

**Inaugural Speech by the Chief Guest, Shri Montek Singh Ahluwalia, Deputy Chairman, Planning Commission in the International Conference on Soil, Water & Environmental Quality – Issues and Strategies on January 28, 2005 at NPL Auditorium, PUSA**

Dr. Mangla Rai, Dr. Nortcliff, Dr. Nagrajan, Dr. Samra, Dr. Rattan and Friends

It is a privilege to be invited to inaugurate this Conference on Soil, Water and Environmental Quality. As an economist, I always feel a little over-awed when I face a scientific gathering and this feeling was greatly reinforced for this particular occasion when I looked at the list of the papers for this conference. There is obviously no way I can contribute to what is evidently going to be a very technical and scientific conference. I would therefore like to use this opportunity to share with you how we in the Planning Commission look at some of the issues that you are going to address.

I would like to begin by endorsing what has been said by the other speakers about the importance of the subject. There is absolutely no doubt that problems related to soil, water and environment have a critical impact on the development and prosperity of this country. The problems are also complex and interlinked. However, while policy-makers are aware of the seriousness of problem, there is very little awareness of its different dimensions among the broader category of opinion makers and the informed public. Since the solutions to the problem are complex and difficult to implement, and the consequences of non-implementation are also not an immediate worsening of the situation but rather a continuing gradual deterioration, there is a real danger that the policy changes needed will not be undertaken unless there is some external pressure. This pressure can only be generated by creating a broader awareness of the problem which generates pressure to bring about corrective action and also sufficiently broad based understanding of the problem to make corrective action politically acceptable. Unfortunately, at present not enough people are aware of the nature of the problem and it is important that this should change.

One of the reasons it is difficult to bring about a broader understanding of the problem is its complexity. I thought I would use this opportunity to review various aspect of this complexity. I came up with eight different aspects of the problem all of which are relevant to the subject and all of which are available to corrective action but over very different time horizons.

First, among these is the ever increasing demographic pressure in our country in the face of finite water resources. In 1950, the per-capita water availability in the country was 5200m<sup>3</sup>. This had declined to 1820 m<sup>3</sup> by 2001. The good news is that demographic pressure is declining gradually as our population growth rate slows, but nevertheless our population will stabilize only at a much higher level of around 1.6 billion by 2045. With per-capita availability of 1820m<sup>3</sup> in 2001, India is still not water stressed on average though there are large parts of the country which are water stressed. However by 2008 per-capita availability will decline below 1700 m<sup>3</sup> which is conventionally regarded as the cut-off for being water stressed. Our per-capita availability will not be the lowest in the world, but it will be much lower than most countries. This underscores the need for taking steps to cope with water stress. We need to take early action on ensuring the most efficient use of available water. At present we have utilised only 61% of our total irrigation potential in the major, medium & minor irrigation sectors. I recognize that there are complex environmental considerations that have to be kept in mind but equally we have to recognize the need for optimal use of scarce water resources. In fact on conventional calculations India's storage capacity compared to annual availability is very low - 207m<sup>3</sup> against 1820m<sup>3</sup> per-capita availability. Storage as a percentage of per-capita availability is only 11.4% in India as compared to Australia (18.4%), China (49.1%), Turkey (50.5%), Spain (50%), Mexico (27%), USA (18.1%). The low ratio in India is all the more telling when we consider that the per-capita availability in Australia and USA is much higher than in India: 25,708m<sup>3</sup> and 10,837m<sup>3</sup> respectively compared with India's 1,820 m<sup>3</sup>.

A second important issue which will impact on our water availability is global environmental change. I do not have enough scientific knowledge to even pronounce on whether the dire warnings that are often issued by many experts are actually correct or exaggerated. There are dissenting opinions on this but the impression I have is that it is now generally recognized that global warming is indeed taking place and poses a genuine problem. Pressures on the environment on this count are only going to increase if the present emerging market countries achieve their objective of rapid economic growth. Our own development objective is to increase our rate of growth of GDP to 8 percent. With China continuing to grow rapidly the pressure on the global environment will only increase. Clearly we need to think much more than we have done before on how to moderate this pressure even as we pursue our developmental objectives.

A third important issue is what happens to the environment within the country and how it impacts on soil and water. The most important development from this point of view is the deforestation that has taken place in our country bringing our forest cover down to 23% which is a full 10 percentage points below the level we are aiming at. Again, the good news is that the process of deforestation has been arrested and there is some evidence that our forest area may be beginning to edge up. This is good but we are still far from achieving the level of forest cover we have targeted. Deforestation contributes to water stress in several ways. It reduces the ability of the catchment's areas to retain water and recharge underground aquifers and leads to excessive run-off and excessive siltation of rivers. This in turn, leads to quick siltation of dams reducing the storage capacity of reservoirs. Furthermore, rampant industrial pollution in the form of discharge of untreated water and lack of sewage treatment facilities in our cities lead to pollution of our rivers and also pollution of ground water. Major efforts are needed in afforestation and control of industrial pollution to improve the situation in this respect.

A fourth problem related to soil quality is the inadequate knowledge input built into the design of our developmental and economic policies and practices. I am told that against an annual depletion of 28 million tonnes (MT) of nutrients, we actually replace 22 MT, leaving a net depletion of 6 MT/annum, a deficiency which keeps accumulating year after year depleting soil quality. This problem is well known but we have not effectively conveyed this knowledge to the farming community, leading to inadequate attention to the need to apply micro-nutrients based on soil testing. Facilities for soil testing are grossly inadequate but the demand for this service is also low.

The policy of subsidy on fertilizers presents a related problem. It has produced a pattern of subsidy which generates excessive use of nitrogenous fertilizers with relative under-utilization of other fertilizers and micronutrients. Unbalanced fertilizer use does not lead to immediately visible harmful effects but it worsens soil quality over time. It is a failure of the extension system that the damage that this does is not conveyed to the farmer since a better understanding would surely lead farmers to adopt better practices. Part of the problem is the relatively low educational levels of most farmers. We can be proud of our traditional farming methods but if the system is being subjected to huge biotic stress of one or the other kind, traditional practices, which are based on the factor endowments of the past, may not be relevant today. The solution lies in transmitting knowledge to the farmers and also educating them to be more aware of the need to practice scientific farming.

The fifth problem that strikes me is that these irrationalities are not simply due to the failure to communicate the relevant information on the ground. They are also compounded by economic distortions which are the result of policy decisions. Economists have long cried themselves hoarse that if we have a lopsided system of fertilizer subsidies, in which nitrogenous fertilizers are subsidized much more than the others, we should not be surprised that the fertilizer balance shifts towards nitrogenous fertilizer to an extent that is actually counter productive. The solution is self evident – we should reduce the subsidy on nitrogenous fertilizer. The resources thus saved could be used to provide other form of support for agriculture. If a reduction in fertilizer subsidy is not possible, we should at least rebalance the subsidy, reducing it on nitrogenous fertilizers and increasing it on the other

fertilizers. Similarly, if we deliberately underprice water, we should not be surprised that farmers want to switch to more water-intensive crops, which in turn makes it difficult to achieve the originally intended coverage for irrigation and often also leads to water-logging. These are examples where both scientific and economic knowledge point to the need for corrective action and this has been known for at least last 15 years, but we have not been able to translate what both the scientists and the economists have been saying into a set of policies which would address this problem. This is clearly something the Planning Commission should address and we hope to do so in formulating the 11<sup>th</sup> Plan.

The sixth problem in moving to a more rational system of water use arises from the lack of clearly defined property rights for resources such as surface and ground water. We do not have sufficiently reliable ways of reaching agreement on a fair sharing of river waters among riparian states and we also lack quick and reliable methods of enforcing agreements that have been reached. We also do not have a rational system for determining property rights for ground water. At present, the legal situation is such that a land owner is legally entitled to extract all the water that he can from any tubewell on his own land, even if the rate of extraction leads to the general lowering of the water table, which causes loss of water to other land owners, especially those who rely on dug wells or cannot afford deep tubewells. When this system of property rights is combined with a system where electricity is available free in one or two states, and at hugely subsidized rates in many other states, it is not surprising that you get completely irrational over-exploitation of ground water. Unsatisfactory property rights to ground water also make it difficult to undertake measures for water retention and ground water recharge in the micro-watershed because the benefits in terms of the water conserved inevitably accrue to some people more than others. These problems are not unique to India. Similar problems exist elsewhere too. They can be solved rationally only by treating water as a community resource and not as a resource belonging to and exploitable by any one who is able to put a deep tube well on his land and use subsidized electricity for the pumping. We need to give considerable thought to how we can best resolve this problem.

A seventh problem we face arises from the fact that water management issues involve a multiplicity of institutions. Many different Ministries are responsible for different programmes in this general area. For example, we have the Water Resources Ministry which is essentially for surface irrigation and is dominated essentially by irrigation engineers. There is the Ministry of the Rural Development which is supposed to take all kinds of land development and water conservation works, as also those related rural water supply. There is also the Agriculture Ministry which not only represents water users but also engages in some programmes for better water management. Besides, we have the Power Ministry dealing with hydro-power, the Environment Ministry with river & lake pollution, the Urban Development Ministry with urban water supply and sanitation and the Transport Ministry with inland navigation. Government's attempts to address the problem often get lost in inter-Ministerial wrangling and turf battles. The division of responsibilities between central and state governments adds another dimension because most of the things that need to be done at the ground level fall in the domain of the state governments. The central government can only play the role of providing funds and broad direction to the programmes.

Finally, the eighth point I would like to mention is that it is important not to be overwhelmed by the complexity of the issue and look for grand solutions to an extent that we lose sight of the many examples of success at the micro level. There are several examples which demonstrate that these problems have been successfully tackled in individual cases. We need to internalize the lessons from these experiences. Many of them relate to initiatives on the ground, very often with some dedicated NGOs taking the lead. It is very difficult from the purely scientific point of view to judge whether these individual successes are indeed replicable. It is quite possible to envisage a situation where there are a large number of individual initiatives and the outcome about which one will be successful and which will not is genuinely random. In such a situation it is not very helpful to identify the successful cases and try and replicate them since their success may have nothing to do with the individual

characteristics associated with the case. If success is only a random outcome, there is not much point in replicating what was done in successful cases since the outcome will again be random. It is when success is due to some identified factors, which led to improvement in productivity in particular cases, that it is useful to identify the specific reasons for success and try to replicate them in other places where circumstances are similar. This is clearly what the government should do in designing its programmes. However, there are problems in implementation. It is possible that successful programmes which worked at a pilot level fail to work when scaled up by the government, because government agencies have relatively narrow focus and tend to impose uniformity which often creates an environment which militates against success. This is where people's participation in the design of schemes can help to create flexibility and to tailor programmes to the need of particular local circumstances.

I have mentioned eight different reasons why the problem of water and soil management is difficult and complex. I will not pretend to say that I know how to deal with these complexities. All I can say at this stage is that we do recognize that this is a very important problem and that it can only be solved through a concerted effort by scientists, economists, development administrators and politicians. The work which all of you will do in this Conference and the sharing of knowledge that will come out of this Conference, and other conferences like this, will help to design better policies in future. We need what the economists call a holistic solution and what the managers call a system solution. Let me once again say that I am really very much honoured to be invited to inaugurate the Conference. I thank you for organizing this Conference and would also like to take this opportunity to welcome our foreign guests who have come to share their views, experience and knowledge. I hope that the Conference will be judged by all of you to be very successful and I look forward to be briefed by Dr. Rai and Dr. Samra and others on what we should learn from the outcome of your deliberations. With these words let me thank you once again and wish the Conference all success.

Thank you.