

**Article begins...**

## **Random Thoughts : 6**

### **Climate Change, Mountains and Adaptation Activities**

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As Climate Change caused by human activity is now generally accepted to be the biggest threat to the global environment in general and man's livelihood in particular, I had offered some comments on this important subject at the time of the unveiling of the National Action Plan on Climate Change ( NAPCC ) in these columns. In particular, I had averred that out of the eight sub-Missions listed in the NAPCC, as many as six had a direct bearing on Uttarakhand and the other ten mountain states of the country and suggested that this Plan has to be operationalized at the sub-National ( states ) level and it simply brooked no further delay ( ref Random Thoughts, Garhwal Post issue of August 3, 2008 ).

### **GEAG Report**

Two developments have occurred since I wrote that piece in GP. My friend Dr. Shiraz Wajih, President of Gorakhpur Environmental Action Group (GEAG), has in the meanwhile shared with me a copy of the report they have prepared on the climate change adaptation activities in the seven United Nations Development Assistance Framework (UNDAF). This valuable study is based on a review of the current initiatives and programmes being implemented by various agencies and organizations, including the Government, in the seven UNDAF states. Not surprisingly out of the seven states no state happens to be a mountainous state. However, the study findings still have relevance for us here as well. I could have but a very brief stint as Commissioner of Gorakhpur Division as it had to be terminated

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suddenly in 1993 as the then Chief Secretary, TSR Subramaniam, decided that the hill districts of Uttar Pradesh needed my services more. My choice was reduced to what could at its very best be termed as Hobson's one ! However, my association with Dr Shiraj and his GEAG team has remained intact since then and they have been very kind to share with me whatever of any significance occurs in that equally hapless part of the country. In a region plagued by Japanese encephalitis, perpetual floods with ample doze of droughts, abysmal poverty, over population, mal-governance, criminalization of politics etc. GEAG, over the years, has rendered a yeoman service to the eastern districts of UP, especially in environment and rural development sectors. I was privileged to have been involved in some of their major rural development initiatives e.g. iodized salt, minor irrigation and flood-management public hearings.

### **Impacts of Climate Change**

As is well known by now the projected impacts of climate change in India are an increase in average temperatures by 2-4 degree C and marginal changes in rainfall during monsoon months, with large changes during the non-monsoonal months. The number of rainy days during the monsoon is projected to decrease by more than 15 days while the rainfall intensity is expected to rise by as much as 1-4 mm/day. Cyclonic storms are likely to increase in frequency and intensity.

The impacts on Indian agriculture, still mostly rainfed, are potentially disastrous. Mountain agriculture is synonymous with rainfed agriculture and as we have already seen how deficient the winter rains have been in Uttarakhand in 2009. Increasing pest attacks, increase in vector-borne diseases has already led to a 10% increase in malaria, rising sea-level posing threats to the coastal areas, causing crisis of drinking water caused by saline ingress etc all add up to increasing the vulnerability of the poor and those dependent on natural resources for their livelihoods. Poverty levels in the mountainous states like Uttarakhand are already higher than the plains areas and these tell-tale signs are going to further

aggravate an already grim scenario. Taken together, the GEAG study sums up, that all these factors are going to render attaining the millennium development goals ( MDGs) very difficult indeed.

## **Adaptation and Disaster Risk Mitigation**

Given the above scenario one has no option but to suitably respond to it. Adaptation is such a response to an actual or expected climate stimuli that moderate harm or exploits beneficial opportunities, “ In brief,” says the GEAG report,“ adaptation is the ability of people and systems to adjust to climate change. In natural systems, adaptation is reactive by definition, but in human systems, it is both anticipatory and reactive; implemented by public and private actors.”

Very often one tends to confuse and mix up disaster risk reduction with, thinking it to be the same as adaptation It is not so. Central to the conceptualization of adaptation, or enhancement of adaptive capacities, is the notion of ‘*vulnerability and resilience*’. The term vulnerability describes a condition of susceptibility shaped by exposure, sensitivity and resilience. Now, ‘resilience’ can be hard or soft. *Hard resilience* generally includes options that have physical characteristics ranging from flood control structures (dams/barrages) to information and communication technology ( ICT). Whereas, ‘*soft resilience*’ options refer to skills, processes, institutions, social systems, policies and programmes.

As we are too familiar, the usual approach to disaster risk mitigation, consists of hard options only. According to the GEAG, ‘*What is missing is the emphasis on soft options or a judicious mix of the hard with the soft, in participatory ways.*’ This report goes on to say that the resilience and adaptive capacities ultimately depend on ( i ) *Flexibility* ( within livelihood, economic, water management and institutional systems), ( ii ) *Diversification* (involving multiple independent flows to livelihood systems), ( iii ) *the ability to learn from events* ( at both individual and institutional levels), ( iv ) *Education* ( the knowledge base required to develop new systems when existing ones are disrupted ), ( v ) *Mobility* ( an

attribute of flexibility ), ( vi ) *Risk pooling and spreading*, ( vii ) *Operational techniques for risk reduction before and following disruptions*, and ( viii ) *Convertible assets ( or recovery )*. All these are not stand alone factors but in real life these operate in myriad permutations and combinations.

### **Implications for Eco-systems : Shift to Higher Altitudes**

From the view-point of the mountains and the mountain eco-systems there is an extremely relevant take-home lesson. According to the GEAG Report, ‘the two aspects of climate change, namely, ( i ) the inter-annual variability, with extreme intensity and frequencies ( both low and high ), and ( ii ) gradual changes in temperature and precipitation, *have implications for ecosystems in their having to shift to higher altitudes*. In practical terms this would imply, *that the crops that are grown in a particular area ( or a particular altitude ) will no longer be suitable in those areas*. In terms of practical steps which would be required to be taken will be such issues, which will have to be kept in mind, in building the kind of partnerships between public agencies, communities and private sector.

### **A different ball-game altogether**

Obviously, the take-home lessons which emerge from this analysis is that the changes will require ‘incremental treatment’, calling for responsive institutions and knowledge generation, both on scientific and social dimensions. Static analyses, like linkages with poverty alleviation might not work here in such situations as, historical trends in temperature and precipitation may not be valid for future projections. In our classical and stereotypical responses to drought or flood situations we have been responding on the basis of such historical trends only. Hereafter, in context of Climate Change, now we will be required to contend with the elements of uncertainty and, by definition, there are going to be a surprises galore ! It is going to be different ball –game altogether, as the saying goes.

It therefore follows, that henceforth it would become necessary to carefully analyze the inter-linkages between the natural, physical, social, financial and human capital in a given time and space context and then predict the possible changes in these individually as well as in conjunction with each other, with a view to reducing or mitigating the impacts at individual household/societal levels, and enhancing the capacity to recover from impacts. At the very least, the Study rightly concludes, this requires an integrated approach and not the kind of piecemeal and isolated planning that prevails today.

### **Uttarakhand Update**

As one who has been involved with the development of pioneering efforts both in the realms of Disaster Management, Planning as well as most of the poverty alleviation sectors of this state I would venture to suggest that the following steps be taken without losing any further time, namely, ( i ) Immediately strengthen and re-structure the Planning Commission of the state by inducting the instruments of planning and integration, as has been suggested, with a view to respond to the new elements highlighted above, (ii ) also restructure and strengthen the Disaster Management department and Disaster Management Centers' charter to harmonize the elements of hard options, to which it has naturally been partial so far, and hone up the 'preparedness' aspects of future planning, again on the lines suggested by the Study quoted here at some length, and (iii) more importantly integrate the efforts of the State Planning Commission/Planning Department with those of the Disaster Management Department/Centre, in such a way that they factor in the major take-home lessons which emerge from the GEAG and UNDAF states. Obviously, these recommendation do not have the benefit of insights gained from the experiences drawn from any mountain region of the country. It would also be advisable to closely follow the lines taken by the Programme Implementation Plan ( PIP) of the UNDP India office for implementation of the Country Programme Action Plan ( CPAP) phase during the eleventh Plan ( 2008-2012 ).

## **Association of British Scholars (ABS)**

And the second development, as I mentioned at the outset, has been recent appearance of ‘some light at the end of the tunnel’, in so far as the search for some Flag-ship activity for the recently established Uttarakhand Chapter of the Association of British Scholars was concerned. This Association, with some 40 plus members, has members who have had some academic stint in one of the academic institutions of UK. This writer spent a year with the University of Reading ( AERDC ) on a Colombo Plan Fellowship. Sponsored by the British Council the ABS has been struggling to decide on some Flag-ship themes and it has been now decided to focus on ‘*Low Carbon Futures*’ programme. The ‘Low Carbon Futures programme’ explores the way all of us can mitigate the effects of climate change. Being Uttarakhand Chapter, naturally the ABS has decided to sharpen its focus further on ‘Mountains in general, and Adaptation Activities, in particular’. ABS also believes that ‘there is great opportunity for India to adopt a low carbon route to economic growth rather than opting for a high carbon path’. As a matter of fact, right from the beginning, Uttarakhand has deliberately crafted its major policies and opted for interventions, which have been ‘eco-friendly and green’. Now the next step for the ABS would obviously be, as a collective of academics and development practitioners, to help and assist the state government in ‘building regional, rural and urban policies and building a bridge between public agencies, communities and the private sector.’

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