Lakhwar Dam Project

Why the project should not go ahead

This statement was sent to the Union Minister of Environment and Forests, Union Minister of Water Resources, Chairman, Vice Chair and Member (water) of Planning Commission, Uttarakhand Government, and National Advisory Council, among others. The statement was Endorsed by: ***Ramaswamy Iyer****, Former Union Water Resources Secretary, Delhi,* ***E.A.S. Sarma****, Former Union Power Secretary, Vishakhapattanam,* ***Medha Patkar****, Narmada Bachao Andolan, Badwani,* ***Ashish Kothari****, Kalpavriksh, Pune,* ***Rajendra Singh****, Tarun Bharat Sangh, Rajasthan,* ***Prof. MK Prasad****, Kerala Sastra Sahitya Parishad, Cochin,* ***Bittu Sahgal****, Editor, Sanctuary Asia, Mumbai,* ***Prashant Bhushan****, Senior Supreme Court Lawyer, Delhi,* ***Vandana Shiva****, Navdanya, Delhi,* ***Amit Bhaduri****, Prof. Emeritus, JNU, Delhi,* ***Ravi Agarwal****, Toxics Link, New Delhi,* ***Madhu Bhaduri****, Former Indian Ambassador & member Yamuna Jiye Abhiyaan, Delhi,* ***Prof S. Janakarajan****, Madras Institute of Development Studies, Chennai,* ***Dr Dinesh Mishra****, Barh Mukti Abhiyan, Bihar,* ***Sharad Lele****, Centre for Environment and Development, Bangalore,* ***S. Faizi*** *CBD Alliance, Kerala,* ***Rohit Prajapati****, Paryavaran Suraksha Samiti, Gujarat,* ***Bharat Jhunjhunwala****, Former Professor-IIM Bengaluru, Uttarakhand,* ***Vimalbhai****, Matu Jansangthan, Uttarakhand,* ***E Theophilus, Malika Virdi,*** *Himal Prakriti, Uttarakhand,* ***Ramnarayan K,*** *Save the Rivers Campaign Uttarakhand,* ***Kalyani Menon-Sen****, Feminist Learning Partnerships, Gurgaon,* ***Dr RK Ranjan****, Citizens Concern for Dams and Development, Manipur,* ***Jiten Yumnam****, Committee on Natural Resources Protection in Manipur,* ***Renuka Huidrom****, Centre for Research and Advocacy, Manipur,* ***Shweta Narayan****, The Other Media, Chennai,* ***Wilfred Dcosta****, Indian Social Action Forum - INSAF, New Delhi,* ***Nidhi Agarwal****, Activist, Community rights on environment, Delhi,* ***Rahul Banerjee****, Dhas Gramin Vikas Kendra, Indore,* ***Subhadra Khaperde****, Kansari Nu Vadavno, Khargone,* ***Shankar Tadwal****, Khedut Mazdoor Chetna Sangath, Alirajpur,* ***Michael Mazgaonkar****, Gujarat,* ***Ranjan Panda****, Convenor, Water Initiatives Odisha,* ***M Gopakumar****, Bangalore,* ***Janak Daftari,*** *Jal Biradari, Mithi Nadi Sansad, Mumbai,* ***Shripad Dharmadhikary****, Manthan Ahdyayan Kendra, Pune,* ***Prof Rohan D'Souza****, Jawaharlal Nehru University, Delhi,* ***Dr Brij Gopal****, Jaipur,* ***Alok Agarwal****, Narmada Bachao Andolan & Jan Sangharsh Morch, Madhya Pradesh,* ***Debi Goenka****, Conservation Action Trust, Mumbai,* ***Shardul Bajikar****, Editor - Natural History, Saveus Wildlife India, Mumbai* ***Sankar Ray****, Kolkata,* ***Samir Mehta****, International Rivers, Mumbai,* ***V Rukmini Rao****, Gramya Resource Centre for Women, Secunderabad,* ***Dr. Latha Anantha****, River Research Centre, Kerala,* ***Mrs Anjali Damania****, Aam Admi Party, Mumbai,* ***Manshi Asher****, Him Dhara, Himachal Pradesh,* ***Commodore (rtd) Lokesh Batra****, Social and RTI activist, NOIDA,* ***Arun Tiwari****, Water activist, Delhi,* ***Ananda Banerjee****, Writer and member, Yamuna Jiye Abhiyaan, Delhi,* ***Sudha Mohan****, Yamuna Jiye Abhiyaan, Delhi,* ***Dr Sitaram Taigor****, Yamuna Jiye Abhiyaan, Madhya Pradesh,* ***Bhim S Rawat****, Yamuna Jiye Abhiyaan, Delhi,* ***Prasad Chacko****, Social activist, Ahmedabad,* ***Swathi Seshadri****, EQUATIONS, Bangalore,* ***Parineeta Dandekar****, SANDRP, Pune,* ***Manoj Mishra****, Yamuna Jiye Abhiyaan, Delhi* ***Himanshu Thakkar****, South Asia Network on Dams, Rivers & People, Delhi*

We the signatories to this statement would like to bring some key issues to the attention of all concerned on the proposed Lakhwar Dam Project on the Yamuna River in Upper Yamuna River Basin in Dehradun district of Uttarakhand state.

The proposed dam involves a massive 204 m high dam with storage capacity of 580 Million Cubic meters, submergence area of 1385.2 ha, including 868.08 ha forest land, at least 50 villages to be affected by submergence of land in the upstream, many more in the downstream area. This site is just about 120 km downstream of the river's origins from the holy shrine of Yamunotri.

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As can be seen from the details below:

a) The project has not undergone basic, credible environment or social appraisal in any participatory manner.

b) It does not have legally valid environment or forest clearance.

c) There has not been any cumulative impact assessment of various existing, under construction and planned dams and hydro-projects in the Yamuna system.
d) There has not been any credible assessment about options for the project.
e) The project is to come up in an area that is seismically active, prone to flash floods and also prone to erosion and land slides.
f) The spillway capacity of the project has been awfully underestimated resulting in significant risks of dam damage / breakage with concomitant risks of unprecedented downstream flooding and destruction. It may be mentioned here that Delhi is a major city standing in the path of the river in the downstream area.
g) The religious and spiritual importance of the Yamuna River is at risk since whatever remains of the river will be completely destroyed both in the upstream and downstream of the project.
h) No agreement exists among the Upper Yamuna basin states about sharing of costs and benefits of the project, which should be a pre-condition for taking up any such project.
i) It is well known that Yamuna River is already one of the most threatened rivers in the country and the project shall further adversely affect the river system.

Recently as well as earlier last year thousands of people from Allahabad/ Vrindavan marched to Delhi, seeking a revival of their river Yamuna. The focus of the authorities should be on ways and means to restore the river Yamuna system rather than take such massive project without even basic appraisal.

We urge the official agencies at both the state and at the centre to not go ahead with this project. We urge them to rather take steps to protect and preserve than destroy one of the biggest and culturally important river, without even basic appraisal at project or basin level or any options assessment carried out in a due participatory manner.

We thus urge the official agencies at both the state and at the centre level to not go ahead with this project. We urge them to rather take steps to protect and preserve than destroy one of the biggest and culturally important river, without even basic appraisal at project or basin level or any options assessment carried out in a due participatory manner.

We hope that the government will not go ahead with this project until all the issues mentioned have been satisfactorily resolved.

DETAILED NOTES

1. **No Options Assessment** There has been no assessment to show that this project is the best option available for the services that it is supposed to provide, including water supply to Delhi, irrigation in Uttarakhand, hydropower generation and water storage. It was not done during the process preceding the now out-dated environmental clearance given in 1986, nor has it been done subsequently.

It is well known that Delhi has much cheaper, environment friendly and local options that has not been explored with any sense of seriousness. These include reduction in transmission & distribution losses (which stand at 35%), rainwater harvesting (as National Green Tribunal order in April 2013 exposed, even the Delhi Metro is not doing this) including groundwater recharge, demand side management, stopping non essential water use, protection of local water bodies, protection of flood plains, streams and the ridge, recycle and reuse of treated sewage, among others.

As far as irrigation in Uttarakhand is concerned, in this relatively high rainfall area, and considering the local agro-geo-climatic situation and suitable cropping patterns, better options exist. Similarly about other claimed services.

It may be added here that the EIA manual of Union Ministry of Environment & Forests, the National Water Policy and best practices around the world including the recommendations of the World Commission on Dams, require such an options assessment study, including no project scenario, before embarking on such costly and risky projects.

2. **No Basin wide cumulative impact assessment or basin study**: Yamuna River is already in very bad situation in many senses, including being very polluted for lack of surface water flow. The river basin also has large number of projects existing and under construction, See: http://www.sandrp.in/basin_maps/Major_Hydro_Projects_in_Yamuna_Basin.pdf, for details. Particularly, see the concentration of projects in narrow upper Yamuna Basin. However, there has been no basin wide cumulative impact assessment of projects and water use in the basin in the context of its carrying capacity on various aspects. Without such an assessment, adding more projects may not only be unsustainable, it may actually be worse than zero sum game, since the new projects will have large number of adverse impacts. That we may have already crossed the basin carrying capacity upstream of Delhi seems evident

from the worsening state of Yamuna over the past decades in spite of investment of thousands of crores rupees. Adding this project with its massive impacts without such an assessment may actually be an invitation to disaster.

We learn that a Yamuna basin study has been assigned to the Indian Council for Forestry Research and Education (Dehradun). However, it should be noted that in the first place, ICFRE has had poor track record. Its EIA study for the Renuka dam in the same Yamuna basin was so poor that it was based on the poor quality of the study that the National Green Tribunal stayed the work on the project for over a year now.

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3. **No valid environment clearance, no valid EIA-EMP or Public consultation process**
The Composite Lakhwar Vyasi project got environment clearance 27 years back in 1986 without any comprehensive environment impact assessment (EIA) or preparation of environment management plan (EMP) or any participatory process. Some preliminary work started, continued only till 1992 and stopped thereafter for lack of funds.

a) In Sept 2007, the 120 MW Vyasi HEP, part of the original composite project, sought and got environment clearance although the minutes of the Expert Appraisal Committee of MoEF notes a number of unresolved issues. In Nov 2010 EAC meeting, the EAC considered the Lakhwar Dam for Env clearance, and raised a number of questions, none of them were ever resolved. The EAC did not consider the project in any meeting after Nov 2010.

This sequence of events makes it clear that Lakhwar Dam does not have valid environment clearance. The MoEF and project proponent assumption that the Environment Clearance (EC) of 1986 is valid is not correct, since if that EC was not valid for the Vyasi HEP which has sought and received fresh EC in Sept 2007, then how could Lakhwar HEP Dam of which Vyasi HEP is a part, continue to possess a valid EC.

Thus to give investment clearance to Lakhwar dam without valid EC will be imprudent, and might invite long drawn legal challenge to the project, resulting in more delays and in turn unnecessary cost escalations.

b) The project also does not have valid EIA-EMP. What ever assessments were done before the 1986 EC cannot be considered adequate or valid today. The environment standards and also environment situation has hugely changed in the intervening 27 years.

The project did not have any public consultation process in 1986 or anytime there after. Fresh EC will require that and the project must go through that process.

4. **Issues raised by EAC remain unresolved**: When the 43rd meeting of EAC considered the project for EC on Nov 12-13, 2010, the minutes of the meeting raised a large number of questions, all of them remain unresolved. These issues are fundamental in nature. Without resolving these issues, the project should not go ahead.

Just to illustrate, EAC raised questions about the need and usefulness of various project components. It is clear from the EAC minutes that the project also involves construction of Katapathar barrage downstream from Vyasi Power House at Hatiari. However, just about 10 km downstream from this barrage there is an existing barrage at Dak Pathar. It is not clear why this Katapathar barrage is required, the EAC asked. None of these issues have been resolved.

5. **Project does not have valid forest clearance**: The composite Lakhwar Vyasi project requires a very large area of forest land, at 868.08 ha, the diversion was originally permitted for the UP irrigation Dept, which was then transferred to Uttaranchal Irrigation Dept upon creation of the separate Uttaranchal State. However, the project has now been transferred to Uttaranchal Jal Vidyut Nigam Limited. The Vyasi Project was earlier transferred to NHPC and now stands transferred to UJVNL.

In Aug 2012 FAC (Forest Advisory Committee is a statutory body under the Forest Conservation Act 1980) meeting, there was a proposal put forward to transfer the clearance for 99.93 ha (out of total forest land of Rs 868.08 ha for composite project) forest land required only for the Vyasi Project to UJVNL from Uttaranchal Irrigation Dept. While discussing this proposal, FAC noted that the Vyasi project was earlier

transferred NHPC, without getting the forest clearance transferred in favour of NHPC. In fact FAC has recommended, "State Govt shall examine the reasons for not obtaining prior approval of the Central Govt under the Forest (Conservation) Act, 1980, for change of user agency from irrigation dept to NHPC and fix responsibility". Secondly what is apparent from the minutes of the Aug 2012 FAC meeting is that even the Catchment Area Treatment Plan for the Vyasi project has not yet been prepared. This shocking state of lack of preparation of basic management plan is the consequence of allowing the project based on outdated clearances. The FAC has now asked the user agency to fulfil all such requirements, before which the project will not be given stage II forest clearance. So the Vyasi Project also so far does not have stage II forest clearance.

Most importantly, the transfer of forest clearance for the remaining 768.15 ha of forest land required for the Lakhwar project from Uttarakhnd irrigation dept to the current project agency UJVNL has not been even sought. So the Lakhwar project does not have valid forest clearance even for first stage, and surely no stage II forest clearance. Under the circumstances, the project does not have legal sanction.

A Yamuna basin study has been assigned to the Indian Council for Forestry Research and Education (Dehradun). However, ICFRE has poor track record. It's EIA study for the Renuka dam in the same Yamuna basin was so poor that it was because of the poor quality of the study that the National Green Tribunal stayed the work on the project for over a year now.

6. **Inadeaquate spillway capacity** The project spillway capacity is proposed to be of 8000 cumecs, as per official website, see: http://india-wris.nrsc.gov.in/wrpinfo/index.php?title=Lakhwar_D00723. However, as per the latest estimates, the location is likely to experience probable Maximum Flood of 18000 cumecs. This is as per a paper titled "**The probable maximum flood at the Ukai and Lakhwar dam sites in India"** by P R Rakhecha and C Clark, presented in the year 2000 at an international Symposium. Dr Rakhecha later joined Govt of India's Indian Institute of Tropical Meteorology in Pune. The paper concludes: "For the Lakhwar dam site there would be significant flow over the dam crest after 12 h from the start of the storm hydrograph and this would be maintained for over 18 h. The maximum depth of flow over the crest would be 4 m which is large enough to cause major if not catastrophic damage to the dam structure."

Thus the spillway capacity of the project needs to be reviewed and it would not be prudent to go ahead without the same as the new PMF could cause major damage to the dam, the paper says. Any damage to this massive structure will have far reaching consequences all along the downstream area, right upto Delhi and downstream.

In fact even for the Vyasi HEP, while discussing the project in the EAC meeting of Aug 16, 2007, the minutes notes that the clarification sought by EAC on Dam Break Analysis for the project is incomplete, inadequate and far from satisfactory and the EAC desired further concurrence of Central Water Commission. In fact, EAC should not have recommended EC to the Vyasi Project with a flawed study. For the bigger Lakhwar project, there has not even been any such appraisal.

7. **No agreement among Upper Yamuna basin states, Unresolved disputes** The Lakhwar storage project is part of the Upper Yamuna basin. An interstate agreement was arrived at in 1994 for sharing of water in the Upper Yamuna basin among the basin states of Himachal Pradesh, Uttar Pradesh (now also Uttarakhand), Haryana, Delhi and Rajasthan. Each project under the agreement required separate agreements. However, there has been no agreement on sharing the costs and benefits of the individual projects under the agreement.

On Renuka project also in the same Upper Yamuna basin, there was an agreement that was arrived at in 1994, but the Ministry of Law has said that the agreement is no longer valid. For several years now the Upper Yamuna River Basin Board has been holding meetings, but has failed to arrive at any agreement for sharing the costs and benefits of Renuka dam. For Lakhwar dam there has been not been any serious attempt in that direction. The current project proposal envisages to provide 50% of water (about 165 MCM) to Delhi and 50% to Uttarakhand for irrigation (see: http://www.business-standard.com/article/companies/work-on-300-mw-lakhwar-project-to-begin-by-aug-112062200178_1.html dated June 22, 2012 includes statement from project proponent UJVNL (Uttarakhand Jal Vidyut Nigam Ltd) Chairman). However, this proposal completely ignores the claims of share from the project by Uttar Pradesh, Haryana, Rajasthan and Himachal Pradesh. To go ahead with the project without an inter state agreement on sharing costs and benefits would surely not be prudent.

8. **Inadequate cost estimates** As per estimate as on March 1996 the cost of the project is Rs 1446 crore out of which Rs 227 crore have been spent (see: official website http://uttarakhandirrigation.com/lakhwar_vyasi_project.html). Note that this cost was for the composite

project, including Vyasi HEP. As per UJVNL official webstie http://www.uttarakhandjalvidyut.com/lakhwar.php, the cost of Lakhwar Project alone is Rs 4620.48 crore on Feb 2010. The same site gives the cost of Vyasi HEP at Rs 1010.89 crores, so the cost of combined project at Feb 2010 PL is Rs 5631.37 crores. The cost has thus seen 300% escalation in 14 years between 1996 and 2010. This is a very costly project and the cost is likely to be even higher at current prices. In any case, the estimate should be for current price level and the cost benefit calculations should also be for the latest date.

9. **Seismically active area, erosion prone landscape**: The project area is seismically active, flash flood, land slides, cloud bursts and erosion prone. In the context of changing climate, all these factors are likely to be further accentuated. When the project was first proposed in mid 1980s, none of these issues as also the issues of biodiversity conservation, need to conserve forests for local adaptation, forest rights compliance, environment flows etc were seen as relevant or important. However, all of these issues are important today. The project clearly needs to be reappraised keeping all these issues in mind.

The project spillway capacity is proposed to be of 8000 cumecs, as per official website. However, as per the latest estimates, the location is likely to experience probable Maximum Flood of 18000 cumecs, as per a research paper. The paper concludes: "The maximum depth of flow over the crest would be 4 m which is large enough to cause major damage to the dam structure." Thus the spillway capacity of the project needs to be reviewed and it would not be prudent to go ahead without the same.

10. **No CEA clearance** All large hydropower projects require concurrence of Central Electricity Authority as per the Electricity Act of 2003. The Lakhwar Project has not yet received the clearance from CEA, hence, there should be no case for investment clearance for the project.

Moreover, according to the opening sentence of the CEA clearance letter of Oct 25, 2011 for the 120 MW Vyasi Project, which was earlier part of the composite Lakhwar Vyasi Project, but is now being taken up separately, the total installed capacity of the composite project is 540 MW, out of which, since Vyasi installed capacity is 120 MW as per this concurrence letter, the capacity of the Lakhwar dam ALONE would be 420 MW. Note that this is as per the statutory letter from CEA, India's highest technical body in electricity sector. However, the installed capacity of the Lakhwar dam according to all other available information, including official websites of UJVNL and Uttarakhand Irrigation Dept (the original project developer) and also EAC minutes, is 300 MW. So there is an additional confusion as to what is the planned installed capacity of Lakhwar project. This confusion also needs resolution.

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