

**Government of India
Ministry of New & Renewable Energy
(Small Hydro Power Division)**

Frequently Asked Questions

1. What is the classification in hydro projects and small hydro projects?

Hydro projects up to 25 MW capacity are categorized as Small Hydro Power (SHP) projects.

Further, these are classified as:

Micro Hydro	Up to 100 kW
Mini Hydro	101 to 2000 kW
Small Hydro	2001 to 25000 kW (25 MW)

2. What is the Mandate or work distribution among the Ministries as far as Hydro power projects are concerned?

The Ministry of New and Renewable Energy has been allocated the business of small, mini and micro hydro power plants up to 25 MW station capacity. The Projects above 25 MW capacity are dealt by the Ministry of Power.

3. What is the total potential to set up small hydro projects and how many sites have been identified?

The potential to generate power from small / mini / micro hydro projects up to 25 MW station capacity has been assessed at around **20,000 MW**. 6474 potential sites with an aggregate capacity of 19,749 MW have been identified.

4. How many small hydro projects have been set up so far and how many are under implementation?

1016 small hydro projects with an aggregate capacity of 3970 MW have been set up and 236 projects with an aggregate capacity of 768 MW are under implementation. (Till 31st December 2014)

5. What are the advantages of Small / mini / micro hydel projects?

The small hydro projects normally do not encounter the problems associated with large hydro projects such as construction of dams, deforestation and resettlement. The projects have potential to meet power requirements of remote and isolated areas. The plants have long useful life and the generation cost is almost inflation free. The plants help in conserving

fossil fuels and are beneficial to environment as they substitute thermal power thereby reducing carbon emissions. These factors make small hydro power as one of the most attractive renewable source of grid quality power generation

6. What has been the capacity addition achieved during the 11th Plan period from SHP projects?

During the 11th Plan period, 1418.84 MW capacity has been added from SHP projects against a target of 1400 MW,

7. What is the target and achievement so far during the 12th Plan period?

A target of adding 1600 MW from small hydro has been fixed for the 12th Plan period and so far 545.18 MW capacity have been added during the first three years upto 31st December 2014.

8. What are the incentive schemes to promote small / micro hydel projects.

The MNRE has been providing financial support / subsidy for following activities to develop the SHP sector:

- Resource Assessment, Detailed Survey & Investigation, Detailed Project Report preparation and perspective plan for States
- Capital Subsidy to State Sector Projects
- Subsidy for Commercial Projects
- Renovation & Modernization of old SHP projects (State Sector)
- Water Mills / Micro hydel projects
- Research & Development, and Human resource Development, strengthening of technical institution /Capacity building, setting up turbine laboratory

<http://mnre.gov.in/file-manager/grid-small-hydro/SHP-Scheme.pdf>

9. Is the Ministry encouraging private sector to set up SHP projects. How many states have announced their policy in this regard and how many projects have been set up so far by the private sector?

Small hydro power projects have reached commercial stage. The projects are normally economically viable and private sector has been showing interest in investing in the SHP project.

Since 1993-94, the thrust of this Ministry's SHP programme has been development of SHP projects through private sector investments. As per the Electricity Act, 2003, the State Electricity Regulatory Commissions (SERCs) have been empowered to decide on various

components of the policy such as tariff, wheeling, banking and third party sale for grid interactive renewable energy based power projects, in their respective State. So far, 23 States namely **Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, J&K, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal** have announced policies for private sector participation in the SHP sector.

So far 225 SHP projects aggregating 1241 MW have been set up by the private sector. Most of these projects are set up in the States of Andhra Pradesh, Himachal Pradesh, Karnataka, Maharashtra, Punjab and Uttarakhand.

10. State wise details of private Sector small hydro projects

Sl. No.	State	Total Number	Total Capacity (MW)
1	Andhra Pradesh	42	102.93
2	Assam	1	0.10
3	Gujarat	2	4.00
4	Himachal Pradesh	51	248.25
5	Haryana	2	7.40
6	Jammu & Kashmir	2	17.50
7	Karnataka	76	623.05
8	Kerala	3	36.00
9	Madhya Pradesh	1	2.20
10	Maharashtra	8	53.00
11	Orissa	2	32.00
12	Punjab	17	25.50
13	Tamil Nadu	1	0.35
14	Uttarakhand	12	82.50
15	West Bengal	5	6.45
		225	1241.23

11. What is the long-term goal of the Ministry for Small hydro projects?

The present growth of capacity addition from Small hydro projects about 250 MW per year. The aim is to double the current growth rate and take it to a capacity addition of 500 MW per year with total capacity addition of 2000 MW in next 5 years.

12. What are the incentives available to the Government Sector to set up small hydro projects.

The Ministry provides a financial support of Rs.7.50 crore per MW limited to Rs.20 crore per project to in the North-Eastern States & Special category states of J&K, HP and Uttarakhand and Rs.3.5 crore per MW limited to Rs. 20 crore per project for projects in the other States being set up in the Government Sector.

<http://mnre.gov.in/file-manager/grid-small-hydro/SHP-Scheme.pdf>

13. What are the incentives available to the private sector to set up small hydro projects.

The Ministry provides a financial support of Rs.1.50 crore per MW limited to Rs.5 crore per project to in the North-Eastern States & Special category states of J&K, HP and Uttarakhand and Rs.1 crore per MW limited to Rs. 5 crore per project for projects in the other States being set up by the private sector which commenced their construction work after 1st April, 2013.

<http://mnre.gov.in/file-manager/grid-small-hydro/SHP-Scheme.pdf>

14. What are the Clearances required to set up SHP projects

Clearances required to set up SHP projects vary from State to State. However, following are the main statutory clearances required for setting up of SHP projects:

- Techno-economic clearance by State Electricity Board / Power Department.
- Allotment of land by the State Revenue Department.
- Forest and Environmental (if, necesery) clearance by MoEF
- Water rights by State Irrigation Department
- No Objection Certificate from State Pollution Control Board
- No Objection Certificate from Fisheries Department

15. When a developer should apply for MNRE incentive/ subsidy (time line) for SHP project.

The SHP projects upto 25 MW capacity taken up in the private sector, joint sector, cooperative sector, etc., are eligible for financial support under the scheme. The request on application form alongwith documentary proof, for the grant of financial support for SHP project, complete in all respect from the developer should be submitted to the Ministry within six months from the commencement of project work at the site or obtaining financial closure with the Financial Institution / Bank whichever is earlier.

16. What are the main Constraints in setting up SHP projects

The growth in the SHP sector is relatively slow. The main reason for the slow progress can be attributed to the difficult locations where SHP projects are normally set up, short working season in hilly areas and involvement of private and forest land in setting up of SHP projects. The risks due to natural calamities in setting up SHP projects are high and sometimes the developers face resistance from local residents. This apart, time taken in allotment of sites

and obtaining statutory clearances in the States, adds up to the over all time in construction of SHP projects. The Main constraints in setting up SHP projects are:

- The SHP projects are governed by the State policies and the potential sites are allotted by the State Governments to private developers.
- Time consuming process for allotment of sites by the States and statutory clearances including land acquisition, forest clearance, irrigation clearance etc.
- Relatively longer gestation period in completing the projects due to difficult terrain and limited working season.
- Inadequate evacuation facilities for power generated from projects.
- Increase in project cost due to inflation in the prices of steel and cement.

17. What is financial support provided by the Ministry for setting up Micro Hydro Power projects?

The Ministry also provides financial support for installation of Micro Hydro Power projects up to 100 KW capacity in the country set up by Government dept., agencies, co-operative societies, local bodies, tea gardens, NGOs, entrepreneur etc. for the benefit of villagers living in the remote & inaccessible hilly areas to meet their local electricity needs in decentralized manner. A support of Rs.1,25,000/- per KW is provided for installation of these projects

18. What is the objective of the Water mill programme of the Ministry and how it will benefit to the local people? Are the local people also involved in this programme?

It was observed that the traditional Water mills are operating at a very low efficiency of around 15 to 20 per cent. A large number of Water mills have been found in disuse. Under the Water mill programme of the Ministry, new designs of water mills have been developed with efficiency 2 to 3 times that of the traditional Water mills both for mechanical application as well as for generation of electricity. This will improve the productivity of Water mills and supply of electricity to remote localities. This is basically a scheme which is directly benefiting the local people living in the difficult remote and hilly areas of Himalayan & sub-Himalayan region of the country. They are the owners of Water mills and fully involved & responsible for running of their Water mill.

19. What is the financial support to the beneficiary for setting up the Water mill?

The Ministry provides Rs. 50,000 to the beneficiaries for installation of a Water mill with mechanical application and Rs. 1,50,000 lakh for electrical generation.

20. How many Water mills have been supported by the Ministry so far?

Under the Scheme about 2,200 watermill so far upgraded/installed mainly in the State of Jammu & Kashmir, Karnataka, Kerala, Tamilnadu and Uttarakhand, During 2014-15 , Ministry has sanctioned financial support for 580 watermills and 80 Water mills have been reported to set up/ upgraded till November 2014.

21. What are the Research & Development activities under small hydro power?

The Small Hydro Power sector is nearly commercial and there is a good manufacturing base in the country. Industrial based R&D is carried out to further improve efficiencies, reliability and reduce costs of the equipment. The main objective of our R&D efforts would be towards simplification and optimization of system and equipment designs and engineering practices, reduction of costs of all items of SHP projects and increase in equipment reliabilities, techniques for speeding up construction period of the projects.

22. What are the plans for manpower development under small hydro power?

There is need of engineering professionals in the field of civil, mechanical, electrical & electronics and regular interaction with engineering colleges are done to include these activates in their teaching syllabus. Besides, AHEC, IIT, Roorkee provides regular training programmes for the engineers working in the Small Hydro Power. International courses are also organised by AHEC every year for training of about 30 engineers of Asian & African countries.