

Address of
Shri U. N. Panjiar
Secretary to the Government of India
Ministry of Water Resources
at INDIA BUSINESS FORUM
during
SINGAPORE INTERNATIONAL WATER WEEK
at Singapore
on
1st July 2010

Mr. Ravi Narayanan, Vice Chairman, Asia Pacific Water Forum Governing Council

Mr. Suresh Prabhu,

Distinguished guests,

Ladies and gentlemen.

I am happy to be with you at this Session of the India Business Forum. This Session is to discuss the investment opportunities in water sector in India. In order to identify investment opportunities, I would very briefly highlight water resources scenario, overview of the development and challenges in the water sector and policies, strategies and measures identified for addressing the challenges.

2. The issue before the Forum needs to be discussed in the background of the overall water scenario in the country. The country receives total precipitation of about 4000 BCM. However after evaporation only 1869 BCM is available and due to the topographical and hydrological constraints only 1123 BCM (surface water 690 BCM and ground water 433 BCM) is utilizable. The artificial recharge to ground water will also help in additional water availability of about 36 bcm which may be utilized for various purposes included irrigation. Present level of utilization is only about 690 BCM. Even total available water is not distributed evenly in place and time. There are large temporal and spatial variations in the availability of water. About 75 per cent rainfall is received during four monsoon months from June to September and 85 per cent between May and October. The variation is likely to be intensified further with apprehended impact of climate change on the pattern of precipitation.

3. Further, very large temporal and spatial variations are observed in rainfall and hence in the water availability. Most of the water is available during monsoon period and that too, through a few spells of intense rainfall, resulting in floods in major rivers. While the average annual rainfall of the country is about 1170 mm, the average rainfall in north east region is as high as 10,000 mm per year whereas some parts of western Rajasthan receive average rainfall of about 100 mm per year only.

4. The per capita water availability is reducing day by day as a result of growing population. The annual per capita water availability was about 5177 cubic meters in 1951 which has now been estimated to be less than 1700 cubic meters.

5. The present level of water utilization has been estimated to be about 690 BCM out of which about 83% is utilized for irrigation, 5% each for domestic uses and industrial uses and rest for other purposes.

6. The projections of the future water requirement indicate that by the year 2050, about 1447 billion cubic meters of would be required. However, the National Commission on Integrated Water Resources Development Plan has observed that there is considerable scope for improving the water use efficiency and the Commission has assessed the total requirement for the year 2050 as 1180 billion cubic meters assuming that the desired level of efficiency would be fully achieved. In any case, there remains a gap between the future requirement and the estimated utilizable water of 1123 billion cubic meters. We are working towards bringing more of the available water into the category of utilizable water. Measures are also being taken for water conservation through rainwater harvesting and ground water recharge and also utilize the surplus flood water by creating surface storage and diverting to deficient areas.

7. Another important factor is the changing pattern in respect of requirement of water for different purposes. The share of requirement of domestic water is projected to grow from the present level of about 5% to about 9% in 2050 reflecting larger urbanization. Similarly the share of requirement of Industrial water is also projected to go up. It is estimated that this would increase from present level of about 5% to about 8% by 2025. Although the requirement for irrigation

water in absolute terms would increase over the time, the share of irrigation water in the overall demand has been estimated to reduce from the present level of about 83% to about 69% by the year 2050.

8. We have made considerable progress in respect of development of water resources for various purpose i.e. drinking water, irrigation, hydropower etc. Irrigation potential of about 107 mha has already been created out of the ultimate gross irrigation potential of about 140 mha. The remaining potential is required to be created at the earliest. The possible inter-basin transfers from surplus basin to deficit basin by interlinking of rivers may add another 35 mha of potential. 40 per cent of the culturable land has assured irrigation and rest is rain fed. However, it also remains a fact that the best sites for water resources development have since been tapped and the remaining sites are more challenging from technical, financial as well as other socio-economic considerations.

9. Considerable progress has also been made in respect of other sectors such as drinking water and hydropower. The policy aims at achieving the ultimate targets for all these sectors. Another important issue is about full utilization of the created facilities. Due to many factors, the created facilities have not been fully utilized. In case of irrigation, about 15% of the crated irrigation potential remains unutilized for which the strategy adopted is to take expeditious action in respect of command area development, maintenance, renovation and modernization of created facilities and put in place appropriate mechanism for improving water management and involving the community and WUAs in management of water resources at the local level. Therefore, we have the twin challenges of creating the additional facilities to achieve the level of ultimate irrigation potential and also fully utilize the created facilities.

10. The access to safe drinking water sources in urban areas of India was about 90% in the year 1990 and 93% in the year 2000 and this has improved to about 96% by the year 2008. In rural India, access to safe drinking water sources has increased from about 58% in 1990 to about 73% in the year 2008. Similarly, as per the reports of the Joint Monitoring Programme of World Health Organization and UNICEF, the use of improved sanitation coverage in rural areas of India was 7% in the year 1990 and this increased to about 21% in 2008. The

urban sanitation coverage was 49% in 1990 and increased to about 54% by the year 2008. The current coverage of sanitation facilities in the rural areas is more than 65%. Thus, a lot more is required to be done in respect of supply of safe drinking water and sanitation programmes. The millennium development goal (MDG) of improved sanitation facilities in the rural areas is planned to be achieved by the year 2013.

11. Our irrigation infrastructure is not operating at desirable efficiency. Efficiency of surface water projects is only 30-35 per cent, which can be increased to 60% by adopting scientific and efficient management practices, proper maintenance and renovation and modernization of existing whole infrastructure. The efficiency of ground water facilities can be increased from existing 60 per cent to 75 per cent. This measure alone can save water to meet the demand supply gap.

12. India is endowed with estimated hydropower potential of more than 1,50,000 mega watts. However, only about 21% of the potential has been developed so far. About 10% of hydropower potential is being developed. The main reasons for slow development are: difficult potential sites; long gestation period and geological surprises which need to be addressed. Obviously, dedicated efforts are required to address all these issues and develop hydropower potential to the maximum. This is more so because hydropower is eco-friendly and the running and maintenance costs are very low compared to the revenue generation. The new hydropower policy 2008 has adequate provisions to encourage private investment in hydropower development. In fact, now most of the hydropower projects are being developed by private investment.

13. The total flood prone area in the country has been estimated to be about 46 million hectares. However, the area provided with reasonable degree of protection through structural measures is about 19 million hectares. This is being expanded during XIth Plan from 2007 to 2012. Along with structural measures, efforts have also been made to adopt non-structural measures. A network of 175 flood forecasting station is also maintained which provide reasonably accurate forecast to help in warning and advance actions to reduce the damages from

incoming floods. The facilities are being expanded and modernized by installing automation and telemetry system.

14. Maintaining the quality of both surface water as well as ground water is another challenge. Apart from the geogenic contamination of ground water with arsenic fluoride, nitrogen and iron in some areas, and anthropogenic pollution due to excessive use of chemical fertilizers, pesticides and industrial pollution is causing deterioration of ground water quality. Water quality in rivers has also deteriorated due to discharge of untreated urban sewage into the rivers.

15. Due emphasis has been laid by the Government of India on water sector which is reflected from the outlay for XI Five Year Plan. The outlay for irrigation, command area development and flood control for the XI Five Year Plan is about US\$ 50 billion (Rs 2,32,000 crores), almost two and a half times the outlay during X Plan. Similarly the total outlay in the XI Plan for rural water supply and sanitation sector is close to US\$ 22 billion (Rs 1,00,000 crores) and the outlay for urban water supply and sanitation sector is about US\$ 16 billion (Rs 75,000 crores).

16. The growing population coupled with industrialization and urbanization has resulted in increase in the demand of water for various uses. Scarcity value of fresh water is well known to all of us. At present, we face two important challenges. The first relates to "food security". We are fully aware that the development of water resources projects and efficient use of water plays a crucial role in agriculture and food production. The need for urgent actions for efficient water resources management has become more pronounced in view of deficient rainfall during the monsoon of 2009, leading to declaration of over 300 districts of the country as drought affected by the respective State Governments. We have to efficiently manage the precious water resources to ensure availability of safe drinking water for all the citizens and to assure food security.

17. Another important challenge relates to impact of climate change. We are fully aware of the climate change and its effect on water. Almost all the studies point towards a definite impact on the hydrologic cycle which could result in intensification of the temporal and spatial variation in the availability of water resources. This issue needs to be addressed in all seriousness. National Action

Plan on Climate Change has been launched by the Hon'ble Prime Minister which envisages institutionalization of eight national missions including a "National Water Mission". The main objectives of "National Water Mission" are conservation of water, minimizing wastage and ensuring its more equitable distribution both across and within States through integrated water resources management. Five goals identified for "National Water Mission" are:

- Comprehensive water data base in public domain and assessment of impact of climate change on water resources;
- Promotion of citizen and State actions for water conservation, augmentation and preservation;
- Focused attention to vulnerable areas including over-exploited areas;
- Increasing water use efficiency by 20%; and
- Promotion of basin level integrated water resources management.

18. Apart from the two very serious challenges of food security and the impact of climate change, we continue to face numerous challenges in the form of reducing per capita water availability, deterioration in water quality, declining ground water table in some areas of the country etc. The demand for water for all purposes whether it be domestic, irrigation or industrial need is increasing day by day. The cities require clean water mainly for domestic and municipal uses to sustain improvements in public health and sanitation. The rural community will need stable sources of water for domestic use as well as their economic survival etc. as their livelihood depends mostly on agriculture. Water, both for consumptive and non-consumptive uses, is an essential input for almost all categories of industries. Water also plays an important role in sustaining the ecology.

19. As per National Water Policy and the National Water Mission, the following strategy is to be adopted:-

1. Untapped water resources potential is to be developed and harnessed expeditiously.

2. All potential storage sites are to be developed subject to appropriate mitigation of adverse impact on environment and attractive rehabilitation and resettlement measures.
3. The water resources potential has to be augmented by transferring water from surplus river basins to deficit river basins through Interlinking of Rivers, on the basis of consensus among participating States.
4. Created potential is to be fully utilized by expediting command area development activities, proper maintenance, renovation and modernization of existing degraded facilities, adoption of efficient, modern operation and management practices and ensuring participatory irrigation management.
5. R&D for improving water use efficiency in agriculture, industry and urban areas and promoting efficient water use technologies and practices in agriculture and other sectors is given thrust and encouraged.
6. Efficient management of urban water supply and waste water treatment, recycling and re-use is being encouraged.
7. Desalination technologies to meet the requirements of coastal areas and the islands are being developed and promoted.
8. Participatory Irrigation Management in water resources sector is being promoted through appropriate legislative framework.
9. Projects for Rainwater Harvesting and recharge to ground water in water stressed areas are being taken up in a big way.
10. Water positive and water neutral technologies in industry are being encouraged.
11. Hydropower Policy encourages private investment in hydropower.

20. The private sector has an important role to play in almost all aspects of water resources development and management. Private sector has contributed significantly in the construction of water resources infrastructure such as dams, barrages, canals and the structures to harness ground water as EPC Contractors. The contribution of private sector in transportation and storage, water treatment, process control technology and process automation, particularly in the area of drinking water and sanitation and micro irrigation are well known. There are very impressive contributions of private sector in ground water development in the form

of development and marketing of material for tubewells and water pumps and in promotion of micro irrigation i.e., drip and sprinkler irrigation. There has been a spurt in investment by private sector in the area of hydropower also. In recent years considerable interest has been shown by many organisations representing industries such as CII, FICCI and ASSOCHAM in water sector and a number of interactive events have been organised. Private Sector can play an important role in developing innovative water management practices to improve the efficiency of water resources infrastructure as well as efficient water use in different sectors. The private industries are already developing equipments such as motors, pumps, micro irrigation systems and domestic appliances which lifts and use the water more efficiently.

21. All the above measures require huge investment and provide ample opportunity for private investment and public private community partnership. Presently, participation of private sector in the water resources projects is only confined to the contract for the execution of the projects and EPC contracts. Private sector is also involved in providing consultancy in some projects. Private sector is now increasingly participating as investor and developer of hydro power projects. There is opportunity for private sector to invest and participate in water resources projects more aggressively. Urban water supply, sanitation, waste water treatment, recycling and re-use provides ample opportunity for private investment and investment under Public Private Partnership. Public Private partnership can also play an important role in creating public awareness about water conservation, promoting community based rainwater harvesting and recharge to groundwater, community based management of traditional water bodies, micro level planning and execution of water audit and water budgeting, promoting participatory irrigation management in command areas.

22. The National Water Policy of India also encourages private sector participation in planning, development and management of water resources projects for diverse uses, wherever feasible. I am confident that private sector participation may help in introducing innovative ideas, generating financial resources and introducing corporate management and improving service efficiency and accountability to users. The National Water Mission identified a very

active role of private sector in implementation of a number of strategies and action points for achieving the goals.

23. I feel that private sector participation should not be restricted to the areas of hydropower or urban water supply only and they must come forward and join hands in addressing the issues related to all aspects of water resources. The private sector and industries in particular have important role to play by way of adoption of measures for efficient use of water and water conservation practices. More efficient industrial plants and processes are being developed worldwide to reduce consumption of water. Our industries also need to come forward to modernize their plants and processes to use water more efficiently. Similarly, they can help considerably in adoption of measures for recycling and reuse of water. Further, the industries should strive for becoming water positive or water neutral. They can be water positive or water neutral by adopting water efficient equipment and processes, by treating, recycling and reusing their effluents and by harnessing rain water and recharging ground water within their own premises.

24. Some large industries have taken initiative in public private community partnership for water conservation, rainwater harvesting and recharge to ground water.

25. Industries may also develop water efficiency technologies for appliances using water such as water pumps, pipes, sprinklers, etc. In urban and domestic sector, water efficient appliances, water coolers, washing machines, showers, dishwashers, flushes, taps water purifiers, etc. also need to be developed and promoted with public private community partnership.

I would like to thank the organizers for inviting me and giving me the opportunity to share my views with you.

Thank you.