

14-08-2010

SUBMISSION TO THE CENTRAL WATER COMMISSION

To

The Chairman

Central Water Commission

Sir

Sub: Water availability for proposed Athirappilly HEP in Chalakudy River, Kerala reg.

Ref: 1. Minutes of EAC for River valley and Hydro-electric project held on 18-06-2010

2 Submission by Chalakudy River Protection Forum to the Hon. Minister for Environment and Forests

3. Reply to our submission by KSEB

4. Minutes of EAC for River valley and Hydro-electric project dated 22-04-10

It is learned that the expert appraisal committee for river valley and hydro-electric projects under the Ministry of Environment and Forests has referred to you, the issue of water availability with regards to the controversial Athirappilly HEP in Kerala. (Ref;1). The EAC had examined the issue of water availability for the project and that for maintaining the beauty of Athirappilly and Vazhachal waterfalls and the downstream irrigation project, the Chalakudy River Diversion Scheme (CRDS) on the basis of a submission from Chalakudy River Protection Forum.

The points raised in our submission, the reply by KSEB and the comments by EAC are briefly summarised in the table below. Copies of our submission, the reply by KSEB and the minutes of the EAC meetings are attached as annexure.

Sl. No	Points raised in Submission	Reply by KSEB	Comments by EAC
1	The river flow data, that the EIA agency WAPCOS has used for its study has been replaced by KSEB. Hence the parts of EIA that was based on this data has to be rejected. (Items 3.6, 4.4.1, 4.4.2 and 5.7 of EIA by	Change in river flow data is due to change in period of two sets of data. The inflow is reduced by nearly 10%. Water availability at proposed	EAC did not consider this issue

	WAPCOS) Moreover it shall be noted that the KSEB is consistently manipulating the river flow data which is the very basis of a hydro-electric project.	project is comparable to that at the gauging station of CWC at Arangali.	
2	The project will result in drastic reduction in flow through the Athirappilly and Vazhachal waterfalls on all seasons.	<p>At present, during summer the peak flow (6pm to 10pm) is 36m³/sec to 38m³/sec. As per the data observed for the upstream Poringalkuthu releases for the 10 years (average) period, the off-peak release is mostly in the range of 6.23 to 7.65m³/sec. this flow from Poringalkuthu now maintains the waterfalls.</p> <p>After AHEP, there will be 7.65m³/sec release round the clock.</p> <p>Hence project will not affect waterfalls.</p>	The EAC accepted KSEB's claims without verifying facts and figures.
3	The project will severely affect the operations of Chalakudy River Diversion Scheme, a major irrigation scheme catering to the water requirements of more than 35000 acres spread across 20 LSGs.	<p>The present peak and off-peak release is repeated as in point 2.</p> <p>While implementing Athirappilly project a release of (7.65m³/sec) is maintained through dam toe powerhouse and the generation pattern of main powerhouse is adjusted in such a way that the same rate of release of Poringalkuthu powerhouse i.e. 31m³/sec to 32m³/sec (38m³/sec - 7.65m³/sec) will be maintained during peak hours.</p> <p>Thus there will be no change in</p>	The EAC accepted KSEB's claims without verifying facts and figures.

		<p>river flow.</p> <p>Left bank canals of CRDS will receive water from Idamalayar in future and entire quantity at CRDS can be utilized for right bank.</p>	
4	<p>The project is going to affect the summer water needs of Periyar, an adjacent river basin, due to stoppage of existing Idamalayar augmentation scheme.</p>	<p>At present water is diverted from Poringalkuthu to Idamalayar during monsoons. This water is used for power generation at Idamalayar.</p> <p>The diversion will be stopped after AHEP.</p> <p>The diversion has not been taken into account while arriving at the electricity availability for AHEP.</p> <p>There will be no change in electricity generation due to stoppage of Idamalayar diversion.</p>	<p>Even though the EAC discussed this issue, they did not reach any conclusion.</p>
5	<p>The project will only produce very little electricity. This project is not going to contribute significantly to the summer power needs of Kerala</p>	<p>It is true that the release for maintaining waterfalls has been increased to 241Mm3.</p> <p>233MU has been reached at 90% dependability. Average 360MU will be available.</p> <p>Stoppage of diversion to Idamalayar will not affect electricity availability.</p>	<p>EAC did not consider this issue</p>
6	<p>The cost of electricity from this project will be exorbitantly high</p>	<p>Has not suppressed project cost. PWD rates are followed.</p> <p>No contract can actually be executed at PWD rates.</p> <p>There is no legal requirement under electricity act 2003 to apply</p>	<p>EAC did not consider this issue</p>

		<p>for further permission to the CEA for techno-economic approval as the project cost is still assessed at less than Rs.500crores.</p> <p>Power purchase cost in 2008-09 has risen upto Rs 15/unit</p> <p>Kerala is facing very severe power crisis.</p> <p>To meet the peak load and energy demand, Kerala has no resource other than hydel.</p>	
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Details of each point is discussed below.

1. Changes in hydrological data

The KSEB has not disputed the fact that the hydrological data used for the WAPCOS EIA and the 2003 DPR are different. But they conveniently avoided replying to the demand that the relevant portions of EIA that was based on the earlier set of hydrological data shall not be considered.

The KSEB has accepted that there is a reduction of about 10% in the second set of data.

The claim by KSEB that the change in water availability in the two sets of data is due to change in period is not maintainable. A comparison of figures in the two sets of data for the common periods (1970-1995) shows that the two are different. (Details are attached as Annexure.)

It may please be noted that the KSEB has agreed before the Hon. High Court of Kerala that the second set of data is only tentative and not actual. A comparison of powerhouse discharge as per the second set of data and the powerhouse discharge derived from the electricity generation data received from Central Electricity Authority under RTI act (using powerhouse constant) is provided in the table below.

Deviation in the power house discharge data from Poringalkuthu HEP

Year	Power Generation (MU)		Power house Discharge (Mm ³)		Difference
	Poringalkuthu	Poringalkuthu	Derived	As per data	

	Left Bank (32 MW)	Extension (16 MW)	from the power generation data	submitted to CEA	
1	2	3	4	5	Col 5 - Col 4
1986-87	213	-	602.79	706.80	104.01
1987-88	215	-	608.45	616.12	7.67
1988-89	224	-	633.92	693.08	59.16
1989-90	205	-	580.15	761.50	181.35
1990-91	189	-	534.87	644.58	109.71
1991-92	197	-	557.51	602.89	45.38
1992-93	199	-	563.17	687.55	124.38
1993-94	192	-	543.36	695.28	151.92
1994-95	212	-	599.96	704.00	104.04
1995-96	190	-	537.70	626.40	88.70
1996-97	192	-	543.36	632.13	88.77
1997-98	202	-	571.66	714.57	142.91
1998-99	182	-	515.06	737.60	222.54
1999-00	169	67	650.46	653.54	3.08
2000-01	174	53	628.63	665.79	37.16
2001-02	191	29	615.06	671.00	55.94

Hence it is amply clear that the KSEB has been misleading the CWC and CEA regarding actual water availability in order to project overall higher water availability and corresponding higher electricity availability.

2&3. Impact of the project on Athirappilly and Vazhachal waterfalls and irrigation and drinking water availability.

The KSEB had based their arguments on these issues on their claims on present summer flow pattern. But this is factually incorrect. (If this has to be true, they will have to disown all data regarding river flow, electricity generation etc.)

As per the data in 1999DPR, even the lowest average flow rate is shown as 13.44m³/sec for the month of April. It is higher for other months.

As per the fresh set of data in 2003DPR, (32 year data from 1970-2002) the average non-monsoon flow (December to May) in the river is 14.93m³/sec.

The Poringalkuthu left bank HEP had an installed capacity of 32MW only until a new generator of 16MW capacity was installed in 1999. Hence the question of the station operating at 48MW during peak hours did not arise till 1999.

An analysis of machine availability at Poringalkuthu from 1999 to 2006 based on daily generation and discharge data received from the station under RTI Act shows that between January and May all the five machines (8*4+16*1) were available for a mere 3.6% days only. Generators with 40MW capacity were available on 54% of days and 32MW was available on 24% of days. On 18% of days, the maximum possible generation was 24MW or less only.

Hence the claim by KSEB that the station runs at 48MW during peak hours is false. On 96% of days between 1999 and 2006, the maximum peak generation capacity available was 40mw or less (32MW or less for 42% of days). The corresponding discharge from Poringalkuthu powerhouse was between 25m³/sec and 31m³/sec on 78% of days.

Calculations based on the 32 year data (1970-2002), considering a peak generation of 40MW from December to March and 32MW for April (Based on schedule of annual maintenance for the machines) shows the average off-peak discharge between December to April as 13.25m³/sec. (the peak summer water availability has improved since 2005 due to compliance of condition in Parambikulam - Aliyar agreement with respect to maintaining full reservoir level at Kerala Sholayar on the 1st of February every year.) It was also observed from the data made available through RTI Act that the 16MW generator operates continuously for most of the time since 2003 except when the machine is scheduled for annual maintenance. This is contrary to the claim that only 8MW is generated during off-peak hours.

The claim by KSEB that the present summer off-peak discharge is between 6.23m³/sec and 7.6m³/sec only is false. The discharge is substantially higher for most of the period. Hence it is obvious that the proposed Athirappilly project will substantially reduce water availability at the two waterfalls thus affecting its beauty.

The fact that almost 80% of the present flow at the point of the proposed dam will be diverted through the tunnel and will be lost for the waterfalls is not disputed by anybody. (Out of a total water availability of 1169Mm³ as per 2003 DPR and only 241Mm³ is scheduled for Dam toe powerhouse. The rest is scheduled to be diverted to the main powerhouse except during possible spill for an average of 10days.) As almost 90% of this diversion is during monsoon periods, it is obvious that the monsoon beauty will be severely affected.

The KSEB claims that the project will not result in any change in present flow pattern and hence will not affect the downstream major irrigation project, the Chalakudy River Diversion Scheme (CRDS). We have already seen that the off-peak flow will be

substantially reduced. This will obviously result in higher discharges during peak hours, thus totally changing the present flow pattern. The fact that the irrigation needs of the ayacut (14000Ha spread across 20 local self governments in the districts of Thrissur and Eranakulam.) cannot be met with a meager flow of 7.65m³/sec for about 20 hours a day could easily have been understood if one were to consult with the concerned irrigation officials in charge of CRDS. Unfortunately none has done this so far.

It may be noted here that the change of operation pattern at Poringalkuthu from base load to semi-peaking mode and the installation of additional generator at Poringalkuthu is already affecting the irrigation needs.

It has been observed that even with the present discharge of about 31m³/sec during peak hours, there is slight overflow above the weir at Thumboormuzhi, the head works of CRDS. When the off-peak discharge is restricted to 7.65m³/sec, the savings during that period will be stored at the proposed dam and the same will be utilised for power generation at the main powerhouse during peak hours along with the peak discharge from Poringalkuthu. This will result in an average peak discharge of at least 50m³/sec from the proposed main powerhouse for four hours. About 50% of this water will overflow from the head works at Thumboormuzhi and will be lost for irrigation.

It may also be noted that the discharge from Kerala Sholayar powerhouse from February to May is observed to be above 150Mm³ whenever the storage position at the reservoir on 1st of February is near to FRL. This corresponds to an average discharge of about 1.25Mm³/day. But a flow of 7.65m³/sec for 20 hours and a flow rate of 37m³/sec for 4 hours will result in a total discharge of about 1Mm³/day only. (In 1990s and the first half of the present decade there was severe shortage in water level on 1st of February on many years. Even then the average discharge from Kerala Sholayar between 1990 and 2006 was equivalent to about 1.1Mm³ per day. The situation was better up to 1990 and has improved since 2005.)

Irrigation requirements at CRDS can't be met with the proposed discharge of 7.65m³/sec only for 20 hours in a day.

The discharge from the main powerhouse of the proposed project will be substantially higher than the present rate and a major portion of the same will overflow above the weir at CRDS head works and will not be available for irrigation.

Hence the operation of CRDS, which is already affected by the changed operation pattern at Poringalkuthu HEP, will be badly affected and consequently water availability for both irrigation and drinking water will be drastically reduced if Athirappilly HEP is implemented.

4. Impact on Idamalayar augmentation scheme

The KSEB has agreed to the existence of Idamalayar augmentation scheme. It has also admitted that the scheme is proposed to be stopped once Athirappilly project is

implemented. It has also admitted that the diversion was not taken in to account while arriving at the water availability and electricity availability for Athirappilly HEP. Excerpts from KSEBs explanation to the EAC on 22nd of April is quoted below from the minuts of the EAC meeting held on 22-04-10.

“KSEB stated that Vachumaram diversion canal was constructed during 1997 to divert the surplus waters of Poringalkuthu reservoir to the Idamalayar reservoir for power generation. The Vachumaram diversion takes off from an elevation of +422.00 M (2 m below the FRL of Poringalkuthu reservoir) and having a length of around 400 m with maximum daily discharge of 3.407 MCM and it drains out into a natural stream leading to Idamalayar reservoir. It was further stated that the Vachumaram diversion is only a temporary arrangement to utilize the spill waters of Poringalkuthu and KSEB plans to utilize this water also in future projects planned in the basin.The above diversion has gained revenue for the state exchequer by generation of cheap electricity which could have otherwise been wasted. Further it was pointed out that head available at Athirappilly is more and hence more cheap energy can be generated at Athirappilly than at Idamalayar with same quantum of water which is beneficial to the State.

The Chief Engineer, KSEB stated that the dependable year as approved by CWC is 1996-97. The diversion canal was fully commissioned and flow through the canal accounted only during 1997, hence the diversion of water through the canal has not been accounted for arriving the dependable energy by CWC/CEA”.

The fact that KSEB had not informed the CWC/CEA about the existence of Idamalayar diversion scheme and the decision to close the same once Athirappilly HEP is implemented, while the water availability as well as the techno-economic aspects of the project was considered (in 2005 and earlier) is not disputed.

The KSEB has started accounting the Idamalayar diversion from 1997 (even though the diversion actually started a little earlier).

A comparison of possible generation at the main powerhouse of proposed project with the discharge from Poringalkuthu from 1997 to 2006 based on actual daily discharge data with water being diverted to Idamalayar and without diversion to Idamalayar is provided in the table below.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
With diversion (MU) (Actual)	167	319	217	140	180	139	137	225	275	245
No Diversion (MU)	268	449	289	191	264	175	152	292	331	339

Note - In addition to this, generation from dam toe powerhouse and possible generation from own catchment inflow has to be added.(About 15-20MU/annum)

The table would clearly establish that after the Idamalayar diversion, the discharge from Poringalkuthu has reduced considerably.

But in the data submitted to CEA/CWC as part of DPR 2003 (1970-71 to 2001-02) it did not show the reduction in discharge due to this diversion for the data between 1997-98 and 2001-02.

It is obvious that if the Idamalayar diversion continues, the electricity generation at Athirappilly will be very less. If Idamalayar diversion is stopped, the present electricity generation at Idamalayar with this diverted water will be lost.

If Idamalayar diversion is stopped, it will also affect the downstream users of the Periyar River. (It is not true that the diverted water is used during monsoons only. The large storage facility at Idamalayar makes it possible to keep this water for summer needs. This is obvious from the fact that even with the diverted water from Poringalkuthu, the Idamalayar reservoir seldom gets filled.)

5. The project will only produce very little electricity. This project is not going to contribute significantly to the summer power needs of Kerala

The Central Electricity Authority had calculated the electricity generation from the project at 233MU per annum in 2005.

The allocation to dam toe powerhouse has been increased from 172Mm³ to 241Mm³ in 2007. KSEB has admitted this fact.

This will result in a reduction in generation of at least 20MU at the main powerhouse.

It was seen in the previous point that there will be reduction in generation at Idamalayar if the diversion is stopped as claimed by KSEB.

The net gain to the KSEB grid then will be the total generation at Athirappilly HEP minus reduction in generation at Idamalayar due to closure of diversion.

As per KSEB, the main powerhouse will be using about 31m³/sec of water for four hours a day during non-monsoon months (Dec-May). The generation during non monsoon months at Athirappilly project will then be less than 25MU only. But a major portion of reduction in generation at Idamalayar will be during summer months as the water diverted from Poringalkuthu is stored there for summer use.

This could result in even negative gain to the grid in summer.

The KSEB had calculated the electricity availability with the assumption that the spill at Poringalkuthu will be almost totally used for power generation at Athirappilly. But a portion of this will be lost as spill from Athirappilly dam. (Av. 10 Days between 1997 to 2006)

An analysis of daily generation and discharge data from Poringalkuthu from 1987 to 2006 (received under RTI act) suggests that even 70% dependable generation at

Athirappilly HEP will be about 170MU and 210Mu respectively with and without Idamalayar diversion.

6. Cost of the project

We are not detailing this point as it is being dealt by the CEA. But a couple of points need to be mentioned here.

The statement by KSEB that “*no contract can actually be executed at PWD rates*” is unfortunate. If there is no sanctity to the approved cost by the sanctioning authority, then the whole exercise of cost benefit analysis will be futile.

Kindly refer to the conditions laid down in the Techno-Economic clearance.

“In exercise of the powers vested with the Authority under Section 8 of the Electricity Act, 2003, the Central Electricity Authority accords techno-economic clearance to the aforesaid scheme at an estimated present day cost (at 2004-05 price level) of Rs.385.63 crores including IDC and FC of Rs.26.12 crores, with the stipulations that:

- (i) The completed cost of the scheme shall not exceed the above cost except on account of:-*
 - (a) Change in rates of Indian taxes and duties such as custom duty, excise duty, sales tax, works tax & service tax and additional taxes and duties levied, if any, subsequent to issue of this O.M.*
 - (b) Change in Indian law resulting in change in cost.*
- (i) Interest during construction and financing charges shall be as per actuals but not exceeding the amount as indicated at Annexure -1 except for variation in the actual interest rates achieved by KSEB and the pro-rate variation on account of variation in hard cost as stated in Clause 1(i)(a) & (b) above. The deployment of equity shall be upfront.*
- (ii) The abstract of the present day cost (at 2004-05 price level) approved by CEA is furnished at Annexure – I. Summary of financial package, as submitted by KSEB and considered by CEA, is at Annexure – II and the salient features of the scheme are set-forth at Annexure-III.*

3. *This techno-economic clearance is subject to the fulfillment of the following conditions:*

- (i) The following conditions/circumstances shall not be a re-opener of completed cost/techno-economic clearance:-*

- (a) *Non-acquisition of land.*
- (b) *Delay in obtaining investment approval for the project.”*

(TEC Dated 31-03-05)

The TEC is very clear that there should not be cost escalations except under some specific eventualities. The cost of electricity from the project was calculated on the basis of the approved project cost of Rs.385.63Cr. (Rs.359.5Cr. as hard cost and Rs.26.13Cr. as interest during construction.). But the KSEB had decided to award the contract for the project for Rs.570Cr. within six months of the TEC (in October 2005) without informing the CEA, in clear violation of TEC conditions. The present cost will be at least Rs.800-900Cr and cost on completion, if the project is implemented will be at least Rs.1000-1200Cr.

The cost of electricity for the project was calculated by CEA at a level tariff of Rs.2.58/kwh on the basis of a project cost of Rs.359.5Cr and annual electricity availability of 233MU. Relevant extract from CEA deliberations is reproduced below.

“Deliberating on the issue of tariff, member (Hydro) stated that the first year and levelised tariff of the project worked out to be Rs. 4.40 and Rs.2.99 respectively which were very high. He added that the interest on loan @ 9% considered by KSEB was high as compared to interest on loan @ 7.5% for similar projects. Considering interest @ 7.5% along with reduction suggested in the estimated cost, the levelised tariff will come down to Rs. 2.58/kwh. He advised the KSEB to negotiate with PFC for reduction in interest rate, which would reduce the IDC and consequently the tariff.”

As the cost of project will be substantially higher than the approved cost and as there will be reduction in electricity availability (as discussed earlier), the cost of electricity from the project will be exorbitantly high.

It may be noted here that the KSEB has not disputed the fact that the cost of electricity from the project is high.

We request you to kindly consider these points while assessing the water availability for the proposed Athirappilly HEP in Kerala. We are willing to provide any additional details required by you. We are also willing to argue our case directly before the CWC, if permitted.

Expecting justice for the river and the communities dependent on the river

Yours sincerely

S.P.Ravi

Convener

Text of reply by CWC

23-12-2010

No 7/Kerala-32/2005-Hyd(S)/o57

Sub: water availability for proposed Athirappilly HEP

Sir,

Reference is invited to your letter cited above vide with concerns regarding water availability and other issues pertaining to the proposed Athirappilly HE project in Chalakudy river basin, Kerala.

The point raised in your letter on the water availability issue has been examined in this office.

Initially the water availability (flow series from 1970-71 to 1992-93 for the project was cleared by CWC in 1994. There after, while seeking fresh environment clearance in 2002, the flow series of 32 years from the year 1970 was derived with average annual flows of 1169 MCM. This flow series was derived on the basis of power house releases and spills from Poringalkuthu HEP in the upstream from 1970-71 to 2001-02 and the same was used in the EIA study.

Subsequently, a modified DPR was received in CWC in 2003 and the same included this updated flow series from 1970-71 to 2001-02 with average annual flow of 1169MCM. The water availability for the project was examined and a yield series generated from 1981 to 2002 using rainfall-runoff relationship developed at u/s Karappara weir site. In March 2005 CWC cleared the series with an average annual water availability of 1056MCM. CWC also suggested for an integrated study of the Chalakudy basin which was incorporated in the TEC clearance.

Recently, in response to a clarification sought by MoEF on water availability for the project, the estimated average annual yield of 1056MCM was compared with the observed flow data of CWC G&D site at Arangali which is d/s of Athirappilly. The average annual yield of 1056MCM as recommended earlier was found to be in order.

Further, from the details received from KSEB, it is seen that the integrated study has not been taken up by them so far and the same is proposed to commence on outcome of the pending litigation before Hon. High Court of Kerala.

Also, it is to clarify that some variation in water availability is quite normal when time period of flow series is changed or different methodology is adopted. The earlier estimate of yield series with average annual flow of 1169MCM was made on the basis of powerhouse releases and spills from Poringalkuthu HEP in upstream from 1970-71 to 2001-02. However the modified yield (approved by CWC in March 2005) has been estimated using rainfall-runoff relationship developed at Karappara weir site and series generated from 1981 to 2002. The average annual yield has reduced slightly from 1169MCM to 1056MCM.

As regards other issues, the concerned organizations viz. MOEF, CEA etc. may be contacted.

Yours sincerely

(Bhopal Sing)

Director, Hyd (S)

Comments by CRPF on the reply given by CWC

15 – 01 – 2011

The CWC has not looked at water availability for waterfalls, irrigation etc. it has not looked at the electricity availability from the project or the issue regarding Idamalayar diversion.

Hence the letter in no way justifies the Athirappilly project.

Regarding water availability,

The water availability figures as per 1999 detailed project report (DPR) was 1269MCM

Water availability as per 2003 DPR was 1169MCM

Now the CWC says its review in 2005 showed water availability as 1056MCM

So the water availability has been consistently reducing!

The EIA by WAPCOS was done on the basis of water availability of 1269MCM. A reduction by nearly 20% would totally alter the scenario, especially regarding downstream needs including irrigation, waterfalls etc.

The fact remains that the KSEB has provided different data for powerhouse discharge from Poringalkuthu for same period in different sets of data. The data received from Poringalkuthu under RTI shows yet another figure. How can this be explained.

The CWC says it had assessed water availability on the basis of rainfall-runoff relation at Karappara. The very fact that they went for such an analysis, despite the Athirappilly dam site being just below the Poringalkuthu project would imply that they have doubts about KSEB data. Unfortunately, the method adopted by CWC can not be totally accepted as the rainfall runoff relationship must have been assessed for different regions with different rainfall regimes. (Karappara is a high rainfall region while the area below parabikulam has about 50% rainfall only compared to Karappara).

The issue of Idamalayar diversion and consequent reduction in river flow has also not been assessed here.

The data available under RTI act clearly establishes that the actual water availability after 1997 (Since Idamalayar diversion was accounted) is considerably less. The average water discharge from Poringalkuthu for the period between 1997 to 2006 is 908MCM. On 5 of these years (ie 50%) the discharge was between 614MCM and 776MCM. If The Athirappilly project was in place during this period, the average water availability for the project on 50% of years would have been about 750MCM only (Including flow from 26 sq.km. free catchment of Athirappilly project). This water has to be shared between main powerhouse and Dam Toe powerhouse (meant for maintaining waterfalls). The water availability then for the main powerhouse will be just above 500MCM only (which can at best produce 170MU electricity)

Please see the change in water availability:

Water as per 1999 DPR	1269MCM
Water as per 2003 DPR	1169MCM
Water as per CWC assessment	1056MCM
Water available on 50% years (after Idamalayar diversion)	750MCM

S.P. Ravi

Convener