The meeting conducted on 9th April 2012 was presided by was presided by Shri S.C. Jain, Chairman. Following members attended the meeting-

Shri K.P. Nyati, Member
Dr Mohini Saxena, Member
Shri A.P. Srivastava Member
Shri V.R. Khare, Member
Shri V. Subramanian, Member
Shri R.K. Jain, Member Secretary

The Chairperson welcomed all the members of the Committee and thereafter agenda items were taken up for deliberations.

1. **Confirmation of minutes of 88th & 89th meetings of SEAC dated 13th and 14th February 2012**

   The minutes of 90th & 91st meetings of SEAC dated 2nd and 3rd March 2012 were confirmed and approved.

2. **Consideration of the Projects**

   09 cases were invited to make presentation before the SEAC.

3. **Other issues discussed during the meeting**

   - It was observed by the committee that assessment of various documents pertaining to land such as ownership, agreements, joint ventures etc. consume much time as a result time for technical discussion is felt shorter, hence it was decided to write to the authority that all issues pertaining to above may be resolved & commented before forwarding the case to SEAC for technical evaluation.
   - It is general observation of the committee that a number of Building/Construction projects including townships are coming up in major towns of the state without obtaining prior EC and other environment related regulatory clearances. Owing to this it was decided by the committee to request the authority for following:
     - *All Building/Construction projects including townships with built-up area of ≥20000 sq.mtrs are required to obtain prior EC as per the provisions of EIA Notification prior to initiation of any activity on the plot. However, projects with built-up area of ≥50000 sq.mtrs and /or plot area ≥50Ha shall be required to submit EIA for seeking prior EC. Accordingly, SEIAA may be advised to write to Town & Country Planning Deptt. and Local Authorities stating that no permissions and/or approvals should be accorded to such projects without obtaining necessary environment related clearances*
     - *In order to make the public aware and reduce the violation frequency SEIAA may like to publish a Public Notice in News papers and other via media clarifying the applicability EIA Notification and the consequences for violation of the provisions of the Notification.*

4. **Field visit:** River valley projects proposed in Panna District have been dealt in this meeting for issue of TOR. Based on the submissions and the presentations made before the committee the PP has been issued TOR. Nevertheless, committee felt that these projects being multidimensional cover many environmental issues hence it was decided by the committee to visit the sites before the next meetings. Meanwhile PP may be issued TOR based on submissions and presentations. Supplementary TOR (if any) can be issued after the visit.

(S.C. Jain)	**(K.P. Nyati)**	**(V.Subramanian)**	**(Dr Mohini Saxena)**
Chairman	**Member SEAC**	**Member SEAC**	**Member SEAC**

(A.P.Srivastava)	**(Shri V.R. Khare)**	**(R.K. Jain)**
Member SEAC	**Member SEAC**	**Member Secretary**

Deliberations:

1. Case No. 671/2012 - Shri Shankarlal Vishwakarma S/o Shri Puranlal Vishwakarma , Jalpadevi Ward, Gautam Mohalla – Katni, Distt. – Katni (M.P.) - Enhancement in mining capacity of Tikariya Bauxite,Laterite and Fire Clay Mine of 27. 02 ha. at Khasra no. 423, 424, 425/1, 425/2, 426, 454/1, 454/2, 457, 458, 459, 422, 455, 460, 467, 468, 469, 498, 500, 509 Village- Tikariya, Tehsil – Murwara, Distt. – Katni (M.P.) Capacity – 1.25 lac MTPA to 7. 0 lakhs MTPA **For –TOR**

Prior EC issued vide letter no. 122/EPCOSEIAA/ 10 dated 26/05/10.

[Env. Consultant – Creative Eviro Services.]

This being a mining project with lease area between 50 ha to 5 ha is listed at S.N. 1(a) of schedule under 'B' Category of EIA Notification, 2006 and is to be appraised by SEAC. This is a case of expansion of production capacity from 1.25 lac MTPA to 7.0 lac MTPA. The project is holding prior EC for production capacity of 1.25 lac MTPA issued by MPSEIAA vide letter no. 122/EPCOSEIAA/ 10 dated 26/05/10. The case was forwarded by SEIAA for scoping. It was submitted by the PP that, as the mine is operative collection of baseline environmental data has already been started by the PP from 1st March 2012. PP requested the committee to allow him to use this data in the EIA report; committee found it justified hence accepted the request. The proponent of the project and his consultant presented the salient features, PFR and proposed TOR before the committee in this meeting, the submissions and the presentation made by the PP reveals following:

Location of the project:

Geological location	$23^0$44'01" to $23^0$44'23" N $80^0$23'25" to $80^0$23'58" E
Nearest City	Katni 21 km
Village	Tikariya
Tehsil	Murwara
District	Katni
Habitation in Core Zone	None
Nearest Railway Station	Niwar 5.2 km
National Park/ Heritage site	None in 10 km radius
Ecological Sensitive Zone	None in 10 km radius
Reserve Forest	None in 10 km radius

Land status

Area	27.02 ha

(S.C. Jain) Chairman | **(K.P. Nyati) Member SEAC** | **(V.Subramanian) Member SEAC** | **(Dr Mohini Saxena) Member SEAC**

(A.P.Srivastava) Member SEAC | **(Shri V.R. Khare) Member SEAC** | **(R.K. Jain) Member Secretary**

Land status	Private / Govt. Revenue
Khasara No 422,455, 460, 467, 468, 469, 498, 500, 509	17.33(Ha)
Khasara No 423, 424, 425/1, 425/2, 426, 454/1, 454/2, 456, 457, 458, 459	9.690 (Ha)
Total	27.02 (Ha)

Approvals/NOC obtained by the PP:

Mining Lease Period	From 06/03/2003 to 05/03/2023
Mining Scheme	2010-11 to 2014-15 for category "A" Fully Mechanized.
NOC from Forest	Obtained
EC for Existing Capacity	Granted vide letter No. 122/EPCO-SEIAA/10 dtd. 26/05/10
Consent u/s Water & Air	Upto 30/06/2014
NOC from Gramsabha	Obtained

Mining details:

Nature of Mine	Open cast and Fully mechanized mine
Present depth of Mining	12 m
Ultimate depth of Mining	18 m
Water Table	20 m BGL
Thickness of top Soil	Min. - 0.5m, max. -1.2m,
Thickness of Overburden	0.25m to 0.5m
Mineable reserve	8588882 MT
Stripping Ratio	1:0.25
Life of mine @ 7.0 MT Lacs/yrs	12.2 years

Water requirement for the project:
The total fresh water need is about 23 Kl per day for domestic and mining purpose. The required water is being obtained from the pits and the hand pump.
Plantation status in the lease area:

(S.C. Jain) Chairman **(K.P. Nyati) Member SEAC** **(V.Subramanian) Member SEAC** **(Dr Mohini Saxena) Member SEAC**

(A.P.Srivastava) Member SEAC **(Shri V.R. Khare) Member SEAC** **(R.K. Jain) Member Secretary**

At present about 2.5 ha area has been covered under plantation. During the next five years we shall carried out plantation in 2.5 ha. area, so after five years total area covered under plantation shall be 5.0ha. During the mining lease period upto 2023 about 9.0 ha area shall be covered with plantation.

After deliberations committee decided to issue TOR to the proponent to carry out EIA /EMP with inclusion of following points:

- Estimated expansion in the production capacity for each of the proposed three minerals to be provided in the EIA report.
- Comparative statement has to be prepared considering all the parameters such as – enhanced in OB generation, enhanced in transport, enhanced labour requirement etc.
- Compliances of the terms & conditions of existing prior EC and Air/Water consents to be presented in detail as separate chapter of EIA.
- EMP has to be elaborated as per the actual scenario with justification for all the proposed activities of EMP.
- Mine closure plan extracted from the approved mining plan has to be explained in detail as separate chapter in the EMP.
- In addition to the above points all points as per the standard TOR for mining sector shall be applicable while preparing EIA / EMP.
- Public Hearing has to be conducted.

2. Case no. 674/2012 - Shri M.G. Chobey Engineer- in Chief Department of Water Resources, Tulsi Nagar, Bhopal (M.P.) – 462-003 - Ghogra Complex (Medium) Irrigation Project **(Ghogra Feeder Tank)** Catchment Area- 13.80 Sq.km., Gross Storage Capacity- 3.84 MCM, Live Storage Capacity – 3.34 MCM, Gross Command Area – 1000 ha. Cultivable Command Area – 850 ha., at Village – Ghogra, Tehsil – Nasrulaganj, Distt. – Sehore (M.P.) **For –ToR**

Env. Consultant – Presented by the PP.

River Valley projects involving < 10,000 ha. of culturable command area and denies the general conditions falls under category "B" and have been mentioned at SN. 1(c) column B of Schedule of EIA Notification, hence such projects are required to obtain prior EC from the SEIAA. The submission and the presentation made by the PP reveals that the submergence of the project falls at a distance of 8.75 kms. from the Kheoni Sanctuary of Dewas District. It was reported by the PP that permission for the construction has been obtained from Hon'ble Supreme Court of India.

In view of above the committee is of the opinion that this project falls under category 'A' and hence is beyond the scope of SEAC. Thus, committee decided to return this case along with the case no 673/2012 & 675/2012 as these three cases are inter-linked projects and can not be treated as independent projects. Hence

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC
(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary	

committee decided to return the case to SEIAA for further necessary action in the matter.

3. **Case no. 673/2012 - Shri M.G. Chobey Engineer- in Chief Department of Water Resources, Tulsi Nagar, Bhopal (M.P.) – 462-003-** Ghogra Complex (Medium) Irrigation Project **(Main Dam)** Catchment Area- 88.50 Sq.km., Gross Storage Capacity- 20.62 MCM, Live Storage Capacity – 17.43 MCM,Gross Command Area – 5250 ha. Cultivable Command Area – 4450 ha., at Village – Ghogra, Tehsil – Nasrulaganj, Distt. – Sehore (M.P.) **For –ToR**

Env. Consultant – Presented by the PP.

River Valley projects involving < 10,000 ha. of culturable command area and denies the general conditions falls under category "B" and have been mentioned at SN. 1(c) column B of Schedule of EIA Notification, hence such projects are required to obtain prior EC from the SEIAA.

This project is linked with case no. 674/2012; as a part of the project falls within 8.75 Km from Kheoni Sanctuary of Dewas District, it is covered under category 'A' projects as per the EIA Notification hence SEAC decided to return the case to SEIAA for further necessary action in the matter.

4. **Case no. 675/2012 - Shri M.G. Chobey Engineer- in Chief Department of Water Resources, Tulsi Nagar, Bhopal (M.P.) – 462-003 -** Ghogra Complex (Medium) Irrigation Project (**Upper Ghogra Tank**) Catchment Area- 26.75 Sq.km., Gross Storage Capacity - 7.35 MCM, Live Storage Capacity – 6.43 MCM, Gross Command Area – 1940 ha. Cultivable Command Area – 1650 ha., at Village – Ghogra, Tehsil – Nasrulaganj, Distt. – Sehore (M.P.) **For –ToR**

Env. Consultant – Presented by the PP.

River Valley projects involving < 10,000 ha. of culturable command area and denies the general conditions falls under category "B" and have been mentioned at SN. 1(c) column B of Schedule of EIA Notification, hence such projects are required to obtain prior EC from the SEIAA.

This project is linked with case no. 674/2012; as a part of the project falls within 8.75 Km from Kheoni Sanctuary of Dewas District, it is covered under category 'A' projects as per the EIA Notification hence SEAC decided to return the case to SEIAA for further necessary action in the matter.

5. **Case no. 676/2012 Sh. Sachin Upadhyay, M/s "Shalimar Swayam" of Coral Infrastructure Pvt. Ltd. , 210, Shalimar Corporate Centre, 8-B, South Tukoganj, Distt. – Indore (M.P.) – 452001 -** *" Shalimar Swayam " of Coral Infrastructure Pvt. Ltd. at Khasra No. 4/1, 4/3, 4/4, 5/2, 6/1, 6/2, 6/3, 9/2,*

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC
(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary	

9/3, 9/4, 10/4, 10/5, 10/6, 10/7, 10/8, 10/9, 11/1, 11/2, 11/3 Village – Kabir Khedi ,Tehsil – Indore, Distt. – Indore (M.P.) Total Land Area – 10. 587 ha. (105891.00 sq. mt.) , Total Built Up Area – 93,363.90 sq.mt. Building Construction Project

Env. Consultant – In Situ Enviro Care, Bhopal (M.P.)

This is a Project pertaining to development of township Building and Construction projects with total plot area of 105891 Sq.m. (10.587 Hect) and built up area of 93,363.90 sq. m.. Such projects with built-up area between 20000 m^2 and 1,50,000 m^2 are covered under the Schedule of EIA Notification 2006 in category B at S.N. 8(b). Therefore are required to be appraised by the SEAC. As built –up area is less than 1,50,000 m^2 and plot area is less than 50 Ha EIA is not required for the project. The salient features of the project were presented by the PP and his consultant before the SEAC. The submissions and the presentation reveals following:

Salient features of the project

Total area of the plot : 1,05,891.00 sq.m
Proposed built–up area : 93,363.90 sq.m
Total Water Demand : 1400 KLD
STP Capacity : 1030 KLD
Solid Waste Generation : 5.03 TPD
Power Demand : 6.23 MW
Back Up Source : 975 KVA (65 No. D.G. sets of 15 KVA each)
Types of Flats : 1 bed room Flats - 258 Nos.
2 bed room Flats -1338 Nos.
3 bed room Pent House - 300 Nos.
EWS Flats -124 Nos.

Area Statement

total land area	10,5891.00 sqm
net planning area	98163.85 sqm(100%)
built up area	93,363.90 sqm
ground coverage (including school + club)	29449.15 sqm (30%)
total proposed green area	25892.40 sqm (26.3 % of net planning area)
open space parking area	4229.62 sqm (4.3 %)
proposed m.o.s. & circulation	38592.68 sqm (39.31%)
area under future planning	7708.15 sqm
area under road winding	19.00 sqm

(S.C. Jain) Chairman **(K.P. Nyati) Member SEAC** **(V.Subramanian) Member SEAC** **(Dr Mohini Saxena) Member SEAC**

(A.P.Srivastava) Member SEAC **(Shri V.R. Khare) Member SEAC** **(R.K. Jain) Member Secretary**

ground floor parking @ 1 ecs per 78.25 sq.m of net built up area	1193 cars

Water Requirement / Balance

S. No.	Item Description	Number of Persons / Seats	Water Requirement / head (litres)	Total water Requirement (litres)
A	Fresh Water Requirement			
1.	For Apartments/Flats	7,254	90	6,52,860
2.	For EWS	372	90	33,480
3.	Maintenance Staff	50	20	1000
4.	For Club	7,254	5	36,270
				7,23,610
5.	Water Treatment plant back wash & regeneration (@0.05 %)			38,351.33
6.	Misc. – Water features / Swimming Pool.			10,0000
	Sub Total of A			8,61,961.33
B	Flushing Water			
1.	For Apartments/Flats	7,254	45	3,26,430
2.	For EWS	372	45	16,740
3.	Maintenance Staff	50	25	1250
4.	For Club	7,254	10	72,540
	Sub Total of B			4,16,960

- It is estimated that total water requirement at initial stage is 1400 cum per day out of which 824 m^3 per day of treated effluent will be available through recycling, out of which 550 m^3 per day treated water will be used for flushing, gardening etc.. Hence net fresh water requirement will be about 862 m^3 per day.
- Rooftop rainwater will be used for artificial recharge of groundwater whereas additional storm water will be diverted and used for landscaping purposes

Solid waste expected to generate from the project and its management:

- Total solid waste generated will be around 5.03 TPD
- Solid Waste will be handled as per the provisions of Municipal Solid (Management & Handling) Rules, 2000

(S.C. Jain) Chairman **(K.P. Nyati) Member SEAC** **(V.Subramanian) Member SEAC** **(Dr Mohini Saxena) Member SEAC**

(A.P.Srivastava) Member SEAC **(Shri V.R. Khare) Member SEAC** **(R.K. Jain) Member Secretary**

- 100% Door to Door Collection system will be done by the maintenance staff.
- Separately colored bin for biodegradable and non- biodegradable waste will be placed in common / utility locations.
- Collected solid waste will be brought to a centralized collection chamber.
- Non-Biodegradable / recyclable waste will be segregated and sold to local Approved Vendors/kabariwalas.

Environmental management plan proposed in the project- (Air)

Construction / Operation Phase

- Dust control plan
- Use of Ready mixed cement
- Reduce on site activities by Off-site fabrication of structural components
- Regular Maintenance of vehicles
- Provision of signage's for easy circulation of traffic.
- Provision for adequate parking space
- Use of low sulphur diesel for DG sets.
- Provision of sufficient stack height for DG set.

Environmental management plan proposed in the project- (Water)

Construction / Operation Phase

- Leak proof containers for storage and transportation of oil/ grease.
- Impervious oil/grease handling area.
- Provision of temporary sanitation facilities for workers.
- Treatment of sewage on site in STP .
- Use of treated sewage water for Flushing & Landscaping.
- RWH and SWM scheme
  - Rainwater from Roof top and terraces will be used for ground water recharging.
  - SWM will be done with the help of well planned storm water drainage network as per IMC remarks.
- Minimizing Water Consumption
  - Use dual flush system, Auto flushing sensors for urinals
  - Efficient Plumbing Fixtures

Environmental management plan proposed in the project- (Noise)

Construction / Operation Phase

- Regular maintenance of construction equipments
- Barricading of the construction area with 3m high barrier of GI Sheet
- Job Rotation and Hearing Protection for workers
- Operational Phase
- Provision of adequate parking space
- Acoustic enclosure for D.G. Set

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC

(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary

- Use of D. G. set as alternate power supply in case of power failure which is a rare occurrence in this area.

Environmental management plan proposed in the project- (Noise)

Construction / Operation Phase

- Segregation of waste at source
- Construction of temporary soak pits/ septic tank on site
- Reuse of construction debris at the site itself for land leveling
- Effective measures for prevention of leakage of foil
- Operational Phase
- Segregation of waste at source
- Recyclable waste will be sold to approved vendors
- Waste storage in well-designed containers/ bins
- Biodegradable and Non-biodegradable solid waste will be collected separately.
- Non-biodegradable and Biodegradable solid waste would be handed over to authorized agency.

Cost kept for EMP implementation is -

Total – Capital investment Rs. 187.5 Lakhs and recurring cost Rs. 70.55 Lakhs / Year

Submissions made by the PP

1. T & CP Approval-Indore - Sn/4054/S.P./227/Ngrani/2010 Dated 3/7/10
2. Residential Development Permission from Municipal Corporation Indore - Sn/1015/Ka. Sel./11 Dated 3/8/11
3. Noc from Indore Vikas Pradhikaran (Ida) - No.1619 Dated 11/03/2010
4. Fire Fighting - Fire Office, Indore - Sn/21-C/11 Dated 12/02/11
5. Colonizer Registration - Sn/481/Ka. Se./2011 Dated 23/03/11
6. Received Copy Of Application For Ground Water Abstraction From Indore Collector.
7. Received Copy Of Application For Water Supply From Municipal Corporation, Indore
8. Received Copy Of Application For Municipal Solid Waste Disposal Along With STP Sludge From Municipal Corporation, Indore.
9. Money receipt for the payment made to Municipal Corporation towards the Narbada Cess.

After deliberations committee has asked he PP for submission of the following information along with the supporting documents:

- Following details of the Nalla passing near the proposed site have to be furnished: HFL of the nalla, dimensions of the nalla with cross-section, starting and termination point of the nalla marked on a topo-sheet.
- Lay-out map showing green area to be furnished.

(S.C. Jain)	(K.P. Nyati)	(V.Subramanian)	(Dr Mohini Saxena)
Chairman	Member SEAC	Member SEAC	Member SEAC

(A.P.Srivastava)	(Shri V.R. Khare)	(R.K. Jain)
Member SEAC	Member SEAC	Member Secretary

- ❖ Plan to prevent any seepage, over-flow or run-offs from the township into the nalla have to be furnished.
- ❖ Commitment from the concerned authority for supply of water for the project to be furnished. As use of ground water has been proposed hydrogeology report of the area has to be submitted.
- ❖ Quantity and source of water required during construction phase has to be furnished with supporting documents.
- ❖ Location of proposed ground water abstraction point and the STP to be marked on lay out map and submitted.

6. Case no. 681/2012 Mr. Rakesh Singh Kushwaha, Director, "MK CITY" of M/s Elixir Infrastructure India Pvt. Ltd., HIG- 194, Madhav Nagar, Gwalior (M.P.) – 474002 - "MK CITY" of M/s Elixir Infrastructure India Pvt. Ltd. at Vill.- Sirol, Teh.- Morar, Distt. – Gwalior (M.P.) Khasra No. 18/Min-1k, 23/min-2, 25/Min-1, 30/Min-1, 82/ Min-1, 21/Min-1, 26/Min-1, 21/Min-2, 26/Min-2, 82/2/G, 21/Min-3, 22, 23/Min-1, 25/Min-2, 26/Min-3, 30/Min-2, 18/Min-1, 21/Min-4,82/1 Min-2, 82/2 Total Land Area – 16841.88 sq. mt. , Total Built Up Area of all Tower -43,013.53 sq.mt. **Building Construction Project**

Env. Consultant – Env. Consultant – In Situ Enviro Care, Bhopal (M.P.)

The case forwarded by SEIAA for appraisal. It was observed by the committee that the owner of the land and developer are different in the project. Hence the name of proponent to whom prior EC should be issued is not clear. Owing to the same, committee asked the PP to submit a copy of registered 'Joint Venture' clearly mentioning the responsibility for compliance of the EC conditions. The case was deferred till submission of the above document.

7. Case no. 686/2012 - Shri M.G. Chobey Engineer- in Chief Department of Water Resources, Tulsi Nagar, Bhopal (M.P.) – 462-003 - Patne Medium Irrigation Project Panna (M.P.) Catchment Area- 1387.00 Sq.km., Gross Storage Capacity – 162.00 MCM, Live Storage Capacity – 103.98 MCM,Gross Command Area – 13795 ha. Cultivable Command Area – 6670 ha. at Village – Hada, Tehsil – Pawai, Distt. – Panna (M.P.) **For –ToR**

Env. Consultant – Presented by the PP.

River Valley projects involving < 10,000 ha. of culturable command area and denies the general conditions falls under category "B" and have been mentioned at SN. 1(c) column B of Schedule of EIA Notification, hence such projects are required to obtain prior EC from the SEIAA.

This is a medium irrigation project proposed by Department of Water Resources Government of M.P., at village –Hada, tehsil- Pawai, district – Panna in Madhya

(S.C. Jain)	(K.P. Nyati)	(V.Subramanian)	(Dr Mohini Saxena)
Chairman	Member SEAC	Member SEAC	Member SEAC

(A.P.Srivastava)	(Shri V.R. Khare)	(R.K. Jain)
Member SEAC	Member SEAC	Member Secretary

Pradesh. Nearest town is Pawai at 07 km. from the site, with CCA less than 10,000 ha. It was reported that, no protected area under international conventions, national or local legislation for their ecological, landscape, cultural or other related value is falling, within 15 km zone of proposed project location boundary and project is not affecting any ecological regions-Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountain-forests.

It was reported by the PP that, no state or national boundary exists within 15 km radius of proposed project location boundary. However, the boundary of the state of Rajasthan adjoins 35-40 km downstream of the command area of the proposed project location boundary. Hence this project covered under EIA notification as "B" Category project.

The case was presented by the PP and his consultant before the SEAC in this meeting. The submissions and the presentations made by the PP reveals following salient features of the project:

- It was reported that no R.R. Plan is required in the project as there is no displacement.
- Proposed capacity/ command area/catchment area
  Catchment Area – 1387.00 Sq km
  Gross Command Area – 13795 Ha
  Cultivable Command Area – 6670 Ha
  Gross Storage Capacity 162.00 MCM
  Live Storage Capacity 103.98 MCM
- It was reported that, no litigation is pending against the project and/ or land in which the project is proposed to be set up.
- The total land coming under submergence area is 1183 Ha.
  (i) Forest Land - 675.29 ha.
  (ii) Govt Land (Revenue)- 278.51 Ha.
  (iii) Private Land – 229.20 Ha.
- In view of the above the proposal involves approval/clearance under Forest Conservation Act 1980. Proponent has submitted a copy of Memo submitted to Forest Department Govt. of India vide Memo No. D.M./2012/312 with Registration No. C.C.F./2011/06/ Patne/dated 21.11.2011.
- The submergence area at FRL of these dams is 1183 Ha. The present land use in the submergence area is either under forest, agriculture or barren, which will be converted into water body reservoir on account of construction of the dams proposed in the project.
- In addition land use pattern will be changed due to construction of irrigation canal in command area. The CCA of the proposed project is 6670 ha. and ICA is envisaged as 6620 ha.
- Water storage proposed for industrial use is 60.00 M.Cum.
- Water is storage exclusively ear-marked for drinking purposes is 11.10 M.Cum. for villages in the vicinity of the project This will lead to increase in exposing as well

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC

(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary

as irrigation intensity. As a result barren land will be converted into productive agricultural land.

- The Left bank main canal which is 31.90 Km length and its canal network about 147 Km will irrigate 6670 Ha area in Pawai Tehsil of Panna District.
- Bore hole drilling, construction material testing, soil sampling etc. are proposed as a part of investigations activities.

The project comprises the following:-

- Composite dam having Concrete gravity dam, Earthen dam, Gated Ogee type spillway, , and Energy Dissipater in the form of bucket or stilling basin at Dam toe, irrigation sluices, canal network for gravity flow irrigation, electric sub-station, etc. Construction and development of residential complex and offices and other infra-structure facilities.
- Reclamation of land will be done by cut and fill, as per the site-specificity. The sites so reclaimed will be landscaped to integrate with the natural surroundings.
- A total of about 7 km long approach road will be constructed for dam site and approximately 31 km road will be constructed along canals.
- Transmission lines coming under submergence will be re-erected and new transmission lines for villages will be provided.
- Impoundment and damming in the proposed project are on a non-perennial river. Hence the anticipated adverse changes in the hydrology of watercourses will be bare minimum whereas the release of environmental flows will ensure the beneficial changes in hydrology.
- A colony of about 10 quarters for long-term phase besides infrastructure facilities, potable water supply, sewage treatment, solid waste management, etc., is proposed.
- During construction phase, labour colonies are proposed to be located at various locations, close to major construction sites. About 1000 laborers and 100 technical staff are likely to congregate in the area during construction phase. The increase in population is expected to be of the order of 1000. The solid waste likely to be generated from labor camps shall be of the order of 0.21 tons /day. Adequate facilities for collection and disposal of solid waste have been proposed.
- For labor camp, a sewage treatment plant is proposed. The treated waste water is proposed to be disposed off in the nearby water body.
- The drinking water facilities and water disposal sites will be located at a safe distance from each other.
- The quantity of water required during construction and operation phases would be 150 KLD and 100 KLD, respectively. During construction and operation phases, potable water for laborers and technical staff is proposed to be analyzed and adequately treated.
- A colony of about 10 quarters for long-term phase besides infrastructure facilities, potable water supply, sewage treatment, solid waste management, etc., will be provided.
- DPR with a brief description of the irrigation planning has been submitted.

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC

(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary

- The total requirement of construction power will be about 250 KW at different sites.
- To meet the requirement of emergency power supply, in case of grid failure, provision of 2 No 200 KW phase DG sets has been made. These diesel power station are proposed to be retained after completion of the construction work of the project for meeting the emergency supply requirements of the auxiliaries of the power station and starting of the generating units in case of grid failure.
- Normally an irrigation project increases the incidence of water-borne diseases owing to increased water availability, as it leads to the formation of stagnant pools of water in command area, canals, etc. This could result in preponderance of mosquitoes, eventually leading to increased frequency and incidence of water-borne diseases, especially malaria. This aspect is proposed to be studied as a part of CEIA and suggested measures shall be implemented during project construction and operation phases.
- The details of various CSR activities for local populations are proposed to be covered in the CEIA report.
- Blasting or piling operations will be done through controlled-blasting.
- The project has been designed for extreme flood condition (PMF) for a catchment area of 1389 sq km, to take care of any potential cloudburst, which may occur in a particular area. Thus the project design will take care in absorption of high flood peaks.
- The proposed project is located in the area categorized as ZONE III as per Seismic Zoning Map of India (IS 1893:2002), which is one of the safest seismic zones. No landslides have been reported from the area in the past.
- Since 40 MCM water is earmarked for industrial use the development of supporting facilities, ancillary development and industrial development is expected to be stimulated by the project. It was submitted by the PP that these developments will have impacts on the environment and adequate measures will be taken to safeguard environment as per the norms, regulations, rules and guidelines of Central Pollution Control Board and M P Pollution Control Board. These will be a part of Environment Management Plan.
- PP submitted that several positive environmental and socio-economic impacts are expected from the project such as, Increase in agriculture production, Fluoride Mitigation, Improvement in livestock, Employment generation, Urbanization, Industrialization and other miscellaneous changes**.**

<u>After deliberations committee has decided to determine the TOR for carrying out EIA / EMP studies for the project with inclusion of following specific points:</u>

(i) Impacts due to project Location

(a) Resettlement and Rehabilitation of Displaced Families - This issue will be addressed based on a thorough socio- economic survey of families displaced from the submerged areas and the area occupied by project

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC
(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary	

components.

(b) Forests and forest Land - An assessment will be made of the loss of forest and forest land due to the project and it will be specified by the type of forest (plantation, village forests, natural forest ,etc., present conservation status, productivity and standing timber volume (forest clearance report may be referred to),

- assessment of loss of non-wood forest produce in the reservoir area, i.e., thatch, grazing fields, tree, fodder, etc., and
- assessment of the effects of these losses on (a) forest department operation and (b) on local communities.

(c) Nature Reserves

It should include assessment of the following in project area (upstream and down stream) area to be submerged

- effects of the project on national parks, sanctuaries etc.
- reserves, sanctuaries and other protected areas within the project area;
- impact on rare or endangered species of flora and fauna within and outside the project area; impact on economically important plants such as medicinal plants, orchids, lichens and other NTFPs
- impediments to wildlife movement, and
- positive and negative effects on the aquatic life.

(d) Historical and Cultural Monuments

- An inventory should be made of historical and cultural monuments of regional, national and international importance which will be lost or affected by project activities and impoundment of water.

(e) Grazing Lands

- an inventory of community and other grazing land which will be lost or affected by project activities and impoundment of water;
- an assessment of possible conflicts in land use and effect on animal husbandry operations,
- an assessment of impacts on livestock movements.

(f) Water Resources Outside the Project Areainclude::

- assessment of potential conflicts amongst water \ users downstream of the project area;
- assessment of risk of waterlogging and flooding out side the project area, and

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC

(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary

- assessment of impact of changes in ground and surface water quality outside the project area (both upstream and downstream).

(g) Water Resources Inside the Project Area :

- assessment of effect of changes in hydrological balance;
- expected changes in water quality in the project area as a result of upstream water- regulatory works (i.e. reduced flow, temperature, dissolved salts, sediment load etc.);
- assessment of effects of planned activities on run-off and sediment load of the river.

(h) Erosion and siltation

- an analysis of present sediment load of water entering the project area and the risk of siltation of canals and the reservoirs, and
- an assessment of erodibility, slope stability and scouring risk of the main soil types in the project area. (A slope map indicating erosion prone areas should be prepared). [see f above]

(ii) Impacts due to Project Design

(a) Hydrological Balance

- the effect of changes in the hydrological balance caused by the construction of the dam, reservoirs and canals;
- evaporation losses from reservoirs;
- expected rise in groundwater table, and
- impact on aquatic ecosystems including fish; aquatic birdlife, spawning areas and seasonal migration.

(b) Drainage

- the risk of water logging/flooding;
- siltation, eutrophication, salinization & alkalinization risks, and
- adequacy of proposed drainage network.

(c) Dam, Canals and structures

- assessment of adequacy of planned provision to prevent excessive aquatic weed growth, erosion and seepage, and design of culverts, intakes and protective structures to prevent bank scouring.

(d) Passage-way review whether suitable and sufficient crossings for people, livestock and wildlife are included in the project design.

(iii) Impacts Due to Construction Works

(a) Soil Erosion

Runoff during rains from excavated areas, quarry sites, dam faces etc. can result in

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC

(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary

soil erosion. Adequate provisions for revegetation, dressing, resurfacing of burrow pits etc. should be ascertained.

(b) Construction Spoils

- Adequacy of provisions for dumping of construction spoils, waste materials etc. should be reviewed.

(c) Public Health

- Improvement in availability of water for various uses;
- The adequacy of sanitation in workers' camps, and
- The vectors that may transmit diseases from local carriers to immigrant labour and staff and vice- versa.

(iv) Impacts Due to project Operation

(a) Residues of Agro-Chemicals

- an estimate of expected increase in the use of pesticides and fertilizers (type, dosage, application technique);
- an assessment of adequacy of provisions made in ! the project for ensuring proper and safe use of fertilizers and pesticides;
- an assessment of the effects of runoff and "'I drainage of residual fertilizers and pesticides on the water quality of the receiving body and on aquatic communities downstream, and
- a summary of GOI regulations on the use of agro- chemicals in relation to environmental protection.

(b) Impact on Soils

- improvement of fertility and increase in agricultural production;
- the risk of waterlogging (maps with site indication), based on soil survey data;
- of salinization and alkalization risks based on water quality data and soil characteristics;
- the expected modifications in soil structure and texture, and
- expected soil losses from runoff due to project operation.

(c) Ground Water

Areas where changes in groundwater level can be expected should be indicated. Both positive and negative effects should be described. An assessment of possible changes in ground water quality as a result of percolation of toxic residues of agro-chemicals and its effects inside and outside the project area should be carried out.

(d) Changes in Surface Water Quality and Eutrophication

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC

(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary

- an assessment of the risk of surface water pollution by residues from agro-chemical, future trends and its effect on fisheries and aquatic ecosystem i.e. assessing biochemical oxygen demand, toxicity, and dissolved oxygen;
- an assessment of the risk of eutrophication of reservoir water by sediment, nutrient leaching and fertilizer residues, and consequently, the risk of invasion of noxious aquatic weeds, such as water hyacinth;
- an assessment of the adequacy of provisions for clearing of canals and reservoirs in the operation and maintenance programme and its cost estimates, and
- suggested methods that are environmentally acceptable for weed control.

(e) Water Related Diseases

- the effect of changes in water quality, eutrophication, weed growth and the increase in areas of stagnant water on the proliferation of insects or other vectors of water-related human and livestock diseases. (Estimates should be made to what extent this can be expected, specifically for the more serious diseases, e.g. malaria, filariasis, schistosomiasis and enteric parasites etc.);
- a study of the present (pre-project) incidence of main water related diseases in the project area from surveys and existing public health records;
- an assessment of the risk of introduction of new pathogens and disease vectors;
- an assessment of required health care facilities, especially in the resettled area, and
- an assessment of adequacy of planned measures to reduce the spread of water related diseases.

(f) Flood risks – data pertaining to flood history of the region for last 40 years have to be incorporated with EIA. Down stream consequences of floods when the dam gates are opened under floods have to detailed out.

Environmental Management and Cost estimates

With knowledge of the baseline conditions, the ongoing construction activities, the planned future development programmes and current critical conditions, projections are to be made of their influence on physical, chemical and biological aspects of environment in the area. These projections should identify whether the pre-project critical environmental conditions will be further degraded and what additional environmental conditions are likely to become critical. An environmental management strategy will be developed to mitigate the adverse impacts. The strategy will include evaluation of alternative methods to reduce or eliminate adverse impacts

(S.C. Jain)	(K.P. Nyati)	(V.Subramanian)	(Dr Mohini Saxena)
Chairman	Member SEAC	Member SEAC	Member SEAC

(A.P.Srivastava)	(Shri V.R. Khare)	(R.K. Jain)
Member SEAC	Member SEAC	Member Secretary

of the most critical areas likely to contribute to the most significant environmental burdens. Cost estimates for each of the proposed mitigatory measure should be given.

Environmental Monitoring

The proponet / consultant will design a post-project environmental monitoring programme for implementation, and then various parameters will be monitored by relevant departments. The cost estimates and equipment necessary for the implementation of this programme shall be included. Inclusion of the following indicators in such a programme should be considered:

- water quality, in the main canal, in drainage channels, and in the reservoir; standard analysis
- technique including the analysis of toxic residues from agro-chemicals;
- fish growth of introduced fingerlings in the reservoir;
- spread of aquatic weeds and eutrophication;
- trends in incidence of water related diseases;
- change in soil fertility, structure and texture;
- siltation rate of canals and reservoirs;
- soil erosion rate (including slope stability of canals banks and dam faces);
- adequacy of drainage system (water logging, Stalinization & alkalinization),
- changes in ground water level and ground water quality.
- proper implementation of CAT plan
- proper implementation of afforestation
- earthquake monitoring (reservoir induced earthquake)
- pore water monitoring
- seepage water monitoring

8. Case no. 688/2012 - Shri M.G. Chobey Engineer- in Chief Department of Water Resources, Tulsi Nagar, Bhopal (M.P.) – 462-003 - Pawai Medium Irrigation Project Panna (M.P.) Catchment Area- 995.00 Sq.km., Gross Storage Capacity – 124.00 MCM, Live Storage Capacity – 108.45 MCM,Gross Command Area – 13785 ha. Cultivable Command Area – 9952 ha., at Village – Pandheria, Tehsil – Shanagar, Distt. – Panna (M.P.) **For –ToR**

Env. Consultant – Presented by the PP.

River Valley projects involving < 10,000 ha. of culturable command area and denies the general conditions falls under category "B" and have been mentioned at SN. 1(c) column B of Schedule of EIA Notification, hence such projects are required to obtain prior EC from the SEIAA.

The project envisages construction of a dam on river Ken to facilitate irrigation,

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC
(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary	

and fulfill industrial and drinking water requirements. The dam shall have a total length of 806 M with max height of 21.16M. Out of this, 648.50 M is earthen portion and 157.50M long concrete Central spillway. Total live storage is 115.37 MCum. Total land 1790.85 Ha. will be submerged (Forest land – 238.36 ha, Revenue land – 931.49 Ha. and Private Land – 621.00 Ha) which is about 5% of total proposed CCA of 9952 Ha. Stage-I and Stage-II forest clearance has been awaited from Forest Department of Govt. of India. Registration fee has been deposited in forest Deptt. Compensation of private land after passing award shall be paid to the cultivators. Dhara 04 & 06 has been published Revenue land under submergence has been transferred to the Water Resources Department. The complete canal system is about 102.73 Kms. In length and will be lined to achieve the optimum utilization of water. 33.93 MCM water is exclusively earmarked for drinking purposes and further extension. The Command Area Development plan has been prepared and submitted. The works of Catchment Area Treatment will be prepared and be submitted with EIA. Fifteen villages are coming under partial submergence no population is coming under submergence hence R/R Plan is not required.

Other salient features of the project as revealed from the submissions and presentations made by the PP are as follows:

- Location of the project
  - Geographical Location - Latitude 24^0 11'28'' Longitude $80^0$22'08''
  - Village - Pandheria
  - Tehsil - Shahnagar
  - District - Panna
  - State - Madhya Pradesh
- Nearest town, city, district headquarters - Pawai 30 km.
- The total land coming under submergence area is 1790.85 Ha.
  - Forest Land – 238.36 ha.
  - Govt Land (Revenue)- 931.49 Ha.
  - Private Land – 621.00 Ha.

  Hence, project requires Forest Clearance the Forest - Forest Case has been submitted to Govt. of India vide Memo No. F-3/37/2011 /2010-11/914 dated 06-03-2012 with Registration No. C.C.F./2011/05 /Pawai/dated 21.11.2011.
- Proposed capacity/Catchment area/ Command area
  - Catchment Area – 995.00 Sq km
  - Gross Storage Capacity 124.80 MCM
  - Live Storage Capacity 108.45 MCM
  - Gross Command Area – 13785 Ha
  - Cultivable Command Area – 9952 Ha
- It was reported that the project does not attract the General Conditions as it is not located with in the periphery of 10 Km from any notified protected / fragile areas, notified critically polluted areas and inter-state boundaries, hence the project falls under B category as per the provisions of EIA notification.

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC
(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary	

- It was also reported that, no litigation is pending against the project and/ or land in which the project is proposed to set up.
- The project comprises the following :-

  Construction of Composite dam having Concrete gravity dam, Earthen dam, Gated Ogee type spillway, , and Energy Dissipater in the form of bucket or stilling basin at Dam toe, irrigation sluices, canal network for gravity flow irrigation, electric sub-station, etc. Construction and development of residential complex and offices and other infra-structure facilities is also proposed. A total of about 3 km long approach road will be constructed for dam site and approximately 32 km road will be constructed along canals.
- The quantity of water required during construction and operation phases would be 150 KLD and 100 KLD, respectively.
- The total requirement of construction power will be about 250 KW at different sites.
- In this project, it is proposed to collect the construction waste from various construction sites, and disposed at sites identified in consultation with the district administration.
- Various construction sites would be properly leveled. The leveling or reclamation of various construction sites, shall be made mandatory for the contractor, involved in the construction work.The details of the same shall be covered as a part of EMP to be presented as a part of the CEIA report.
- About 1000 labour and 100 technical staff is likely to assemble in the area during construction phase, increasing temporary population by 1000. The solid waste likely to be generated from camps shall be of the order of 0.21 ton/day. Adequate facilities for collection, conveyance and disposal of solid waste will be developed.
- A provision of 10 MCM water ear-marked for industrial use, industrial growth will be accelerated.
- It was reported that the proposed project is located in the area categorized as ZONE III as per Seismic Zoning Map of India (IS 1893:2002), which is reported to one of the safest seismic zones.
- The groundwater table in the specified zone of 15 km area is reported to be 40-50 meters. The creation of reservoir is expected to address the scarcity of groundwater through natural recharge after creation of dam.
- No state or national boundary exists within 15 km radius of proposed project location boundary. However, the boundary of the state of Rajasthan adjoins 35-40 km downstream of the command area of the proposed project location boundary.
- It was reported that within 15 km of proposed project location boundary, the fluoride and nitrate contents in the groundwater exceeds the permissible limits. Creation of the water body is expected to improve the water quality in the region.

After deliberations committee has agreed to issue TOR to the PP to carry out EIA with inclusion of following points:

(i) Impacts due to project Location

(a) Resettlement and Rehabilitation of Displaced Families - This issue will be addressed based on a thorough socio- economic survey of families

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC

(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary

displaced from the submerged areas and the area occupied by project components.

(b) Forests and forest Land - An assessment will be made of the loss of forest and forest land due to the project and it will be specified by the type of forest (plantation, village forests, natural forest ,etc., present conservation status, productivity and standing timber volume (forest clearance report may be referred to),

- assessment of loss of non-wood forest produce in the reservoir area, i.e., thatch, grazing fields, tree, fodder, etc., and
- assessment of the effects of these losses on (a) forest department operation and (b) on local communities.

(c) Nature Reserves

It should include assessment of the following in project area (upstream and down stream) area to be submerged

- effects of the project on national parks, sanctuaries etc.
- reserves, sanctuaries and other protected areas within the project area;
- impact on rare or endangered species of flora and fauna within and outside the project area; impact on economically important plants such as medicinal plants, orchids, lichens and other NTFPs
- impediments to wildlife movement, and
- positive and negative effects on the aquatic life.

(d) Historical and Cultural Monuments

An inventory should be made of historical and cultural monuments of regional, national and international importance which will be lost or affected by project activities and impoundment of water.

(e) Grazing Lands

- an inventory of community and other grazing land which will be lost or affected by project activities and impoundment of water;
- an assessment of possible conflicts in land use and effect on animal husbandry operations,
- an assessment of impacts on livestock movements.

(f) Water Resources Outside the Project Areainclude::

- assessment of potential conflicts amongst water \ users downstream of the project area;

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC

(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary

- assessment of risk of waterlogging and flooding out side the project area, and
- assessment of impact of changes in ground and surface water quality outside the project area (both upstream and downstream).

(g) Water Resources Inside the Project Area :

- assessment of effect of changes in hydrological balance;
- expected changes in water quality in the project area as a result of upstream water- regulatory works (i.e. reduced flow, temperature, dissolved salts, sediment load etc.);
- assessment of effects of planned activities on run-off and sediment load of the river.

(h) Erosion and siltation

- an analysis of present sediment load of water entering the project area and the risk of siltation of canals and the reservoirs, and
- an assessment of erodibility, slope stability and scouring risk of the main soil types in the project area. (A slope map indicating erosion prone areas should be prepared). [see f above]

(ii) Impacts due to Project Design

(a) Hydrological Balance

- the effect of changes in the hydrological balance caused by the construction of the dam, reservoirs and canals;
- evaporation losses from reservoirs;
- expected rise in groundwater table, and
- impact on aquatic ecosystems including fish; aquatic birdlife, spawning areas and seasonal migration.

(b) Drainage

- the risk of water logging/flooding;
- siltation, eutrophication, salinization & alkalinization risks, and
- adequacy of proposed drainage network.

(c) Dam, Canals and structures

- assessment of adequacy of planned provision to prevent excessive aquatic weed growth, erosion and seepage, and design of culverts, intakes and protective structures to prevent bank scouring.

(d) Passage-way review whether suitable and sufficient crossings for people, livestock and wildlife are included in the project design.

(iii) Impacts Due to Construction Works

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC

(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary

(a) Soil Erosion

Runoff during rains from excavated areas, quarry sites, dam faces etc. can result in soil erosion. Adequate provisions for revegetation, dressing, resurfacing of burrow pits etc. should be ascertained.

(b) Construction Spoils

- Adequacy of provisions for dumping of construction spoils, waste materials etc. should be reviewed.

(c) Public Health

- Improvement in availability of water for various uses;
- The adequacy of sanitation in workers' camps, and
- The vectors that may transmit diseases from local carriers to immigrant labour and staff and vice- versa.

(iv) Impacts Due to project Operation

(a) Residues of Agro-Chemicals

- an estimate of expected increase in the use of pesticides and fertilizers (type, dosage, application technique);
- an assessment of adequacy of provisions made in ! the project for ensuring proper and safe use of fertilizers and pesticides;
- an assessment of the effects of runoff and "'I drainage of residual fertilizers and pesticides on the water quality of the receiving body and on aquatic communities downstream, and
- a summary of GOI regulations on the use of agro- chemicals in relation to environmental protection.

(b) Impact on Soils

- improvement of fertility and increase in agricultural production;
- the risk of waterlogging (maps with site indication), based on soil survey data;
- of salinization and alkalization risks based on water quality data and soil characteristics;
- the expected modifications in soil structure and texture, and
- expected soil losses from runoff due to project operation.

(c) Ground Water

Areas where changes in groundwater level can be expected should be indicated. Both positive and negative effects should be described. An assessment of possible changes in ground water quality as a result of percolation of toxic residues of agro-chemicals and its effects inside and outside the project area should be carried out.

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC

(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary

(d) Changes in Surface Water Quality and Eutrophication

- an assessment of the risk of surface water pollution by residues from agro-chemical, future trends and its effect on fisheries and aquatic ecosystem i.e. assessing biochemical oxygen demand, toxicity, and dissolved oxygen;
- an assessment of the risk of eutrophication of reservoir water by sediment, nutrient leaching and fertilizer residues, and consequently, the risk of invasion of noxious aquatic weeds, such as water hyacinth;
- an assessment of the adequacy of provisions for clearing of canals and reservoirs in the operation and maintenance programme and its cost estimates, and
- Suggested methods that are environmentally acceptable for weed control.

(e) Water Related Diseases

- the effect of changes in water quality, eutrophication, weed growth and the increase in areas of stagnant water on the proliferation of insects or other vectors of water-related human and livestock diseases. (Estimates should be made to what extent this can be expected, specifically for the more serious diseases, e.g. malaria, filariasis, schistosomiasis and enteric parasites etc.);
- a study of the present (pre-project) incidence of main water related diseases in the project area from surveys and existing public health records;
- an assessment of the risk of introduction of new pathogens and disease vectors;
- an assessment of required health care facilities, especially in the resettled area, and
- an assessment of adequacy of planned measures to reduce the spread of water related diseases.

(f) Flood risks – data pertaining to flood history of the region for last 40 years have to be incorporated with EIA. Down stream consequences of floods when the dam gates are opened under floods have to detailed out.

Environmental Management and Cost estimates

With knowledge of the baseline conditions, the ongoing construction activities, the planned future development programmes and current critical conditions, projections are to be made of their influence on physical, chemical and biological aspects of environment in the area. These projections should identify whether the pre-project

critical environmental conditions will be further degraded and what additional environmental conditions are likely to become critical. An environmental management strategy will be developed to mitigate the adverse impacts. The strategy will include evaluation of alternative methods to reduce or eliminate adverse impacts of the most critical areas likely to contribute to the most significant environmental burdens. Cost estimates for each of the proposed mitigatory measure should be given.

Environmental Monitoring

The proponet / consultant will design a post-project environmental monitoring programme for implementation, and then various parameters will be monitored by relevant departments. The cost estimates and equipment necessary for the implementation of this programme shall be included. Inclusion of the following indicators in such a programme should be considered:

- water quality, in the main canal, in drainage channels, and in the reservoir; standard analysis
- technique including the analysis of toxic residues from agro-chemicals;
- fish growth of introduced fingerlings in the reservoir;
- spread of aquatic weeds and eutrophication;
- trends in incidence of water related diseases;
- change in soil fertility, structure and texture;
- siltation rate of canals and reservoirs;
- soil erosion rate (including slope stability of canals banks and dam faces);
- adequacy of drainage system (water logging, Stalinization & alkalinization),
- changes in ground water level and ground water quality.
- proper implementation of CAT plan
- proper implementation of afforestation
- earthquake monitoring (reservoir induced earthquake)
- pore water monitoring
- seepage water monitoring

9. Case no. 687/2012 - Shri M.G. Chobey Engineer- in Chief Department of Water Resources, Tulsi Nagar, Bhopal (M.P.) – 462-003 - Runj Medium Irrigation Project, Panna (M.P.) at Village - Viashramgunj, Teh-Ajaygarh, Distt-Panna-(M.P.) Catchment Area- 226.17 Sq.km., Gross Storage Capacity – 72.04 MCM, Live Storage Capacity – 64.70 MCM,Gross Command Area – 13795 ha. Cultivable Command Area – 9800. ha., Designed Irrigation Area – 12550 ha. at Village – Pandheria, Tehsil – Shanagar, Distt. – Panna (M.P.) **For –ToR**

Env. Consultant – Presented by the PP.

The project envisages construction of a dam having total length of 1182 M with

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC

(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary

max height of 35.48M. Out of this, 1026.75 M is earthen portion and 154.75M long concrete Central spillway. Total live storage is 64.70 M. Cum. Total land 482.10 Ha. will be submerged (Forest land – 154.91 ha, Revenue land – 87 Ha. and Private Land – 240.19 Ha) which is about 5% of total proposed CCA of 9800 Ha. Stage-I and Stage-II forest clearance has been awaited from Ministry of Forest & Environmental Department of Govt. of India. Registration fee deposited in forest department. Compensation of private land after passing award shall be paid to the cultivators. Dhara 04/06 has been published Revenue land under submergence has been transferred to the Water Resources Department. The complete canal system is about 41.94 Kms. In length and will be lined to achieve the optimum utilization of water. 7.344 M. Cum water is exclusively earmarked for drinking purposes. One village is reported to fall under submergence and as such R/R Plan is submitted to be Govt. of M.P.

After deliberations committee has agrred to issue TOR to the PP to carry out EIA with inclusion of following points:

(i) Impacts due to project Location

(a) Resettlement and Rehabilitation of Displaced Families - This issue will be addressed based on a thorough socio- economic survey of families displaced from the submerged areas and the area occupied by project components.

(b) Forests and forest Land - An assessment will be made of the loss of forest and forest land due to the project and it will be specified by the type of forest (plantation, village forests, natural forest ,etc., present conservation status, productivity and standing timber volume (forest clearance report may be referred to),

- assessment of loss of non-wood forest produce in the reservoir area, i.e., thatch, grazing fields, tree, fodder, etc., and
- assessment of the effects of these losses on (a) forest department operation and (b) on local communities.

(c) Nature Reserves

It should include assessment of the following in project area (upstream and down stream) area to be submerged

- effects of the project on national parks, sanctuaries etc.
- reserves, sanctuaries and other protected areas within the project area;
- impact on rare or endangered species of flora and fauna within and outside the project area; impact on economically important plants such as medicinal plants, orchids, lichens and other NTFPs

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC

(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary

- impediments to wildlife movement, and
- positive and negative effects on the aquatic life.

(d) Historical and Cultural Monuments

An inventory should be made of historical and cultural monuments of regional, national and international importance which will be lost or affected by project activities and impoundment of water.

(e) Grazing Lands

- an inventory of community and other grazing land which will be lost or affected by project activities and impoundment of water;
- an assessment of possible conflicts in land use and effect on animal husbandry operations,
- an assessment of impacts on livestock movements.

(f) Water Resources Outside the Project Areainclude::

- assessment of potential conflicts amongst water \ users downstream of the project area;
- assessment of risk of waterlogging and flooding out side the project area, and
- assessment of impact of changes in ground and surface water quality outside the project area (both upstream and downstream).

(g) Water Resources Inside the Project Area :

- assessment of effect of changes in hydrological balance;
- expected changes in water quality in the project area as a result of upstream water- regulatory works (i.e. reduced flow, temperature, dissolved salts, sediment load etc.);
- assessment of effects of planned activities on run-off and sediment load of the river.

(h) Erosion and siltation

- an analysis of present sediment load of water entering the project area and the risk of siltation of canals and the reservoirs, and
- an assessment of erodibility, slope stability and scouring risk of the main soil types in the project area. (A slope map indicating erosion prone areas should be prepared). [see f above]

(ii) Impacts due to Project Design

(a) Hydrological Balance

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC

(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary

- the effect of changes in the hydrological balance caused by the construction of the dam, reservoirs and canals;
- evaporation losses from reservoirs;
- expected rise in groundwater table, and
- impact on aquatic ecosystems including fish; aquatic birdlife, spawning areas and seasonal migration.

(b) Drainage

- the risk of water logging/flooding;
- siltation, eutrophication, salinization & alkalinization risks, and
- adequacy of proposed drainage network.

(c) Dam, Canals and structures

- assessment of adequacy of planned provision to prevent excessive aquatic weed growth, erosion and seepage, and design of culverts, intakes and protective structures to prevent bank scouring.

(d) Passage-way review whether suitable and sufficient crossings for people, livestock and wildlife are included in the project design.

(iii) Impacts Due to Construction Works

(a) Soil Erosion

Runoff during rains from excavated areas, quarry sites, dam faces etc. can result in soil erosion. Adequate provisions for revegetation, dressing, resurfacing of burrow pits etc. should be ascertained.

(b) Construction Spoils

- Adequacy of provisions for dumping of construction spoils, waste materials etc. should be reviewed.

(c) Public Health

- Improvement in availability of water for various uses;
- The adequacy of sanitation in workers' camps, and
- The vectors that may transmit diseases from local carriers to immigrant labour and staff and vice- versa.

(iv) Impacts Due to project Operation

(a) Residues of Agro-Chemicals

- an estimate of expected increase in the use of pesticides and fertilizers (type, dosage, application technique);
- an assessment of adequacy of provisions made in ! the project for ensuring proper and safe use of fertilizers and pesticides;

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC

(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary

- an assessment of the effects of runoff and "'I drainage of residual fertilizers and pesticides on the water quality of the receiving body and on aquatic communities downstream, and
- a summary of GOI regulations on the use of agro- chemicals in relation to environmental protection.

(b) Impact on Soils

- improvement of fertility and increase in agricultural production;
- the risk of water logging (maps with site indication), based on soil survey data;
- of salinization and alkalization risks based on water quality data and soil characteristics;
- the expected modifications in soil structure and texture, and
- expected soil losses from runoff due to project operation.

(c) Ground Water

Areas where changes in groundwater level can be expected should be indicated. Both positive and negative effects should be described. An assessment of possible changes in ground water quality as a result of percolation of toxic residues of agro-chemicals and its effects inside and outside the project area should be carried out.

(d) Changes in Surface Water Quality and Eutrophication

- an assessment of the risk of surface water pollution by residues from agro-chemical, future trends and its effect on fisheries and aquatic ecosystem i.e. assessing biochemical oxygen demand, toxicity, and dissolved oxygen;
- an assessment of the risk of eutrophication of reservoir water by sediment, nutrient leaching and fertilizer residues, and consequently, the risk of invasion of noxious aquatic weeds, such as water hyacinth;
- an assessment of the adequacy of provisions for clearing of canals and reservoirs in the operation and maintenance programme and its cost estimates, and
- suggested methods that are environmentally acceptable for weed control.

(e) Water Related Diseases

- the effect of changes in water quality, eutrophication, weed growth and the increase in areas of stagnant water on the proliferation of insects or other vectors of water-related human and livestock diseases. (Estimates should be made to what extent this can be expected, specifically for the more serious diseases, e.g. malaria, filariasis, schistosomiasis and enteric parasites etc.);

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC

(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary

- a study of the present (pre-project) incidence of main water related diseases in the project area from surveys and existing public health records;
- an assessment of the risk of introduction of new pathogens and disease vectors;
- an assessment of required health care facilities, especially in the resettled area, and
- an assessment of adequacy of planned measures to reduce the spread of water related diseases.

(f) Flood risks – data pertaining to flood history of the region for last 40 years have to be incorporated with EIA. Down stream consequences of floods when the dam gates are opened under floods have to detailed out.

Environmental Management and Cost estimates

With knowledge of the baseline conditions, the ongoing construction activities, the planned future development programmes and current critical conditions, projections are to be made of their influence on physical, chemical and biological aspects of environment in the area. These projections should identify whether the pre-project critical environmental conditions will be further degraded and what additional environmental conditions are likely to become critical. An environmental management strategy will be developed to mitigate the adverse impacts. The strategy will include evaluation of alternative methods to reduce or eliminate adverse impacts of the most critical areas likely to contribute to the most significant environmental burdens. Cost estimates for each of the proposed mitigatory measure should be given.

Environmental Monitoring

The proponet / consultant will design a post-project environmental monitoring programme for implementation, and then various parameters will be monitored by relevant departments. The cost estimates and equipment necessary for the implementation of this programme shall be included. Inclusion of the following indicators in such a programme should be considered:

- water quality, in the main canal, in drainage channels, and in the reservoir; standard analysis
- technique including the analysis of toxic residues from agro-chemicals;
- fish growth of introduced fingerlings in the reservoir;
- spread of aquatic weeds and eutrophication;
- trends in incidence of water related diseases;
- change in soil fertility, structure and texture;
- siltation rate of canals and reservoirs;
- soil erosion rate (including slope stability of canals banks and dam faces);
- adequacy of drainage system (water logging, Stalinization & alkalinization),
- changes in ground water level and ground water quality.

(S.C. Jain)	(K.P. Nyati)	(V.Subramanian)	(Dr Mohini Saxena)
Chairman	Member SEAC	Member SEAC	Member SEAC

(A.P.Srivastava)	(Shri V.R. Khare)	(R.K. Jain)
Member SEAC	Member SEAC	Member Secretary

- proper implementation of CAT plan
- proper implementation of afforestation
- earthquake monitoring (reservoir induced earthquake)
- pore water monitoring
- seepage water monitoring

Meeting ended with thanks to the chair.

(S.C. Jain) Chairman	(K.P. Nyati) Member SEAC	(V.Subramanian) Member SEAC	(Dr Mohini Saxena) Member SEAC
(A.P.Srivastava) Member SEAC	(Shri V.R. Khare) Member SEAC	(R.K. Jain) Member Secretary	

(S.C. Jain)	(K.P. Nyati)	(V.Subramanian)	(Dr Mohini Saxena)
Chairman	Member SEAC	Member SEAC	Member SEAC

(A.P.Srivastava)	(Shri V.R. Khare)	(R.K. Jain)
Member SEAC	Member SEAC	Member Secretary