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Hydroelectric power projects *vis-a-vis* air pollution: Second thought needed

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ABSTRACT

Development of hydroelectric power projects is a biggest development in debate in the Indian Himalayan Region (IHR) these days. Despite offering some advantages in terms of electricity and economic benefits, these projects are imposing several direct and indirect negative impacts to the people and environment of the region. The environmental impacts of the river valley projects have been researched worldwide; management and mitigation policies also have been formulated to deal with the identified impacts upto an extent; however still there are some undreamt negative impacts which need to be addressed at international level. The present article (critical review) attempts to present a yet out-of-sight negative impact of these hydropower projects which certainly needs a serious consideration at policy level.

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KEYWORDS

EIA;
Hydropower;
Air pollution;
Himalaya;
Hill agriculture.

To fulfill the national electricity demands hydropower has been emerged as a potential source in India with the total exploitable capacity of about 150,000 MW. Indian Himalayan Region (IHR), on account of mighty rivers flowing on steep slopes offers favorable settings for construction of hydropower projects, consequently IHR is under stress for hydroelectricity generation. About 500 big projects have been proposed in IHR alone to harness a capacity of 117,000 MW which is around 75% of countries total potential, thus making the region a vulnerable victim. Environmental degradation is the obvious consequence of such a large scale development which can be relatively more detrimental in a region of special importance and sensi-

tivity like Himalayas. To assess the environmental impacts and suggest mitigation measures, Environmental Impact Assessment (EIA) is practiced worldwide as a decision tool. Since its inception the process of environmental assessment has been amended many a times to make it more comprehensive and appropriate, nevertheless, it is quite unfortunate that ample criticism is also always associated with it due to its inability to cover all the direct and indirect impacts of a developmental action.

Dust, smoke and noise are the characteristic manifestation of any large scale construction activity; this scenario is same with construction of hydroelectric projects. Road construction, operation of stone crusher

plants, continuous movement of heavy vehicles and machineries, massive muck disposal, cement dust, blasting, etc. are the major activities which contribute to the air and noise pollution in the surrounding area of the project. Now, if we talk about the impacts of hydropower projects on air quality, characteristically it is in the form of dispersal of critical dust particles in the contiguous air which makes it untoward, however the presence of harmful chemicals/gases is very less. Although there is indeed a comprehensible inclusion of assessment and management of impacts on air and noise quality in the Environmental Impact Assessment (EIA) studies, but the air and noise pollution explicitly concerning hydropower construction are considered as 'during construction phase' and/or 'short term' impacts and thereby much emphasis is not given. In glimpse of this particular prospect of hydro-project construction, it can well be asserted that 'yes, indeed air and noise pollution are negligible impacts as far as the human health is concerned'. But a short study recently published in a national magazine in India^[1] has compelled for a change in this perception. This article presented a study of Kinnaur district of Himachal Pradesh, India which falls in Satluj river valley wherein 34 hydropower projects have been proposed and construction work for some of them has been started. Himachal Pradesh is very well known for its apple production in the country as well as abroad. Based on the information presented in the above said article, since last five years the local apple farmers are severely tormented due to piteous financial returns from their apple crop as the production has been drastically reduced by more than 5 times. The farmers identify overmuch dust in the air as the only culprit, which settles on the leaves of plants and strangulates the plant growth; moreover, horticulture department of the state government based on their observations also expresses the same view accusing only the dam construction activities. The scientific researches worldwide have already discovered the harmful effects of dust on plant growth^[2-6] which supports the farmers' verdict.

A logical simulation of the future economic repercussions of such scenario, considering that the construction of these projects will take another 10 years (which is bare minimum) results a persuasive fact that this pollution will result in continued economic dilapidation of

these apple farmers and eventually this much of time will be enough for the farmers to reluctantly give up their business, sale out the property, migrate or may be ultimately end up committing suicide as it has been happening in other parts of the India^[7,8].

Considering a global fact that hill farming itself is a challenge, the national/state policies should play supporting role instead of harming it only for the benefit of some lucrative industrial sectors. At present almost all countries of the world have got their own policies on compensation for development induced displacements and damages but the point is most of them only deals with land acquisition or direct loss of physical assets and ignores some hidden damages like Kinnaur's farmer dealing with. Here it is worth remonstrating that Kinnaur is just one deterrent example which came to notice but there could be many and in future also if judicious action is not taken. To deal with such particular crisis, a compensation package based on the average annual production from the affected crop fields subtracting the yearly financial return from the same fields for a strategically estimated time period can be formulated to annually support the farmers for sustenance during the phase of economic breakdown. There might be many other even better solutions to deals with such transitional impacts but the implementation can only take place when a strong policy/law will be in place to include such issues and also to reinforce the voice of farmers. Moreover, apart from the direct losses to the agriculture, the farmers are also prone to associated health problems.

It is to be comprehended that any hilly region with rich water resources is a potential site for hydroelectricity generation thus almost all such regions are under stress of exploitation world over. India is 7th largest producer of hydroelectricity of the world, thus the scope of such problems may be more serious in many countries. Despite based only on one case study this article attempts to explicate a discrete issue which certainly needs serious attention. One pertinent thing comes out of this discussion that there is an earnest need to give a serious thought instead of keep on ignoring this negative facet of hydropower development. To make this happen first step should be to take up scientific research studies so that a pragmatic stand point can be developed for further decision making at policy level.

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REFERENCES

- [1] R.Kandhari; High Altitude Dams cause Low Apple Yield. Down To Earth, Science and Environment Online, <http://www.downtoearth.org.in/node/1462>; January 09, (2011).
- [2] K.Pawar, L.Trivedi, P.S.Dubey; Int.J.Env.Studies, **19(3)**, 221-223 (1982).
- [3] Vardaka, E.Cook, C.M.Lanaras, T.S.P.Sgardelis, J.D.Pantis; Bull.Env.Cont.Toxi., **54**, 414-419 (1995).
- [4] S.Spencer, R.Tinnin; J.Arid Env., **37(3)**, 475-485 (1997).
- [5] J.R.Thompson, P.W.Mueller, W.Flückiger, A.J.Rutter; Env.Poll.Series A, Ecol.Biol., **34(2)**, 171-190 (1984).
- [6] M.Z.Iqwal, M.Shafiq; Turkish J.Bot., **125**, 19-24 (2001).
- [7] M.Assadi; J.Inst.Research on Social Sci.Huma., **2(2)**, 265-284 (2007).
- [8] P.B.Behere, A.P.Behere; Ind.J.Psych., **50(2)**, 124-127 (2008).