

Comment on IMG (B.K. Chaturvedi) Committee Report on Upper Ganga Hydro and the River

Report with Pro Hydro Bias does not do justice to its terms or to Ganga, people or environment

Summary A month after its submission to the Union Ministry of Environment and Forests, the Inter Ministerial Group on Upper Ganga basin Hydropower projects and Ganga river in general is yet to be put in public domain. A detailed perusal of the report shows that the report is hugely biased in favour of large hydropower projects, and has not done justice to the task given to it or to the Ganga river, people or environment. Out of the three non government members (out of total 15 members) on the Group, Dr Veer Bhadra Mishra expired during the working of the group. Rajendra Singh has given a dissent note, not agreeing with the report in its totality. The “alternative view” note from Sunita Narain, the third non-government member, is not much of an alternative and is not in the interest of the river, people or the environment. However, the fact that none of the non-government members have endorsed the report speaks volumes about the credibility of the report.



Above: Dry Bhagirathi downstream Maneri bhali HEP Photo: Peoples science Institute

The recommendations of the IMG report are an exercise largely in supporting the interests of hydropower lobby in the name of balancing the power & development needs of the region and local people.

The IMG has actually attempted to make 69 large hydropower projects in the Upper Ganga basin a fait accompli when only 17 of them are under operation and 14 are under construction. In many cases IMG has reached unscientific and unfounded conclusions. Some of the recommendations are also contradictory in some fundamental nature. In many cases IMG has made statements, and

implied recommendations that are bad in law. In general, the report shows that IMG has poor understanding of the science of the rivers. Even where the IMG has sought to make some seemingly environment friendly recommendations, it is generally not serious about these recommendations.

A broad conclusion is inescapable that the IMG report (except the dissent note by Shri Rajendra Singh) is largely an exercise in deception, with a pro-hydropower bias. While this note points out key negative aspects of the IMG report, the IMG report is not without some positive aspects. The report gives a list of positive aspects of the IMG report on which there is a lot of scope for positive action, which the MoEF should initiate, while rejecting the report.

FULL TEXT

1. The Inter Ministerial Group (constituted by the Union Ministry of Environment and Forests through an order issued on June 15, 2012) report has been submitted around April 22, 2013, but it is still not in public domain a month later. The report should have been promptly put in public domain as in the case of the HLWG report on WGEEP panel recommendation on the Western Ghats, which was made public the day after the submission of the report to MoEF. These comments^[1] are based on the hard copy of the final report made available by a colleague^[2].

2. The IMG final report has been endorsed by all members, except the dissent note by Rajendra Singh attached at Annexure X and a note on “alternate approach” from Sunita Narain, attached at Annexure XI. Shri Veer Bhadra Mishra, who was the third non-government member, expired during the period of functioning of the IMG group. The committee constitution was heavily loaded in favour of the government officers (ten of the fifteen members were government officials), so its independence was already in doubt. With none of the non-government members endorsing the report, the report has little credibility. This review tries to look at the report with an open mind.

3. While SANDRP as a group is critical of large, destructive and non participatory hydropower projects, it does not mean the group is against all hydropower projects. For example, if the projects were to be set up through a participatory and informed, decentralized, bottom up decision making process or if projects were to follow the recommendations of World Commission on Dams, such projects would certainly have greater public acceptance. That is not the case for any of the projects today.

4. The main TOR given to the IMG was to decide the quantum of environment flows for the upper Ganga basin rivers, keeping in mind the IIT (Indian Institute of Technology Roorkee, the report was basically from some individual of Alternate Hydro Electric Centre of IIT-R) and WII (Wildlife Institute of India) reports on cumulative impact assessment of the projects in these river basins.

However, IIT (Roorkee) report has been found to be so flawed and compromised (for details see:http://www.sandrp.in/hydropower/Pathetic_Cumulative_Impact_Assessment_of_Ganga_Hydro_projects.pdf) that it should have been rejected by the MoEF and the NGRBA. Even the MoEF’s Expert Appraisal Committee on River Valley Projects has been critical of the IIT-R report. However, since a member of the IIT-R was present on the IMG, it may not have been possible for the IMG to take an objective view of the merits of IIT-R report. It is however, welcome that IMG has relied on WII rather than IIT-R report while accepting recommendations on e-flows. WII report was better in

some respects, though still suffering from some basic infirmities. Moreover, to set up an IMG to decide on the course of action considering these two reports (and any other relevant reports) was compromised at the outset and was an invitation for further dilution of the environment norms, considering the track record of the most of the members of IMG.



Above: Ganga river flowing through a channel, diverted for the 144 MW Chilla hydropower project

5. The recommendations of the IMG report are an exercise largely in supporting the interests of hydropower lobby in the name of balancing the power & development needs of the region and local people.

The IMG has actually attempted to make 69 large hydropower projects in the Upper Ganga basin a fait accompli when only 17 of them are under operation and 14 are under construction. In many cases IMG has reached unscientific and unfounded conclusions. Some of the recommendations are also contradictory in some fundamental nature. In many cases IMG has made statements, and implied recommendations that are bad in law. In general, the report shows that IMG has poor understanding of the science of the rivers. Even

where the IMG has sought to make some seemingly environment friendly recommendations, it is generally not serious about these recommendations. All of these points are further elaborated in this note.

6. Cancelled projects & those on Bhagirathi Eco Sensitive Zone shown as under development Shockingly, even the projects like the Loharinag Pala, Pala Maneri and Bhairon Ghati that have been officially dropped are shown as under development by the IMG, see Annex VID! In

fact in Table 12 and 13 IMG even calculates the reduction in power generation and increase in tariff at Loharinag Pala (among others) if the IMG recommended e-flows are implemented! The 140 MW Karmoli HEP on Bhagirathi, on a stretch that the MoEF has been declared as Eco Sensitive Zone, and on which the GOI has said no large hydro will be taken up, the IMG has actually suggested that the project can be taken up! The 50 MW Jadhganga project, very close to the Gangotri, is shown to be project under development by the IMG! These examples show how the IMG has played a role of supporter of the hydropower lobby.

7. Wrong classification of projects as under construction and under clearance projects IMG has divided the 69 hydropower projects in Upper Ganga basin (leaving out the Kotli Bhel 2, since it is on Ganga river and not on Bhagirathi or Alaknanda) in four categories

s: Operating projects, under construction projects, under clearance projects and under development projects. It is here that IMG has done its biggest manipulation by classifying a number of projects as under construction when they are not and cannot be under construction.

IMG classification of projects under clearances is equally problematic. IMG and even the “alternative View” by Sunita Narian says all these projects in first three categories can go ahead without any change, except the e-flows recommendations. This manipulation shows the stark pro hydro-bias of the IMG.



Dry Ganga river after the river is diverted for Chilla HEP. Photos by SANDRP

8. Manipulations about percentage length of river that the projects can destroy On the one hand, the IMG has recommended that “projects may be implemented so that not more than 60% of the

length (of the river) may be affected.” There is no mention how they have arrived at this magic figure of 60%, what is the basis or science behind that magic figure. At the same time the IMG has said that if all the 69 projects were to be implemented than 81% of Bhagirathi and 65% of Alaknanda will be affected. Firstly these numbers are not correct if we taken into account the full length of the reservoirs and the bypassed river lengths by the hydro projects, in many cases the length of the submerged reservoir behind the dam has not been counted. Here we need to add the fact that the reservoir of the 70th Project on its list, the Kotlibhel 2 project will submerge parts of both Bhagirathi and Alaknanda rivers, which has also not been counted by the IMG. WII had to recommend 24 projects to be dropped, and even after that, WII assessed that 62.7% of the rivers would still be affected. However, the IMG has made no recommendation as to which of the projects need to be dropped (except vague review of the projects in Annex VI-D) to achieve that magic figure of 60%. This again shows how non serious IMG is, making this recommendation meaningless.

9. IMG double talk on distance criteria The IMG has said that “There is a clear need to ensure that adequate river length is available to meet the societal needs and River gets adequate *time* during its flow to regenerate itself” (emphasis added). This sounds good. But IMG has shown no will or interest in ensuring that this happens. In fact IMG exposes its understanding on this matter when it says, “the distance between two hydro projects should generally be such as to ensure that over-crowding is avoided”. What is over-crowding, how do you define it?

This is a funny word IMG has used, not even bothering to define it. However, when it comes to implementation, dumping all these requirements, IMG has justified smaller distance (read zero distance) between projects where gradient is high. Now let us understand this: where gradient is high, if the distance left between the projects is less, will the *time* the river flows between projects be smaller or greater than if the gradient is low? Clearly, if gradient is high, for the same distance, the river will have less time to travel then if the gradient were low. It is in fact the *time of free flow* that is a crucial driving parameter for river to regenerate itself. So if the river were to have the same amount of time to flow between two points, with higher gradient, river will require more distance, not less. This again exposes the poor understanding of IMG members about science of the rivers.

The IMG even goes on to say that “distance will have to be smaller in view of technical requirement of the hydro power. This could result in continuity in some cases.” Firstly it is clear here again that IMG is basically catering to the hydropower lobby, it is completely non serious about the environmental issues. That is why after all those great sentences, it goes on to say that it is the *technical* requirement of the hydropower project that will be the decider! If technical requirements means no distance between two projects, then river can disappear, environmental issues do not matter! In case of many projects where the distance of free flowing river between projects is very little or nil and where the construction has not started or has not progressed much, there is today scope for change. For example in case of Vishnugad Pipalkoti HEP on Alaknanda: the Full Reservoir Level of the VPHEP is same as the Tail Water Level of the upstream Tapovan Vishnugad HEP. This means that there is zero length of free flowing river between the projects. VPHEP does not have all the clearances and its construction has not started. Even for the upstream Tapovan Vishnugad HEP, the construction has not gone far enough and there is scope for change in both projects to ensure that there is sufficient length of free flowing river between the projects. IMG

should have recommended change in parameters in this and other such cases, but it has done no such thing, it has shown no interest in any such matter! Even the “alternative approach” note in Annexure XI has not bothered to recommend such changes even while recommending 3-5 km free flowing river between two projects.

The IMG makes another unscientific statement in this context when it says, “With the recommendation of IMG for environment flow which will be available and which would have traveled throughout the diverted stretch, any significant gaps and large distance may not be required.” This is an unscientific, unfounded statement. Firstly where is the evidence that the environment flows that IMG has suggested would take care of the need for river to flow on stretches between the projects? Secondly, the need for river to flow between the projects to rejuvenate itself will also depend on the length of the rivers submerged by the reservoirs, and also depend on the biodiversity, the social, cultural and religious needs in addition to the ecological needs. By making such ad hoc unfounded statements devoid of scientific merit, the IMG has exposed itself.

While the IMG talks about the rich diversity of fish species and other aquatic diversity of the river, it has no qualms in saying that e-flows alone will address all the problems caused by bumper to bumper projects. As many including Government of India’s CIFRI (Central Inland Fisheries Research Institute) have concluded, Dams have been the primary reason for the collapse of aquatic diversity in India, not only because of the hydrological modifications and lack of e-flows, but also because of the obstruction to migration they cause, destruction of habitat during construction, muck disposal, trapping of sediments, destruction of terrestrial (especially riparian) habitats. But these concerns are not even considered by the IMG while saying that recommended e-flows will be able to solve all problems caused by bumper to bumper projects.

10. WII recommendation of dropping 24 HEPs rejected by IMG without any reason The IMG notes that WII has recommended that 24 hydropower projects of 2608 MW installed capacity should be dropped in view of the high aquatic and terrestrial biodiversity. However, IMG decides to dump this WII recommendation without assigning any reasons. This again shows the strong pro hydro bias of the IMG. WII report says that even after dropping these 24 projects, at least 62% of the river will be destroyed.

It is shocking that projects like Kotlibhel 1B and Alakananda HEP, which have been rejected by WII and Forest Advisory Committee, is considered as “under development” by IMG, when they should have been rejected. While the IMG Report talks of unique biodiversity of the Ganga Basin, Valley of Flowers and Nanda Devi National Parks, it still supports projects which will be affecting these National Parks like the 300 MW Alakananda GMR HEP, which was also rejected by the WII and FAC (twice).

As a matter of fact, of the 24 projects that WII report recommended to be dropped, the IMG has shown 8 as under construction and 4 as “projects with EC/FC clearances”. This is sheer manipulation, in an attempt to make them a fait accompli. Strangely, the “alternative approach” note in Annexure XI does not say anything about this manipulations and in fact says the projects in Annexure VI-B and VI-C can go ahead!

11. Non serious recommendation about keeping six tributaries in pristine state IMG (Para 3.70) “recommends that six rivers, including Nayar, Bal Ganga, Rishi Ganga, Assi Ganga, Dhauli Ganga (upper reaches), Birahi Ganga and Bhyunder Ganga should be kept in pristine form and developments along with measures for environment up gradation should be taken up. No new power projects should be taken up in these River Basins.” This sounds good, but turns out to be like a joke, since firstly, IMG recommends construction of projects on these rivers that yet to be constructed! If these rivers are to be kept in pristine state then IMG should have asked for immediate stoppage of under construction projects and also time bound decommissioning of the operating projects on each of these rivers. In stead, the IMG report shows that projects are under construction on rivers like Assi Ganga (stage I and stage II projects each of 4.5 MW), Birahi Ganga (24 MW stage I project), Bal Ganga (7 MW stage II project listed in Annex VI B of IMG report, in addition to the 1 MW Balganga and 5 MW Balganga I project are also under construction as per IIT Roorkee report) and Bhyunder Ganga (24.3 MW stage II project) and IMG has (implicitly) recommended that these projects be allowed to continue, on rivers that IMG says it wants to remain pristine! Moreover, Rishi Ganga (13.2 MW project) and Birahi Ganga (7.2 MW) have operating projects on these rivers to be kept pristine! In addition, on Assi Ganga the 9 MW stage III project, is considered by the IMG as ready for development since it has some of the clearances.



Above: Rishiganga HEP Photo: Ashish Kothari, Courtesy The Hindu

The IMG has noted that 70 MW Rishi Ganga Stage-1 and 35 MW Stage II Project are under development on Rishi Ganga (IIT-R report mentioned another project on Rishi Ganga, namely the 60 MW Deodi project, it is called Dewali project by WII report; WII report also mentions 1.25 MW Badrinath II existing project on Rishi Ganga) and 24 MW Birahi Ganga-II project is under development. But the IMG does not recommend dropping of these projects.

So at least five of the six rivers that the IMG claims it wants to stay in pristine state are no longer pristine! They have multiple projects, most of them under construction or yet to be developed and the IMG has not said that any or all of these projects should be stopped, cancelled and those under operation be decommissioned in time bound manner. Even on Nayar, the sixth small tributary that

IMG said should be kept in pristine condition has a 1.5 MW Dunao project under development by UJVNL, as per the UJVNL website. It's clear how non serious IMG is about its own recommendation. IMG has included Dhauli Ganga (upper reaches) in this recommendation, but has not even bothered to define which stretch of the Dhauli Ganga this applies to, again showing the non-seriousness of IMG.

In para 4.22 IMG says, "Specifically, it is proposed that (a) Nayar River and the Ganges stretch between Devprayag and Rishikesh and (b)... may be declared as Fish Conservation Reserve as these two stretches are comparatively less disturbed and have critically important habitats for long-term survival of Himalayan fishes basin." If IMG were serious about this, they would have also said that Kotli Bhel II project should be cancelled since it is to come in this very stretch.

IMG's claim that not having *any more projects* on these six streams will mean loss of generating capacity 400 MW is also not backed by any sort of information or list of projects to be dropped, it seems IMG is in the habit of making such claims and does not feel the need to back them.

12. IMG on environmental impacts of Hydropower projects One of the key TORs given to IMG was "to make a review of the environmental impacts of projects that are proposed on Bhagirathi, Alaknanda and other tributaries of river Ganga and recommend necessary remedial action." What has the IMG done about this TOR? IMG wrongly claims (Para 4.18), "The environment impact of proposed 69 hydropower projects has been considered by IMG." It has done absolutely no justice to this very crucial TOR. First thing IMG has done in this regard is to dump the WII recommendation to cancel 24 hydropower projects, without giving any justifiable reasons. The IMG has produced a set of guidelines for the hydropower projects, which have almost nothing new, they are certainly not comprehensive or legally binding. They miss the most important issues of inadequate environment impact assessment, inadequate public consultation process, inadequate appraisal, lack of accountable governance and compliance.

What is required is certainly not new set of guidelines. MoEF already has a long list of environment and forest clearance conditions, environment management plans and manuals. But there is no interest, will or willingness to achieve compliance in MoEF.

IMG is obviously aware of this state of affairs. Yet they have happily prepared a new set of five page guidelines just to show they have done something about this TOR. The "alternative approach" in Annex XI also has nothing to offer on this score.



Above: Muck Disposal directly into the Alaknanda river by Srinagar Project Photo: Matu janSangathan

13. Unwarranted conclusion about BBM methodology The IMG has said, “Considering environment, societal, religious needs of the community and also taking into account the status of river Ganga as national river, the IMG recommends adoption of Building Block Methodology (BBM) for assessing the e-flow requirement”. This is good and needs immediate and credible implementation.

However, IMG says this will be applicable only “in situation where the required conditions are satisfied and resources, time and data are available.” The only basis for this conclusion by IMG is the fact that WWF took three years to do a study of environment flow requirements of three sites along Ganga involving large number of experts. This is clearly an unwarranted conclusion since WWF was only doing it first time and has much less resources at its disposal than the government have. By arriving at this unjustified conclusion that has no basis, the IMG implies is that BBM methodology is required and is justified, but Indian rivers including the Ganga won’t get it since IMG (wrongly) thinks that “required conditions” are not satisfied. This is clearly wrong and unwarranted conclusion. The BBM can and must be applied in all cases immediately, including for all existing and under construction projects and cumulative impact assessments.

Also, while stating multiple times that BBM for three locations for Ganga took three years, the IMG does not go into the details of what caused this delay. One of the important reasons stated by WWF itself is that required data was not made available to them, which contributed to the delay. So it is the government itself that was part of the reason for the delay in WWF study, and now IMG uses that delay to suggest that BBM is not practicable for Ganga! If the Government has the will to implement a more holistic methodology like BBM, it can be done and IMG conclusion is unwarranted and wrong.

14. Unjustified pro hydro bias of the IMG The IMG has shown its pro hydro bias at several places. At one place it says that a balanced approach needs to be taken as “It is important to see that the flows do not result in exorbitant cost of power which the people of the region may not be able to afford. This would make these power projects uneconomic and un-implementable”. Firstly, as far as people in immediate neighbourhood of the projects are concerned, history of grid connected hydropower projects in India shows that local and particularly the affected people almost never get power

benefits from projects but they surely suffer all the negative impacts. IMG is wrong as far as this section of the people is concerned.

Secondly as far as the people of Uttarakhand in general are concerned, where all the projects in Upper Ganga basin are situated, the state would get 12+1 % of free power. Since most of the projects are in central or private sectors, the rest of the electricity would mostly go outside the state. As far as this 13% free power is concerned, since it is supposed to be free, there will be no impact of e-flows on the tariff of such projects, except some marginal reduction in quantum of power.

Lastly, is it the bottom line of the IMG that projects must be economic and implemented at all costs, by hook or by crook, as is apparent from the above quoted sentence? How can that be the bottom line of IMG considering its TORs? Moreover, by making the projects economic and implementable by hook or by crook, the IMG seems to be saying that irrespective of the social, environmental, cultural,



Above: Dry River at Uttarkashi Photo: Open Magazine

religious and even economic costs, the projects must go on. Thus what IMG is suggesting is that artificially low cost electricity must be produced for the cities and industries irrespective of any concerns of costs and impacts on people, environment, future generations and rivers including the national

river! This is clearly a plea to export the water,

livelihood and environment security of the people for the short term economic prosperity of far off city dwellers and industrialists. Is this acceptable?

15. What is environment flow? IMG should have provided a definition of what is meant by river and environment flow. Since it is linked with enabling the river to perform its various roles and services in the downstream area, it cannot be just limited to water flow downstream. The downstream river also needs silt and nutrition from the upstream and the biodiversity and geomorphology in the river crucially depends on such flows of nutrition and silt. However, IMG has said nothing on this count.

16. Environment flows = aviraldhara? The IMG has said, "Environment flows in the river must lead to a continuous availability of water (aviraldhara) in the river for societal and religious needs." This equation of *aviral*river with continuous flow of water is clearly flawed, since by that token even a pipeline has aviraldhara, but a pipeline is not the same as *aviral* River. For a river to be flowing *aviral*, continuous flow of water is a necessary but not a sufficient condition. A river means so much more.

17. No attempt at assessment of social, religious, cultural needs The IMG keeps talking about social, religious and cultural perspective and needs of the society from the river and so on. However, there has been no attempt to assess what exactly this means in terms of river flow, quality, content of flow across the time and space. More importantly, how is all this to be decided and who all are to be involved in the process. IMG just assumed that this has already been done by IITR and WII, which is flawed assumption, since WII or IIT-R has clearly not done any such assessment. So in stead of giving standard monthly flow release percentage across the rivers (releases to vary based on daily flow variations, this recommendation of daily changing flow is certainly an improvement from IMG), IMG should have asked for actual assessment of such needs across the rivers and IMG should also have given the process for arriving at such decisions. But while deciding social, religious or cultural needs, the IMG sees no role for the society, religious groups or cultural institutions.

In this context it may be added that the IMG has also not taken note of the legal stipulations like the order of the Allahabad High Court that says that no project can divert more than 50% of river flows existing at the point of diversion.

Right: DevPrayag: Confluence of Alaknanda and bhagirathi Threatened by Kotli Bhel I A, IB and II Projects. Photo: Wikimedia



18. IMG recommendation during High Flow Season (May-Sept) The IMG has recommended 25% of daily *uninterrupted* (no clear definition is given how this will be arrived at) flow, with the stipulation that the total inflow in the river would not be less than 30% of the season flows. This is same as 30% of mean seasonal releases recommended by WII (para 8.3 of WII report, para 4.11 of IMG report) and also used by even Expert Appraisal Committee on River Valley Projects currently. The recommendation of releases based on daily flow is an improvement compared to the earlier situation, but its implementation is in serious doubt considering the weak compliance requirements from IMG.

It should be added here that IMG has not mentioned *how* the environment flow will be released. Just dropping it from the top of the dam won't help, the flow must be allowed to flow downstream in an environmentally sound manner that is as close as possible to the flow of the river and helpful for the biodiversity in the river to link up from downstream to upstream and vice versa. Moreover, while deciding flows, IMG has largely followed the recommendations of the WII. However, WII conclusion of classifying Upper Ganga basin under EMC class C itself is flawed. IMG should have corrected this flaw, before concluding on environment flows.

19. IMG recommendation during Lean Flow season (Dec-March) The IMG has recommended (Para 3.48) release of 30% of daily uninterrupted river flows, this will go up to 50% where the average monthly river flows during lean season (Dec-March) is less than 10% of average monthly river inflows of the high flow season (May-Sept) and to 40% (however, Para 3.51 does not mention this 40% norm) where this ratio is 10-15%. While this is an improvement in the current regime, this

remains weak considering that IMG has not done project wise calculations where 30, 40 and 50% stipulation is applicable, which it could have easily done at least for the existing and genuinely under construction projects.

20. IMG recommends lower flow for India's national river compared to what India promises Pakistan in Jhelum basin The IMG has recommended 30-50% winter flows for all projects as described above. This in case of a river everyone recognizes as the heart and soul of India, a river that has such an important social, religious, spiritual significance and it has been declared as the national river. Let us compare this with what e-flows Indian government has promised to Pakistan downstream of the Kishanganga Project in Jhelum river basin in Kashmir. In a case before the Permanent (International) Court of Arbitration (PCA), Indian government has assured that India will release more than 100% of the observed minimum flow from the dam all round the year, and now in fact the government is considering even higher than 100% of the observed minimum flow all round the year. The PCA is yet to decide if what India has proposed will be sufficient or more water flow is required. So, as against the assurance of more than 100% of minimum flow at all times on another river, for the river flowing into another country; for the national river Ganga, for India's own people and environment, all that the IMG recommends is 30-50%. On most winter days, KishengangaRiver downstream of the hydropower project, flowing into Pakistan, thus will have higher proportion of its daily flows than what Bhagirathi or Alaknanda will have

21. Monitoring and compliance of Environment Flows The IMG has said that effective implementation is cardinal part of its recommendations. This is good intention. However, by asking the power developer to be responsible for the implementation, the IMG has made the recommendations ineffective. IMG has chosen to ignore the fact that there is clear conflict of interest for the power developer in assuring e-flows, since the e-flows would reduce the power generation and profits of the developer. Its faith in IT based monitoring is also completely untested



Above: Dry Ganga at Haridwar in August 2012 Photo: SANDRP

and there is no evidence to show that such monitoring will be free of manipulation. Secondly, to ask the MoEF to do annual review, that too only for first five years ignores the track record of MoEF in such matters where MoEF has shown no will, capacity or interest in achieving post-clearance compliance of the environment laws of the country. Thirdly, to require this only for projects above 25 MW shows the lack of understanding of IMG as to how important the smaller streams are for the water, ecology and livelihood security of the community in hills. Its recommendation of monitoring by an independent group is welcome, but lacks credibility in the absence of sufficient involvement of local community groups in such a mechanism.

22. Baseless assumption of low water requirement for fish in the Himalayan region The IMG has assumed that in the Himalayan region, the water requirement for fish in the river is less and hence the rivers here will not require as much water as the rivers do in the plains. This is completely unscientific, flawed and baseless assumption. The amount of e-flows needed has to be assessed not only based on the requirement of fish (IMG has not done even that assessment), but entire aquatic and connected terrestrial biodiversity across the seasons, in addition to the water needs of a river for providing the social and environmental services.

23. Suggestions that are bad in Law The IMG report shows several projects as “Under Construction” (Annex VI B) category, when they do not even have statutory clearances and hence cannot even legally start the work. This is a ploy to make these projects a fait accompli when these projects are perfectly amenable to review and rejection since the project work has not started. In fact to categorise such projects without having all the statutory clearances (e.g. Vishnugad Pipalkoti does not have forest clearance) as under construction project is plain illegal.

24. Wrong representations The IMG has shown several projects in Annex VI C, as “Hydropower projects with EC/FC Clearances and others”, basically a ploy to push the projects that do not even have all the statutory clearances. None of these projects have all the statutory clearances and are certainly not in position to start construction and hence these projects are the ones where dropping of the projects or modifications in dam location, dam height, FRL, HRT length, e-flows, capacities etc are still possible. But IMG did not do it for any of the projects. As mentioned above, four of these projects have been recommended by WII to be dropped, and IMG should have recommended dropping these or should have categorized them as ‘to be reviewed’.

25. No mention of impact of peaking operation of hydropower projects The IMG has missed many crucial environmental impacts. One crucial one that it has missed is the issue of peaking operation of hydropower projects on the downstream people, environment, flood plains, geo morphology, biodiversity and other aspects of the river. This is very important since one of the Unique Selling Proposition (USP) of hydropower projects is supposed to be that they can provide peaking power. However, peaking operation means sudden changes of huge magnitude of flows in downstream river, having far reaching impacts including those on safety of people, flood plain cultivation, impacts on cattle and property, impact on ecology, amongst many others. The IMG has completely missed this, which is very strange since this is a huge issue being taken up by people and campaigns in the North East against large hydropower projects there.

26. IMG cannot see through poor work of IIT-R It is well known that IIT-R report on Ganga basin study is of poor quality. In the IMG report there is an attempt to respond to only a couple of the criticism of IIT-R report, but IMG could not even see through the wrong facts presented by IIT-R report. For example, IMG report says, “The requirement of flushing during monsoon is not required in both rivers as all hydro projects except Tehri reservoir are run of river types where silt is not stored.” This is completely wrong. All the projects, even if run of the river, have storage behind the dam where the coarser silt will settle down and will need to be flushed out periodically. The dams are being provided with bottom sluices to facilitate this. A quick perusal of the EIA reports of some of the hydropower projects in the region shows that Vishnugad Pipalkoti, Srinagar, Kotli Bhel 1-A, Kotli Bheil 1-B, to name only a few all have proposed to provide bottom sluices for periodic release of silt accumulated behind the dam. Thus the contention that most projects do not need flushing is wrong. In any case, for all projects, the de-silting chambers would be releasing silt laden water and there is no attempt to assess the cumulative impacts of such actions. IMG’s attempt to provide scope for some defense for the IIT-R has clearly back fired on IMG! Moreover, even in case of Tehri, the biggest project in the region under review, IMG report has nothing at all, about its social, environmental impacts and performance, about its power generation, irrigation, water supply, flood control performance or even its silt management performance. The contention that all projects except Tehri are ROR is entirely wrong and misleading. Even as per the WII report, out of the 69 projects, a whopping 13 projects are storage projects. This includes the biggest and most problematic projects like Srinagar, KotliBhel IB, Kotlibhelia, Koteswar, Vishnugad Pipalkoti, Devsari, etc.

27. IMG on Srinagar HEP and Dharidevi Temple The IMG was also asked to “review the impacts of the Alaknanda (GVK) Hydro Power Project on flow of the River and the issues related to the temple relocation.” The IMG gave an interim report on this issue, which was so disappointing that Rajendra Singh and Late Shri Veer Bhadra Mishra both members of the IMG, gave a dissenting note, Rajendra Singh also suggested shelving the project. The IMG rejected the suggestion of its own members without giving any justifiable reasons.



Above: DhariDevi Temple threatened by submergence

28. **Time bound action plan for E-flows from existing projects** The IMG says that the existing projects should also follow the suggested e-flows and this should be achieved in three years (Para 3.52). However, IMG should have been more clear about the role of different agencies (MoEF, state government, developers, state electricity regulatory commissions and power purchases) and what is the legal backing such a step will have.

29. **Lack of understanding of conflicting projects and public protests** The IMG report, Annex VI B shows 12.5 MW Jhalakoti (wrongly) as under construction project. In fact the Jhalakoti project has been recommended by WII to be dropped. The IMG seems to have no clue that Jhalakoti project is being strongly opposed by the local communities and no work has started on the project. The under construction status given by IMG for this project is clearly wrong. If the Jhalakoti HEP comes up then the existing 40 KW Agunda micro HEP will no longer be able to function. Many of the other projects including the Devsari and Vishnugad Pipalkoti HEP are also facing strong opposition, but the IMG has not taken note of these or any of the social impacts of the projects in the Upper Ganga basin.



Above: Peoples protests against Large dams on Ganga. Photo: Matu Jansangathan

30. **IMG on TOR on pollution abatement in Ganga** It is good to see that IMG has suggested that “all users must be forced to plan for water needs based on what the river can spare, not what they can snatch.” However this should not mean an advocacy for more big dams and storages on the rivers. This seems to be the case when we read the IMG recommendation that says, “The government then has a choice to build storages to collect monsoon water for dilution within its territory or to ‘release’ water to rivers and make other choices for use in agriculture, drinking or industry”. Storages can come in many forms and sizes and IMG should be careful not to recommend more big storages on the rivers. The suggestion that “there will be a clear conditionality in Central government funding, which is matched to the quantum of ecological flow released by the state in the river” is welcome. Linking of JNNURM-II and National Mission for Clean Ganga to the above norm, incentivisation of use of innovative bioremediation and in-situ drain treatment are also welcome. However, IMG has

shown no interest in understanding or tackling the real problem in river pollution: Lack of participatory, democratic governance in urban water and pollution control regime.

IMG has recommended in Para 6.7(i), “Ecological flow will be mandatory in all stretches of the river.” This is welcome. IMG goes on to suggest some norm for the urbanized stretches of rivers, but no norms are suggested for the non urbanized stretches of river in the lower river basin.

31. Report does not reflect the discussions in IMG? The dissent note by Shri Rajendra Singh, a member of IMG says that on several aspects, IMG report does not reflect what transpired in the IMG meetings. This is a very serious charge that puts a big question mark on the IMG report and its recommendations, particularly since Rajendra Singh is the lone independent voice in the IMG after the sad demise of Shri Veer Bhadra Mishra[3].

32. Incomplete project list The IMG does not seem to have full information about the existing, under construction and planned hydropower projects in the Upper Ganga basin in Uttarakhand. Some of the projects not listed in the IMG report include:

A. Operating projects under 1 MW: According to the website of UJVNL (Uttarakhand Jal Vidhyut Nigam), the state has 12 such projects with total capacity of 5.45 MW, see for details:http://www.uttarakhandjalvidyut.com/cms_ujvnl/under_operation1.php. Most of these projects are in Upper Ganga basin, though it is not clear how many.

B. UJVNL has larger list of schemes under development by UJVNL including in the Upper Ganga basin, not all of them are included in the IMG list, see: <http://uttarakhandjalvidyut.com/bd2.pdf>.

C. Private sector has been given license for a large number of hydropower projects, not all the projects of Upper Ganga basin here are on IMG list, see for full list of projects being developed by IPPs in Uttarakhand:<http://uttarakhandjalvidyut.com/Hydro%20Projects%20Being%20Developed%20by%20OIPPs.pdf>.

D. There is another “full list” of hydropower under development in Uttarakhand including sub-MW size projects, see: <http://uttarakhandjalvidyut.com/bd5.pdf>. Some of the projects here in Upper Ganga basin do not figure on IMG list.

One would expect better information base of the IMG than what they have shown.

33. No specific recommendation to save the prayags There are five holy prayags (confluence of rivers) along Alaknanda river in Uttarkhand, including Deoprayag, Vishnuprayag, Karnaprayag, Rudraprayag and Nandprayag.

Vishnuprayag has already been destroyed by the 400 MW existing Vishnuprayag HEP of Jaiprakash Associates, rest would be destroyed by the projects listed by IMG. The IMG keeps talking about

cultural importance of the rivers, but has not said a word about how it plans to save these culturally important confluences and how it plans to rejuvenate the Vishnuprayag already destroyed.

34. “Alternative View” in Annexure 21: How much of an alternative is it? In Annexure XI of IMG report, a note authored by one of the IMG members, Sunita Narian of Centre for Science is given, it is titled: “TOR (ii): Alternative View: Environment flow”. The Annexure opens with the line “The recommendations of this IMG report are not acceptable.” It is not clear if this sentence applies to all the recommendations of the IMG or about environment flows mentioned in the title or it applies to TOR (ii) that applies to all environmental aspects, not just environmental flows. The Annexure also deals with some issues besides environment flows, so one assumes this “alternative view” is about environmental aspects of hydropower projects.

The Annexure XI seems to give an impression that, principles of distance between dams, ecological flow and limit on % of river than can be “affected” will lead to “sound hydropower development, balanced for energy and environment”.

One of the three principles listed in the note says: “Distance between projects: 3-5 km”. The note does not say how this distance has been arrived at or how this distance is to be measured, the least the note should have mentioned was that this is not distance between projects but distances of flowing river between the Tailwater level of upstream and full reservoir level of downstream project. No elaboration is given about this criterion at all. Most importantly, there is not even any attempt to apply this criterion to the projects that IMG is supposed to look into. On the contrary, the note says that “The projects under construction can be built” (point 7(ii)) and “projects with EC and FC clearances can be taken up for construction” (point 7(v)). So in fact there is absolutely no application of the criterion to the projects on hand. The conclusion that this is half baked and non serious criterion is inescapable.

Another of the three principles listed in Annexure XI is: “Maximum intervention allowed in river length: 50-60 per cent”. Again there is no elaboration as to how these figures are arrived at, why there is a range, what is meant by “intervention”, which lengths it will apply and so on. Again, the note does not bother to apply this criterion to the rivers under review and actually says in point 7(ii) and 7(v) described above, that projects in Annexure VI (B) and VI(C) can go ahead without even checking if in that case this criterion will be violated or not. Again the conclusion that this is also a half baked and non serious criterion is inescapable.

The whole of the Annexure XI is basically devoted to application of the third principle: “Ecological flow regime: 30/50 per cent (high and lean period)”. About this, the annexure says: “The engineering design of the uninterrupted flow would take into account the need for sediment and fish transfer”, not clear how this will be achieved. The Annexure does not suggest any new measure of achieving compliance with its recommendations. The note mentions “design changes incorporated to

maximize energy generation during high discharge season” but does not elaborate what these would mean.

Annexure XI says that IIT-R tried to suggest that e-flows must be low and in this effort did “big and large manipulation of data”. This is good. However, it would have been better if the full data and notes from IIT-R were annexed here to illustrate how the manipulation was done.

Bullet point 3 in Annexure XI reads, “It is important to consider that water of a river is similar to the coal or gas as raw materials used in thermal plants”. This statement needed to be qualified that the impact of taking out coal or gas from its source is not comparable to taking out water from the river, the latter’s impact is much more severe, since river is not equal to just water flowing in it.

Since Annexure XI does not raise objection to any other conclusions and recommendations of the IMG except the three principles mentioned above, it would not be incorrect to assume that author agrees to the rest of the IMG report. This, when taken together with the fact that at least two of the three principles in the alternative view note have not been applied to the projects under review, leads to the conclusion that there is not much of an alternative in “alternative view” note and this won’t help the cause of the river, people, environment or even sustainable and sound development.

35. Conclusion A broad conclusion is inescapable that the IMG report (except the dissent note by Shri Rajendra Singh) is largely an exercise in deception, with a pro-hydropower bias. While this note points out key negative aspects of the IMG report, the IMG report is not without some positive aspects. One of the positive aspect of this report is that possibly for the first time heads of central organizations like CWC and CEA have sat with some non government members to discuss some important subjects that have remained contentious for these official agencies.

However, as noted above, on most positive aspects, while IMG has been less than sincere, there is a huge potential to take the environment flow movement forward.

The MoEF and NGBRA should, considering all the above points, take some positive aspects forward. Some of the positive retrievable aspects of the IMG report include the following, on each of which there is a lot of scope for serious action:

- **Ensuring at least 50% E-flows in non monsoon months in all rivers.**
- **Keeping some rivers in pristine form, stopping all ongoing and planned projects on suggested rivers and time bound decommissioning of existing projects on such rivers that are to be in pristine form. This should be immediately implemented on the rivers recommended by IMG and also in other selected rivers in all river basins.**
- **Rejecting planned and under construction projects which have high impact on terrestrial and aquatic biodiversity, as per score developed by WII Report as well as projects which**

irreversibly impact spiritual and religious places like rivers, prayags, places of worship and ghats.

- Give deadline of one year and maximum of two years for all the existing dams, diversions and hydropower projects across the Ganga basin (& other rivers) to achieve the suggested e-flows with clear inbuilt mechanisms for monitoring and compliance with participation of river basin communities, as a first step.
- Accepting BBM as the standard methodology for E-flows assessment, e-flows to mimic the river flows and involving communities as an important stakeholder in this methodology.
- Ensuring Aviraldhara.
- Ensuring rivers have adequate free flow *time* between projects to regenerate itself. Mandating at least 5 km free flowing river between any two projects as an immediate measure pending site specific studies and reviewing all under construction, under clearance and under development projects in the basin keeping this in mind.
- Releases based on daily flows rather than monthly or seasonal averages in all rivers. Define uninterrupted flows to arrive at uninterrupted daily flows.
- Monitoring of e-flows and other environmental compliance by independent group involving at least 50% of the monitoring group from local communities.
- Assuring that e-flows through well designed fish passages (taking consideration of Guideline 7, Annex IX).
- The IMG has recommended that a technical group may be made to study alternatives including the alternative suggested by Prof Bharat Jhunjunwala that only partial dams across rivers may be allowed. This should happen expeditiously. The proposed projects should be stopped till this is done.

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Current state of our National River at Haridwar Photo: SANDRP

[1] The author is thankful to Parineeta Dandekar, Shripad Dharmadhikary and Samir Mehta among others for providing comments on earlier drafts.

[2] Prof Bharat Jhunjunwala provided the copy.

[3] One of the members of the IMG started discussing the report in public domain through her writings even before the report was in public domain, see: <http://www.downtoearth.org.in/content/training-engineers-not-ganga> and <http://www.downtoearth.org.in/content/ganga-saga-part-ii-redesign-dams-not-rivers>.

This can create misleading impression about the report, when the readers do not have benefit of cross checking what the report is actually saying. The articles in any case are full of serious errors, for example it said: "Most of the proposed projects are run-of-the-river schemes, which are seemingly

benevolent as compared to large dams”, not understanding that EACH of the so called run of the river schemes ALSO involves a dam, most of them are large dams as per international definition. It incorrectly said, “Run-of-the-river projects, which used flowing water as the raw material for energy”, in reality NONE of the so-called ROR projects generate power from flow of the water in the river, they all dam and divert the water away from the river to produce power. It also tried to dilute the impact of the projects on rivers (akin to killing of rivers) by saying projects “affect” rivers. It misleadingly wrote, “The hydropower engineers argued for 10 per cent e-flow” without mentioning that the EAC of MoEF is prescribing 20-30% of mean season flows. The article claimed that figures of water flow and tariffs were modified by IIT-Roorkee, but in the entire IMG report, (except the Annexure XI written by author of the articles), there is no mention of any of these. The article talks about engineers’ claims that “this source provides power during peak demand hours”, but as we noted above the IMG has not even looked at the impact of peaking generation. There is not even an attempt to understand how much of the current generation from hydropower projects is happening during peaking hours, or what is the generation performance of hydropower projects, issues that SANDRP has been raising for many years.