

**BEFORE THE NATIONAL ENVIRONMENT APPELLATE AUTHORITY,
NEW DELHI**

DATED 15TH SEPTEMBER, 2010

**PRESENT:
THE HON'BLE MEMBER SHRI J.C. KALA**

APPEAL No. 8 /2007

IN THE MATTER OF :

1. Vimal Bhai,
Convenor, Matu Peoples' Organization
D-334/10, Ganesh Nagar,
Pandev Nagar Complex, Delhi – 92,
2. Rajendra Singh Negi
Gram Gorathi Khand & Patti Bharpur,
Post and Tehsil – Devpryag,
Tehri Garhwal, Uttarakhand
3. Trilok Singh Rawat,
Village Nigar, Palkote, P.O Maroragad,
District Tehri Garhwal, Uttarakhand

... **APPELLNATS**

Versus

1. Union of India
Through the Secretary, Ministry of Environment and Forests
Paryavaran Bhawan C.G.O Complex,
Lodhi Road, New Delhi - 110003
2. Uttarakhand Pollution Control Board
Through its Member Secretary
Paryavaran Bhawan, E-115, Nehru Nagar Colony,
Haridwar Road, Dehradun – 248001
3. National Hydro Power Corporation
NHPC Office Complex, Sector –33, Faridabad

... **RESPONDENTS**

APPEAL No. 9 /2007

IN THE MATTER OF :

1. Dr. Bharat Jhunjunwala
Lakshmoli, PO Maletha, Via Kirti Nagar,
District Tehri, Uttarakhand 249161
2. Vimal Bhai, Convenor,
Matu Peoples' Organization,
D-334/10, Ganesh Nagar, Pandev Nagar Complex, Delhi -92

3. Devki Devi, Gram & Post and Patti Maletha
Tehsil – Devpryag, Tehri Garhwal, Uttarkhand
4. Sunder Singh Negi,
Gram Digoli, Patti-Ravatsnue, Post –Kirti Nagar,
Tehri Garhwal, Uttarkhand

APPELLNATs

Versus

1. Union of India
Through the Secretary, Ministry of Environment and Forests
Paryavaran Bhawan C.G.O Complex,
Lodhi Road, New Delhi - 110003
2. Uttarkhand Pollution Control Board
Through its Member Secretary
Paryavaran Bhawan, E-115, Nehru Nagar Colony,
Haridwar Road, Dehradun – 248001
3. National Hydro Power Corporation
NHPC Office Complex, Sector –33, Faridabad.

...

RESPONDENTS

APPEAL No. 10 /2007

IN THE MATTER OF :

1. Vimal Bhai, Convenor,
Matu Peoples' Organization, D-334/10,
Ganesh Nagar, Pandev Nagar Complex, Delhi -92
2. Govind Prasad
Gram & Post –Silsu Patti Banelsu,
District – Pauri Garhwal, Uttarkhand
3. Saroj Rawat, Gram & Post & Naugoun,
Patti Banelsu, District – Pauri Garhwal,
Uttarkhand

...

APPELLNATs

Versus

1. Union of India
Through the Secretary
Ministry of Environment and Forests
C.G.O Complex, Lodhi Road, New Delhi - 110003
2. Uttarkhand Pollution Control Board
Through its Member Secretary
Paryavaran Bhawan, E-115, Nehru Nagar Colony,
Haridwar Road, Dehradun – 248001
3. National Hydro Power Corporation
NHPC Office Complex, Sector –33, Faridabad

....

RESPONDENTS

COUNSEL FOR APPELLANTS/ APPELLANTS

- (i) Appeal Nos. 8, 9 & 10/2007 : Shri Ritwick Dutta, Advocate
Shri Rahul Choudhary, Advocate

COUNSEL FOR RESPONDENTS

- (i) Rep. for MoEF : Dr. S. Bhowmik Addl. Director, MoEF
Shri P.V. Subba Rao, MoEF
- (ii) For UEPPCB : Shri Vivek Vishnoi, Advocate for
Shri Mukesh Verma , Advocate
- (iii) for NHPC : Shri Ajit Pudussery, Advocate
Mrs. Niti Singh, AM (Law), NHPC

ORDER

The above appeals were filed under section 11(1) of the National Environment Appellate Authority Act, 1997 against orders -

- (i) No. J-12011/5/2007-IA.I dated the 9th May, 2007 of Respondent-1 (MoEF) granting Environmental Clearance for setting up of Kotlibhel Hydroelectric Power Project (Stage 1A) – 195 MW (3 x 65 MW) in the District of Tehri Garhwal of Uttarakhand ;
- (ii) No. J-12011/21/2007-IA.I dated the 14th August, 2007 of Respondent-1 (MoEF) granting Environmental Clearance for setting up of Kotlibhel Hydroelectric Power Project (Stage 1B) – 320 MW (4 x 80 MW) in the Districts of Pauri and Tehri Garhwal of Uttarakhand; and
- (iii) No. J-12011/49/2007-IA.I dated the 23rd August, 2007 of Respondent-1 (MoEF) granting Environmental Clearance for setting up of Kotlibhel Hydroelectric Power Project (Stage -II) – 530 MW (6 x 66.25 MW) in the Districts of Pauri and Tehri Garhwal of Uttarakhand

in favour of National Hydro Power Corporation, NHPC Office Complex, Sector -33, Faridabad.

2. The National Environment Appellate Authority (NEAA) registered the above Appeals as Appeal No. 8 of /2007, 9/2007 and 10/2007 and notices were issued to concerned parties by listing case on the application of condonation of delay as well as on admission. The Authority heard the parties on different dates as mentioned the daily proceedings and admitted the Appeals for hearing on merit on 03.04.2008, 18.12.2007 and 18.12.2007 respectively. Accordingly, the above cases were taken up for hearing on merit on 22.01.2008, 14.02.2008, 19.02.2008, 25.2.2008, 04.03.2008, 03.04.2008, 22.05.2008, 04.07.2008, 29.07.2008, 11.09.2008, 14.10.2008, 16.12.2008, 29.01.2009, 03.02.2009, 04.02.2009, 24.03.2009, 18.05.2009, 06.07.2009, 23.07.2009, 17.08.2009, 14.09.2009, 19.10.2009, 16.12.2009, 17.12.2009, 18.01.2010, 18.03.2010, 25.03.2010, 21.04.2010, 22.04.2010 and heard finally on 9th July, 2010. The Authority has also undertaken site inspection during 26-28th May 2010 at the instance of the Appellants to take appropriate decision in the above cases. Based on the points raised in the Appeal, documents filed by the parties to the Appeal, Arguments made by the Learned Counsels for the Appellants, Appellants themselves and the Respondents, the Appeal is considered in succeeding paragraphs. The above three appeals challenging the above three Environment Clearances issued by the Ministry of Environment and Forests in favour of National Hydro Power Corporation (NHPC) have common grounds and therefore, they are being dealt with together.

3. Grounds of Appeal and Prayer:

3.1 The Appellants have challenged the Environmental Clearances (EC) granted to the Projects on the following grounds :-

(A) FAULTY PUBLIC HEARING

- i) Public Hearing was conducted in violation of Environment Impact Assessment (EIA) Notification, 2006. No mention was made in the Public Hearing notice of places where the document related to the project could be accessed nor the EIA summary and EMP made available in the designated places 30 days prior to the hearing. Villagers of the area including the Appellants protested against the Public Hearing in the absence of proper information about the project.

- ii) Public Hearing has happened at a time when there is no competent Government in place and election code of conduct was in force.
- iii) Minutes of Public Hearings did not reflect the complete proceedings and points raised by the public in respect of global warming, carrying capacity and alternatives to Dams etc.
- iv) Representation of people that they did not want to give their land for the project was not considered. Representations of the Appellant and the village chiefs for a personal hearing was also not conceded.

(B) INADEQUATE ENVIRONMENT IMPACT ASSESSMENT (EIA)

- i) EIA and the Environment Management Plan (EMP) of the project did not conform to the guidelines issued by the Ministry of Environment and Forests as envisaged from the check list submitted by him.
- ii) It was informed by the National Hydro Power Corporation (NHPC) that earlier the project was envisaged as bigger project at Rishikesh which would have submerged Deoprayag and therefore it was split in to three sub-projects viz. 1A, 1B and 2. This being so, the provision of NPPR 2003 for the appointment of Administrator should be re-assessed.
- iii) Existing landslides have not been fully assessed. The report confined to only 18 landslides along the rim of the reservoir and many others such a Kandoli have been omitted.
- iv) No provision of holding wall has been made at habitations such as Bhagwan School, Bhagwan bazaar, Kandoli Bazar, Lakshmoli Shaswatdham temple, Jinasu temple etc.
- v) New landslides have not been assessed as evidenced from the experience of Tehri dam where many new landslides have occurred along the rim of the reservoir. Many important institutions referred in paragraph (iv) above are threatened with landslides which have not been assessed.

- vi) Width of Green Belt at uniform 10 meters was without basis while this should have been in keeping with the nature of terrain, gradient, vegetation, width of reservoir at that point. At places, the required width could be even 100 meters.
- vii) No provision was made in the EIA/EMP for acquiring land meant for green belt as there was no assurance that farmers were willing to plant trees in their land instead of practicing agriculture.
- viii) Number of affected families is likely to be much more than estimated in the absence of ground truthing and not accounting for bifurcation, family size and some others within the ambit of green belt. Figures are based on revenue records. For example, a quick survey of Lakshmoli village indicates affected family of 70 as against 33 shown in EIA.
- ix) No space between reservoir rim and the cultivable land has been provided as 'safety belt' to ward off fluctuations in the level beyond 523 meters. At least 200% dependability for water rise should have been taken to reckon the safety belt.
- x) Loss of economic resources has been underestimated in respect of fuel wood , grazing, sand mining and river rafting which the people will have to forgo with the project
- xi) Impact of impounding of water, high humidity and lower temperature has not been assessed in respect of water quality, respiratory diseases, malaria and other health hazards. EMP is silent about continuance of mitigative measures after the project ends.
- xii) Impact on butterflies and life cycle of other local life forms has not been assessed adequately.
- xiii) Plantation under catchment area treatment plan does not provide for incentives to villagers against grazing in the treated area.

- xiv) Guarantee by NHPC, of employment to locals by the contractors has not been given.
- xv) Rights of farmers living along the rim regarding water has not been recorded.
- xvi) Submergence of traditional path has not been fully assessed.
- xvii) Flow of water at Deoprayag confluence will be affected due to storage (except during peak hours) and its impact on religious and cultural traditions of people has not been taken in to account.
- xviii) Ignoring the affected area and providing medical care in non affected area has not been explained and finally,
- xix) EIA has not assessed the alternatives

4. Based on the above grounds the Appellants have prayed for

- (a) grant an immediate stay to the project;
- (b) order directing a stay on ongoing land acquisition process;
- (c) order directing a stay on ongoing construction work till a complete EIA is undertaken,
- (d) order directing that a proper EIA be done taking into account the all factors;
- (e) order directing that Public Hearing conducted on 16.01.2007, 28.01.2007, 2.06.2007, 27.06.2007 and 28.06.2007 respectively, be declared null and void and a proper Public Hearing be conducted as per EIA Notification, 2006; and
- (f) order directing the Respondent -3 to conduct carrying capacity of the rivers on which dams are being constructed;

5. Based on the grounds of appeal and the supporting arguments of the Appellant following issues need examination-

- (i) Whether the Environment Impact Assessment Report prepared by Respondent-3 is inadequate and violative of guidelines issued by MoEF on the subject?
- (ii) Whether the Public Hearing conducted on 16.01.2007, 28.01.2007, 2.06.2007, 27.06.2007 and 28.06.2007 (Appeal No. 8/2007, 9/2007 and 10/2007) is defective with reference to Environment Impact Assessment Notification 2006?; and
- (iii) Whether carrying capacity of the rivers allows construction of these dams.

6. Respondent- NHPC in its reply has stated as follows:

- i) that the Public Hearing has been conducted in accordance with the Notification of the Ministry with due notice in News papers, *Amar Ujala* and *Dainik jagran*, on 23.12.2006, by the Uttarakhand Pollution Control Board wide publicity was given through distribution and pasting of pamphlets, loud speakers etc. before the hearing. No postponement of Hearing could be done in the absence of any direction from the District Magistrate. Copies of EIA/EMP and their executive summary were made available at designated places including to Gram Pradhan. Members of Matu Sangathan tried to misguide and dissuade the public for boycotting the hearing. However, large number of people turned during the hearing and stayed till last. Minutes recorded and read over to the Public and were true reflection.
- ii) The case of NHPC is covered under 2.1.1(ii) of circular dated 13.10.2006 of MOEF, which did not need form 1/1A to be referred. The EIA/EMP were prepared by Hemwati Nandan Bahuguna University, Garhwal and the same could not afford to have mistakes/omissions referred by the Appellant. This EIA/EMP was appraised by the EAC on 22.03.2007 and 18.07.2007 and only

after satisfying with the replies to the queries raised, the EAC has recommended the project.

- iii) Each of the three projects are independent run of the river project with minimal storage and located 6 Km and 3 Km. respectively from one another. The original 1000 MW project envisaged by erstwhile Uttar Pradesh Government that involved 4994 ha of forest and 730 ha of cultivable lands with dam height of 210 meter, was shelved on account of large displacement and submersion of religious places like Deoprayag. Government of Uttarakhand entered in to an MOU with NHPC in September, 2003 where in it was stipulated that NHPC shall apply such project design/plan like cascading, so as to reduce the submergence and consequent displacement of the population to the minimum. NHPC undertook hydrological and topographical studies of river Ganga including its tributaries i.e. Alaknanda and Bhagirathi and found that there were possibilities of constructing 3 dams and 3 power houses which appeared to be techno-economically viable. There after the detailed investigations were carried out after obtaining site clearance from MOEF for each project separately. Each project was scrutinized by various Government agencies like Central Electricity Authority (CEA), Planning Commission, MoEF etc. separately and found to be techno-commercially viable as independent project located on different rivers. Thus it is wrong to state them as 3 sub-project of one project.

NPRR 2003 is applicable to projects displacing 500 families or more in plain areas and 250 families in hill areas. Despite the fact that in each of these projects less than 250 families are being displaced, NPRR 2003 has been adopted and R&R plan will be implemented in consultation with district administration and monitoring will be done by the Central /Project level committee.

- iv) Survey of existing and potential landslides has been conducted along the reservoir rim of EL 523 M, the FRL of the project is at EL 521M. Landslides were assessed on the basis of their geology, reasons for slides and accordingly, the treatment measures have been proposed. Some of the slides

have been covered which are above EL 523 M. taking in to consideration that they may be activated due to submergence. However, at any point of time any new slide is activated the same will be treated then and there. The landslide at Kandli is denied. Various mitigative measures proposed are based on causes of occurrence, geology, angle of repose etc. Picture and sketches given in reservoir rim chapter of EMP read with landslide zonation under EIA bear testimony to this. For evaluation of such slides geological assessment is obvious.

- v) The location of Bhagwan School, Bhagwan bazaar, Kandoli Bazar, lakshmoli sashwatdham temple were also assessed and being on rock mass, no measures were called for. Apprehension of people during public hearing regarding erosion of terraces due to submersion, is being taken care of by constructing dykes, RCC concrete walls. Comparison with Tehri dam project, by the appellant, is incorrect as the Tehri project is a major storage project with fluctuation of above 90 M. while Kotlibhel is a run of river with water level never exceeding FRL and power is generated with surplus water by opening the gates.
- vi) Green belt will be created to stabilize slopes as per requirement of the terrain. The rim of reservoir lies mostly in Government land/forest. In private land located along the rim, NHPC will distribute saplings of fruit bearing trees if they so desire. As such the need for acquisition does not arise. In any case up to 2meter above the FRL, land is proposed to be acquired.
- vii) Survey of affected families is done on door to door basis gathering details of those staying there. However, those who moved to other places, details are not available as indicated in the EIA report. NHPC has affirmed to provide adequate compensation and rehabilitation package to all the affected families. Village wise data of private land in Pauri and Tehri has been furnished in EIA table- 7.4 in respect of Kotlibhel 1-B. It is baseless to state that no door to door survey was done.

- viii) There is an inbuilt cushion of 2M in normal reservoir level and 1M cushion during peak flood as safety belt. EMP states that a fluctuation of 3 to 5 meter may take place at tail end due to discharge of water from the upper project. However, water level in the reservoir will be maintained at 521 M by regulating the gates. In extreme flood event, the spill way is capable of easing the water and water will be maintained at 521 M level.
- ix) Economic resources are not understated.
 - (a) Sand is currently being leased by the district administration. At tail end sand will be available for use by locals. Transport charges are being borne by the local currently in any way.
 - (b) Loss of fuel wood is being compensated through subsidy in gas connection and cylinder cost. Under CAT plan provision of firewood, fodder and timber has been made which is expected to be done by the forest department involving local people.
 - (c) Some grazing ground is bound to be lost but due increased humidity water availability, natural regeneration of grass and trees shall occur (as seen in other projects) besides the CAT Plan envisages development of pastures
 - (d) Rafting is occasionally practiced in Alaknanda from Juyalgargh which will be compensated by aquatic sports like yatching and kayaking in the reservoir including some stall by local youths along the reservoir. Hydro power generation is a bigger economic activity than water rafting. The former is likely to give industrial boost to the economy of the State.
- x) Adequate steps are taken to control malaria during the construction phase. Mosquitoes are not likely to breed as the water is never stagnant in this run of the river project. Medical facilities for the worker will be extended to the people of the locality. As per the experience of other projects, respiratory diseases do not increase due to creation of reservoir. No stagnant pool will be created at Kandoli. Ample medical care has been provided in the management

plan for creation of project hospitals and strengthening of existing ones at Deoprayag, Srinagar and Kirtinagar.

- xi) Generation of slush along the reservoir rim is not expected as the same is confined to the rock surface at most of the places. In areas of agriculture terraces owned by the villagers, perturbation in the shape of fencing will be created by NHPC. Besides adequate rim treatment will be made to avoid any slush along the reservoir.
- xii) No deterioration in water quality due to lack of oxygen is expected as this is a run of the river project.
- xiii) Detailed survey of fauna specially butterflies was undertaken. As the project will have submergence only along the gorge, the project is not likely to be a threat to the butterflies as against the humidity and increased vegetation will create a better environment for butterflies to flourish.
- xiv) Hiring of vehicles at later stage will be done locally. A clause has been introduced in the contract document that the contractor will encourage engagement of staff and labour with appropriate qualification. However, unskilled labour in principle will be engaged locally.
- xv) NHPC has given commitment that the farmers along the rim will have right to lift water for irrigation and drinking purposes.
- xvi) NHPC shall provide alternate path to all the traditional paths affected by the project.
- xvii) Provision of assistance to hospitals and public libraries at Srinagar and Kirtinagar is on account of the fact that the 27 project affected villages usually rely on these places for the facility. Assistance is being provided for development of parks and ghats all along. Also assistance to Madhav singh Bhandari Smarak, Durga temple, Chandrabadani dwar and Community Bhawans in all the 27 villages is also proposed. Scholarships to 150

meritorious students annually to the wards of the project affected families for three years and six weeks entrepreneurship training to 521 persons from the affected families is also provided. R&R plan provides the benefits to the affected persons.

- xviii) Apprehension of flow of water at Deoprayag is dispelled as the project is base load power station and at least one of its turbines will be operating round the clock as per availability of water in the river.
- xix) Alternatives have suitably been mentioned in EIA report page-8.

7. Respondent-1, the Ministry of Environment and Forests in its response has requested to dismiss the appeal on the following grounds—

- i) Public Hearing was conducted strictly as per EIA Notification, 2006 with due publication in the new papers both in English and Hindi, hard and soft copies of EIA/EMP made available in all the designated places (of course could not be displayed on Ministry's web site on account of technical problems. Hard copies being available with the Ministry, which no one asked for perusal). Non-availability of copy on web site was not questioned in the legal notice sent by Appellant's advocate Shri Ritwik Dutta.
- ii) There is no bar in conducting Public Hearing after the elections are announced.
- iii) Appellant met the Chairman of EAC on 17th July, 2007 and his representation as well as the written representation of "Matu" were duly considered by the EAC before recommending the case for clearance
- iv) EIA Report was prepared according to the guidelines of MOEF by Hemwati Nandan Bahuguna Garhwal University, Srinagar. Each and every parameters was critically examined by the EAC at its meetings before recommending for clearance.

8. Respondent-2, The Member Secretary Uttarakhand Environment Protection and Pollution Control Board in his response has submitted as follows—

- i) Public Hearing was conducted by the Respondent as per the Notification 2006, of the Ministry. Hard and soft copies of the EIA/EMP reports were sent to the Ministry and also kept in the selected office as per the provision. Hindi version of executive summary was also made available.
- ii) Since the process of Public Hearing has already started, there was no occasion or the emergent situation that warranted the postponement of the hearing done in two places. With time gap of nearly four months, appellants had sufficient time to go through the EIA/EMP reports.
- iii) Allegations regarding forcible stoppage are totally false. Only some of the members related to the appellant's organization viz. Matu Sangathan have tried to disturb the proceedings but the Public Hearing was attended by large number of people and at the end of the hearing, proceedings were read over to them by the representative of the Pollution Control Board.
- iv) It is wrong to allege that the minutes of the hearing prepared by the Respondent-2 were incomplete. A perusal of the minutes would reveal that all the suggestions were recorded and the points raised by one Raghuvir Singh Negi, correlate to the points raised in the present appeal.

9. Appellant in his rejoinder has raised the following points—

- i) that the clearance for the dams in Uttarakhand has been granted by the Ministry without taking the cumulative effect which has been advised by this Authority in its order under Appeal No. 5 of 2006. Emission of green house gases in the shape of methane which is emitted through submerged vegetation, carbon content of the submerged soil and carbon brought in by the streams have not been taken in to account in the EIA.

- ii) Figures given in the response of Respondent regarding extent of Reserved forest do not tally with the clearance so is the case with the height which creates confusion.
- iii) Public hearing notice did not indicate the places where the EIA/EMP would be available.
- iv) The letter dated 11.01.2007 from Gram pradhan proves that EIA/EMP was not made available to Panchayats.
- v) Statement of issues raised in the hearing and the comments of the applicants were not annexed to the minutes of the Public Hearing as required in the Notification.
- vi) EIA is incomplete as stated earlier and the three projects are the sub-projects of the same one project.
- vii) NRRP 2003 should be followed by NHPC in letter and spirit in respect of affected families.
- viii) NHPC has violated the agreement by not designing the Project with minimum submergence, which should generate lesser profits while the profits are large in the instant case. This is born out of the fact that NHPC is expecting the sale price of peaking energy at Rs 5.50 per unit and the average sale price of Rs 3.30 while the project under appeal has a cost of production of Rs. 2.80 per unit. This means that the project has been made a size larger than minimum feasible size. This is in violation of the principle of minimizing the social and environmental cost to the local people.
- ix) The averment of the Respondent-3 in respect of landslides and rim being located on rock are wrong and request the Authority for a site inspection.

10. Dr. Bharat Jhunjunwala, the Appellant in his argument has dwelt in detail the above points. Stress was laid on adverse affects on Mahaseer fish consequent to the restrictions imposed by dam on its movement and suggested ladder technology being adopted in United States. He stated that the cost-benefit analysis of the projects has not included the costs

which are surreptitiously imposed on the society. He calculated these cost and some unintended benefits in respect of Kotlibhel- 1B on account of following:-

- a) Trapping of sediments in the reservoir and thereby depriving the coasts from the benefit of counteracting sea erosion including the cutting of river bed downstream by sediment hungry water. (Periodic flushing of this sediment by opening gates does not create the natural conditions). Kotlibhel 1B is likely to affect 113 ha annually all along the coast leading to a loss of Rs. 71 crores.
- b) Depriving flood-recession agriculture of nutrients through the silt which gets trapped in the reservoir is estimated to lose a production of 3095 tonnes valuing at Rs 3.1 crores.
- c) An estimated 1047975 CO₂ equivalent methane is estimated by the Appellant which has a credit value of Rs. 31.4 crores annually.
- d) Based on the general probability, annual incidence cost of earthquakes due to reservoir induced seismicity is estimated to be Rs. 8.4 crores annually.
- e) Cost of damage to the houses and the lands of the people living in the rim of the reservoir due to landslides is estimated to be Rs. 30.7 crores.
- f) Cost to the people due to malaria is estimated to be Rs.21.2 crores.
- g) Loss of biodiversity services provided by the submerged land, at 5% of total value of services provided, is estimated to be Rs 11.7 crores per annum.
- h) Frequent road accidents lead to death and injuries on account of busses falling down. Due to reservoir all the injured persons will also die as reservoir will provide no escape and loss on account of this is estimated to be Rs. 7.2 crores per annum.
- i) Decline in agricultural, livestock yield on account of reduction in temperature by 2 degrees celcius due to reservoir including additional requirements of food and clothing is estimated to be about Rs. 7 crores per year.

- j) Cost of deprivation of sand to local people is estimated to be Rs. 9.1 crores per year.
- k) Closure of river rafting would inflict a loss of Rs 8 crores per annum.
- l) Based on the willingness to pay for free flowing water and also for immersion of ashes in the flowing water the cost is estimated as Rs. 62.4 crores.

Mr. Jhunjhunwala has assessed Kothlibhel- 1B as a loss making venture where benefits estimated from power generation, 12% free power to the State and employment etc are of the order of Rs 155.5 Crores while the cost is around 798.7 Crores.

11. Each of the arguments of Appellants have been responded at length by the Respondent-3 (NHPC). It must be admitted that while the economic and social impacts of the Project could be assessed by existing tools and techniques, methods for assessing aesthetic, religious and spiritual impact specially in the context of Holy river Ganga leave much to be desired. To have a firsthand feel of the area, the Authority took the field visit on 26-28th of May, 2010. Based on the field observations and extensive discussions with the people, the Authority was able to firm up its views, which are discussed below.

11.1. NHPC has desired to harness the power potential of river Alaknanda near Deoprayag by constructing 70.5 meter high gravity dam with surface power station (Kotlibhel 1B). Another project (KB 1A) across river Bhagirathi near Muneth, intends to generate 195 MW by constructing 75.6 meter high gravity dam. These two river after confluence at Devprayag are known as river Ganga. Nearly 30 Km below the confluence a 58.6 meter high dam is proposed near Kaudiyala to generate 520 MW of electricity.

These project involve following submersion/displacements

Project	Forest submersion	Pvt. land submersion	displaced families
Kotlibhel 1A	261.047	18.655	3 fully & 319 partially
Kotlibhel 1B	496.793	54.726	143 fully & 1378 partially
Kotlibhel 2	658.282	21.813	48 fully & 1004 partially

The catchment of Alaknanda and Bhagirathi has many hydro projects either proposed or completed. The current projects have therefore to be seen in the context of cumulative impact on riverine eco-system. Points raised by the appellant and responses of Respondents were examined against this background. The Authority has observed as follows--

(A) PUBLIC HEARING:

- (a) As regards Public Hearing, examination of submissions made by the Appellant and the Respondents reveals that it was conducted as per Notification and EIA/EMP was made available at designated places duly indicating in the public notice. The minutes reflected that in Kotlibhel-1A while some people did not have access to EIA/EMP, others demanded one employment in each affected family, affected area to be extended, preference to engage local trucks, school/colleges in Muneth, community and health centre, drinking water facility, verification of outsiders and a 5 point demand by unemployed welfare Association. There was no opposition to the project as such.
- (b) In Kotli Bhel 1B, besides the demands stated in Kotlibhel 1A, mention was made of oxygen deficiency due to damming, respiratory diseases, global warming, lack of carrying capacity studies of river, otter conservation, lack of alternatives, only one time LPG supply. There were suggestions and opposition against parting with their land in meeting held on 28.01.07. But there was considerable opposition in the 2nd hearing on 02.06.07.
- (c) For Kotlibhel-2, in hearing dated 27.06.07, public referred to bad experiences of RR Policy in Tehri and demanded employment, hospitals, playground, grazing, bathing ghats, LPG for the entire village, parking facility in Deoprayag, boating license for affected people, ITI, 12% free power to State, during the second hearing on 28.06.07 at Vyas ghat, they asked for better labour rates, relocating submerged road 500 meter above, construction of Shiva temple, 30 bed hospital, construction of new bridge before submersion of old one, safety wall against erosion, irrigation facilities for fruit belt, crematoria, social development funds at par with Deoprayag, scholarship for 70 talented students etc. Over all the project was welcomed.

- (d) The issue such as global warming, alternatives, carrying capacity studies were found in the minutes of the Public Hearing meeting. Views expressed in above public hearings were also aired during Authority's field visit. Other points relating to public hearing raised in the appeal are answered satisfactorily by the Respondent-1 and Respondent-2 (UKPCB) while others are covered under EIA issues.

(B) EIA ISSUES, CUMMULATIVE IMPACT AND CARRYING CAPACITY

- a) Identifying three locations instead of one at Rishikesh and thus preventing submersion of large-scale forests at the same time reducing displacement can be considered as alternative. Argument of appellants to treat this as part of one single project on the basis of central control room is not convincing.
- b) Flushing of sediments periodically, which is essential to maintain the required drop/head for power generation under limited storage would take care of flood recession agriculture in the plains.
- c) It was noticed during the field visit that impounding stretches of Kotlibhel- 1B are susceptible to landslides in view of type of terrain and topography. Contention of Appellant that least submergence should merit priority over the cost of production of power is acceptable.
- d) EIA has taken due note of seismicity of the area.
- e) It was seen during the field visit that most of the river rafting is taking place in the stretch between Kaudiyala and Rishikesh and to a smaller extent between Srinagar and Deoprayag. Thus there is no significant impact of KB-1A and KB-II on river rafting.
- f) Impounding of water is meant both for adjusting diurnal/weekly fluctuations and to create adequate drop for power generation. However, release of water from any of the dams upstream and in turn opening for use in turbine is bound to create changes in flow dynamics at Deoprayag, a religious place located about 4Km away from Kotlibhel 1A, and 2 Km from Kotlibhel 1B. However,

such effects are likely to be less on account of 1A than 1B. Flow dynamics at Deoprayag has not been explained satisfactorily in the EIA nor considered by the EAC.

- g) Continuous addition of carbon from catchment and in turn release of methane and more importantly the reduction in dissolved oxygen (DO) of the water consequent to impounding has not been considered satisfactorily both in EIA as well as by the EAC. (It is the presence of oxygen which enables the water of river Ganga to be carried by pilgrims and kept for years without deterioration). In each of the projects, water remains still to a length of over 18.4 Km (KB-1A), 27.5 Km (KB-1B) and 29 Km (KB-II) up-stream of the dam even though they are termed as run of the river Projects. Situation in respect of Kotlibhel-1A, to some extent, is remedied by the presence of a free flowing steeper stretch of about 4 Km after the dam. Similarly, the impounded water of Kotlibhel-2 gets a free flow of over 30 km for its rejuvenation before it reaches Rishikesh. But in respect of Kotlibhel 1B, the tail end virtually goes up to Srinagar dam while its outfall joins Kotlibhel-II after 2.2 km. Demographically, this 27.5 Km stretch of KB-1B inhabits fairly large population spread over 28 villages on either side of the river of which 143 families will be displaced fully and 1378 partially by submersion. Use of free flowing water for performing their rituals in this stretch is significant which has not been taken note of either in EIA or by EAC.
- h) ***River Ganga occupies a unique place in the hearts of millions of Indians whose faith is intimately connected with her. Rituals from birth to death take place all along the flowing river and the confluence in search for salvation. Tying the river through dams at interval that restricts its natural flow would amount to playing with the sentiments of millions. It is therefore, necessary that river Ganga is allowed to maintain its natural flow specially in stretches that are in close proximity of the habitation enabling them to perform rituals and to hear its sound which is being heard for generations.***

- i) No doubt production of power is a necessity and would benefit the country at large. However, it should not be at the cost of local community. This is the precise argument of the Appellants, which has weighed in the mind of Authority. The Authority therefore feels that a balance need to be struck between this production and the cost it is likely to inflict on the people, their sentiments and beliefs. Viewed in this background, the Authority feels that the massive opposition of the people both in Public Hearing and during the field visit in respect of Kotlibhel 1B was an indicator of it while the other two projects viz. Kotlibhel 1A and Kotlibhel II were welcomed. This opposition has not been considered by the EAC.

12. To sum up- It is the considered view of the Authority that:-

KOTLIBHEL- 1A

Kotlibhel 1A is a smaller project across river Bhagirathi causing lesser and willing displacement. The area was not found ecologically sensitive. Consequent to its topography, the deep gorges, type of vegetation and series of dams upstream, its impact on currently prevailing riverine ecology is not considered significant. People of the area have supported the project. In view of 4 Km of steep length beyond outfall and assessing its overall pros & cons, this stretch of Bhagirathi river can afford to carry this project.

KOTLIBHEL-II

This largest of the three projects is most viable economically with least requirement of forest and private land (with willing displacement) per unit production of power. The area was not found ecologically sensitive and given the series of dams upstreams both in Bhagirathi and Alaknanda, the impact on *existing* riverine ecology is not considered significant. The outfall of this project runs to a length of over 30 Km. This reasonably fast flowing water providing water sport is capable of rejuvenating and restoring the oxygen demand of river Ganga. The project was welcomed by the people during the hearing as well as during the field visit.

KOTLIBHEL- 1B

For the quantum of power production, in Kotlibhel- 1B, the displacement is very high. There is strong protest against parting of their houses and lands. The stretch runs through a populated area on which people perform rituals in flowing water. Being habitat for migratory fishes like Tor and Schizothorax spp, and the habitat for otter, the area is ecologically sensitive and with storage to a length of 27.5 Km it was found to affect the riverine ecology which cannot be compensated by declaring it a 'restricted area' or providing hatcheries. In the context of Srinagar project, there is need for a free flowing stretch for rejuvenation of river Alaknanda before it meets Bhagirathi at Deoprayag. This free flow will also help restoring the flow dynamics at Deoprayag which is affected by Kotlibhel-II. In short, river Alaknanda cannot afford to carry a project between Deoprayag and Srinagar. Overall there is also mass public resentment against the project which has not been considered by the EAC. Merely responding the representation of two persons is not sufficient.

13. In fine the Environment Clearances of Ministry of Environment and Forests in its No. J-12011/5/2007-IA.I , dated 9th May, 2007 to Kotlibhel Hydroelectric Project (Stage 1A) and letter No. J-12011/49/2007-IA.I dated 23rd August, 2007, to Kotlibhel Hydro Electric project (Stage-II) are upheld. (Appeal Nos. 8 of 2007 and 10 of 2007)

And

Ministry's Environment Clearance issued vide order J-122011/21/2007-IA.I dated 14th August 2007 to Kotlibhel Hydroelectric Project (Stage 1B) is hereby quashed. There will be no cost.

Ministry may take note of the outcome of proposed 'Comprehensive Ganga Basin Management Plan' while implementing Kotlibhel-1A and Kotlibhel-II projects.

**(J. C. KALA)
MEMBER NEAA**