Minutes of the 3rd Meeting of the Committee of Environmentalists, Social Scientists and other Experts on Interlinking of Rivers held on 4.9.2006 at New Delhi.

The 3rd Meeting of the Committee of Environmentalists, Social Scientists and other Experts on Interlinking of Rivers (ILR) was held on 4.9.2006 at 15.00 hrs. in the Committee Room of Ministry of Labour, Shram Shakti Bhawan, New Delhi. The meeting was chaired by Secretary, Ministry of Water Resources.

The list of participants of the Meeting is given at Annexure-I.

After a brief introduction, Secretary (WR) welcomed the members of the Committee, Special Invitees and other participants of the meeting. In her opening remarks, Secretary (WR) informed the members that as a follow up of the decision taken in the 2nd meeting, Shri Rajendra Singh and Prof. M.N. Madhyastha, Members of the Committee had made a field visit to the area of Ken-Betwa link, for which the work of preparation of Detailed Project Report (DPR) has been taken up. Subsequently, the Chairperson of the Committee requested Director General & Member-Secretary of the Committee to take up the agenda items for discussions.

Item 3.1 : Confirmation of the Minutes of the 2nd Meeting

While taking up the agenda items, Director General, NWDA and Member-Secretary of the Committee informed that the comments have been received from Chairman, CWC, Shri P. Sen and Prof. A.C. Kamaraj, Members of the Committee on the minutes of the 2nd meeting held on 28.10.2005.

The comments of Chairman, CWC are mainly pointing out the difference in recording the exact words he spoke in the last meeting regarding the agency for preparation of DPR of Ken-Betwa link and the statement recorded in the minutes. DG, NWDA informed that the DPR of Ken-Betwa link is being prepared by NWDA under the valuable guidance of Chairman, CWC and also active involvement of various specialized directorates of CWC.

Reacting to this, Dr. Ashok Khosla indicated that the main concern of the civil society is that the expertise available outside Govt. domain should also be used in the task of preparation of DPR.

Shri Rajendra Singh raised the issue whether the ILR programme is included in the manifesto of present UPA Govt., if not then the public acceptance should be obtained in the project planning stage itself. Government should hear views of all those (i.e. Prof. Y.K. Alag, Shri Ramaswamy R. Iyer etc.) who have worked on this project. Local people should also be consulted. The correlation of occurrence of recent flood in Barmer, Surat and Mumbai with ILR project should be studied. Shri Rajendra Singh also made a reference about a book entitled "Interlinking of Rivers in India – Overview and Ken-Betwa link" by Prof. Alag.

Secretary (WR) indicated that consultation is the issue which has been emphasized through the mechanism of this Committee. At present we are at DPR stage and the

project will be taken up through consultative process in the most transparent manner at the appropriate time.

While reacting to the issues raised by Sh. Rajendra Singh, DG, NWDA indicated that the book entitled "Interlinking of Rivers in India – Overview and Ken-Betwa link" of Prof. Alag was released by the then Secretary (WR) and in his address at the function, the points raised in the book were addressed after hearing the views of Mrs. Kanchan Chopra, Ms. Medha Patkar etc. who were also present in the function. These issues have been discussed in many Fora.

Recently, preparation of DPR has been added in the mandate of NWDA with unanimous support from all the States. The NWDA has taken up the work of preparation of DPR of Ken-Betwa link after signing of MoU. A comprehensive assessment of the feasibility of linking of rivers of the country starting with Peninsular rivers is being carried out in a fully consultative manner. The process is going on and the Committee of Environmentalists, Social Scientists and other experts on ILR is one of the mechanisms in this direction.

Secretary (WR) indicated that while preparing DPR, the comprehensive Environmental Impact Assessment studies will be carried out which involves public hearing and therefore, the process of preparation of DPR is fully transparent and the views of State Govts. and NGOs will be taken on board in the consultative process.

Regarding views of Shri P. Sen, DG, NWDA informed that gist of his views has already been recorded in the minutes of the 2nd meeting. The views expressed by Shri Sen in his letter dated 14.11.2005 are a more elaborate version of his views recorded in the minutes. Shri Sen has also confirmed this through email dated 2.9.2006 (Annexure-II).

The views of Prof. A.C. Kamaraj are mainly on the alternative proposals to the ILR project. The views of Prof. Kamaraj have been discussed earlier on various forum and are not the subject matter of the present meeting. As regards the issue raised in the book entitled "Interlinking of Rivers in India – Overview and Ken-Betwa link" by Prof. Alag, Prof. Alag indicated that the soils in the area are not suitable for the cropping pattern which is proposed in the feasibility report of Ken-Betwa link. NWDA is already in touch with the agricultural universities/institutions of local area on this matter.

Shri Z. Hasan, Member of the Committee could not attend the meeting as presently he is out of the country, however, he has sent his views through email wherein he has indicated that the views expressed by him have been incorporated in the circulated minutes and hence he had no further comments. Shri Hasan has sent his response on the views of Shri P. Sen and Prof. Kamaraj. The email received from Shri Hasan is enclosed at Annex-III.

After discussion the minutes of 2nd meeting were confirmed duly taking the letters of Chairman, CWC (Annexure – IV); Shri P. Sen (Annexure – V) and Prof. A.C. Kamaraj (Annexure – VI) on record.

Item 3.2 : Follow up action on the decision taken in the 2nd Meeting of the Committee

The main decision taken during the last meeting was to arrange the field visits of the members to the specific areas of ILR Projects under consideration. DG, NWDA mentioned that a part of the area of Ken-Betwa link falls under Panna Tiger Reserve (PTR) and to enter into and carry out any activity in the PTR/reserve forest/forest area certain statutory clearances from State Forest Department and Ministry of Environment & Forests are required. NWDA has obtained the following clearances :

1. Permission of Forest Conservator, Chhatarpur Circle, Chhatarpur, M.P. for carrying out the S&I work in the non park area.
2. Site clearance from Ministry of Environment & Forests for carrying out the S&I work as envisaged under Environment (Protection) Act, 1986.
3. Permission to visit Panna Tiger Reserve Forest area from the concerned authorities of Panna Tiger Reserve.
4. Permission from Forest Deptt., M.P. for establishing G&D sites in Panna Tiger Reserve Forest area.

Regarding permission from National Board for Wildlife (NBWL), Ministry of Environment & Forests for carrying out S&I work in the Panna Tiger Reserve Area, the matter was considered by the Standing Committee of the National Board for Wildlife in its 7th meeting held on 8th June, 2006, wherein the Committee proposed an inspection of the area before taking a final decision in the matter. The visit of experts of NBWL is proposed during middle of September, 2006.

Immediately after getting the permission to visit Panna Tiger Reserve area, NWDA started arranging visits of experts. Prof. Madhyastha could visit Panna Tiger Reserve and other areas of Ken-Betwa link (Report at Annexure-VII). Mrs. Mala Kapur Shankardass could not visit due to her other commitments. The visit of other members to the Ken-Betwa link area will be arranged at their convenience.

Item 3.3 : Preparation of DPR of Ken-Betwa link - Environmental Impact Assessment and Study of Socio-economic Aspects

DG, NWDA indicated that a document on Terms of Reference for carrying out comprehensive Environmental Impact Assessment studies of Ken-Betwa link has been prepared and circulated alongwith the agenda of the meeting to all members for their response.

Dr. (Mrs.) Mala Kapur Shankardass, who could not attend the meeting due to unavoidable circumstances, had sent her views through email. Her views on ToR of comprehensive Environmental Impact Assessment studies are reproduced below and her email is attached as Annexure-VIII.

"1. With regard to the draft ToR for the study of Environmental Impact Assessment and socio-economic aspects, I would like to reiterate the need for proper

monitoring, adequate data collection, sound methodology and participation of people at the local level in preparation of the DPRs.

2. It would be important to conduct the Environmental Impact Assessment from a gender and public health perspective".

Chief Engineer (EMO), CWC informed that these aspects have already been covered in the ToR for carrying out comprehensive Environmental Impact Assessment studies. However, as desired more emphasis will be given on these issues. DG, NWDA requested CE (EMO), CWC (under who's guidance this document was prepared) to interact with Dr. (Mrs.) Mala Kapur in this regard.

Shri P. Sen, member who also could not attend the meeting had vide his email dated 29.8.2006 (Annexure-IX) suggested adding the following lines in Para 6.2 (II) – Water Environment:

1. Impact on lower Riparian rights and reduction of available dry weather flow in the downstream.
2. Impact on navigability during the dry weather.
3. Impact on salinity of soil in the surrounding areas of the link canals.

On a request from Prof. Kamaraj Secretary (WR) and Chairperson of the Committee assured that meeting of the Committee would be convened more frequently. Prof. Kamaraj expressed his happiness on initiation of the process of comprehensive Environmental Impact Assessment studies of Ken-Betwa link. He indicated that the time frame for comprehensive Environmental Impact Assessment studies has been indicated as 18 months but the cost of the study has not been indicated. Prof. Kamaraj wanted to know the role of members of this Committee in Environmental Impact Assessment studies. DG, NWDA informed the committee that the cost of the study will be known only after completion of bid process and role of the member of the Committee is covered in the Terms of Reference (ToRs) given to the Committee in the Govt. O.M. constituting the Committee.

Dr. Khosla mentioned that he has also visited the area of Ken-Betwa link many times and his organisation is working in this area for 20 years. A large part of water harvesting and water management systems in the region has been developed by Bundelas. Dr. Khosla indicated that the ToR for comprehensive Environmental Impact Assessment studies are generally in order. He mentioned that minimum flow for ecological purpose is an important issue. The Detailed Project Report should address the issues related to Rehabilitation & Resettlement of project affected peoples, optimization of benefits and minimizing the negative impacts. While sharing his experiences/ideas in the field of water resources development , Dr. Khosla desired that parallel to the study of Interlinking of River the alternatives should also be studied. Some money should be allocated to encourage NGOs/Institutions to come out with the well documented, vigorously proved alternatives to look at different ways to achieve the same goal. His organisation is doing some work in this regard using Remote Sensing data. Dr. Khosla also indicated the need of study of phenomenon of climate change due to interbasin water transfers.

While interacting with the committee members, Prof. Madhyastha indicated that the suggestion of Dr. Khosla regarding use of remote sensing data with proper ground truthing for obtaining background information of the site of activities is most welcome. This will provide a yardstick to compare the rate of change or status of the ecological aspects before and after the linking activities. The subject of minimum amount of flow down the dam site is one of the main points raised by him in his report on the visit to Ken-Betwa link. He suggested that at least 19 years flow rates during the lean season are needed to arrive at a consensus on the minimum flow for maintaining the integrity of river ecology. This parameter is very important to decide the minimum flow requirement. He further told the Committee that as suggested by other members, it would be desirable to incorporate the wisdom of persons who have studied this aspect into the discussions. There is a need to arrange for public hearing at some important places with different stakeholders with members of the expert committee as observers so that the real pulse of the local population can be appreciated and responded to. For an organism in the ecosystem, there is always a scale of minimum requirement and optimum requirement of any factor. Normally during lean season, they have the ability to thrive in the minimum requirement level. Water availability in the down stream during the lean season for the past 10 years would be required to get an idea about the minimum flow that has to be maintained along down stream. The basic information pointed out/ points raised in the report on visit to Ken-Betwa link need to be initiated as it may take some time to generate the facts.

Shri Rajendra Singh desired that the issues like water disputes amongst the States and stakeholders; water culture connected with interbasin water transfer proposals; and environmental & ecological aspects need to be given proper attention while planning the ILR projects.

Shri Ranjit Kumar, Amicus Curie indicated that there are a total of 16 links in the Peninsular Component and only the first link i.e. Ken-Betwa link is under discussion and desired to know the progress of implementation of interlinking of rivers programme. He requested that this committee should meet more frequently. He also indicated that as per the Supreme Court directives an interactive module has been created on NWDA website for having effective interaction with the public. The suggestions/queries received on the website may also be compiled and placed before the Committee.

Reacting to this Secretary (WR) & Chairperson of the Committee assured that the meeting of the committee would be conducted at more frequent intervals. The progress reported in the agenda is mainly on the field visit of the members to the Ken-Betwa link area. The main agenda of this meeting is to deliberate the ToR for comprehensive Environmental Impact Assessment studies of Ken-Betwa link. Regarding interaction on the website, Secretary (WR) indicated that there were very few hits on the website.

Director General, NWDA indicated that the total 5 links including Ken-Betwa link have been identified for implementation on priority. The MoU has already been signed amongst the concerned Stated for Ken-Betwa link and the work of preparation of DPR of this link has already been taken up by NWDA. The other priority link is Parbati-Kalisindh-Chambal link; the Chief Ministers of Madhya Pradesh and Rajasthan have agreed in principle and meetings have taken place at the Ministers/ senior officers level

of respective States to resolve water sharing issues. The last meeting at the Secretary level has taken place recently where NWDA officers were also present. The States are making efforts to reach a consensus before the MoU can be signed by the States of Madhya Pradesh, Rajasthan & Uttar Pradesh. Regarding Par-Tapi-Narmada & Damanganga-Pinjal links, efforts are being made by NWDA to arrive at a consensus between the concerned States of Maharashtra and Gujarat. Both the States want certain modifications in the proposal and efforts are on to sort out all the issues. The Task Force on ILR identified above two links as priority links and 3 more links have been prioritized. The NWDA is in touch with concerned States on all these 5 links. Regarding the DPR of Ken-Betwa link, the ToR for comprehensive Environmental Impact Assessment was under discussion in the present meeting. So far as the hits on our website are concerned, unfortunately, there are not many hits but whatever suggestions/queries are received on the website have already been taken care of.

Shri Ranjit Kumar suggested that by using Inter State Water Dispute Act 1956 and if the subject of Water is shifted from List II of the Constitution to either List I or III, probably the ILR project can be implemented faster.

Commissioner (PR), MOWR indicated that to address the issues related to water rights, water culture and climate change lessons can be derived from a living example like Indira Gandhi Nahar Pariyojana where long distance interbasin water transfer has taken place. Reacting to this Shri Rajendra Singh mentioned that the outcome of other existing example of interbasin water transfer available in the country i.e. Sutlej-Yamuna-Beas, Telgu Ganga etc. should also be considered. DG, NWDA indicated that to avoid conflict between States, interbasin water transfer proposals are being discussed with concerned States and assured that the proposals of interbasin water transfers will be implemented in the most transparent manner and only after consensus is reached between the concerned States. The DPR of Ken-Betwa link has been taken up only after an agreement amongst the concerned States.

Item 3.4: Linking of rivers – signing of agreements of Ken-Betwa link – request for involvement of farmers reg.

DG, NWDA informed that Shri Chengal Reddy, Secretary General of Confederation of Indian Farmers Associations has requested His Excellency the President of India for involvement of farmers in the planning and implementation of interlinking of rivers project. Shri Reddy has also requested farmers participation in distribution of water, maintenance of canal, water conservation, crop planning etc. The Chairperson and members of the committee agreed to record the sentiments of Shri Reddy which will be taken into account while executing the ILR project.

Concluding the meeting Secretary (WR) & Chairperson of the Committee assured the members that all the relevant issues raised by the members will be considered while preparing the DPR of the interbasin water transfer proposals.

The meeting ended with a vote of thanks.

Annexure-I

List of Participants who attended the 3rd Meeting of the Committee of Environmentalists, Social Scientists and other Experts on Interlinking of Rivers held on 4.9.2006 at New Delhi.

Mrs. Gauri Chatterjee, Secretary, MoWR — In Chair

Members of the Committee:

S/Shri

1.	Dr. Ashok Khosla	Member
2.	Rajendra Singh	Member
3.	Prof. M.N. Madhyastha	Member
4.	Prof. A.C. Kamaraj	Member
5.	B.S. Ahuja, Member (WP&P), CWC	Representing Chairman, CWC
6.	Dr. S. Bhowmik, Director, MOE&F	Representing Secy, MOE&F
7.	Deepak Srivastava, Dy. Secretary, Social Justice & Empowerment.	Representing Secy., SJ&E
8.	R.K. Sharma, DG, NWDA	Member-Secretary

Apology:

1.	Z. Hasan	Member
2.	P. Sen	Member
3.	Dr. (Mrs.) Mala Kapur Shankardass	Member

Special Invitees:

1. Indra Raj, Commissioner (PR), MoWR
2. Ranjit Kumar, Sr. Advocate, Learned Amicus Curiae, Supreme Court

CWC:

1 R.K. Khanna, Chief Engineer (EMO), CWC

NWDA:

1. N.K.Bhandari, Chief Engineer (HQ), NWDA, New Delhi.
2. M.S.Gupta, Chief Engineer (S), NWDA, Hyderabad.
3. M.K.Sinha, Chief Engineer (N), NWDA, Lucknow.
4. R. K. Jain, Director (T), NWDA, New Delhi.
5. K.P. Gupta, Superintending Engineer, NWDA, New Delhi.

Annexure – II

From: Dhrubajyoti Sen <Dhrubajyoti.Sen@iitkgp.ac.in>
To: nwda@rediffmail.com

Subject: Third meeting of ILR - Minutes of the second meeting

Date: Sat, 02 Sep 2006 13:24:10 IST

Cc: tfsp@rediffmail.com, nwp_cwc@rediffmail.com

The Director General, NWDA
Ministry of Water Resource
New Delhi.

Reference: Your letter number SCILR/Tech/200/3/2005 dated 07.08.2006 / 21.08.2006 along with technical papers

Attention: Shri K P Gupta, Superintending Engineer, NWDA

Dear Sir,

Kindly refer to the minutes of the second meeting of the ILR experts committee which is enclosed with your above letter.

In this connection, I may like to mention that in Page 9, where my comments are noted, the para (a) and (b) are quite correctly recorded. Some elaboration of my views are however sent to you separately for consideration of the respected members.

But the view of the Chairman CWC in this context appears to be wrongly recorded. The modification to it proposed by Shri R P Saxena, Director (NWP), CWC, is, as far as I remember, the correct version of the views expressed by the Chairman CWC in the matter.

Thanking you,

Yours faithfully,
Prasad Sen

Annexure – III

From: Zafarul Hasan <zafarul_h@hotmail.com>

To: nwda@rediffmail.com

Subject: RE: 3rd Meeting of the Committee of Environmentalists, Social Scientists and other Experts on ILR

Date: Wed, 23 Aug 2006 18:22:00 IST

Dear Mr Sharma
Thanks for the email regarding 3rd meeting now proposed to be held on 9th Sept. 06 at New Delhi. As presently I am out of Country, I would not be able to participate in the meeting. I am however sending my comments on the agenda as under :

"Comments/Observations of Shri Z. Hasan on the Agenda items of the 3rd Meeting of the Committee:

Item No. 3.1 : Confirmation of the minutes of 2nd Meeting :

No comments as the views expressed by me have been incorporated in the minutes circulated.

With regard to views expressed by Shri P. Sen I agree that lean season flows in the river should not be reduced after the construction of the dam and a detailed study should be carried out to study the pattern of pre and post construction river flows as a part of environmental management plan.

Regarding the observation of Shri A.C. Kamraj regarding taking the link canal at the elevation of 250 it may be mentioned that all possible efforts are made to align the canal along the highest contours to maximize the command areas subject to the topographical constraints and technical requirements to allow gravity flow in the canals. It may therefore not be feasible to keep the canal at predetermined elevations. Moreover in the coastal areas most of the cultivable lands are at lower elevations in the deltaic regions and the quantum of surplus water available for transfer can be fully utilized through the links proposed by NWDA. The transfer of water through exchange is required to minimize lifts in long distance link canals and with proper operation this integrated system would improve the dependability of the existing irrigation.

To ensure that sharing of water as per agreement is judiciously implemented it would be necessary to constitute suitable administrative mechanism involving concerned states and central govt. In case of Ken-Betwa link the existing Betwa River Board can be suitably enlarged and amended to include the management of

sharing the waters of Ken river between UP and MP. Similar river boards will be required for other river systems involved in the Interlinking proposals.

Item No. 3.2 : Follow up action on the decisions taken

No comments

Item No. 3.3 : Preparation of DPR and EIA of Ken-Betwa link

As already suggested during the 2nd meeting the Interlinking of Rivers involve construction of storage dams and long distance canals like any other river development project undertaken in the country. Therefore the guidelines of the Ministry of Environment and Forest should be followed for carrying out the EIA studies for Ken Betwa Link and MOEF should play a proactive role.

Z.Hasan

Annexure – IV

Government of India
(Central Water commission)
(National Water Planning Directorate)

840 (S), Sewa Bhawan,
R.K. Puram, New Delhi-66
E-mail : nwp_cwc@rediffmail.com
Ph. No. 26101057

Sub : Minutes of the 2nd Meeting of the Committee of Environmentalists, Social Scientists and other experts on ILR.

Ref : E-mail from Special Cell on Interlinking of Rivers dated 29.11.2005 enclosing Minutes of the 2nd Meeting of the Committee of Environmentalists, Social Scientists and other experts on ILR.

Kind reference is invited to the above E-mail vide which the Minutes of the 2nd Meeting of the Committee of Environmentalists, Social Scientists and other experts on ILR held on 28th October, 2005 has been sent. On page No. 3 of the minutes, it has been mentioned that *'Secretary, MOWR clarified that there is no thinking of bypassing CWC in the process of DPR preparation of proposed link projects and he also got the views confirmed from the Chairman, CWC. The Chairman, CWC explained the logic behind the decision of not taking up DPR preparation by CWC and agreed to stand as a monitoring agency in the completion of the task with respect to DPR preparation'*. This statement is not correct and needs to be modified as below :

"Secretary, clarified that there is no thinking of bypassing CWC in the process of DPR preparation of proposed link projects and requested Chairman, CWC for his views. Chairman, CWC explained that CWC has the required expertise to prepare DPR and if DPR of Ken-Betwa ILR proposal is to be prepared, the task may be accomplished with some strengthening measures. When several DPRs under ILR programme are to be prepared, NWDA could be the nodal agency for coordination for getting the DPR of each of the ILR scheme prepared".

Sd/-
(R.P. Saxena)
Director (NWP)

Director General, NWDA and Member-Secretary of the Committee, Community Centre, Saket, New Delhi-110017.

CWC No. 3-160/2003/NWP/1336 Dated 09.12.2005

Annexure – V

2nd Meeting of the Committee of Environmentalists, Social Scientists & other experts on Interlinking of Rivers.
(Meeting held on 28.10.05 at Sewa Bhawan, New Delhi)

Comments offered during the meeting by Sri P. Sen (Retd.) Member, Central Water Commission and a member of the Committee of Experts on Inter-linking of Rivers.

A few comments were offered by me during the 2nd meeting of the Committee of Environmentalists, Social Scientists & other experts on Interlinking of Rivers on 28.10.05. I am giving below a written version of my comments (with a little addition) for record.

1. Water Balance study of the proposed Ken-Betwa link project prepared by NWDA

The rivers Ken & Betwa are tributaries of the river Ganga. The lean season flow in the Ganga in the downstream reaches are gradually diminishing. During the last 20 to 30 years the lean season flow has reduced to an appreciable extent causing international discontent as also problem for navigability of Kolkata Port.

It was therefore, requested by me that, while preparing the DPR for the Ken-Betwa Project, a detailed water balance study may be made, preferably on 10 daily basis, for the lean season, taking a lean flow discharge hydrograph in the basin. It must be ensured that, the present lean flow discharges in the ganga downstream of the outfall point of Ken-Betwa is not in anyway affected.

Assumption of augmentation by regeneration may be neglected. During the dry weather, whatever negligible regeneration that may take place get lost through evaporation from the river surface.

2. Technical details of the proposed Peninsular-rivers-interlinking project

The NWDA informed me a few months ago that, the details of the proposed Peninsular river linking project connecting Godavari-Krishna-Cauvery and Pennar rivers cannot be given to the members, as it is not open for public domain. There were some discussion during the 2nd meeting by Sri Kamraj, member of the Committee of Experts regarding some technical problems of the NWDA proposal. I mentioned that, unless the details of these projects are made known to us, it is not possible to understand or take part in any such discussion. Therefore, the details of the Peninsular river projects may please be made known to us at an early date.

The NWDA officers promised that, they will be able to circulate these details to all members of the Committee at an early date.

3. Agency for the preparation of the DPR (Detailed Project Reports)

In his introductory speech, the Secretary, Ministry of Water Resources mentioned that, since the Central Water Commission is an organization mainly equipped to overview the river projects in India, it is desirable to give the work of preparation of DPRs of the inter-linking of river projects to the private sector or other organizations.

This point was contradicted by me. CW&PC (the present CWC) was established by the Govt. of India immediately after independence to take care of the planning, investigation, design and supervision of construction of major irrigation and power projects in India. In fact, other than the Bhakra Control Board & DVC almost all the major irrigation, flood control and hydro-electric projects in India were taken up either fully or with a major involvement by CWC, for their investigation, planning, preparation of DPR specification & construction stage design & drawings. To name some of these are Hirakud, Nagarjunasagar, Kosi, Sri Sailam, Sharavathy valley, Godavari Barrage, Farakka Barrage, Salal, Baira-Siul, Loktak, Lower-Lagyap, Trishuli, Chukha, Kopili, Ukai and many others. A few others like Kangsabati, Mahanadi, Chambal valley, Upper Sind, Lower Sind etc. were also given all technical help for their design & construction. Even today CWC is preparing DPR for a number of projects in different parts of India. Dr. K.L. Rao the internationally famous engineer was the Member, Design & Research, CWPC. He trained and guided large groups of civil Engineers in CWC with the aim of making them specialized masters in planning and design of River Valley Projects in India.

The work of over-viewing the State Irrigation projects was a much later concept thrust upon CWC, when the Planning Commission noticed that the progress and quality of the state irrigation projects were not up to the mark. But that was a minor objective of CWC.

CWC is an organization which can undertake preparation of a number of major DPR's at a time, in addition to its other activities. It used to do it in the past and is fully equipped even today.

CWC however, needs a little reorganization. It is 99% specialized Civil Engineering organization. It's all major activities must be guided by expert and experienced Civil Engineers at the top. There is some organizational lacunae that hinders this process today. With proper administrative changes, the past excellence can be easily revived. Even today, there is definitely no other private or semi-government consultancy organization who are as competent or equipped as CWC in the water resources sector. The Engineering Services Examination – qualified bands of brilliant Civil Engineers who join CWC every year with lots of hope, should be encouraged by the MOWR to serve their motherland with all their might.

As regards the Inter-linking of Rivers Projects, my humble submission is to form a specialized group within CWC, composed of selected Civil Assistant Directors and Deputy Directors from different directorates, to be headed by two selected expert Civil Chief Engineers of CWC. An advisory body composed of Ex-CWC stalwarts like M.S. Reddy, Z. Hasan, A.D. Mohile, R. Rangachary, N. Suryanarayanan etc. will be formed, who will meet regularly and give all necessary technical advice. They are to be given suitable honorarium.

Time limits must be fixed for Ken-Betwa link project, which can be :- preparations of DPR – 6 months, preparation of specification-stage design & drawings – 6 months and construction-state design & drawings – 6 months.

Sd/-
(Prasad Sen)
(Retd.) Member, CWC and
Member, Committee of
Environmentalists, Social Scientists &
other Experts on ILR

Annexure – VI

From: KAMARAJ NADAR <ackamaraj@hotmail.com>
To: tfsp@rediffmail.com
Subject: 2nd Meeting on ILR held on 28th Oct. 2005.
Date: Sun, 11 Dec 2005 06:45:36 IST
Cc: mkshank@ndf.vsnl.net.in, akhosla@hotmail.com

The Director General, NWDA and
Member Secretary of the Committee
On Inter-linking of Rivers,
211, Palika Bhawan,
R.K. Puram, New Delhi – 110 066.

Dear Sir,

Sub: 2nd Meeting of the Committee of Environmentalists, Social Scientists, and other Experts on ILR held on 28th Oct. 2005.

Ref: Your Letter No.SCILR/Tech/200/3/05 dated 29-11- 2005.

We thank you for your above letter with the minutes of the 2nd Meeting held on 28th Oct. 2005 along with the observations of the Chairman and members.

In this connection, I am to point out that some of the observations were not either correctly carried out or got omitted by oversight.

My observations and critical views expressed on some of the problems on Inter-linking of Rivers (ILR) have not been included in the minutes.

1) On Ken-Betwa link, I raised the issue that sharing of water between the States will create permanent problem among States even after an agreement because the receiver State has always to depend on the giver State to get their agreed share. We are already having similar problems between Karnataka and Tamilnadu, Punjab and Haryana etc.

The Hon'ble Prime Minister has also observed recently that "Rivers should link, not divide us". This is a very important observation and needs very deep consideration.

Sharing of power between many States goes on smoothly. A similar solution, if available, is very vital in sharing of water also.

2) It was mentioned that in Peninsular, the links are taken very close to the coast (above 100 m MSL (Mean Sea Level) and that the links should be taken atleast above 250 m MSL (Mean Sea Level) to avoid water logging.

(Contd. P2)

This has been wrongly noted that the link should be aligned about 250 Km inside the coastal line. It is not the distance of the link canal from coast which is important rather it is the level above sea that is important since at a higher level the link canal will have more commandability.

3) Apart from cost involved for pumping water in NWDA proposal, it involves philosophy of substitute and exchange in many river basins. There will be strong objections from public for this arrangement.

4) It was suggested that the "Ganga – Kumari National Waterway Project"(NWP), formulated by a team of experts from all over the Country, overcomes al these above mentioned problems including pumping, philosophy of substitute and exchange, friction between States in sharing water etc. since the networks acts like a water grid similar to power grid.

5) Further it was also mentioned that the present Government is very keen to take up peninsular river link and that a committee be formed with the Central Water Commission (CWC) as Chairman and with five more members.

The above points raised has been left out probably by oversight. These observations may please be included.

With regards,

Yours sincerely,

A.C. KAMARAJ

Copy submitted to Chairman, and Secretary, Ministry of Water Resources.
Copy to other members for favour of information.

Annexure –VII

Ken-Betwa link visit report (Visit of Prof. M. N. Madhyastha)

During the second meeting of Inter Linking of Rivers (ILR) at New Delhi, it was felt that a visit to the proposed project site to examine the detailed ecological and environmental settings of the project site area is needed so as to get the information on ambient environmental issues. Accordingly, a visit has been undertaken from July 12th to 14th, 2006 to the Head region of the project-- Ken River side – Panna and Chhatarpur area.

Present settings of Panna Tiger Reserve and area of proposed Daudhan dam site:

Ken river runs from South to North dividing the Pane Tiger Reserve(PTR) forest into left and right bank. Total area of Panna Tiger Reserve is about 542.67 Km^2. The forest is of mixed type, comprising deciduous, a few ever-green, few xerophytes to semi-xerophytes type of vegetation. The area has hills and valleys, hill tops with scrub jungles and valleys with rich dense forest. The left bank has gentle slope whereas the right bank has steep slope.

The current proposal is for construction of Daudhan Dam on Ken River near Daudhan village in Chhatarpur district of Madhya Pradesh, upstream of existing Gangau Weir to provide storage of water for use in the downstream of the dam in Ken basin for irrigation and other purposes, transfer of surplus water to Betwa river through Ken-Betwa link after providing water for irrigation and drinking purpose in enroute area. The water which reach to Betwa would be used by substitution in the drought prone Vidisha & Raisen districts of Madhya Pradesh in upper reaches of Betwa basin. This dam, when completed, results in submergence of a small part of the Panna Tiger Reserve area on both the sides of the river but the submergence will be more on left side. The status of left bank forest is of mixed type with thick jungle in the valleys and open spaces with habitation (5 villages), and scrub jungles. The river bank is flat and the villagers cultivate Jowar, mustard etc (illegally as it is a notified area). The first village that encounters in these surroundings is Daudhan village with about 375 families.

The village looks very much neglected without any developmental schemes reaching the people as it is a notified area. Agriculture and domesticated animals are the source of living and the people are very much bellow the poverty line. They are ready to shift to a better place and improve their livelihood conditions if rehabilitation is initiated. There are instances of malaria and stomach upset, dysentery and other health problems. Quite a few wildlife could be seen while traveling around these forests. According to the villagers, migrating birds visit riverside during winter.

Passing through the forest area, the next sojourn is to another village, Palkohan, which is of different nature. Enroute we encountered a few wildlife such as deer, samber, monkeys and langurs, some reptiles etc.

Palkohan village is better placed compared to the earlier and no developmental programme has reached here also. People are poor and readily willing for rehabilitation for a better life. Malaria, Typhoid and other water borne diseases are prevalent and have no medical facilities. Indigenous medicinal practices are also not available. In the nearby forest area wild life is sparse. Villagers use river water and ground water through hand pumps No information on medicinal plant is available with these villagers. But, it seems, some people from Chhatarpur area visit these places and collect some plants for medicinal use.

From here, we moved along the forest and reached Sukwaha village, which is better placed than previous two, as only partial area comes under submersion and notified area. There is some developmental activity, but the villagers are below the poverty line. Basket weaving and other forest produce utilization could be noticed. For livelihood, they do agriculture to some extent. But no enough returns. They are willing for rehabilitation for a better life.

Analysis:

The total area of Panna Tiger Reserve is 542.67 Km^2. Out of this total, an area of about 45 km^2 submergence including village area and open spaces and original river water bodies (about 10 Km^2) comes under submergence of Daudhan dam. The dense forest which will be lost may be around 25.00Km^2 which is about 4.5% of the total area of Panna Tiger Reserve. Outside the PTR area, there will be submergence of about 40 km^2 in which the dense forest may be around 6.0 km^2. According to the discussion with wild life warden in Chhatarpur area of PTR, there may be 1 or 2 tigers on the left bank, but on the right bank the population is more (around 33 during last census). Leopard panther and other wild life are plenty in this area. Many birds, are residents, some are occasional visitors. According to the villagers, there may not be any tiger left on the left bank, as, since last 10 years, they have not seen or any casualty of domestic animals has been reported.

On reservoir formation, there will be submergence of the whole area, but a few outcrops of the hillocks could be retained as small islands. The wild life from the surrounding valleys and low area may move to this place and we need to think some intervention for their conservation and rehabilitation to the right bank of the PTR…

National Board of Wildlife, in their report “Forest cover in Wildlife Reserve of India – Status and Changes” (Jointly prepared by FSI and Project Tiger) there is no change in the forest cover at PTR whereas in many TR, there is reduction and in some, expansion of the forest coverage (Asian Age, July 15, 2006). Hence, the possibility of expansion of forest area for accommodating wild life could be examined.

It is necessary to examine suitable area for establishing compensatory forest at the right bank to provide the living space for the wild life as we are depriving them from left bank. Nursery of the indigenous plants need to be developed and at appropriate place extension of the wild life reserve need to be planned once the project gets clearance. This needs to be explored during the detailed project report.

The extent of submersion area all along the right and left banks may vary and the water level within the reservoir will be maximum only during the monsoon which subsequently, will be released resulting in reduction in the water level and exposure of the land mass. It may be examined to put up some connectivity from left to the right bank in the form of foot bridges at suitable places at narrow submerged locations for facilitating the movement of wild life from the left bank to the right.

Siltation is another major concern which needs to be cautioned. This problem not only hinders movement of the wild life but also reduces water holding capacity of the reservoir. Steps need to be suggested for arresting siltation to a minimum extent not only during construction stage but also after the completion.

There is an urgent need to take steps to have a detailed biodiversity status of the submerging area—flora, fauna and microbial diversity- for taking stock of the biota of this area. This will give us information on threatened, endangered, key stone, endemic species, details of medicinal plants and microbial species. Such species need to be conserved through initiating arboretum, germ plasm and gene pool conservation with the help of suitable agencies.

Spreading of vector borne diseases may be another concern due to stagnation of water. As such instances of malaria and other water borne diseases are common. Hence a survey of vectors including the mosquito population strains-(varieties) needs to be undertaken. Currently the water quality seems to be good with no pollution load. There may not be any industrial unit coming up along this reservoir. But the domestic sewage of urban and peri-urban areas, human waste during the construction stage have to be tackled without allowing them to reach the reservoir.

The details of the endemic species of fishes, crustaceans and other plankton species in the Ken River have to be collected. As such fishing has been banned now, being the reserve area. But once reservoir comes up the endemic species need to be conserved and introduction of aliens need to be done cautiously, if endemic species are recorded.

If Ken Betwa Link (KBL) is finalized, we can predict many changes and we need to have proper Environmental Management Plan (EMP) which has to be incorporated suitably.
We can divide the changes and interventions in 3 phases:

I. Project Planning Stage:

This is an important stage wherein real practicable steps have to be thought of for various problems that may be encountered due to reservoir construction. There may be many sensitive issues which need proper interventions to be initiated right from the beginning itself.

During this stage authentic detailed basal data has to be generated for the following:

1. Total area of the dense forest on the left bank under submergence.
2. Detailed flora, fauna and microbial diversity of the submergence area.
3. Details of endemic threatened and endangered species from the submergence area.
4. Suitable locations for expansion of the reserve forest at the right bank for compensatory forest.
5. Establishment of arboretum for endangered, threatened and endemic species conservation.
6. Suitable area for rehabilitation of the villagers and R & R plan implementation.
7. Details of vectors and vector borne diseases along this area.
8. Exploring the possibilities of rehabilitating the wildlife species to the right bank of the river beyond the submergence area.
9. Permanent resident, migratory species, breeding ground of any birds and fishes.
10. Ensuring that the minimum water to maintain the down stream ecological integrity and biodiversity of the river.
11. Measures for flood control, disaster prediction, assessment and management. Along the reservoir area and down stream.

II. During construction :

1. If possible, desilting the reservoir area and receiving reservoir.
2. Removing the vegetation and big trees to reduce acidification of the water.
3. Least damage to the wild life during the construction activities.
4. Necessary steps to arrest silting and avoiding unnecessary earth work.
5. Sanitation and hygienic aspects of construction workers- prevention of biological pollution.
6. Monitoring the water quality.
7. Erection of suitable connectivity between left bank and right bank for mobility of wildlife.
8. Measures for disaster management, risk control

III. After completion:

1. Facilitating movement of certain wildlife to the right side from the submerged area.
2. Monitoring the water quality, physical, chemical and biological parameters and vector species.
3. Proper sewage treatment facilities all along the dwellings of the reservoir.
4. Releasing the minimum required water for maintaining ecological integrity and ecosystem function and basin demand of the community living down stream of the reservoir.
5. Disaster control, flood control measures along down stream and warning systems to prevent loss of life & property of down stream community.
6. Rehabilitation of the wildlife that may remain in the islands created after submersion, if possible.
7. Prevention of water logging along the command area.

8. Monitoring ground water for chloride, arsenic and fluoride contents along command area.

Observations at Barwa sagar reservoir region: (Bijawar of Chhatarpur Dt.)

This being terminal reservoir, the current state of the reservoir has a lot of sediments, may need desilting if possible. Control /emergency gates need to be provided apart from the outflow canal which is a natural stream but may need some interventions for a proper flow.

There is a scope for adventure tourism, historical tourism to be developed from Jhansi through Nowgaon, Dhubela to Khajuraho as we encounter many suitable places for development by tourist department. Boating (only sail boat or peddling boat) could be introduced in the reservoir.

During DPR and EIA following aspects should be given priority.

Information to fill in the gap in our knowledge with reference to :
Sediment dynamics, wildlife details, vectors and biodiversity details. Interventions for the rain fall failure years or scarce or irregular rain fall Strategy plan for R and R for the displaced people. Crop pattern suggested for command area and water budget for the same. Strategy for Tiger reserve expansion and rehabilitation of the wild life Plan for conservation of the endangered plant and animal species. Health and livelihood condition of the people of the villagers

Annexure – VIII

From: Mala Kapur Shankardass <mkshank2001@yahoo.co.in>

To: nwda _ K P Gupta <nwda@rediffmail.com>, taskforce oninterlinkingof rivers <tfsp@rediffmail.com>, "Secy.Min Water Resources" <secy@mowr.nic.in>

Subject: Re: 3rd Meeting of the Committee of Environmentalists, Social Scientists and other Experts on ILR.

Date: Mon, 04 Sep 2006 15:08:43 IST

Cc: "Secy, Min.SocialJustice&Empowerment" <secywel@sb.nic.in>, "Secy.Min.Envir.& Forests" <secy@menf.delhi.nic.in>, cwcchairman@nicnet.net.in, zafarul_h@htomail.com, A C Kamaraj <ackamaraj@hotmail.com>, P Sen <djsen@civil.iitkgp.ernet.in>, watermantbs@yahoo.com, Ashok Khosla <akhosla@hotmail.com>, M N Madhyaastha <vinyas@vasnet.co.in>, "Prof.M N Madhyastha" <madhyasthamn@yahoo.co.uk>, Additional Secretary <sushmas@nic.in>, "Secretary, Min.Water Resources" <sksk52@yahoo.com>, Mala Kapur Shankardass <vol_org@yahoo.co.in>

I regret that due to an emergency in the family I am unable to attend the 3rd Meeting of the Committee of Environmentalists, Social Scientists and Other Experts on Interlinking of Rivers being held on 4th September 2006 at 15.00 hours. However, I have gone through the agenda and wish all of you success in conducting the meeting. I have few comments to make and I note them below.

· I congratulate the members of the committee for contributing meaningfully to the meetings and stressing on bringing transparencies in the consultative process.

· Putting the Feasibility Reports of the Inter Basin Water Transfer on the website is a welcome step.

· I agree with the Secretary MoWR that CWC taking over DPRs is not advisable and therefore it would be better to prepare a list of agencies with capabilities of doing the task and from them to decide the agency competent to do the job.

· I would like to suggest that the minutes of the 2nd meeting of the Committee of Environmentalists, Social Scientists and Other Experts on Interlinking of Rivers be confirmed.

· With regard to the Draft TOR for the study of EIA and socio economic aspects I would like to reiterate the need for proper monitoring, adequate data collection, sound methodology and participation of people at the local level in preparation of the DPRs.

· It would be important to conduct the EIA from a gender and public health perspective.

I once again apologize for not being able to attend the meeting after having confirmed my participation. I look forward to the next meeting,

With warm regards,
Mala

Dr. Mala Kapur Shankardass
Sociologist, (Maitreyi College), Health & Development Social Scientist and Gerontologist
CHAIRPERSON, Development, Welfare & Research Foundation (DWARF), a voluntary organization with focus on little things that matter to improve quality of life.

Annexure - IX

From: Dhrubajyoti.Sen@iitkgp.ac.in |

To: nwda@rediffmail.com

Subject: 3rd Meeting of the Committee of Environmentalists, Social Scientists and other Experts on Interlinking to be held on the 4th September, 2006

Date: Tue, 29 Aug 2006 09:55:40 IST
Cc: tfsp@rediffmail.com

The Director General, NWDA
Ministry of Water Resource
New Delhi

Reference: Your letter number SCILR/Tech/200/3/2005 dated 07.08.2006 / 21.08.2006 along with technical papers

Dear Sir,

Thanks so much for kindly sending the invitation to attend the third meeting of ILR Committee of Environmentalists, Social Scientists and other Experts on Interlinking.

I have carefully gone through all the papers enclosed with the above letters. These are very well prepared and I have no comment except a small suggestion to add the following lines in para 6.2.II of the draft TOR (vide Annexure VI) – WATER ENVIRONMENT.

- Impact on lower Riparian rights and reduction of available dry weather flow in the downstream.
- Impact on navigability during the dry weather.
- Impact on salinity of soil in the surrounding areas of the link canals.

May I also request you to take up some interlinking projects urgently, for diverting a part of the Godavari water during the flood season towards the water scarce areas further south by filling up some reservoirs in the Tamil Nadu and Karnataka regions.

As I have nothing more to contribute at present, I shall be obliged if you kindly permit me to stay back this time.

Wishing you a fruitful discussion and meeting.

Yours faithfully,
Prasad Sen
(Member of the Committee of Experts)

Appendix-II

Abstract of Queries received on website

Query No.	*Query*	*Reply*
1.	Received from Sh. V.P. Vohra on 24.10.05. Send me the details of your proposal of following river interlinking (i) Sarda-Yamuna (ii) Yamuna-Rajasthan	Replied on 1.12.05. A note on the details of Sarda-Yamuna and Yamuna-Rajasthan were sent.
2.	Received from Sh. K.V. Rupchand from "WEDO" Chennai on 3.11.05. Copy of MOU 24th Aug and web site for F.R. may kindly be send as attachment	Replied on 30.1.06. The MOU for Ken-Betwa link has been made available on our Website: www.nwda.gov.in. The feasibility Reports of various link proposals of NWDA are also available on the same website. You may kindly download the required information.
3.	Received from Sh. Sushil Gupta, N.K. Build Con. Pvt. Ltd., Jaipur on 5.1.06. We are one of leading irrigation consultants in Rajasthan and MP State, so far we have provided our services for planning of more than 250000 ha area survey, planning design etc. We wish to know if there is any process of empanelment of consultants in NWDA or CWC.	Replied on 30.1.06. At present NWDA do not have any mechanism for empanelment of consultants. For awarding any work NWDA invites tender by publishing advertisement in leading National newspapers and also on our official Website. However, you can send profile of your company to NWDA (Hq), New Delhi, Chief Engineer (N)/(S), NWDA.
4.	Received from Sh. Ravi, Vijayawada on 27.1.06. Tell me something about Interlinking of Rivers.	Replied on 27.1.06. The information of Interlinking of Rivers are available on our Website: www.nwda.gov.in.
5.	Received from Sh. Parmod, Vijayawada on 28.1.06. History of river Krishna	Replied on 13.4.06. The details of Krishna basin are available on our Website. Please see Chapter-2 of F.R. of Almatti-Pennar link at www.nwda.gov.in/writer-eaddate/sublink 2 images/167.pdf. Some more details can be seen on the Website of Ministry of Water Resources (www.mowr.gov.in) and Central Water Commission (www.cwc.nic.in)

6.	Received from Sh. Pramod, Vijayawada on 28.1.06. Problems faced due to lack of water budgeting.	Replied on 28.1.06. The query does not pertain to NWDA.
7.	Received from Sh. Pramod, Vijayawada on 28.1.06. Various hydraulic structures situated on river Krishna	Replied on 28.1.06. These information are not available with NWDA. You may kindly approach Central Water Commission (CWC) (www.cwc.gov.in) or Irrigation/Water Resources Deptt. Of respective State Govts.
8.	Received from Sh. Pramod, Vijayawada on 28.1.06. Water elevations at various hydraulic structures situated on river Krishna.	Replied on 17.4.06 NWDA does not have these information, you may please approach Central Water Commission (CWC) or the Irrigation/Water Resources Deptt. Of respective State Govts.
9.	Received from Sh. Ramesh Agarwal, Central Govt. Counsel on 6.3.06. How to get the addresses and contact Nos. of different offices of NWDA all throughout India. I want the telephone No. of Bhubaneswar office as there is a Court case.	Replied on 6.3.2006 Phone No. of our Bhubaneshwar office is 0674-2431750. For complete directory please visit http://nwda.gov.in
10.	Received from Sh. Anandan Murugan, AYTB Co. Ltd., KSA Jubail on 23.03.06. Please give us estimation approx of river integration projects and how many years of target fixed.	Replied on 12.4.06 The programme of Interlinking of Indian Rivers includes 30 proposals for transfer of water from one basin to other. The cost of the total programme, based on the very rough estimate is about Rs. 5,60,000 crores. The precise estimated cost can be known only after the Detailed Project Report (DPR) of the individual Inter Basin Water Transfer (IBWT) proposals are completed. The work has already been initiated in this direction and DPR of Ken-Betwa Link has been taken up. Based on the DPR, necessary statuary clearances will be obtained and there after the project will be taken up for implementation. Similarly, the DPRs for all other Inter Basin Water Transfer proposal are to be prepared and necessary clearances are to be obtained before their implementation. The time frame for implementation of the programme will be depend on the cooperation of concerned State Govts and other stakeholders.

11.	Received from Sh. Maghender Singh on 12.4.06. Searching the job in NWDA as given in the employment newspaper.	Replied on 12.4.06 Kindly let me know what exactly you want from us.
12.	Received from Sh. Shankar on 12.4.06. Could you please send how I can see what are the projects undertaken or will be undertaken for the districts of Andhra for the development of Agriculture.	Replied on 12.4.06 The NWDA is dealing with Inter basin Water Transfer proposals in the country. For the information regarding the projects in the districts of A.P., you can contact the Irrigation/Water Resources Deptt. And Agriculture Department of A.P. State Govt.
13.	Received from Sh. Gurusaran Jit Singh on 5.6.06. Details of Feasibility report of Rajasthan-Sabarmati Link are required. If it is available in the net please give the respective site.	Replied on 11.5.06 The Feasibility report of Rajasthan-Sabarmati Link is still not completed by NWDA.
14.	Received from Shri Ramesh, NITK, Mangalore on 24.05.2006. I want full description of Bedti-Varada link report. I am a research scholar and doing Ph.D on conjunctive use of surface and groundwater modeling in Varada basin. Please provide me the same.	Replied on 6.6.2006. Feasibility report of Bedthi-Varada Link is under preparation. After completion the report will be available on the website.
15.	Received from Shri Prabin Man Singh, Water and Energy users Federation, Nepal Kathmandu on 15.6.06. Regarding Gandak Treaty between India and Nepal.	Reply sent on 21.6.06. Regarding Treaty between India and Nepal you may kindly approach Ministry of Water Resources (URL-http://mowr. gov. in) or Central Water Commission (URL-http://cwc.gov.in)
16.	Received from Shri D.S. Chaskar, CWC, New Delhi on 19.6.06. I want recommendation of National Water Convention-2005. Please e mail me the same if available in soft form or please inform me where I can get it.	Replied on 20.6.06. A brief report on 11th National Water Convention is available on our website. You may kindly visit the link http://nwda.gov.in/eventdetils?eid=21 & langid=1)

17.	Received from Sh. Sanjay Raman on 26.6.06. Please inform the official postal address of Ex. Engineer, NWDA, Patna.	Replies on 27.06.06. Executive Engineer, National Water Development Agency, 105, Patliputra Colony, Patna-800013.
18.	Received from Sh. B. Dhamoderan, IIT, Chennai on 28.6.06. No. of project interlinking of river with map is available in this site, if not, can you mail to me.	Reply sent on 30.6.06. Please tell us what exactly you need.
19.	Received from Shri Deepak, Rural Water Supply Department, Mahashtra on 17.8.06. Contour map of the project.	Reply sent on 18.8.06. Please let us know your exact requirement.
20.	Received from Sh. Bipin Kumar, A.E., WRD, Govt. of Bihar on 25.8.06. Address of Engineer C.P.S. Sengar. Perhaps he may be D.D. in your organisation he is my friend.	Reply sent on 28.8.06 . The contact details of Shri CPS Sanger were intimated.
21.	Received from Shri Johnson Dayan, Polymorph Technologies Pvt. Ltd., Singapore on 26.8.06. How come the calculation on the return is only on direct returns. If US Dollar 120 Billion is spend it will boost the economy in a large scale.	Reply sent on 21.9.06. There is no doubt that because of the investment of such a magnitude, the economy of the country will boost. But, as per the guidelines, for planning of any water resources project the direct benefits and direct costs only are considered and therefore, in the feasibility report of various link proposals prepared by NWDA, direct benefits and direct costs only have been considered in establishing the feasibility of the individual project.
22.	Received from Shri Sushil Gupta, N.K. Buildcon Pvt. Ltd.,Jaipur on 31.8.06. We are leading water resources consultant. After having carried out planning for more than 4 lacks ha. Area in last 2 years including detailed survey, drawing, design estimate, land compensation, micro level planning etc. We	Reply sent on 1.9.06. We appreciate your thinking to work with us. Recently, we have invited EOI for comprehensive EIA studies of Ken-Betwa Link. For details kindly visit tender link on our website.

	wish to work with the NWDA.	
23.	Received from Sh. Rahul, Ram Asray Jan Kalyan Sansthan, Gorakhpur on 12.9.06. Scheme for the NGO and how department will help.	Reply sent on 15.9.06. NWDA is working on Inter Basin Transfer Proposal of Govt. of India. The details are available on our web site. We do not have any specific scheme for NGO. However, NGO can work in creating awareness about the project among the people of concerned area.
24.	Received from Shri Venkat, Project Assistant, Sathyabama University on 9.11.06. Please furnish the contact Phone No. of Mr. Ilangovan working in NWDA, Hyderabad.	Replied on 9.11.2006. The contact details of Shri Ilangovan, were intimated.
25.	Received from Sh. Sushant Sabharwal, on 05.1.07. I am an environmental engineering student and want to know if I can have a summer training in this industry. Our training is scheduled to be in June-July for a span of 6 weeks. Waiting for a favourable reply. Thanks.	Reply sent on 10.1.07. Thanks for visiting our website. The National Water Development Agency is a Govt. of India organisation working on the Inter Basin Water Transfer Proposals of Govt. of India, mainly doing survey & investigations works through its own employees. Other specialized works are done by consultants, so your training in NWDA may not be useful.
26.	Received from Shri Jayant Daga on 23.1.07. Catchment Area of Neem Kheda dam in Raisen under Ken-Betwa link.	Replied on 2.2.2007. The catchment Area of the proposed Neem Kheda dam is about 1927 sq.km.
27.	Received from Jayant Daga, Bhopal on 20.02.2007. Beneficial villages name and total hectares land covered under command area of proposed Neemkheda dam of Ken-Betwa link project.	Reply sent on 20.2.07. NWDA is carrying out Survey and Investigation work of Ken-Betwa link for preparation of its DPR. Details regarding the command area and list of villages to be benefitted by Neemkheda dam will be firmed up only when DPR is completed.
28.	Received from A. Srinivas, Bhopal on 20.2.07. Details of submergence and command area of Neemkheda dam under the proposed Ken-Betwa link with relevant details and salient features of the project and the name list of villages to be benefitted by the project along with Index Map.	Reply sent on 20.2.07. The NWDA is carrying out the survey & investigation works of all components (including Neemkheda dam) of Ken-Betwa link for preparation of its DPR and the details of command area, salient features and list of villages to be benefited by Neemkheda dam will be firmed up only when the DPR is completed. The index map of Ken-Betwa link is available on the website.

29.	Received from Girija Singh Meena, Raisen on 9.2.07. Ken-Betwa project M.P. Raisen Neemkheda Mai kitne village dub mai ainge.	Reply sent on 20.2.07. The NWDA is carrying out the Survey & Investigation works of Ken-Betwa link for preparation of its DPR and details of submergence of proposed Neemkheda dam will be firmed up when the DPR is completed.
30.	Received from V.S.Sandhya on 28.2.07. I want the photo of proposed interlinking of rivers of whole country. So, please kind send me the photo.	Reply sent on 5.3.07. The interlinking of rivers programme is still in the proposal stage and therefore, the photographs are not available. However, few existing water resources structures (dams) are proposed to be dovetailed in the ILR programme. The photographs of these existing dams may be available with various departments. You may indicate the name of existing project. We would try to send the photograph to you.`
31.	Received from Naim Khan on 28.2.07. Where can I get a map of the submergence area of the Neemkheda dam on the Ken-Betwa link in Madhya Pradesh.	Reply sent on 5.3.07. The NWDA is carrying out the survey & investigation works of Ken-Betwa link for preparation of its DPR and the details regarding submergence by Neemkheda dam will be firmed up only when the DPR is completed. The submergence map will be ready after survey & investigation works of Neemkheda dam are completed. However the index map of Ken-Betwa link is available on our website. Kindly visit the link http://nwda.gov.in/writerreaddata/sublink2immages/66.jpg.
32.	Received from Naim Khan on 1.3.07. To find out about area under submergence at Neemkheda dam on Ken-Betwa link. Please attach maps and proposed villages which come under submergence.	Reply sent on 5.3.07. The NWDA is carrying out the survey & investigation works of Ken-Betwa link for preparation of its DPR and the details regarding submergence by Neemkheda dam will be firmed up only when the DPR is completed. The index map of Ken-Betwa link is available on our website. Kindly visit the link http://nwda.gov.in/writereaddata/sublink2images/66.jpg
33.	Received from Sh. Mohammed Arif on 7.3.07. Please submit tender information soon at your website.	Reply sent on 13.3.2007. Normally all the tenders are published on our website soon after the same is published in the newspapers.

34.	Received from Sh. Maksood Ali On 13.3.07. Wants to know the area of development of Tarawali District- Raisen.	The Reply sent on 16.3.07. The proposed Ken-Betwa link will provide irrigation by substitution to an area of about one lakh ha in Raisen and Vidisha district of Madhya Pradesh. Presently the NWDA is carrying out the survey & investigation works for finalisation of technical parameters of the various components of Ken-Betwa link and also preparation of its DPR. Only after completion of survey & investigations the details such as list of villages to be benefitted by the project etc. will be finalised. However, the feasibility report of Ken-Betwa link is available on our website. You may kindly visit the URL : http://nwda.gov.in/index3.asp?Sublink2id= 25&Langid=1.
35.	Received from Shri Deshraj Sharma on 12.4.07. Sir, I want to know the ecological effects of River linking in details.	Replies on 16.4.2007. National Water Development Agency has completed Feasibility Reports (FRs) of 14 links under Peninsular Component. All these Feasibility Reports include a separate chapter on Environmental & Ecological Aspects. The FRs are available on our web site, you may kindly visit the relevant links on our web site.
36.	Received from Shri Narendra on 13.4.2007. Ken-Betwa link dm ke banana per kisano ki kitani jamin jaygi, krapya batayan.	Thanks for visiting our website. National Water Development Agency is presently preparing the Detailed Project Report of Ken-Betwa link and only after completion of DPR the sub-mergence details will be firmed up. However, the Feasibility Report (FR) of Ken-Betwa link prepared by NWDA is available on our website ad the submergence details based on FR level studies can be seen in this report. To see the FR kindly, visit the link http://nwda.gov.in/index3.asp?sublink2id=25&langid=1

37.	Received from Shri Nur Salim Ekka on 19.05.2007. I want to get middle Mahanadi basins sub tributaries IB Rivers Gauge and Discharge Pre and Post Monsoon Average Monthly data period from January 1985 to Dec.2006 please give me to guideline how and where can get it.	Thanks for visiting our website. The Gauge and Discharge data on the important rivers in the country is being observed by Central Water Commission (CWC). You may contact CWC in this regard. The website of CWC is www.cwc.gov.in.
38.	Received from Priti Gaur on 20.05.07. We want ground water level test report for Sumerpur Block-Pali and Bali Block-Pali Districy.	Thanks for visiting our website. The ground Water is being monitored by the respective State Ground Water Board, therefore, you may kindly contact Rajasthan Ground Water Board.
39.	Received from Shri Dipak Kongre on 30.05.07. I am working on watershed and ground water modeling of the proposed Parbati, Kalisindh and Chambal link. Please let me know sources form where I can get the details about rainfall, borelog data, soil profiles, well data.	Thanks for visiting our website. The rainfall data are available with IMD, for Soil profile you may approach the State Soil Surving department and the ground water details are available with CGWB/State Ground Water Board. All other available details with NWDA are kept on the website.
40.	Received from Shri Harshad J. Rane on 9.8.2007. I need statewise and villagewise water TDS level and water hardness.	The NWDA is dealing with the planning of Interbasin water transfer proposals envisaged in the National Perspective Plan for Water Resources Development, formulated by Govt. of India, Ministry of Water Resources. The information required by you may be available with Pollution Control Boards, Public Health Engineering Deptts., Jal Boards, Ground Water Deptts. Of the concerned States. You may kindly approach them.
41.	Received from Shri Ram Avtar on 28.8.2007. I want to do research on Ken Betwa river linking project as integrated water resource management by using Remote Sensing and GIS so I need more information and data related to this study so please do send me some more	Please indicate clearly the information you need. You may also refer the Feasibility Report of Ken-Betwa link available on our website.

	information.	
42.	Received from Shri Mohini Thekedar on 28.8.2007. I want information on lekes in Vidarbha.	We do not have the information on lakes. You may kindly approach concerned Deptt. Of the State.
43.	Received from Shri Dipak Ranjan Samal on 6.9.2007. I am a M. Tech student of Deptt. Of Remote Sensing, BIT, Mesra. I have keen interest on water resources planning and I want the purchasable data detail of Gad basin, Maharashtra. So, sir, kindly inform the detail above thank you.	Your request for data is not clear. NWDA, for its various studies, has collected the data from various Central Govt. and State Govt. Deptts., such as IMD, CWC, Irrigation Deptts. of the various States etc. and does not sell the data. So, you may kindly approach the concerned departments for your data requirement.

Appendix-III

Terms of References for Comprehensive Environmental Impact Assessment Study of proposed Ken-Betwa link project

National Water Development Agency
(A Govt. of India Society under Ministry of Water Resources)

March, 2007

Terms of References for Comprehensive Environmental Impact Assessment study of proposed Ken-Betwa Link Projects

1.0 Introduction

As per EIA Notification of 1994 and its subsequent amendments, It has been made mandatory to get environmental clearance for certain sectors, including river valley and hydro electric projects. The objective of this study is to prepare comprehensive Environmental Impact Assessment to get environmental and other mandatory clearances from Ministry of Environment and Forests and any other authorities.

2.0 SCOPE OF WORK

The broad scope of the work is to carry out Environment Impact Assessment of proposed Ken- Betwa link, assessment of positive impacts with its economic evaluation and prepare Environmental Management Plan (EMP) to mitigate the adverse effects, including the socio-economic aspects and R&R Plan for project affected people, dam break analysis and Disaster Management Plan. The scope also includes preparation of monitoring plan for implementation of EMP.

3.0 THE PROJECT

The Ken – Betwa link comprises the following components:

- Construction of Daudhan dam across river Ken, about 2.5 Km upstream of existing Gangau weir and near Daudhan village in Chhatarpur district of Madhya Pradesh;

- A 231 Km. long link canal (including 2 Km. long tunnel) offtaking from Daudhan dam and terminating into existing Barwa Sagar reservoir located across Barwa river, a tributary to Betwa river;

- Construction of four dams i.e. Richhan, Neemkheda, Kesari dam and Barari barrage in the upper Betwa basin (upstream of existing Rajghat dam) in Madhya Pradesh.

The objective of the Ken – Betwa link is to divert the balance water from Ken basin to Betwa basin for use in the Upper Betwa basin by substitution

for providing irrigation in the water scarce Raisen and Vidisha districts of Madhya Pradesh, through four proposed dams.

3.1 STUDY AREA

The study area for the project can be considered as:

- 1 km either side of the link canal
- 10 km radius around the project area from the periphery of the project site

Submergence and catchment area for the dams/reservoirs, command areas in the down stream of the reservoirs and enroute of link canal and areas of backwater influence in the upstream. However, only direct draining tributaries and nalas in the reservoir shall be considered as part of the project.

4.0 AVAILABLE INFORMATION

Feasibility study of Ken – Betwa link has been completed and the web friendly version of the same is available on NWDA's website http://www.nwda.gov.in The adequacy of the data and information contained in the feasibility study are to be assessed. Based on the adequacy check, any additional data collection requirements are to be identified and shall be collected as part of the preparation of EIA report.

5.0 PLANNING AND DEVELOPMENT OF DATA BASE

- Consequent upon the collection of environmental and socioeconomic data, desk studies shall be carried out so as to undertake preliminary planning and development of a comprehensive database. The data base shell be in such a format that can be used in web based GIS portal also.

- The database shall be generated with provisions of data inputs from multiple sources and shall be capable of generating outputs in the form of tables, graphs, reports & data files. The output files shall be used in conjunction with software, spreadsheets, word processors and statistical software.

6.0 ENVIRONMENTAL IMPACT ASSESSMENT

The Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) report shall be prepared considering all the relevant notifications issued by Ministry of Environment and Forest (MoEF) or any other competent authorities (viz. EIA notification, 1994 and subsequent notifications/amendments issued time to time) and in accordance to all the relevant guidelines issued by MoE&F or any other competent authorities. The EIA report shall be prepared considering all these notifications/guidelines required for obtaining Environmental Clearances from the regulatory/statutory authorities. The studies shall be carried out in an integrated manner considering the impact of both the connected basins.

As outlined in the notification cited above, Public hearing shall be carried out as per the requirements of the fulfillment of EIA notification as a part of consultation with civil society. The consultant shall also assist NWDA in obtaining the necessary Environmental clearance from regulatory/statutory authorities.

As per the MOEF notification dated 14.9.2006, the TOR for Comprehensive EIA of Ken-Betwa Link shall be submitted to MOEF by the National water Development Agency. Any changes/modifications suggested by the MOEF in the TORs are to be taken care by the consultant while carrying out the study.

Details pertaining to the Environmental and Ecological Aspects are furnished below:

The sequence of steps to be followed for consideration and assessment of Environmental and ecological aspects shall be as follows:

- Assessment of alternate sites and justification for selecting the present site
- Study no project option
- Legal status of the proposed project site with respect to various applicable Environmental Legislations
- Baseline Environmental Data
- Environmental Impact Assessment
- Environmental Management Plan

6.1 BASELINE ENIVIRONMENTAL DATA

Baseline Environmental Status of the project shall be established based on the baseline survey carried out for various relevant seasons (either fresh or based on available literature/authenticated documents supplemented by field studies) in accordance to the MoE&F requirements for all the following elements

- Air Environment
- Water Environment
- Land Environment
- Biological Environment (Aquatic and Terrestrial)
- Socio-economic Environment

I. Air Environment

- Climatology and rain fall for hydrological consideration
- Meteorology for dispersion of air pollutant during construction activities
- Air Quality
- Noise

II. Water Environment

This will cover all the aspects of surface as well as ground water. This shall include but not limited to:

- Hydro-geological aspect (siltation)
- Hydrological cycle
- Surface Water Quality and flow including nutrient levels
- Ground water regime (ground water table, aquifers)
- Ground water quality

III. Land Environment

- Land use and land cover (e.g. Forest, agriculture, wasteland etc.) using satellite imagery
- Mineral resources
- Water use
- Water logging

IV. Biological Environment

- Forest cover
- Rare and endangered species

- Species which require management
- Species of economic significance
- Species of special interest to local population or tourists
- Aquatic fauna of commercial/recreational value and migratory fish species along with their spawning ground
- Habitat including breeding ground and access corridor for food and shelter
- Biodiversity

V. Socioeconomic Environment

- Archaeological Locations and places of worship
- Sources of water pollution (present as well as future)
- Dependence on water system
- Tourism
- Public Health
- Human settlements (occupational pattern, demographic profile, economic profile, agricultural practices etc.)

6.2 ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Environmental Impact Assessment (EIA) shall be carried out for construction and operation phases using qualitative or quantitative methods (wherever possible) and using predictive modelling techniques.

The EIA study shall cover all the relevant environmental issues that have impact due to the proposed project including the following:

- Air Environment
- Water Environment
- Land Environment
- Biological Environment (Aquatic and Terrestrial)
- Socio-economic Environment

I. Air Environment

- Impact on air quality due to construction
- Changes in microclimate
- Impact on ambient Noise level specially during construction period

II. Water Environment

- Likely change in the regime of the river

- Impact due to change in hydrological cycle
- Impact on siltation preferably using quantitative techniques
- Impact due to spread of contamination due to agro-chemicals and organic/heavy metals
- Impact due to transportation of fluorides, Nitrates, toxic chemicals, heavy metals
- Impact due to acidification of lakes and water bodies due to presence soils with rich minerals
- Impact on water quality (surface/ground)
- Impact on ground water levels and recharge potential
- Impact on ground water pollution due to seepage from canal system and reservoir (ground water level and quality)
- Impact due to change in waste assimilation capacity of the river system
- Impact on drainage system and existing water bodies in the project area (assessment by using GIS tools and satellite imageries. The imageries will be supplied by NWDA).

III. Land Environment

- Impact on land use/land cover and change in designated land-use in the project area i.e. submergence area due to construction of proposed dams, areas one Km either side of proposed link canal and areas under proposed command. The assessment can be done using the GIS tools and satellite imageries of the area (to be supplied by NWDA). However, it will have to be confirmed by ground truthing.
- Impact due to irrigation induced salinity and water logging
- Impact due to inundation of mineral resources
- Impact on soil erosion

IV. Biological Environment

Terrestrial environment

- Impact on forest area and National park and wildlife sanctuaries and other sensitive ecosystem.
- Impact on biota and biodiversity loss particularly with special reference to the rare and threatened species, endemic species of both animals and plants.
- Impact on habitat loss particularly with special reference to the rare and threatened species, endemic species of both animals and plants.
- Impact due to habitat change having effect like corridor loss and loss of migratory path for wildlife including birds.
- Impacts on the breeding grounds of species and on access of animals to food and shelter.

- Impact on animal distribution specially on tigers

Aquatic environment

- Impact on flora and fauna in the connecting basins as well as along the link.
- Impact on aquatic ecology including fisheries and endangered species
- Impact on sensitive ecosystem
- Impact due to bio-accumulation and bio-magnification in aquatic life and biota
- Impact due to change in ecological functioning of river system
- Impact on growth of aquatic weed
- Impacts on fish spawning and migration including impact on their breeding ground.
- River both at head as well as mouth regions would be considered while addressing the issues on wildlife and breeding places

V. Socioeconomic Environment

- Impact on public health due to vector borne diseases
- Impact on sensitive locations like archeological sites and places of worship etc.
- Impact on change in occupational pattern
- Impact on tourism
- Impact on human settlement

VI. Geological and Other Aspects

- Geology, Physiography and Topography of the area
- Bedrock formation
- Geological stability or instability
- Fault zones
- Seismicity

6.3 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Based on environmental impact assessment, mitigation / enhancement measures need to be specified in the form of environmental management plan. The components of the EMP will inter-alia deal with the following as may be relevant to specific project site:

- Environmental safeguards (management) during construction activities
- Catchment Area Treatment
- Plan for restoration of quarry areas/burrow areas and areas for dumping excavated material.
- Management to arrest salinity/ alkalinity in the wake of recharge of water in the interlinking channels.

- Problems associated with transportation of silt across basins and utilization there of in environmentally/ecologically benign manner
- Compensatory Afforestation plan along with cost benefit analysis
- Plan for green belt (other than catchment area).
- Reservoir rim treatment plan
- Comments/observations/recommendations of Chief Wildlife Warden in case Wildlife habitat/migratory path exists within 10 kilometers of project site.
- Conservation plan for affected flora/fauna including rehabilitation plan for rare/endangered species including action plan for alternate breeding ground and access corridor for food and shelter.
- Action plan for control of irrigation induced water logging, salinity etc including strategies and policies with choice of species/crop for optimum use of water for agriculture to reduce adverse impacts of excessive irrigation including water logging.
- Action plan for command area development in respect of irrigation potential.
- Watershed management
- Ground water management including harnessing of ground water in conjunction with surface water.
- Land use management with special emphasis on water logging problem
- Management of flora and fauna in the connecting basins as well as along the link including action plan for alternate breeding grounds.
- Alien flora and aquatic weeds management
- Wetland management
- Protection of sensitive and archeological monument sites
- Action plan for health delivery systems
- Post project environmental monitoring plan
- Disaster Management plan including risk and dam break analysis
- Provision of free fuel to labours
- Soil fertility management plan
- Action Plan for release of assured lean season flow downstream of the dam

7.0 SOCIO-ECONOMIC ASPECTS AND PREPARATION OF R&R

A detailed socio-economic study of project affected people will be carried out.

7.1. SOCIO-ECONOMIC SURVEY

In order to perform the socio-economic studies, on-site socio-economic survey shall be carried out covering socio-economic profile of the region.

The region shall include the project-affected areas likely to come under submergence or land acquisition and wider project influence areas comprising the catchment area, areas downstream of dam and upto confluence of major tributary, the command area, the area en-route the link canal where there could be secondary displacement. The following aspects shall be covered in the socio-economic surveys

- Demographic profile with social categories, number of households/families, type of housing, health and educational profile, migration patterns, if any.
- Land ownership and operational holding
- Existing cropping pattern of the project area and changes thereof due to commissioning of the project
- Agricultural practices including traditional knowledge on endemic species.
- Improvement in crop production and productivity
- Possible improvement in surface and ground water availability and benefits accrued to irrigated agriculture, drinking water use, industries and thermal power plants.
- Agricultural input pattern
- Economics of cultivation
- Non-agricultural Practices such as poultry, cattle raising etc
- Employment profile
- Income profile with sources of income
- Expenditure profile
- Other economic activities prevailing in the region
- Availability of social infrastructure
- Availability of economic infrastructure
- Gender issues

7.2 Secondary Data

Before start of the on-site socio-economic survey, available secondary information from various government agencies shall be collected. Relevant information from concerned state government and Census of India about infrastructure availability etc. at district/block/village level and from Survey of India on topography maps and satellite Imageries from NRSA are other sources of useful information to be collected before launching of on-site survey. Based on these information, design of questionnaire and methodology of field surveys shall be finalised.

The consultant shall make every effort to obtain these information from various Govt. agencies. However, NWDA shall extend help in issuing authorisation letters etc. whenever required by the Consultant.

7.3 Sample Design

The survey shall cover both project affected (displaced) and project influenced (benefiting) areas. Sample shall be distributed between project affected and influenced households on the basis of number of reservoirs and length of main canal and distributaries.

7.4 Questionnaire

Different mode of data collection such as sample survey, Participatory Rural Appraisal (PRA)/ Rapid Rural Appraisal (RRA) and focus group discussions shall be used in evaluating impact of ILR.

Questionnaire shall take into account all the relevant aspects mentioned above. Current Land prices and wages prevailing in the area is another important factor on which data should be collected in socio-economic survey. This shall help in assessment of cost of land acquisition for implementation of envisaged developments.

7.5 Resettlement & Rehabilitation(R&R) Aspects

While studying Resettlement and Rehabilitation (R&R) aspects techniques such as Rapid Rural Appraisal (RRA)/Participatory Rural Appraisal (PRA) and focus group discussion should be used to find out present situation in the area. This shall also involve collection of photographic records of the area likely to be submerged.

Information on following aspects should also to be collected.

(a) Peoples own perception on the settlement aspects and kind of facilities they accept in the area where they will be settled after displacement.
(b) Preferences of affected population about the compensation package, whether it should be in cash or kind.
(c) What is the location preference for settlement by affected population, whether they want to be settled closer to their existing place of residence or at a distance

(d) Participation of affected people in construction of canals/reservoirs should also be probed in.
(e) Migration patterns into and out of the project area.

A detailed R&R package shall be prepared and National Policy on Resettlement & Rehabilitation for Project Affected Families-2003 (NPRR-2003) formulated by MoRD shall form basic minimum criteria for devising the R&R package. Due weightage should also be given to the R&R Policy / Act of M.P. State. However, in line with the section 1.6 of the NPRR-2003, the R&R package should not limit itself to the National R&R Policy-2003 and should look for a wider horizon with millennium development goals and Planning Commission targets. Also, the various schemes of the govt. for rural development and welfare should be combined to make R&R package attractive enough. The R&R Policy should clearly come out with the kind of infrastructure required to achieve these goals. While preparing the R&R package, the past practices and difficulties experienced in implementation of various provisions of R&R package should be kept in mind.

The consultant shall suggest a layout of modal village for resettlement of Project Affected peoples (PAPs).

7.6 Impact of Link Canal

Link canal will have both short- and long-term impact on economy. The short-term impact of the link canal on economy in general and regional economy in particular will be in the form of increased employment opportunities and growth of service sectors in the area. Impact of link canal on regional economy will depend on how strong the forward and backward linkages of construction and agriculture sectors are with the rest of the economy. In medium- to long-term major impact of link canal on economy will be through increased/assured irrigation, which will lead to increased agricultural production. All these aspects will be studied in detail.

Impact of Ken- Betwa link on different types of households such as agriculture dependent households, agricultural labourers, salaried earners, petty businessman etc. should be analysed. This will help in assessment of the project. Efforts should also be made to present pre and post canal commission employment profile.

Appendix-IV

Revised composition of Committee of Environmentalists, Social Scientists and other Experts on ILR

A committee of Environmentalists, Social Scientists and other Experts on ILR has been constituted by MoWR in December 2004. The Committee is constituted with a view to make the process of proceedings on Interlinking of Rivers (ILR) in a fully consultative manner with the following composition and terms of reference:

Composition of the Committee (Updated):

1	Secretary, Ministry of Water Resources, Govt. of India, New Delhi	Chairman
2	Secretary, Ministry of Social Justice & Empowerment, Government of India, New Delhi	Member
3	Secretary, Ministry of Environment & Forests, Govt. of India, New Delhi	Member
4	Chairman, Central Water Commission, Govt. of India, New Delhi	Member
5	Shri Z. Hasan, Former Secretary (WR), GOI, Noida	Member
6	Shri A.C. Kamraj Chairman, NAWAD Council, Madurai, Tamil Nadu	Member
7	Shri P. Sen, Rtd. Member, Central Water Commission, Member Kolkata, West Bengal	Member
8	Shri Rajinder Singh, Noted Sociologist Alwar, Rajasthan	Member
9	Dr. Ms Mala Kapur Shankardass, Chairperson Development Welfare and Research Foundation, New Delhi	Member
10	Dr. Ashok Khosla President, Development Alternatives, New Delhi	Member
11	Prof. M. N. Madhyastha, Environmentalist, Centre for Ecological & Environment Studies, Mangalore University, Karnataka	Member
12	Dr. Vijay Paranjpe, President and Founder of Gomukh and Gangotree Trusts, Pune	Member
13	Sh. Himanshu Thakkar, Coordinator of Centre for Water Policy & Editor of Journal title "Dams Rivers & People", New Delhi	Member
14	Director General, National Water Development Agency.	Member-Secretary
Special Invitees:		
1.	Additional Secretary, Ministry of Water Resources, Govt. of India, New Delhi	
2.	Commissioner (PR), Ministry of Water Resources, Govt. of India, New Delhi	

Terms of Reference (Updated):

The Committee will advise the Government on the following aspects of the proposed project.

- Environmental and socio-economic issues covered in the Term of Reference (TOR) for preparation of Detailed Project Reports (DPRs) finalized by the Task Force.

- Rehabilitation & Resettlement package for the persons affected by ILR programme keeping in view the national R&R policy and structure of the agency for its implementation.

- Additional studies needed to be carried out, to address any other concerns in the ILR Programme.

- Impacts of proposed inter basin transfer of water links on settlements, occupations and other socio-economic activities, while preparing the DPRs.

- Adoption of appropriate measures for optimum utilizations of transferred water especially in the water short basins while preparing the various DPRs.

- Consideration of the above issue/aspects so as to cover the impact studies of intra-state river linking proposals while preparing their DPRs.