

22

**STANDING COMMITTEE
ON ENERGY
(2011-2012)**

FIFTEENTH LOK SABHA

MINISTRY OF NEW AND RENEWABLE ENERGY

*[Action Taken on the recommendations contained in the Sixteenth Report
(15th Lok Sabha) on 'Small and Mini Hydel Projects']*

TWENTY SECOND REPORT



**LOK SABHA SECRETARIAT
NEW DELHI**

December, 2011 / Agrahayana, 1933 (Saka)

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Presented to Lok Sabha on 14.12.2011

Laid in Rajya Sabha on 14.12.2011



LOK SABHA SECRETARIAT
NEW DELHI

December, 2011/Agrahayana, 1933 (Saka)

C.O.E. No. 216

Price : Rs. 40.00

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Published under Rule 382 of the Rules of Procedure and Conduct of Business in Lok Sabha (Fourteenth Edition) and printed by Jainco Art India, New Delhi-110 005.

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COMPOSITION OF THE STANDING COMMITTEE
ON ENERGY (2011-2012)

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3. Shri N.K. Pandey — *Additional Director*
4. Smt. L. Nemjalhing Haokip — *Executive Officer*

INTRODUCTION

I, the Chairman, Standing Committee on Energy having been authorized by the Committee to present the Report on their behalf, present this 22nd Report on the action taken by the Government on the recommendations contained in 16th Report of the Standing Committee on Energy on the subject 'Small and Mini Hydel Projects' relating to the Ministry of New and Renewable Energy.

2. The 16th Report was presented to the Lok Sabha/laid in Rajya Sabha on 18th March, 2011. Replies of the Government to all the recommendations contained in the Report were received on 14th June, 2011.

3. The Report was considered and adopted by the Committee at their sitting held on 1st December, 2011.

4. An Analysis on the Action Taken by the Government on the recommendations contained in the 16th Report of the Committee is given at **Appendix-II**.

5. For facility of reference and convenience, the observations and recommendations of the Committee have been printed in bold letters in the body of the Report.

NEW DELHI;
12 December, 2011

21 Agrahayana, 1933 (Saka)

MULAYAM SINGH YADAV,
Chairman,
Standing Committee on Energy.

CHAPTER I

REPORT

This Report of the Standing Committee on Energy deals with the action taken by the Government on the Observations/Recommendations contained in their Sixteenth Report (Fifteenth Lok Sabha) on 'Small and Mini Hydel Projects'.

2. The Sixteenth Report was presented to Lok Sabha on 18th March, 2011 and was laid on the Table of Rajya Sabha on the same day. The Report contained 12 Observations/Recommendations.

3. Action Taken Notes in respect of all the Observations/Recommendations contained in the Report have been received from the Government. These have been examined and categorized as follows:

- (i) Observations/Recommendations which have been accepted by the Government:

Serial Nos. 3, 4, 6, 7, 8, 9, 10, 11 and 12

Total-09
Chapter-II

- (ii) Observations/Recommendations which the Committee do not desire to pursue in view of the replies of the Government:

Nil

Total-00
Chapter-III

- (iii) Observations/Recommendations in respect of which the replies of the Government have not been accepted by the Committee and which require reiteration:

Serial Nos. 1 and 5

Total-02
Chapter-IV

- (iv) Observation/Recommendation in respect of which the final replies of the Government is still awaited:

Serial No. 2

Total-01
Chapter-V

4. The Committee desire that Action Taken Notes on the Observations/Recommendations contained in Chapter I of the Report and the final replies in respect of the Recommendations included in Chapter V of the Report may be furnished to the Committee within three months of the presentation of this Report.

5. The Committee will now deal with action taken by the Government on some of their Observations/Recommendations that require reiteration or merit comments.

A. Exploitation of Small/Mini Hydel Potential

Recommendation (Serial No. 1, Para No. 2.1)

6. The Committee had pointed out that only 19 per cent of the identified potential of Small Hydel power (upto 25 MW capacity) in the country has been exploited i.e against the estimated potential of 15384 MW of Small Hydel power. As on 31st December 2010, only 2939 MW capacity has been set up and projects of about 927 MW are in various stages of implementation. The Committee were also not satisfied with the performance in the States with maximum potential *viz.* Arunachal Pradesh, Utrakhand, Himachal Pradesh and Jammu and Kashmir where mere 711.67 MW capacity has been installed against the available potential of about 6500 MW in these States. The Committee had recommended the Ministry to come out with a concrete plan of action to exploit the huge untapped potential at faster pace, especially in the States with maximum potential and also to work on reducing the reported gestation period of 4-5 years in order to ensure increased pace of implementation of the SHP Projects.

7. In their Action Taken Reply, the Ministry of New and Renewable Energy have stated:

“The total installed capacity of small hydro projects, as on 31st May, 2011 is 3082 MW and projects of about 1192 MW are in various stages of implementation. The subject of small hydro between 3 to 25 MW was transferred from Ministry of Power to the Ministry of New and Renewable Energy in November, 1999. At that time, the total installed capacity of small hydro projects (up to 25 MW) was only 1275 MW. There has been an increase of about 150% in the installed capacity in the last 10 years. A continuous and steady growth can be seen in the SHP sector. During the 9th Plan a capacity of 269 MW was added. This has increased to 536 MW during the 10th Plan and it is expected that it would reach 1400 MW during the 11th Plan. The average capacity addition of 55 MW per year during the 9th Plan has increased to 280 MW per year during the 11th Plan.

As recommended by the Committee, the Ministry has started work for preparing a Plan of Action to accelerate pace of exploitation of small hydro in the country. In this direction, the Ministry has stepped up its efforts to closely interact with the States and emphasized on establishing a method of regular project-wise monitoring. It is strongly felt that project wise monitoring and regular interaction with the States and SHP developers is the only way to reduce implementation time of the projects. Apart from regular interaction with the States with high small hydro potential (Himachal Pradesh, Uttarakhand, J&K, Karnataka and Arunachal Pradesh), the Ministry has also interacted with the States with moderate potential to set up SHP projects (Punjab, Maharashtra, Chattisgarh, Tamil Nadu, Sikkim, Kerala, Madhya Pradesh etc.). Information regarding allotment of potential sites to the private sector, their implementation schedules and their Plan for next five years or so has been collected. The Ministry will try to review progress in these States on a quarterly basis.

The Ministry is now in the process of preparing its 12th Five Year Plan. A separate sub-group has been constituted with members drawn from all major potential States to draw the 12th Plan and Action Plan for faster exploitation of SHP potential in the country. Separate sub-groups have also been constituted to look into the issues of transmission/evacuation infrastructure for renewable energy based power projects and environmental aspects including land and forest clearance issues. The sub-group on environmental aspects would also suggest prudent practices to be adopted for faster statutory clearances for renewable energy based power projects. This would help in reducing the gestation period and ensure increased pace of implementation of the SHP projects.

The States of Arunachal Pradesh, Himachal Pradesh, Jammu and Kashmir and Uttarakhand have highest potential for development of small hydro. All the four States have policy to invite private sector to set up SHP projects. While major development of small hydro in Himachal Pradesh and Uttarakhand is coming through private sector projects, there is at present limited participation of private sector in Arunachal Pradesh and J&K and SHP projects are also being developed by the public sector”.

8. Scrutiny of the Ministry’s reply shows that the total installed capacity of small hydro projects, as on 31st May, 2011 is 3082 MW and projects of about 1192 MW are in various stages of implementation *i.e.* about 27 per cent of the identified potential in

the country has been exploited so far. The Committee feel that huge potential is still left untapped for which the Ministry has to make vigorous efforts to tap the huge untapped potential of small hydel power. The MNRE in their action taken reply have stated that work has started for preparing a Plan of Action to accelerate pace of exploitation of small hydro in the country and also stepped up its efforts to closely interact with the States and emphasized on establishing a method of regular project-wise monitoring. Although the Ministry has stated project wise monitoring and regular interaction with the States and SHP developers to reduce implementation time of the projects, yet they have been unable to prescribe any time schedule for setting up of SHP. The Committee trust that the Ministry would adhere to their action plan and strengthen their monitoring and coordination mechanism for faster and effective implementation of the small hydro projects as there is huge gap between the capacity achieved and available potential. The Committee also take note of the efforts made by the Ministry to constitute separate sub-group to draw the 12th Plan for faster exploitation of SHP potential in the country and another separate sub-group to look into the issues of transmission/evacuation infrastructure for renewable energy based power projects and environmental aspects including land and forest clearance issues. The Committee believe that with the efforts of the Government, though belated, the problems like allotment of sites, approaching path in forest areas, local issues, etc which stands in the way for faster development of small hydro projects would be resolved and consequently increase the pace of implementation of the SHP Projects. While acknowledging the efforts and measures initiated by the Ministry on the recommendations of the Committee for faster exploitation of huge untapped potential of Small Hydel power, the Committee desire to be apprised of the progress made, especially the recommendations of the sub-groups and follow up action thereon. The Committee also would like the Ministry to follow up their action plan meticulously, so that their efforts are converted into results and present rate of capacity addition in SHP is increased manifold to realize the potential. Needless to emphasize that the Ministry would have ambitious specific plans for SHP sector for the 12th Five Year Plan (2012-17) in place well in time and all out efforts would be made to achieve the targets.

B. Exploration of SHP potential sites

Recommendation (Serial No. 2, Para No. 2.2)

9. The Committee had pointed out the need to review the SHP potential statistics for which the last survey to identify the potential availability in hydro sector (above 3 MW) in the country was conducted

by the Central Electricity Authority during 1978 to 1987. The Committee felt that with the growing need, advancements in technology, experience gained in SHP sector and other related factors, there is dire need to review the SHP potential statistics. The Committee had recommended that the Ministry should take initiative for a fresh look on the potential availability of SHP projects in the country in coordination with the Ministry of Power.

10. The Ministry in their Action Taken Reply have *inter-alia* informed as under:

“The Need to reassess the small hydro potential in the country has been felt in the Ministry for quite some time. The present information available about potential of small hydro in the country is primarily based on the Central Electricity Authority (CEA) study conducted during 1988 to 1997. The report published by CEA in 1997 on Small hydro power potential in India covered state wise potential of SHP up to 15 MW. The assessment of SHP potential (mainly up to 3 MW) in 13 Himalayan States was carried out by Alternate Hydro Energy Center (AHEC), IIT Roorkee as part of a UNDP-GEF project. Further, AHEC has also helped many other States in assessing the SHP potential. For the last 4-5 years, private developers are also identifying sites in States and are termed as self identified sites. There is change in potential at some of the sites after detailed investigation by the private developers. At present, a list of over 5700 sites is available with an estimated potential of about 15,300 MW. AHEC has been helping the Ministry in compiling this information.

Assessment of small hydro potential requires time and financial resources. In past, all State Electricity Boards or state irrigation/ water resources departments used to have separate investigation wings and identification of potential hydro sites was a regular activity. However, with time and reorganization of SEBs, these investigation wings have been dismantled in most of the states. In MNRE, some efforts were made to assess potential of Beas Basin of Himachal Pradesh and a part of Nagaland using GIS technologies and Hydrological Modeling. This required digital topographic maps, long term rain fall data, current land use details, soil, forest cover data etc. Reliability and availability of these data is a major limitation for carrying out assessment of hydro potential through modeling methods. Often field investigation methods supported with maps and discharge and other data is considered the best option.

As recommended by the Committee and in view of the facts mentioned above, the Ministry has set up a working group under the Chairmanship of Adviser (SHP), MNRE and drawing members from the Central Electricity Authority, Ministry of Power, Central Water Commission and States like Karnataka, Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Meghalaya. The terms of Reference of the Working Group are as follows:

1. Review the existing information available with the MNRE/AHEC/CEA/States on potential of small hydro on rivers, existing facilities like dams, canal falls, barrages, etc.
2. Broad parameters and the extent of details required for collection of State-wise information on potential of SHP.
3. Suggest strategy to validate the exiting information on potential sites.
4. Recommend approach and methodology to assess State-wise small hydro potential in the country.

The first meeting of the working group was held on 18th May 2011 wherein existing information about potential and strategy for undertaking the task for re-assessing the potential was discussed. The working group is of the opinion that involvement of State Government and the agency responsible for small hydro development in the State would be extremely critical and necessary in assessing the potential. AHEC, IIT Roorkee has been asked to prepare a roadmap for undertaking this task”.

11. The Ministry have stated that the present information available about potential of small hydro in the country is primarily based on the Central Electricity Authority (CEA) study conducted during 1988 to 1997, which is about a decade and half old. Regarding the assessment of small hydro potential, the Ministry have stated that in the past, all State Electricity Boards or State irrigation/water resources departments used to have separate investigation wings and identification of potential hydro sites was a regular activity. However, with time and reorganization of SEBs, these investigation wings have been dismantled in most of the States. In this connection, the Committee would like to reiterate that the MNRE being the nodal Ministry should play the role of a catalyst to the State Governments in formation of a separate investigation wings for identification of hydro potential sites of the States. The Committee also note the efforts made by the MNRE to assess potential of Beas Basin of Himachal Pradesh and a part of Nagaland using GIS technologies

and Hydrological Modeling and the setting up of a working group under the Chairmanship of Adviser (SHP), MNRE in connection with the initiatives taken in this area. The Committee hope that the Government will give due priority to the working of this Group and more efforts on the pattern of Himachal Pradesh and Nagaland will be undertaken to identify more and more potential. If necessary agencies like AHEC may be engaged to carry out the job in a comprehensive manner. The Committee also desire that both the initiatives and monitoring may be strengthened by the Ministry so that not only the available potential is known but also conducive atmosphere is created for its utmost exploitation. The Committee would like to be apprised of the progress made in this regard.

C. Micro Hydel Projects and Water Mills

Recommendation (Serial No. 5, Para No. 2.5)

12. The Committee had noted that the installation of micro hydel projects upto 100 KW capacity and watermills of smaller capacities of the range of 1-5 KW meet the power requirements of remote areas, particularly hilly and mountain areas in a decentralized manner. The Committee had also noted the provision of Central Financial Assistance (CFA) ranging from Rs. 35,000/- to Rs. 1,10,000/- per watermill and Rs. 40,000/- to Rs. 1,00,000/- per KW per micro hydel project. The Committee appreciated the steps taken by the Ministry to promote production of scientifically improved designs of the watermills with better efficiency, longer life and diversified uses. The Committee had recommended that the cost of installation of improved designs of watermills and CFA provided be managed in a pragmatic manner keeping in mind the affordability of the end-users and that the production of the improved version of watermills in a large scale may also be linked with their maintenance so that the spare parts and technical/mechanical services are easily available at reasonable cost.

13. The Ministry in their Action Taken Reply have stated as under:

“The present scheme of providing Central Financial Assistance (CFA) for watermills and micro hydel projects has been very much appreciated by the States and beneficiaries. However, as mentioned by the Committee the quantum of beneficiary contribution still limits large scale promotion/deployment of watermills and micro hydel projects. The affordability of the end user is extremely limited and hence they are unable to take advantage of the CFA available under the scheme. Since the watermill equipment suppliers are now well established and the designs are now quite proven,

availability of spare parts from these manufacturers is not an issue. Proper training to the beneficiary and local youth is ensured for operation and maintenance of watermills. Availability of spare parts at reasonable prices of indigenous machines is not a problem.

The watermill and micro hydel scheme will be reviewed for the 12th Plan and the recommendations of the Committee would be certainly addressed in the revised Scheme. It is also proposed to get the effectiveness of the scheme evaluated through an independent agency shortly. This study would also give suitable suggestions for improving the scheme”.

14. The Committee note that the present scheme of providing Central Financial Assistance (CFA) for watermills and micro hydel projects has been very much appreciated by the States and beneficiaries. On the contrary, the Committee find that the quantum of beneficiary contribution still limits large scale promotion/ deployment of watermills and micro hydel projects and that the affordability of the end user is extremely limited and are unable to take advantage of the CFA available under the scheme. This state of affairs will severely undermine the utility of the scheme and it will fail to achieve its objective if the end-user is not in a position to contribute his/her share. In the opinion of the Committee, the issue needs a revisit to make the scheme accessible to end-user by remodeling it suitably so that CFA component does not remain unused or unspent. The Committee, therefore, would like to reiterate their earlier recommendation that the cost of installation of improved designs of watermills and CFA be managed in a pragmatic manner keeping in mind the affordability of the end-users. The Committee would like to be apprised of the action taken in this regard.

D. Promotion of Watermills

Recommendation (Serial No. 6, Para No. 2.6)

15. Keeping in view the mechanical and electrical uses of the watermills and its socio-economic value in enhancement of the economic activities and betterment of the opportunities of livelihood for the people of remote and un-accessible areas where grid connectivity is not feasible, the Committee had recommended that the promotional programme of watermills in a large scale be spread and implemented in potential areas on the pattern of Uttarakhand by involving local bodies, associations and arranging suitable training programmes at the Centres like AHEC and IITs.

16. The Ministry in their Action Taken Reply have stated as under:

“The Ministry has already received a suggestion from the members of sub-group on small hydro involved in the preparation of 12th Plan that the Ministry should also support livelihood activities with watermills/micro hydel projects. It is also suggested that the scope of this scheme should be enlarged by involving more organizations/NGOs and stake holders. The programme of watermills, as suggested by the Committee is proposed to be enlarged on the pattern of Uttarakhand during the 12th Plan. The Ministry would also continue with providing suitable training programmes as part of this programme”.

17. The Committee are happy to note that the members of sub-group on small hydro involved in the preparation of 12th Plan have acknowledged the significance of watermills and also suggested the Ministry to support livelihood activities with watermills/micro hydel projects and to enlarge the scope of this scheme by involving more organizations/NGOs and stakeholders. The Committee while acknowledging the initiatives of the Ministry, re-emphasize the significance of watermills in enhancement of the economic activities and betterment of the opportunities of livelihood for the people of remote and un-accessible areas where grid connectivity is not feasible. Hence, the Committee would like to emphasize that the promotional programme of watermills in a large scale be spread in potential areas. The Committee desire to be apprised of the progress made in this connection.

E. Issues relating to development of SHP Projects

Recommendation (Sl. No. 10, Para No. 2.10)

18. The Committee had noted that the issues and obstacles faced by the private developers include time taken in obtaining various clearance at the State level, transfer of land, environment and forest clearances, availability of reliable hydrological data, timely creation of suitable power evacuation facilities, deposit of fee for compensatory afforestation etc. Since the State Governments have their own mechanism to address these administrative issues, the Committee had felt that consistent and sincere efforts of the Ministry in assisting and mobilizing the State Governments would lessen the time taken in obtaining various clearances culminating into faster implementation of the projects. The Committee, had therefore, recommended the Ministry to persuade, encourage and motivate the States and private developers to complete the process of survey, data collection and other clearances in a minimum time period so as to curtail avoidable delays in implementation of the SHP Projects.

19. The Ministry in their Action Taken Reply have stated as under:

“The Ministry has been analyzing issues which are hampering faster development of small hydro projects in the States. State-wise meetings were held to understand and streamline various procedures to minimize implementation time of SHP projects. The Ministry has also taken into consideration their 12th Plan activities and targets while formulating MNRE 12th Plan. As the ground work has already been done in most of the States, it is expected that this would have positive implications in implementation of SHP projects in the coming years.”

20. The Committee are happy to note the initiatives taken by the Government in this context *viz.* analyzing issues that hampers faster development of small hydro projects, holding of State-wise meetings to understand and streamline various procedures to minimize implementation time of SHP projects. With the ground work already done by the Government in most of the States, the Committee believe the Ministry address the issues in the right perspective so as to boost faster development of SHP projects. While acknowledging the efforts of the Ministry, the Committee would also like to reiterate their recommendation that Ministry should persuade, encourage and motivate the States and private developers to boost the development of SHP Projects in the country.

F. Electrification/illumination border villages of Arunachal Pradesh

Recommendation (Serial No. 11, Para No. 2.11)

21. Under the Electrification/illumination of the border villages of Arunachal Pradesh, the Committee had noted that as on 30th November, 2010, out of 1058 villages under MNRE programme, 523 villages have been illuminated by SPV systems and 203 villages have been electrified through SHP Projects. The Committee had been assured that illumination of rest of the 332 villages will be completed through SHP Projects by December, 2011. The Committee had recommended the Ministry to accelerate the pace of implementation by evolving proper coordination mechanism with the State Government so that targets are converted into result.

22. The Ministry in their action taken reply have stated as under:

“The Ministry is closely monitoring implementation of Arunachal Pradesh project. Following year-wise targets were fixed:—

By 31st December, 2009	:	580 villages
By 31st December, 2010	:	150 villages
By 31st December, 2011	:	328 villages
		<hr/>
		1058 villages

The project has already achieved illumination/electrification of 736 border villages through SPV home lighting systems and SHP projects, with in scheduled time period. Out of 157 small/micro hydel projects, 47 projects have been completed electrifying 213 villages. The progress in balance 110 projects is closely monitored through regular meetings with the implementing agencies. Teams from AHEC, IIT Roorkee regularly visits the project sites for monitoring and resolving any technical matters. A team of MNRE and State Government officials have recently visited manufacturers to monitor their schedule for supply of equipment. It is expected that most of the projects would be completed in 2012.”

23. Scrutiny of the data reveals that out of 1058 villages to be electrified by December 2011 under MNRE Programme, 949 villages were illuminated by June, 2011. The Ministry had earlier assured the Committee that all the villages to be illuminated under the programme will be completed by December, 2011. They have, however, now submitted that most of the projects would be completed in 2012. However, taking note of the progress made in this regard, the Committee hope that the Ministry will make a concrete efforts and complete the remaining task at the earliest.

CHAPTER II

OBSERVATIONS/RECOMMENDATIONS WHICH HAVE BEEN ACCEPTED BY THE GOVERNMENT

Recommendation (Sl. No. 3, Para No. 2.3)

11th Five Year Plan performance

The Committee observe that against the target of capacity addition of 1400 MW for 11th Plan, as on 31st October, 2010, only 873.78 MW *i.e.* 62 per cent of the targeted capacity has been achieved. To achieve the remaining target of 526.215 MW capacity in less than one and half years, the Ministry have informed that they are reviewing the progress periodically through meetings with the States and correspondence with the SHP developers. Though the physical achievement during the first three years have been at par with the targets set by the Ministry, the Committee find that the achievement during the penultimate year of the 11th Plan is not up to the mark as only 114.835 capacity against the target of 300 MW (forming only 38 per cent of the target) has been achieved in the first seven months of 2010-11 leaving a daunting task ahead to achieve about 38 per cent of the total target of the 11th Plan in less than one and half years. The details of the financial allocation *vis-a-vis* expenditure made during the Plan, as provided by the MNRE, clearly show that the Ministry has been able to meet the financial requirements quite conveniently. Moreover, the assessment of the Ministry that the total budget requirement for the SHP programme during the 11th Plan would be about Rs. 550 crore against the allocation of Rs. 700 crore itself indicate that there is no dearth of funds for the SHP programme. However, keeping in view the performance shown so far during the current Plan period, the Committee feel that the task ahead for the Government may not be impossible, but is certainly challenging and the Ministry do not have any other option but to tighten their monitoring and coordination mechanism in order to get the desired results from the developers and the States. No doubt, a cohesive, well coordinated and dynamic management would be required to achieve the objectives. The Committee, therefore, recommend that single window system may be encouraged in States for all the clearances including DPR, techno- economic, local land and/or forest clearances and monitoring. This will not only help the Government in accelerating the pace of implementation of the programme but also ensure the full achievement of the targets of 11th Plan and subsequent plans as well.

Reply of the Government

The target of 300 MW for 2010-11 has been achieved and a capacity of 307 MW was added from SHP projects during the year. During the first four years of the 11th Plan, 1066 MW capacity has been added against a target of 1050 MW. Year wise details are given below. In the 5th year of 11th Plan, about 350 MW is expected to be achieved. The target of 1400 MW for the 11th Plan is expected to be achieved in full.

SHP Target and achievement during the 11th Plan

Period	Physical		Financial	
	Target (MW)	Achievement (MW)	Allocation (RE) (Rs. in crore)	Expenditure (Rs. in crore)
11th Plan	1400		700.00	
2007-08	200	204.75	50.00	49.95
2008-09	250	248.93	82.50	82.49
2009-10	300	305.27	107.00	106.94
2010-11	300	307.21	152.00	151.99
Total in first 4 years of 11th Plan	1050	1066.16	391.50	391.37
2011-12	350	40 (as on 30.5.11)	140	24.65 (as on 30.5.11)

Similarly, the Ministry has been able to make full utilization of funds provided for the programme on year to year basis.

The issue of following single window system for providing various clearances including techno-economic clearance, forest clearance etc. has been discussed at length with the States. While some States do have the system of single window/empowered committee etc., this has not been very effective and the developers have to obtain clearances from different departments. The Ministry would continue to impress upon States for such a system and provide time bound clearances. The issue of streamlining process of giving clearances by the States is being deliberated by the sub-group set up by MNRE on 'Environment Aspects' to suggest best practices.

[Ministry of New and Renewable Energy
O.M. No. 20(51) 2010-SHP dated 14.06.2011]

Recommendation (Sl. No. 4, Para No. 2.4)

While examining the data relating to sanction *vis-a-vis* disbursement of loans by IREDA to SHP projects during 11th Plan period, the committee are astonished to note the huge mismatch between the capacity commissioned and amount disbursed in the implementation of the small hydro projects. In the year 2008-09, Rs. 147.55 crore were disbursed for capacity commissioning of 52.1 MW while in the year 2009-10, Rs. 229.03 crore were disbursed for capacity commissioning of 15 MW. Similarly, Rs. 170.57 crore disbursed till 31st December 2010 and only 5 MW could be commissioned during 2010-11. There seems to be great mismatch between the capacity attained and money released as there cannot be any justification whatsoever of such a huge disparity and unevenness with regard to the expenditure incurred *vis-a-vis* capacity addition. The Committee, therefore, strongly recommend that the causes should be analysed and reasons found out for this anomaly and simultaneously efforts, both technological as well as administrative, should be made to ensure that expenditure per MW capacity addition remains similar to the extent possible.

Reply of the Government

The observation of Committee that there is a huge mismatch between capacity commissioned and amounts disbursed by IREDA for SHP projects in a year needs to be seen in the context of implementation period of SHP projects being normally in the range of 4-5 years and loan disbursements being made in several installments spread over the implementation period. There is no direct relationship between the capacity commissioned in a particular year and the loan amounts disbursed during that year. The loan disbursed in a particular year is for projects under implementation or for loans sanctioned for new projects during that year. The loans for projects getting commissioned in a particular year normally get disbursed in previous years and there is always some spill-over of loan disbursements for the same project from year to year. This is explained in greater detail in the help of subsequent paras.

Status of Sanction *vis-a-vis* disbursement of loans by IREDA to SHP projects during 11th Plan period as on 31.3.2011 is as under:

Small Hydro	2007-08	2008-09	2009-10	2010-11	Total
1	2	3	4	5	6
1 . New Loan amounts Sanctioned during the year (Rs. in cr.)	226.23	343.40	337.45 (483.45)*	484.51 (984.51)*	1371.59

	1	2	3	4	5	6
2. Disbursements (Rs. in cr.) made during the year (including the disbursements made against the projects loan sanctioned in the earlier years)		119.39	147.55	229.03	289.87 (340.46)*	785.84
Projects Commissioned						
3. Capacity (MW) commissioned during the year (including the capacity of the projects whose loans were sanctioned in the earlier years)		8.75	59.65	35	27.4	130.8
4. Loan disbursements made during the year corresponding to commissioned projects		0.15	63.90	52.98	25.31	142.34
5. Corresponding Cost of Completion of projects mentioned at Sl. No. : 3 above (Rs. in cr.)		48.53	354.04	275.36	189.40	867.33
6. Avg. cost of Completion of project per MW (Rs. in cr./MW)		5.60	6.12	8.32	6.97	6.63
Projects Under implementation						
7. Total capacity of projects Under Implementation (MW)		67.70	50.90	60.10	114.05	292.75
8. Corresponding Disbursement made for projects under implementation mentioned at sl. no. : 6 above (Rs. in cr.)		119.24	83.65	176.05	264.56	643.50

*The sanction and disbursement figures in bracket includes projects above 25 MW capacity.

Further, it may be seen that the capacity attained on commissioning and the corresponding cost of completion in value terms is as under:

Year	Cost of Completion (Rs. crore/MW)
2007-08	5.60
2008-09	6.12
2009-10	8.32
2010-11	6.97

The expenditure per MW of capacity addition remains similar with minor variations because of site specific nature of Hydro Power Projects with respect to different parameters of water conductor systems, terrain and location of the projects, geological surprises and other uncertainties including variations in price of cement and steel from state to state and from time to time.

The project wise and year wise details of cost of project completion and incurred project cost per MW capacity addition for four years (updated as 31.3.2011) of XIth plan period referred by Standing Committee is given as Annexure-I for more clarity on the subject matter.

[Ministry of New and Renewable Energy
O.M. No. 20(51)2010-SHP dated 14.06.2011]

Recommendation (Sl. No. 6 Para No. 2.6)

The watermills may be used by the individuals in remote areas due to their limited capacity, yet the Committee feel that the mechanical and electrical uses of the watermills and their socio-economic value make a significant tool in enhancement of the economic activities and betterment of the opportunities of livelihood for the people of remote and un-accessible areas where grid connectivity is not feasible. The Committee, therefore, recommend that the promotional programme of watermills in a large scale be spread and implemented in potential areas on the pattern of Uttarakhand by involving local bodies, associations and arranging suitable training programmes at the Centres like AHEC and IITs.

Reply of the Government

The Ministry has already received a suggestion from the members of sub- group on small hydro involved in the preparation of 12th Plan that the Ministry should also support livelihood activities with watermills/micro hydel projects. It is also suggested that the scope of this scheme should be enlarged by involving more organizations/NGOs and stake holders. The programme of watermills, as suggested by the Committee is proposed to be enlarged on the pattern of Uttarakhand during the 12th Plan. The Ministry would also continue with providing suitable training programmes as part of this programme.

[Ministry of New and Renewable Energy
O.M. No. 20(51)2010-SHP dated 14.06.2011]

Comments of the Committee

(Please See Para 17 of Chapter-I of the Report)

Recommendation (Sl. No. 7 Para No. 2.7)

Financial Assistance

The Committee find that to develop the SHP sector, the Ministry of New and Renewable Energy have been providing financial support/ subsidy for the activities related with Research & Development, capacity building, Resource Assessment, Detailed survey & investigation, DPR preparation and perspective plan for States, capital subsidy to state sector projects, subsidy for commercial projects, Renovation & modernization of old SHP projects (State Sector) and watermills/micro hydel projects. The Committee are given to understand that the financial assistance is given as grant-in-aid to both State Governments as well as private sector. The Committee also note that some of the Central financial institutions *viz.*, IREDA, PFC, REC and large number of banks are also providing loan for SHP projects and IREDA in particular has a pivotal role in development of small hydro projects in terms of financing. The Committee are aware that the cost for setting up SHP projects ranges from Rs. 6.5 crore to Rs. 7.5 crore per MW and the Government is providing sufficient financial assistance in the North Eastern States, other States and Private Entrepreneurs etc. to boost the sector. Considering the huge gap in the potential and the achieved installed capacity, present level of targets in this regard for achievement are not very enthusiastic. The Committee, therefore, recommend that all out efforts should be made to woo the entrepreneurs especially from local areas highlighting the subsidy component, the other entailed benefits, and resultant welfare of the local people.

Reply of the Government

The Ministry agrees with the recommendation of the Committee to boost the sector involving private entrepreneurs and inform them about the incentives and facilities available for setting up SHP projects. The SHP incentive scheme is placed on website of the Ministry with complete details. The Scheme is also circulated to all state agencies, SHP Developers Associations, consultants, technical institutions and developers. AHEC, IIT Roorkee while conducting various training programmes also informs, in detail, the features of MNRE SHP incentive schemes. The scheme is also sent through e-mail to various developers. It may also be mentioned that all State Government policies for SHP development specifically mentions about MNRE incentive scheme and the incentives available from Central and State Government to set up SHP projects. Efforts of the Ministry to publicize the scheme would further continue so that its advantage can be extended to more and more entrepreneurs.

[Ministry of New and Renewable Energy
O.M. No. 20(51)2010-SHP dated 14.06.2011]

Recommendation (Sl. No. 8, Para No. 2.8)

Arrangements of Finances to promote SHP sector

The Committee note that a sizeable amount of the costs of SHP is being given as grant-in-aid by the Ministry to the State Governments as well as to the private sector. Despite this, funds are required to complete the projects. The Committee note that IREDA, PFC, REC and large number of Banks provide loans to SHP projects as per their own parameters and procedures. IREDA being the only specialized PSU under the Ministry of New and Renewable Energy which provide funds for promotion and development of new and renewable sources of energy, has major responsibility in the development of SHP projects. However, during the last four years (upto 31.12.2010), IREDA could disburse only Rs. 666.54 crore against the sanctioned amount of Rs. 1927.73 crore *i.e.* only 35 per cent of the sanctioned amount. No figures are available with regard to the loan sanctioned and disbursed by PFC, REC and other Banks. The Committee, therefore, recommend that power sector financial institutions like IREDA, PFC, RECs etc. should initiate sincere efforts in ensuring that no SHP project is withheld for want of finance. Besides, there should be element of healthy competition within central agencies for promoting the sector by arranging necessary funds. The Committee also recommend the Ministry to be more proactive and act as a facilitator between the financial institutions and the implementing agencies.

Reply of the Government

As mentioned in the reply to the recommendation no. 4, apart from IREDA, PFC and REC, a large number of banks are providing loan for SHP projects. In fact, IREDA provides loan to only very limited SHP projects and a large part is being financed by the banks. Since SHP projects are economically viable of their own, the developers normally face no difficulty in securing loan from the commercial banks. The developers also have their own financial credibility with banks based on their other business transactions, which helps them to secure loans for SHP projects. Availability of resources through financial institutions is not a constraint.

[Ministry of New and Renewable Energy
O.M. No. 20(51)2010-SHP dated 14.06.2011]

Recommendation (Sl. No. 9 Para No. 2.9)

Policies and Issues

The Committee note that the policy for Small Hydro Power and private sector participation therein, is governed by the Electricity Act, 2003, the National Electricity Policy, 2005 and Tariff Policy, 2006

announced by the Government of India. 23 State Governments have so far announced policy for private sector participation for the development of SHP projects. Also, the State Electricity Regulatory Commissions (SERCs) have been deciding tariff in their respective States. While examining the data provided by the Ministry, the Committee find that an aggregate capacity of 1268 MW have been set up so far by private sector through 249 projects in 15 States. The Committee are astonished to observe that there is no mention of the State of Arunachal Pradesh, one of the greatest potential States in SHP, in the list and that in Jammu & Kashmir, which has the third largest potential (*i.e.* 1417.80 MW), only two projects of 17.5 MW have been developed by the private sector. The situation is not encouraging in other potential States too. The Committee also find that the States of Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir and Uttarakhand, which are the States with maximum SHP potential (about 42 per cent of the total SHP potential in the country), are among those States which have already announced policy for private sector participation for development of SHP projects. The Committee feel that in the wake of the State policy on private participation and CERC/SERC guidelines on tariff, the Government should play a catalytic role in increasing the involvement of private sector in the development of SHP sector in different States, particularly the high potential States. The Committee, therefore, recommend that the Government should come out with a concrete plan of action in this regard and inform the Committee about the steps taken to promote and encourage private sector participation in SHP projects in various States.

Reply of the Government

The status of private sector participation in various States has been mentioned in the action taken reply to the Recommendation Sl. No. 1.

It may be mentioned that the State of Arunachal Pradesh has huge potential of hydro power. A number of central sector, state sector and private sector large size hydro projects are being set up in the State. The focus of the State is on large size projects. Since the State is quite dispersed and the transmission network is extremely weak there are difficulties in setting up grid connected small hydro projects. However, they have allotted 40 small hydro projects aggregating to 602 MW to the private sector. All these projects are in the investigation stage and detailed survey and DPRs are being prepared by the private sector.

In Jammu & Kashmir, 12 SHP projects aggregating to 67 MW were allotted in 2004-05. Of these, two projects aggregating to 17.5 MW have been commissioned. The developers had faced some difficulty in

obtaining clearances and signing PPAs. There were also issues regarding procedure of allotment of sites which necessitate modifications in the policy. MNRE has been regularly following up with the State Government to announce modified SHP policy. The modified policy has been drafted by the State Government and is in final stage of approval.

In-depth interactions are being held with the States as part of preparation of the 12th Plan which would result into identification of specific steps and remedial measures required for faster development of small hydro and renewable energy based power projects.

[Ministry of New and Renewable Energy
O.M. No. 20(51)2010-SHP dated 14.06.2011]

Recommendation (Sl. No. 10, Para No. 2.10)

The Committee note that that SHP developers do face objections from the local community on the issues relating to land, employment of local people and contribution towards local area development. Other obstacles faced by the private developers reportedly include time taken in obtaining various clearance at the State level, transfer of land, environment and forest clearances, availability of reliable hydrological data, timely creation of suitable power evacuation facilities, deposit of fee for compensatory afforestation etc. The Committee feel that the obstacles highlighted by the Ministry are basically administrative in nature and are not unforeseen. Since the State Governments have their own mechanism to address these administrative issues, the Committee feel that consistent and sincere efforts of the Ministry in assisting and mobilizing the State Governments would lessen the time taken in obtaining various clearances culminating into faster implementation of the projects. More so as the SHP Projects do not encounter major and sensitive issues like population displacement, re-habilitation, construction of dam, submergence etc. which generally take longer time to address. The Committee, therefore, recommend the Ministry to persuade, encourage and motivate the States and private developers to complete the process of survey, data collection and other clearances like technical and economic, forest and environment clearances in a minimum time period so as to curtail avoidable delays in implementation of the SHP Projects.

Reply of the Government

The Ministry has been analyzing issues which are hampering faster development of small hydro projects in the States. State-wise meetings were held to understand and streamline various procedures to minimize

implementation time of SHP Projects. The Ministry has also taken into consideration their 12th Plan activities and targets while formulating MNRE 12th Plan. As the ground work has already been done in most of the States, it is expected that this would have positive implications in implementation of SHP Projects in the coming years.

[Ministry of New and Renewable Energy
O.M. No. 20(51)2010-SHP dated 14.06.2011]

Comments of the Committee

(Please See Para 20 of Chapter-I of the Report)

Recommendation (Sl. No. 11, Para No. 2.11)

Electrification/illumination border villages of Arunachal Pradesh

The Committee find that the Prime Minister during his visit to Arunachal Pradesh on 31st January-1st February 2008 had announced a package of Rs. 550 crore for illumination/electrification of 1483 un-electrified villages along the State border through solar power and small hydro power. The Committee note that out of 1483 un-electrified villages, 425 villages are proposed to be electrified by the Government of Arunachal Pradesh and the balance of 1058 villages were to be electrified through small/micro hydel projects and solar photovoltaic systems with an estimated cost of Rs. 275.58 crore by the Ministry of New and Renewable Energy in consultation with the State Government. The Committee find that as on 30th November, 2010, out of 1058 villages under MNRE programme, 523 villages have been illuminated by SPV Systems and 203 villages have been electrified through SHP Projects. The Committee have been assured that illumination of rest of the 332 villages will be completed through SHP Projects by December, 2011. On financial aspect, the Committee have been informed that out of total amount of Rs. 550 crore allocated for the scheme, the full amount of Rs. 274.42 crore have already been released to Government of Arunachal Pradesh for their part of the Scheme. A balance of Rs. 275.58 crore were to be utilized by the MNRE, against which they have released Rs. 108.21 crore (about 39.26 per cent) so far. The Ministry considers the budget provision for the project adequate to achieve the target. The Committee observe that the scheme was announced way back in the beginning of the year 2008 and the performance shown by the Ministry so far indicate that it would not be easy for them to complete illumination of the balance of 332 villages through SHP Projects and to achieve the full target by the end of the year 2011. Though excessive rain, long distances and connectivity have

been highlighted as the main hurdles faced by the developers, the Committee feel that the reported hurdles are not uncommon in a State like Arunachal Pradesh and could be tackled by proper planning, monitoring and concerted efforts on the part of the Government. The Committee, therefore, recommend the Ministry to accelerate the pace of implementation by evolving proper coordination mechanism with the State Government so that targets are converted into result.

Reply of the Government

The Ministry is closely monitoring implementation of Arunachal Pradesh Project. Following year-wise targets were fixed:

By 31st December, 2009	:	580 villages
By 31st December, 2010	:	150 villages
By 31st December, 2011	:	328 villages
		<hr/>
		1058 villages

The project has already achieved illumination/electrification of 736 border villages through SPV home lighting systems and SHP Projects, within scheduled time period. Out of 157 small/micro hydel projects, 47 projects have been completed electrifying 213 villages. The progress in balance 110 projects is closely monitored through regular meetings with the implementing agencies. Teams from AHEC, IIT, Roorkee regularly visits the project sites for monitoring and resolving any technical matters. A team of MNRE and State Government officials have recently visited manufacturers to monitor their schedule for supply of equipment. it is expected that most of the projects would be completed in 2012.

[Ministry of New and Renewable Energy
O.M. No. 20(51)2010-SHP dated 14.06.2011]

Comments of the Committee

(Please See Para 23 of Chapter-I of the Report)

Recommendation (Sl. No. 12, Para No. 2.12)

(i) Technical Institutions for development of Small Hydro Power

The Committee note that Alternate Hydro Energy Centre (AHEC) at IIT, Roorkee has been providing professional support in the field of small hydro power development covering planning, detailed project reports, detailed engineering designs and construction drawings,

technical specialization of turn key execution/equipment supply, renovation and modernization of SHP Stations, and techno-economic appraisal. Besides imparting training to the field engineers and technologists through short-term training course, the Committee have been informed that AHEC offers Master of Technology (M.Tech) programme in 'Alternate Hydro Energy Systems' and advanced training to operators and engineering staff of different types of small hydro electric plants. The Committee have been informed that standards, manuals and guidelines for various aspects of small hydro power development are being prepared by AHEC through consultative process with the sponsorship of MNRE and a project to set up a small hydro hydraulic turbine R&D laboratory at AHEC with an objective of creating international level facilities for testing, design and R&D in the area of hydraulic turbines, hydro mechanical equipments, control and instrumentation of small hydro electric power plants have been sanctioned. While taking note of the role AHEC has played so far in their plans of technological advancement for the development of the sector, the Committee feel that much could have been done earlier for the development of small hydro technology in the country. Other centers like NITs at Hamirpur and Srinagar and technical institutions elsewhere in the country have also very little to show as their achievement. The Committee would therefore recommend that AHEC, IIT, Roorkee should work as a premier institution in the development of small hydro technology in the country paving the way for economic and efficient development of the technology and be a torch bearer for other technological institutes. The Committee also recommend that the Ministry should strengthen the AHEC and provide all support in encouraging it to boost the research and development activities in the small hydro sector.

Reply of the Government

The recommendation of the Committee to further strengthen AHEC and provide all support in encouraging it to boost the research and development activities in the Small Hydro Sector is noted. In fact the Ministry is fully involving and consulting AHEC in almost all technical matters. They have been specifically involved in designing, monitoring and providing technical inputs to the small and micro hydel project setup in the border village illumination/electrification project in Arunachal Pradesh. AHEC has also prepared a master plan for the Ladakh Region which has resulted into the 'Ladakh Renewable Energy Initiative' Project. AHEC is taking help of other technical institutions *viz.* MANIT, Bhopal, NIT Hamirpur etc. in the work of performance testing of SHP Projects. This is also resulting into capacity building and strengthening of other institutions. In the work relating to

preparation of standards/guidelines/manuals for small hydro, all leading technical institutions, hydrology, electrical and mechanical experts are providing their inputs. AHEC has emerged as a lead technical institution in the field of small hydro and the Ministry would continue to strengthen it for R&D and other related aspects. The Ministry assures the Committee that AHEC will be provided adequate funds for conducting research and development projects.

[Ministry of New and Renewable Energy
O.M. No. 20(51)2010-SHP dated 14.06.2011]

CHAPTER III

OBSERVATIONS/RECOMMENDATIONS WHICH THE COMMITTEE
DO NOT DESIRE TO PURSUE IN VIEW OF THE
GOVERNMENT'S REPLIES

-Nil-

CHAPTER IV

OBSERVATIONS/RECOMMENDATIONS IN RESPECT OF WHICH THE REPLIES OF THE GOVERNMENT HAVE NOT BEEN ACCEPTED BY THE COMMITTEE AND WHICH REQUIRE REITERATION

Recommendation (Sl. No. 1, Para No. 2.1)

Small/Mini Hydel Potential

The Committee note that the estimated potential for power generation in the country from small hydel projects (upto 25 MW capacity) is 15384 MW from 5718 identified sites, whereas, as on 31st December 2010, 2939 MW capacity has been set up in various parts of the country and projects of about 927 MW are in various stages of implementation. The Committee are surprised to find that only 19 per cent of the identified potential in the country has been exploited so far. The Government's approach has not been very aggressive in this arena as is evident from the fact that very moderate targets were set for the 9th, 10th and 11th Five Year Plans. Even though the targets set have been achieved in 9th and 10th Plans and are likely to be achieved in 11th Plan, the fact remains that huge potential is still left untapped in most of the potential States making the task of the Ministry challenging in the coming years. Even if the projected figure of 8500 MW of cumulative capacity of SHP projects by the end of the year 2021-22 is at all to be believed, the total installed capacity would be about 55 per cent of the identified potential. This percentage may come down substantially as more potential sites may be identified by the year 2021-22 *i.e.* the completion year of the 13th Plan. Scrutiny of the State-wise data reveals that the performance in the States with maximum potential has been far from satisfactory. About 6500 MW potential is available in the four States only *viz.* about 1400 MW in Arunachal Pradesh, 1600 MW in Uttrakhand, 2300 MW in Himachal Pradesh and 1500 MW in Jammu and Kashmir. However, merely 711.67 MW capacity has so far been installed and 413.47 MW capacity projects are at various stages of implementation in these States. Another disquieting fact is that the installed capacity is a meager 78.84 MW against the total potential capacity of 1328.68 MW available in the State of Arunachal Pradesh, which makes around 6 per cent of the available potential. This sorry state of affairs is not at all acceptable to

the Committee more so when the state is getting special funds under the Prime Minister Border Village Illumination Scheme. The Committee also take note of the targets of 2000 MW and 3000 MW fixed for the 12th Plan and 13th Plan respectively. While acknowledging the efforts made by the Ministry in mitigating the problems like allotment of sites, approaching path in forest areas, local nuances, etc., the Committee feel that this is high time for the Ministry to work on reducing the reported gestation period of 4-5 years in order to ensure increased pace of implementation of the SHP Projects. Against this backdrop, the Committee recommend the Ministry to come out with a concrete plan of action to exploit the huge untapped potential at faster pace, especially in the States with maximum potential.

Reply of the Government

The total installed capacity of small hydro projects, as on 31st May, 2011 is 3082 MW and projects of about 1192 MW are in various stages of implementation. The subject of small hydro between 3 to 25 MW was transferred from Ministry of Power to the Ministry of New and Renewable Energy in November, 1999. At that time, the total installed capacity of small hydro projects (up to 25 MW) was only 1275 MW. There has been an increase of about 150% in the installed capacity in the last 10 years. A continuous and steady growth can be seen in the SHP sector. During the 9th Plan a capacity of 269 MW was added. This has increased to 536 MW during the 10th Plan and it is expected that it would reach 1400 MW during the 11th Plan. The average capacity addition of 55 MW per year during the 9th Plan has increased to 280 MW per year during the 11th Plan.

As recommended by the Committee, the Ministry has started work for preparing a Plan of Action to accelerate pace of exploitation of small hydro in the country. In this direction, the Ministry has stepped up its efforts to closely interact with the States and emphasized on establishing a method of regular project-wise monitoring. It is strongly felt that project-wise monitoring and regular interaction with the States and SHP developers is the only way to reduce implementation time of the projects. Apart from regular interaction with the States with high small hydro potential (Himachal Pradesh, Uttarakhand, J&K, Karnataka and Arunachal Pradesh), the Ministry has also interacted with the States with moderate potential to set up SHP projects (Punjab, Maharashtra, Chhattisgarh, Tamil Nadu, Sikkim, Kerala, Madhya Pradesh etc.). Information regarding allotment of potential sites to the private sector, their implementation schedules and their Plan for next five years or so has been collected. The Ministry will try to review progress in these States on a quarterly basis.

The Ministry is now in the process of preparing its 12th Five Year Plan. A separate sub-group has been constituted with members drawn from all major potential States to draw the 12th Plan and Action Plan for faster exploitation of SHP potential in the country. Separate sub-groups have also been constituted to look into the issues of transmission/evacuation infrastructure for renewable energy based power projects and environmental aspects including land and forest clearance issues. The sub-group on environmental aspects would also suggest prudent practices to be adopted for faster statutory clearances for renewable energy based power projects. This would help in reducing the gestation period and ensure increased pace of implementation of the SHP projects.

The States of Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir and Uttarakhand have highest potential for development of small hydro. All the four States have policy to invite private sector to set up SHP projects. While major development of small hydro in Himachal Pradesh and Uttarakhand is coming through private sector projects, there is at present limited participation of private sector in Arunachal Pradesh and J&K and SHP projects are also being developed by the public sector. State wise status is as follows:

Himachal Pradesh: The State has a potential of about 2200 MW and so far small hydro projects of about 390 MW have been set up. The State has further allotted projects aggregating to about 1500 MW to the private sector. It is expected that about 1000 MW projects will be completed by the end of 12th Plan.

Uttarakhand: The State has a potential of about 1600 MW and so far small hydro projects of about 135 MW have been set up. The State has so allotted 36 projects aggregating to about 370 MW to the private sector. They had further allotted 56 projects of about 960 MW. However, the allotments have been cancelled. The issue of allotment of new sites is expected to be resolved soon but is currently sub-judicious. Further, Uttaranchal Jal Vidyut Nigam is also implementing 10 small hydro projects of 60 MW. It is expected that about 500 MW projects will be completed by the end of 12th Plan.

Arunachal Pradesh: The State has a potential of about 1300 MW and so far small hydro projects of about 78 MW have been set up. The State has so far allotted 40 projects aggregating to about 600 MW to the private sector. These projects are mostly in the detailed survey and DPR preparation stage. Department of Hydro

Power Development is also implementing 40 small hydro projects of 42 MW. The focus of the State is to get large size hydro projects through private sector. It is expected that about 400 MW projects will be completed by the end of 12th Plan.

Jammu and Kashmir: The State has a potential of about 1400 MW and so far small hydro projects of about 130 MW have been set up. The State has so far allotted 12 projects aggregating to about 67 MW to the private sector. While two projects have been commissioned, 10 projects are under implementation. The State is in the process of revising its policy very shortly. Following this they plan to allot new sites to the private sector. It is expected that once the revised policy is announced, participation from private sector will improve. About 150 MW capacity is expected to be added by the end of 12th Plan.

The State of Karnataka has allotted 300 projects of about 2000 MW, Chhattisgarh has allotted 70 projects aggregating to 685 MW, Maharashtra has allotted 41 projects of 135 MW and the State of Odisha has allotted 29 SHP projects of 369 MW to the private sector. A capacity of about 1000 MW can be expected in next 5-7 years from these States.

[Ministry of New and Renewable Energy
O.M. No. 20(51)2010-SHP dated 14.06.2011]

Comments of the Committee

(Please See Para 8 of Chapter-I of the Report)

Recommendation (Sl. No. 5, Para No. 2.5)

Micro Hydel Projects and Water Mills

The Committee find that there is ample scope of installation of micro hydel projects upto 100 KW capacity and watermills of smaller capacities of the range of 1-5 KW to meet the power requirements of remote areas, particularly hilly and mountain areas in a decentralized manner. The MNRE have informed that they are extending Central Financial Assistance (CFA) ranging from Rs. 35,000/- to Rs. 1,10,000/- per watermill and Rs. 40,000/- to Rs. 1,00,000/- per KW per micro hydel project. It is also informed that a budget of Rs. 15 crore has been provided for supporting watermills and micro hydel projects during the 11th Plan period. The Committee do appreciate the steps taken by the Ministry to promote production of scientifically improved designs of the watermills with better efficiency, longer life and

diversified uses. At the same time, the Committee suggest that the cost of installation of improved designs of watermills and CFA be managed in a pragmatic manner keeping in mind the affordability of the endusers. Besides, the production of the improved version of watermills in a large scale may also be linked with their maintenance so that the spare parts and technical/mechanical services are easily available at reasonable cost.

Reply of the Government

The present scheme of providing Central Financial Assistance (CFA) for watermills and micro hydel projects has been very much appreciated by the States and beneficiaries. However, as mentioned by the Committee the quantum of beneficiary contribution still limits large scale promotion/deployment of watermills and micro hydel projects. The affordability of the enduser is extremely limited and hence they are unable to take advantage of the CFA available under the scheme. Since the watermill equipment suppliers are now well established and the designs are now quite proven, availability of spare parts from these manufacturers is not an issue. Proper training to the beneficiary and local youth is ensured for operation and maintenance of water mills. Availability of spare parts at reasonable prices of indigenous machines is not a problem.

The watermill and micro hydel scheme will be reviewed for the 12th Plan and the recommendations of the Committee would be certainly addressed in the revised Scheme. It is also proposed to get the effectiveness of the scheme evaluated through an independent agency shortly. This study would also give suitable suggestions for improving the scheme.

[Ministry of New and Renewable Energy
O.M. No. 20(51)2010-SHP dated 14.06.2011]

Comments of the Committee

(Please See Para 14 of Chapter-I of the Report)

CHAPTER V

OBSERVATIONS/RECOMMENDATIONS IN RESPECT OF WHICH FINAL REPLIES OF THE GOVERNMENT ARE STILL AWAITED

Recommendation (Sl. No. 2, Para No. 2.2)

The Committee found that the last survey to identify the potential availability in hydro sector (above 3 MW) in the country was conducted by the Central Electricity Authority during 1978 to 1987. The MNRE might have revised the data slightly by adding a few more SHP potential sites identified over the years, especially of micro/mini capacity, but the Committee are not very sure whether the MNRE have conducted any independent survey to update the availability of SHP potential sites in the country. Though there are about 5,700 identified potential sites in the country out of which more than 4,500 sites are still available for exploitation, the Committee feel that with the growing need, advancements in technology, experience gained in SHP sector and other related factors, there is dire need to review the SHP potential statistics, which is about two and half decade old. The Committee, therefore, recommend that the Ministry should take initiative for a fresh look on the potential availability of SHP projects in the country in coordination with the Ministry of Power. This will help the Ministry in reframing their targets/programmes for the future plans *viz.* 12th and 13th Five Year Plans. This would also help the Government in revising/reviewing the existing policy for development of SHPs.

Reply of the Government

The Need to reassess the small hydro potential in the country has been felt in the Ministry for quite some time. The present information available about potential of small hydro in the country is primarily based on the Central Electricity Authority (CEA) study conducted during 1988 to 1997. The report published by CEA in 1997 on Small hydro power potential in India covered state wise potential of SHP up to 15 MW. The assessment of SHP potential (mainly up to 3 MW) in 13 Himalayan States was carried out by Alternate Hydro Energy Center (AHEC), IIT Roorkee as part of a UNDP- GEF project. Further, AHEC has also helped many other States in assessing the SHP potential. For the last 4-5 years, private developers are also identifying sites in States and are termed as self identified sites. There is change in potential at

some of the sites after detailed investigation by the private developers. At present, a list of over 5700 sites is available with an estimated potential of about 15,300 MW. AHEC has been helping the Ministry in compiling this information.

Assessment of small hydro potential requires time and financial resources. In past, all State Electricity Boards or state irrigation/water resources departments used to have separate investigation wings and identification of potential hydro sites was a regular activity. However, with time and reorganization of SEBs, these investigation wings have been dismantled in most of the States. In MNRE, some efforts were made to assess potential of Beas Basin of Himachal Pradesh and a part of Nagaland using GIS technologies and Hydrological Modelling. This required digital topographic maps, long term rain fall data, current land use details, soil, forest cover data etc. Reliability and availability of these data is a major limitation for carrying out assessment of hydro potential through modelling methods. Often field investigation methods supported with maps and discharge and other data is considered the best option.

As recommended by the Committee and in view of the facts mentioned above, the Ministry has set up a working group under the Chairmanship of Adviser (SHP), MNRE and drawing members from the Central Electricity Authority, Ministry of Power, Central Water Commission and States like Karnataka, Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Meghalaya. The terms of Reference of the Working Group are as follows:

1. Review the existing information available with the MNRE/AHEC/CEA/States on potential of small hydro on rivers, existing facilities like dams, canal falls, barrages, etc.
2. Broad parameters and the extent of details required for collection of State-wise information on potential of SHP.
3. Suggest strategy to validate the exiting information on potential sites.
4. Recommend approach and methodology to assess State-wise small hydro potential in the country.

The first meeting of the working group was held on 18th May 2011 wherein existing information about potential and strategy for undertaking the task for re-assessing the potential was discussed. The working group is of the opinion that involvement of State Government and the agency responsible for small hydro development in the State

would be extremely critical and necessary in assessing the potential. AHEC, IIT Roorkee has been asked to prepare a roadmap for undertaking this task.

[Ministry of New and Renewable Energy
O.M. No. 20(51)2010-SHP dated 14.06.2011]

Comments of the Committee

(Please *see* Para 11 of Chapter-I of the Report)

NEW DELHI;
12 December, 2011
21 Agrahayana, 1933 (Saka)

MULAYAM SINGH YADAV,
Chairman,
Standing Committee on Energy.

APPENDIX I

MINUTES OF THE THIRD SITTING OF THE STANDING COMMITTEE
ON ENERGY (2011-12) HELD ON 1ST DECEMBER, 2011 IN
COMMITTEE ROOM 'D' PARLIAMENT HOUSE
ANNEXE, NEW DELHI

The Committee met from 1500 hrs. to 1630 hrs.

PRESENT

Shri Motilal Vora — *in the Chair*

MEMBERS

Lok Sabha

2. Shri Adhir Ranjan Chowdhury
3. Shri Syed Shahnawaz Hussain
4. Shri Baliram Jadhav
5. Shri Shripad Yesso Naik
6. Shri Jagdambika Pal
7. Shri Ravindra Kumar Pandey
8. Shri Vijay Inder Singla

Rajya Sabha

9. Shri V.P. Singh Badnore
10. Shri Jesudasu Seelam
11. Shri Mohammad Shafi

SECRETARIAT

1. Shri Brahm Dutt — *Joint Secretary*
2. Smt. Abha Singh Yaduvanshi — *Director*
3. Shri Rajesh Ranjan Kumar — *Deputy Secretary*

2. In the absence of the Chairman, the Committee chose Shri Motilal Vora, a Member of the Committee to act as Chairman for the sitting in accordance with Rule 258 (3) of the Rules of Procedure and conduct of Business in Lok Sabha.

3. At the outset, the Chairman, welcomed the members of the Committee to the sitting of the Committee *** **

4. *** **

5. *** **

6. *** **

7. The Committee then took up for consideration the draft Reports on (i) Action Taken on the recommendations contained in the 15th Report on "Funding of New and Renewable Energy Projects" and (ii) Action Taken on the recommendations contained in the 16th Report on "Small and Mini Hydel Projects". The Committee adopted both the Reports without any modification. The Committee also authorized the Chairman to finalize the Reports and present the same to both the Houses of Parliament.

8. *** **

9. *** **

The Committee then adjourned.

APPENDIX II
(Vide Introduction of Report)

ANALYSIS OF ACTION TAKEN BY THE GOVERNMENT ON THE
OBSERVATIONS/RECOMMENDATIONS CONTAINED IN THE
SIXTEENTH REPORT (15TH LOK SABHA) OF THE
STANDING COMMITTEE ON ENERGY

(i) Total number of Recommendations	12
(ii) Observations/Recommendations which have been accepted by the Government: Sl. Nos. 3, 4, 6, 7, 8, 9, 10, 11 and 12	
Total:	09
Percentage	75%
(iii) Observations/Recommendations which the Committee do not desire to pursue in view of the Government's replies: Nil	
Total:	00
Percentage	00%
(iv) Observations/Recommendations in respect of which the replies of the Government have not been accepted by the Committee and which require reiteration: Sl. Nos. 1 and 5	
Total:	02
Percentage	17%
(v) Observations/Recommendations in respect of which final replies of the Government are still awaited: Sl. No. 2	
Total:	01
Percentage	08%