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## HYDROPOWER, THE FUTURE: CHALLENGES AND WAY FORWARD

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Today, the whole world is giving immense importance to hydro energy and this was realized very early when somewhere in 1860s a wise gentleman termed hydro as "white coal". Following this all the countries are investing huge amounts in hydro power projects and are developing more and more hydro based power projects with the belief that this would work for the betterment of the environment and receiving supporting results too. But in India, the scenario is completely different and this difference can be well understood with the fact India still considers hydro projects up to 25 MW as renewable unlike other countries where there is no limit and all the hydro projects are considered as renewable. India has special packages like solar mission which is attracting huge investments from private sector, then why not hydro?

One of the major causes of delay in hydro projects is environmental clearance but state of Himachal Pradesh seems to have overcome it by introducing the "Single Window Concept" which has been working very well for quite some time now. This can be treated as an example to implement similar system in other states. Also, time deduction plan for the project should be drawn by government by maximum documentation getting digitized at both center and the state level so the taking clearances become a speedy process.

Hydro Project in Himachal Pradesh are bringing "Economic & Inclusive Development", it is a fact. The single window concept working by establishing Directorate of Energy is a feather in a cap. Awareness Programs of Importance of SHP Needed at District & Regional Level for BEST DEVELOPMENTS.

In order to bring vibrancy and action at ground level, a nodal agency support act as a "Catalyst". The experience of Himachal Pradesh is good & our IPP's of SHP are being regularly heard in meetings at Government as well as personal levels. The result of which is "Regularly Positive GO for support issued".

The big civil contractors in the country shy away from doing project of 50-100 crores. A well organized civil contracting capacity building is needed. Countries like Iceland; oldest democracy takes 42 months in completing a hydro project of 700MW with entire procedure of development and generates the first unit and India, biggest democracy takes ten years. India has been generating more and more human capital in terms of IT, Software and communications leading to enormous progress in these fields but now the time has come when we should also focus on producing a brigade of civil engineers who

can work in cities for developing urban infrastructure as well as go to remote sites for developing much needed hydro projects. Most of institutions provide desk training but lack in skilling them with field knowledge.

Development of standards at the institutions like IIT is in progress but there are no results on ground reality. If we follow the standard and procedures of International Hydro Association sustainable guidelines, the abundant renewable energy can be made available to the grid without damaging the environment. It is high time that we contribute back to mother earth.

In India, the mines are exploited to their worst to get fossils for generating power which is used to create infrastructure facilities for the country. In turn, green power dream can be a reality if we replace fossil fuel power with green power in production of metal industry, urban life, change of powering urban life and railways.

The major impact in climate will be seen in a decade with a condition to change in attitude to power your desires by green power. This will have to be instilled from the very beginning in every child by making them realize and understand the importance of environment. The art to increase the efficiency of utility of power and waste management should be included in school curriculum. The people should be made more aware of the benefits of the hydro power and this can be done by organizing the workshops and trainings at regional/district level so that it can reach everyone.

Financing of hydro power projects is another major issue. Nobody gives a loan to a new entrepreneur who wants to set up hydro plant. A clear plan of Planning Commission is needed as of yesterday which should focus on:

- Reducing overburden of tax collection by states.
- Policy changes at state level without clear cutoff dates
- Long term vision plan at state level
- Public Private Partnership model in Renewable sector.

Apart from these, concept of machine charge and leasing equipment should be encouraged to turn around to implement up to 5 MW. MNRE should discretely fund the equipment against the machine charge for the projects that deserve. A strong appeal is to follow hydro as renewable at least as per the World Bank norms if we want to really save our earth and make our project environment friendly.