased population (rural and urban) would create higher demand for domestic water supply. Irrigation water requirements may increase substantially for two reasons. *First*, demand generated by expanded irrigated lands and *second*, higher evapotranspiration due to increases in temperature and changes in humidity. Industrial water requirements are expected to increase due to economic growth and development. However, increased air temperature may require more water for cooling purposes.

The aims of this article are to focus on: how the possible future changes in climate will put additional stress on the water resources of South Asia through increasing water demands for various sectors, the future development potentials for water, and identification of principal water management issues in a warming climate.

Climate Change, Hydrology and Water Resources

In South Asia, monsoon precipitation by and large influences the inter-annual variation in availability of water resources. More than 80 per cent of the annual precipitation occurs during the monsoon (June-September). There is uncertainty as to how future changes in climate would effect the monsoon circulation, and thereby the precipitation pattern in South Asia. For example, when the effects of both greenhouse gases and aerosols are included in the climate model simulations, the Asian summer monsoon rainfall decreases, whereas earlier climate models' simulations that only took into account the effect of greenhouse gases showed increased rainfall. In latter case, the implication of these changes would be serious as water of the rivers will continue to play a crucial role in the production of food for the growing population in South Asia.

Quantitative estimates of climate change on hydrology and its processes together with other demand generating driving forces are essential for understanding and solving water resources management problems associated with flooding, drought, agriculture, hydropower generation, domestic and industrial use, and navigation in South Asia. Water resources systems planning, management of shared water resources, and protection of the natural environment are directly affected by these changes.

Application of climate change scenarios (indicated by climate models) on the hydrologic models indicates a range of changes in mean annual discharge of the Ganges and Brahmaputra rivers in Bangladesh (outcome of a research recently carried out by the writer). Comparatively, higher changes are expected for the Ganges River than the Brahmaputra River. The research further demonstrates that changes in runoff in relatively drier river basin will be higher than a wetter river basin.

The Driving Forces for Future Water Demand

Three driving forces generally create water demands: increases in population, agriculture, and industrial growth. In future, climate change may act as an additive factor by altering water supplies. Each of these factors will be considered down below.

Population Growth: South Asia is one of the most densely populated regions of the world. The current (1995) population is estimated to be 1238.5 millions. The ratio of rural and urban population is roughly 3:1. Population growth would have both direct and indirect effects on water demand. Main direct effect is an increased volume of water use for domestic purposes (including recreation). Increases in water use could be affected by a number of factors, such as increases in per capita income and rural to urban migration. Generally, economically affluent people use more water. Apart from these two factors, there are some other factors which may play a significant role in determining water use patterns. They are: pattern of urbanisation, the degree of adoption of water-conservation technology, and institutional factors governing directly or indirectly the degree of demand management. One additional factor, the pricing of water, would be an important determinant in future water use and demand. Currently, in South Asia, water is highly subsidised which encourages inefficient water use, thereby creating more demand for water.

Agriculture: Until now, agriculture is the single largest contributor to the GDP of South Asian countries. The highest and the lowest contribution of the agriculture sector is 43.0 per cent and 24.6 per cent for Bhutan and Sri Lanka respectively. In future, agriculture will likely to remain as an important sector of the economy in South Asia in terms of food production as well as employment generation. Water requirements for the agriculture sector are also the highest in South Asia.

Future water demand in the agriculture sector will also be driven indirectly by increases in population. This will be created through: (a) the demand for food (cereals and corns); and (b) the demand for non-food (industrial) and farm products. The increased demand for food may be met by taking one or more of the following measures: expanding the rain-fed (dry land) area, improving the productivity of the rain-fed (dry land) area, expand the irrigated area, improving the productivity of irrigated agriculture, and importing food from other countries. The last measure will not create water demand in a food importing region. In South Asia, there is very limited scope of expansion of the rain-fed agricultural land because most of the land has already been brought under cultivation. Therefore, it is assumed that increased demand for food will be met by expanding the area under irrigation. This will have a substantial impact on future water demand.

Poultry and livestock products constitute a portion of the food intake in South Asia. Demand of poultry and livestock products shows in increasing trend in South Asia. Therefore, in future, increases in demand for poultry and livestock products will be translated into an increased number of livestock. This would result in increased water demand for: stock watering, growing forages and livestock feeds.

Industrial Growth: In recent years, industry sector has achieved substantial growth in South Asia. Depending on the type of an industry, industrial water demands vary from country to country in South Asia. High water requirement industries are: mining, thermal power, steel and non-ferrous metals, heavy chemicals, fertilizers, petro-chemicals, paper and newspaper, textiles and cement. India's industrial water requirement will continue to be the highest in South Asia because of its population (mainly middle class consumers), size of the economy and versatile investment opportunities for foreign and overseas Indian investors. According to one estimate of the Central Water Commission, industrial water demand doubles every ten years, 1989 in India. In Bangladesh, the rate of increase in industrial water demand has been estimated to be 5 per cent per annum. However, these dated estimates need to be revised in the context of a market economy.

Climate Change: The effects of climate change on water demand will be basically indirect and additive. These are listed below.

In a warmer climate, water requirements will increase for both rain-fed and irrigated crops. No study is available on irrigation water requirements in South Asia under climate change. However, changes in irrigation demand for alfalfa in the Great Plains region of the United States was found, due largely to increases in the length of the crop growing season and crop-water requirements in the summer. With a 20% increase in precipitation, increases in irrigation water demand in the USA for a broad range of increases in precipitation and temperature were also found. Irrigation water demand seems to be more sensitive to changes in temperature than to changes in precipitation. All climate models' results are in broad agreement about increases in global mean temperature. Therefore, it is highly likely that irrigation water demand in South Asia will increase in a warmer climate. However, increased stomatal resistance to transpiration may counteract the effects of temperature increases on irrigation demand.

- Some livestock will need more water in a warmer climate in future mainly in order to reduce the risk of dehydration.
- Both urban and rural domestic water requirement will increase in a warmer climate. Usually in the summer months, people take showers/baths more than once a day to make them feel comfortable. Due to higher rate of sweating, water requirements for reducing the risk of dehydration (through drinking) and clothes washing will also increase. Garden water use will increase mainly in the urban areas.
- Climate change is expected to generate little direct effect on industrial water use. The efficiency of cooling systems may be reduced due to increases in water temperature. Overall, water requirement for cooling purposes would increase for per unit output than the current levels. Domestic cooling (use of air and water coolers) would create higher demand for electricity, therefore, bringing a change in the amount of water required for hydro-power generation. On the other hand, longer generation hour would create demands for larger amounts of cooling waters.

Water Resources: How Much Can be Developed?

South Asia is blessed with many large river systems (the Ganges, Brahmaputra, Meghna, Indus, Narmada, etc.) most of which originate in the Himalayas. Precipitation contributes most of the annual runoff of these river systems. Snow and glacier melt water also makes some contribution, but overall, the quantity is insignificant. There are exceptions too. For example, 49.1 per cent estimated annual runoff of the Cenab (a tributary of the Indus) comes from snow and glacier melt. Snow melt contributes roughly 10 per cent of the total flow generated in the Nepalese rivers. For the Ganges and Brahmaputra rivers, the volume of snow melt water is only 0.076 per cent of the mean annual flow. As most of the river runoff in South Asia come from the monsoon precipitation, any failure or changes in monsoon can cause serious consequences for agriculture.

The development of water resources in South Asia has reached the cross-roads. Increasing demand for food (proportional to the rate of population growth) is the principal driving force in the development of water. In 1990, the population of *India* was 844 million and food demand was estimated to be 211 million tons (assuming a rate of 250 kg/per person/per year). It has been estimated that by 2025, the food requirement of India will increase to 275 million tons which must be produced from 155 million ha (210 million gross) of net cultivable area and by which time the country's irrigation potential of 113 million ha will be exhausted. By 2025, the total water requirement for food and fibre production has been estimated to be 770 km^3. For all sectors, water requirement may reach 1050 km^3 by 2025. Total utilisable water has been estimated to be 1110 km^3 (690 km^3 and 418 km^3 from surface and ground water, respectively). Only 60 km^3 ground water will be left for further development beyond 2025. It is highly likely that in an individual year, the demand for water in India will exceed the supply even before 2025.

In *Bangladesh*, requirements of water for irrigation and other sectors are highly dependent on the flows of the international rivers and ground water. Surface water is used in the dry season in the large irrigation projects. Ground water is used for minor irrigation projects as well as for the domestic and industrial supplies. Due to lack of storage sites, Bangladesh will have to continue to depend on the flows of the international rivers and limited ground water.

In future, demand of water for various sectors — agriculture, domestic and industrial supplies, navigation, salinity control and fisheries will reach a critical stage. The gap between the demand and supply could not be closed even with the full development of ground and surface water of the Ganges and Brahmaputra rivers. By 2005, water requirements in March will be 25,697 million m^3 as against the availability of 25,101 million m^3. The agriculture sector would alone require 16,155 million m^3 water (63 per cent of the total demand) to irrigate 6.9 million ha as against 7.56 million ha irrigable land (excluding the active flood plain). The second highest requirement would be 9,377 m^3 water (36.5 per cent) for navigation, salinity control and fisheries.

The above estimates show that with the full development of ground water and surface water of the Ganges and Brahmaputra rivers, 0.66 million ha of land will remain without irrigation. The development of the Brahmaputra river is subject to the settlement of sharing of water between Bangladesh and India. Sharing of water of the other 52 smaller rivers is also unsettled. For the development of water of the Ganges and Brahmaputra rivers, Bangladesh will need to mobilise billions of dollars to implement barrage projects on these two rivers. Without these two projects, approximately 2.2 million ha of land will be without irrigation. In addition, in future, increased upstream water uses in India and Nepal will put water resources development in Bangladesh in a more critical situation.

Climate Change and Water Management Issues

Given the water availability and demand in South Asia in the next 25 years is likely to be matched, any change in climate that would reduce runoff could have dramatic effects. In a warmer climate, water management in South Asia would be affected in two ways. *First*, changes in hydrology and water resources will result in changes in the pattern and magnitude of flow. *Second*, global warming and climate fluctuations will have a direct effect on lifestyles, and hence on human behaviour. There are uncertainties about changes in the magnitude of river flows in response to changes in climate. This range of uncertainties has to be taken into account in future water management practices in South Asia. Three important water management issues need to be addressed in a warming climate.

Reducing Water Requirement for the Agriculture Sector: In future, the irrigation sector will continue to be at the top of the priority list in order to feed millions of people. The discussion in the previous section demonstrates that within two decades, the demand for water will exceed the supply. The irrigation sector will alone create two-thirds of the total water demand. Future changes in climate would further increase the irrigation water requirement. Irrigation water requirement can be reduced by: increasing irrigation water efficiency and crop diversification.

Without improving the *irrigation water use efficiency*, the available resources would be insufficient to meet the demand after satisfying water demands for other sectors. In the last 50 years, irrigation water use efficiency has remained unchanged at 40% in India and Bangladesh.

Irrigation water use efficiency can be achieved by careful planning of conjunctive use of ground water with surface water, introducing efficient methods of irrigation-drip and sprinkler irrigation, lining of canals, distributaries and water courses and controlling loss from deep percolation.

Crop diversification can reduce irrigation water requirements. For example, if an area with a high yielding variety (HYV) of rice is replaced with a HYV wheat, irrigation water requirements will be slashed to one third.

Water Pricing Policy: Water is highly subsidised through the public sector enterprises in South Asia for irrigation, domestic and industrial supplies. Low prices of water work as incentive to waste. Institutional weaknesses also encourage waste of water. In Dhaka, loss of water in the supply system is about 50 per cent when a meagre amount of water is supplied to some parts of the metropolitan city. The collection of revenues from water is also dismal. In 1997, Bangladesh Water Development Board (BWDB) has collected about 40 per cent of the target for irrigation revenue collection.

A complete restructuring of the present pricing system will help in covering the operation and maintenance cost of the water supply systems and a part of the fixed costs as well as to discourage wasteful use by the consumers. This also requires institutional restructuring for reducing overhead costs, privatization of some of the services of the public sector enterprises and improvement of relation between the suppliers and consumers.

Reservoir Sedimentation and Dam Safety: *Reservoir sedimentation* has already become a serious problem in South Asia. Indian reservoirs, on an average, are losing space at the rate of 1.49 acre-feet/$mile^2$/year. The life of the Kaptai Reservoir in Bangladesh was estimated to be 300 years in 1957. Thirty years after the commissioning, the calculated life was 180 years. The Kulekhanj reservoir in Nepal, which had a design life of 100 years, lost 1 million m^3 of its gross storage capacity in just 12 years after its impoundment in 1981. The reservoir has a design dead storage of 12 million m^3.

Because future changes in climate will affect the sub-processes of the sediment chain, more is likely to be washed in the future than today. Increased precipitation, by creating more erosion, mass wasting, and bed and bank cutting of rivers will lead to higher sedimentation rates. Reservoirs will be particularly vulnerable as the storage space available will be filled up at a much faster rate with the exacerbated sedimentation. The high rate of sedimentation means that the economic life of the reservoirs planned to be built in the region is much reduced.

Dam safety relates to the calculation of critical runoff threshold that a particular spillway could handle and of the frequency of occurrence of the threshold in a warmer climate. In a warmer climate, the dimensions of existing spillways may be inadequate to accommodate the increased magnitudes of floods.

Conclusion

For two reasons predictions of future water uses are difficult in a warmer climate. *First*, the demand for water is heavily influenced by economic and social forces which themselves are virtually impossible to forecast for more than a few years; *second*, both the availability of the resource itself and the demands for it will be influenced by changing climate (Rogers, 1994). Despite these limitations, it is certain that climate change will perturb the current water management problems in South Asia in a more complicated fashion.

The emerging gap between the demand and supply of water calls for restructuring of the institutions/organisations responsible for water development, supply and management, modifications of the water pricing policies, introduction of more efficient water revenue collection system, privatisation of some of the services of the public sector water enterprises and formulation and implementation of the bottom-up water management policies in South Asia.

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CORRIGENDUM

In the headline of the article "Those Gems of Men Today" printed in this page yesterday, the word 'Gems' was inadvertently printed as 'Jems'. The printing error is regretted.

Russia's Roads to Capitalism with potholes

The road network in Russia is plagued with crumbling highways, crunching traffic jams and drunk drivers. Gemini News Service reports on suggestions that toll roads could provide at least part of the solution. Sergei Blagov writes from Moscow.

NIKOLAI Gogol, the Russian novelist, wrote in the early 19th century that his country faced two major problems — "fools and roads". These days the first problem is still a matter of concern for political analysts, while the latter remains a headache for Russia's long-suffering drivers.

"Every time I expect something bad to happen on these roads," said Nikolai — not the writer, but a long-distance driver. "Just another huge pothole, and here we are — something gets broken in the car."

Most Russian highways are potholed and lack illumination, service stations or other infrastructure. Roughly four-fifths of major highways are in poor condition, with no traffic lights, obsolete traffic markings and poor surfaces. Even the Moscow-St. Petersburg highway, linking cities with a combined population of some 15 million, suffers from the general infrastructure malaise. Many towns in northern Russia, some of them with a population of more than 500,000, can be reached by car only in winter, when the ground is frozen solid.

Russian roads are being made increasingly unsafe by drunken driver at breakneck speed. Each year there are more than 170,000 traffic accidents nation-wide which claim some 30,000 lives and cause more than 180,000 injuries. This makes Russia's rate of accidents and fatalities nearly three times that of Western Europe.

This year, careless or drunken drivers and a greater number of cars on the roads have led to the first increase in automobile accidents on Russian roads in six years. More than 20,000 people died in car accidents in Russia during the first nine months of 1998, up nearly four per cent from the same period last year.

The experts suggest a wide range of measures to tackle traffic problems, including a new licensing system, improved road building and better road maintenance.

Widespread alcohol addiction constitutes the biggest single traffic safety problem, as one in every four crashes is blamed on drunken drivers. In some remote parts of Russia, it's one in three.

Russia also needs better bus drivers. The current ones were responsible for more than 3,000 road accidents that killed 700 people and injured about 4,000 last year.

Russia's road network, totalling some 560,000 kilometres, is chronically underfunded. Inter-city roads are financed out of the federal budget, and local authorities are responsible for municipal roads. According to the State Road Fund, which allocates money for road building, the federal authorities invested some $6 billion in the sector in 1996 and $5 billion last year. Experts warn this money was less than half of what is needed.

Still, Russia has managed to build 5,413 kilometres of new roads this year — doubling the previous year's figure, according to the chief of the Russian Federal Road Authority, Vitaly Artyukhov. Within the past three years Russia received $650 million from the World Bank to build new roads, and now yet another loan of $400 million is discussed to repair roads in Siberia and Far East. Despite the current economic crisis, and the fact that per capita car ownership is merely one-fifth that of developed nations, Russia is going to continue building new roads.

Moscow has the most advanced traffic and road network of all Russian cities, but the capital still suffers from worsening traffic congestion. For instance, during the rush hours downtown Moscow nearly comes to a standstill, paralysed by an average 20 different traffic jams, according to Moscow traffic police.

Experts warn that unless city's authorities take urgent measures, Moscow is likely to become the Russian version of Bangkok — where drivers facing day-long jams habitually take food supplies to work with them — by the year 2000. According to the state traffic police, there are now 2.4 million private vehicles in Moscow and the flow through the city reaches 300,000 vehicles daily. Some 6,000 road accidents took place in Moscow last year, with about 800 fatalities.

Earlier this year a new 100-kilometre circular road was completed around Moscow, with illumination, road markings, fly-overs and bypasses up to international standards. By the year 2005 Moscow authorities also plan to build a third inner circular road at an estimated cost of $1.25 billion.

But while Moscow, the country's predominant financial centre, can afford massive investment in infrastructure, less affluent regions are desperately cash-strapped, and private capital is seen as a solution.

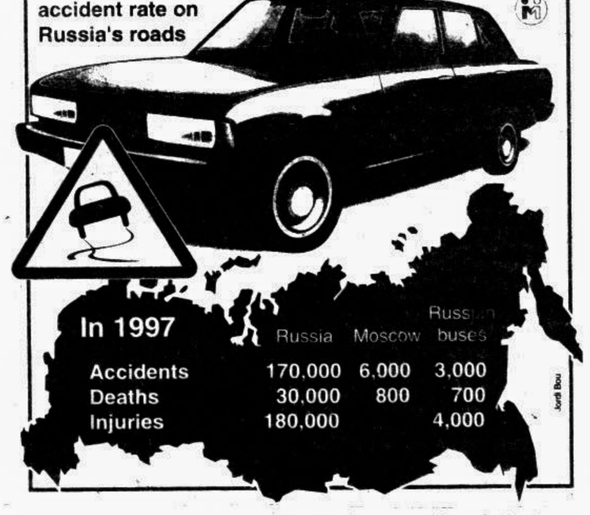
Ricardo Halperin, director of infrastructure department for Europe and Central Asia of the World Bank, says Russia must increase the role of private entrepreneurs in road construction and maintenance. He said private toll highways would help to save much-needed government funds.

Every rouble invested in toll highways could bring up to 30 roubles in revenue, according to Vyacheslav Prokhorov, deputy chief of the Russian Federal Road Authority. He said opinion polls conducted by the authority suggest that two-thirds of Russians support the idea of toll highways.

It remains to be seen whether the majority of Russian drivers would subscribe to the point of view — still new in Russia — that they must pay for motoring on good roads. In the meantime, the country's long-suffering motorists have to be prepared for unwanted surprises on the road.

— *Gemini News*

The writer is a Russian freelance journalist who primarily covers international affairs.



CBM: New Energy Source

by Sunit Roy

A rapidly expanding economy of the country is creating a tremendous surge in demand for natural gas. However India's conventional gas resources are limited and unlikely to meet the growing demand.

Faced with this shortfall, India must turn to either importing natural gas through pipelines or LNG (Liquefied Natural Gas) or attempt to exploit its unconventional gas resources such as Coal Bed Methane (CBM), gas hydrates and gas shales.

The existence of gas in coal has been known for many decades. It is only in the last decade and a half that this gas has emerged as a viable energy source with coal as both source and reservoir rocks.

The generation of Methane gas, an organic compound containing carbon and hydrogen, results from high temperature and pressure due to continuous burial.

During the transformation process, coal becomes rich in carbon and large amount of fluid matter is released like methane, carbon dioxide and water. Such generation of fluid is significant in bituminous and higher rank coal with maximum yield of 150-200 cm3 (centimetre cube) per gm of coal. The accumulation of methane gas in coal occurs in molecular structure, micropores and fractures.

The storage capacity, however, decreases with higher ranks of coal due to increase in compaction and reduction in pore volume.

CBM exploration is carried out in different phases which includes basin selection, stratigraphic well, test well and finally the pilot stage for knowing the reservoir and potential of flow. For the purpose of exploitation, three basic stages are recognised like dewatering stage, stable production storage and decline stage. Unlike the conventional reservoirs, the CBM production history is characterised by decrease in water cut and increase in gas rate till a production plateau is reached.

The US is in the forefront of CBM exploration where about 10,000 wells have been drilled in western coal basins most notably in San Juan and Warrior basins. Commercial production of CBM started in 1989 with current production level of about 60 mm3 (millimetre cube) per day. Several other countries like Australia, China and Poland are also active in CBM exploration.

Exploration and production of coal bed methane has been recognised as a legitimate, low risk, high reward area where any requirement is a seam of optimum thickness, rank and its occurrences at suitable depth. India has vast resources of coal which may have potential for CBM.

The potential for developing the country's large CBM resource base is estimated between 250 billion cu m (cubic metre) and 4 trillion cm of gas. Recently the government advanced initiatives to spur the development of its unconventional gas resources, especially CBM and gas hydrate.

These initiatives will hopefully have an impact similar to US initiatives of the late 1970's and early 1980s that stimulated the current unconventional gas production of nearly 4 tcf (trillion cubic feet) accounting for over 20% of US natural gas production.

India is currently the world's third largest coal producer, producing 308 million tonnes in 1996 and ranks fifth in proven coal reserves with nearly 70 billion tonnes. Coal fields are distributed along major river valleys like the Damodar valley, the Son-Mahanadi valley and the Pranhita-Godavari valley.

The Damodar valley coal fields are the most heavily mined and will be among the first coal fields available for CBM exploration. The Cambay basin of Gujarat which contains thick sub-bituminous coal seams has received most of the attention for CBM exploration.

CBM resource base at about 40 tcf for five major Damodar valley basins, with 20-25% (8-10 tcf) of this resource estimated as recoverable. Several wells are being drilled in Damodar valley. In Jharia coal fields, one well in Parbatipur block was on production testing for nearly two months. Within the Jharia coal fields, there are several more Barakar coal seams with economic potential that could add substantial production.

In its preliminary evaluation of Cambay Basin CBM resources, the Gujarat government has estimated 11 tcf of CBM in place resource for coal seams between 2000 ft and 5000 ft deep over an area of about 2,000 sq miles.

The ministry of petroleum and natural gas has been designated as the government authority for the exploration of coal bed methane resources in the country, a responsibility previously held by ministry of coal.

The Directorate General of Hydrocarbons is the regulatory body now responsible for preparing the terms and conditions of contracts for CBM exploration and production, licensing, developing the block data package and maintain oversight during the exploration and development life cycle.

India has a large unsatisfied demand for natural gas, which is likely to grow with projected expansion of the economy. Natural gas demand in India is presently estimated at three bcfd (billion cu feet per day), with actual production at only two thirds of this level.

Demand for natural gas in the year 2009-2010 is forecasted at just nine bcfd, which will necessitate an increasing import requirement either in the form of pipeline gas or LNG. New domestic sources such as CBM may alleviate some of the rising costs of energy imports.

CBM will be the new horizon in future energy deficit scenario. Government initiative will help in establishing potential resource base of this emerging energy resource for sustaining the growing energy needs of the developing economy.

— *APB/PTI Feature*

The writer is with Oil and Natural Gas Commission, India.

Rights Activists Condemn Increasing Communalisation of Politics

HUMAN rights activists from India, Pakistan and Bangla-desh have condemned the increasing communalisation of politics in the region.

Speaking at a lecture in New Delhi, they said political parties in the region were using religion for gaining political mileage. The lecture on "Communalism, Human Rights and the state in South Asia" was organised by the Champa Foundation, a non-governmental organisation active in the field of human rights.

Focussing on the political use of religion, Badruddin Umar, an activist, academician and founder member of the Bangladesh Anti-Fascist Democratic Alliance, said: "Communalism and fundamentalism were two such uses. But religion has also been used very widely by parties which are neither openly communal or fundamentalist. For example (in Bangladesh), it is used by the (ruling) Awami League, the BNP (Bangladesh National Party) and sometimes even by the Left during elections."

Umar said the partition of the subcontinent in 1947 consolidated the rule of majority religion. Therefore religion has been used by the propertied classes to stay in power, he added.

Mubashir Hasan, founder-member of the Pakistan Human Rights Commission, charged that the system of governance over which the ruling class in these countries presided sanctified violence on a horrendous scale.

"While political rights are paramount, the importance of economic, social and cultural rights are not fully recognised in our countries and poverty results partly from the denial of these rights," said Hasan, who was Minister of Finance, Planning and Development under then Prime Minister Zulfiqar Ali Bhutto.

He asserted that none of the South Asian nations had granted its people the right to work, to fair wages, equal remuneration for work of equal value or safe working conditions.

"It is the structure of ownership of resources and the manner of their application to production that keeps on making the rich richer and the poor poorer, a process that also results in enormous transfers of capital out of the subcontinent every year," said Hasan, who was arrested during the regime of General Zia ul-Haq in Pakistan.

Giving details of the communal violence in India, Teesta Setalvad, activist, writer and editor of the Mumbai-based "Communal Combat", claimed that last year there were as many as 138 communal attacks in various parts of the country.

Setalvad charged that fundamentalist Hindu groups like the Bajrang Dal and Vishwa Hindu Parishad were using ideology to polarise Hindus from Muslims and Christians.

— *India Abroad News Service*