

CHAPTER - I

PERFORMANCE REVIEWS

ENERGY AND POWER DEPARTMENT

1.1 Development of Hydropower Projects – Public Private Participation

The State of Sikkim has won accolades from various prestigious organisations in and outside the country for excellent law and order situation, peace and tranquillity, investor ambience, environment management and overall good governance. The State Government considered promoting these positive factors in the national and international markets in harnessing the huge hydro power potential through private sector investment with a view to turnaround the State's economy and avoid its dependence upon central transfers for development. With the liberalisation of Power policy by the Government of India, the State Government identified 35 hydro power projects with an aggregate installed capacity of 5,741.20 MW and invited the Independent Power Producers (IPPs) for development of projects since 2001-02. Performance audit of Development of Hydro power Projects by the State Government through Private Sector participation revealed that the State had neither finalised its hydro power policy nor prepared a time bound plan till date for implementation of the projects. Absence of a firm and defined policy and a definite plan led to inconsistency in award of projects and lack of a well thought of revenue model resulted in loss of potential revenue. Besides, the State also did not take sufficient precaution against degradation of environment. The significant observations noticed are highlighted below:

**The State Government had not finalised and notified private power policy as of
pared the draft private power policy for the State as early as September 2003.**

(Paragraph 1.1.8)

**Award of two projects to Gati Infrastructures Ltd (November 2003) and two
comparative low rate of 12 per cent royalty for the entire agreement period may
lead to a potential loss of Rs.143.50 crore per year from the 16th year of operation
onwards.**

(Paragraph 1.1.10.1)

**Imposition of upfront premium at a meagre rate of Rs. 10,000 per MW would
lead to a reduction in revenue ranging between Rs. 60.08 crore and Rs. 279.87
crore as compared to other states like Himachal Pradesh (HP), Jammu &
Kashmir (J&K), Uttarakhand and Arunachal Pradesh.**

(Paragraph 1.1.10.2)

Due to imposition of penalty at an abysmal low rate of Rs. 10,000 per MW per 2,514.49 crore and Rs. 2,622.76 crore per year as compared to Uttarakhand, HP and J&K and Rs.137.08 crore per year as compared to Arunachal Pradesh.

(Paragraph 1.1.10.4)

Non-imposition of specific condition for regular contribution towards local area development on 16 developers led to loss of Rs. 245.20 crore annually.

(Paragraph 1.1.10.5)

Adequate steps to safeguard the environment viz. catchment area treatment plans, protection and preservation of riverine fishes etc. has not been taken during implementation of hydro power projects.

(Paragraph 1.1.12)

Regular monitoring and vigil to ensure proper execution of the projects by the developers was virtually non-existent.

(Paragraph 1.1.14)

1.1.1 Introduction

Electricity has been recognised as a basic human need and a critical infrastructure on which the socio-economic development of the country depends. Availability and supply of reliable power at competitive rates to Indian industry, services sector, rural households, etc. is very crucial for rapid economic growth and poverty alleviation. Recognising this, Government of India (GOI) set a target of providing access to electricity to all households¹ in the next five years through significant addition to the generation capacity of the existing power projects in the country. With the liberalisation of Power policy by the GOI, the State Government also opened the power sector to private developers with the objective of rapidly harnessing the hydro power potential of the State and thereby gaining in a big way by exporting electricity to other power hungry States of the Country. The hydro power potential of the State was assessed at 8,000 MW peak. The State Government identified (upto September 2009) 35 hydro power projects of total capacity 5,741.20 MW (ranging between 27.50 MW and 1,200 MW) for development by independent power producers (IPPs) and the NHPC. Letters of intents (LOIs) had been issued in respect of 33 projects for 5,681.20 MW capacity, out of which, agreements (MoU) had been signed in respect of 28 projects with IPPs (24 projects) and NHPC (4 projects) for a total of 5,421.70 MW. The details of the 35 power projects are depicted in the table below:

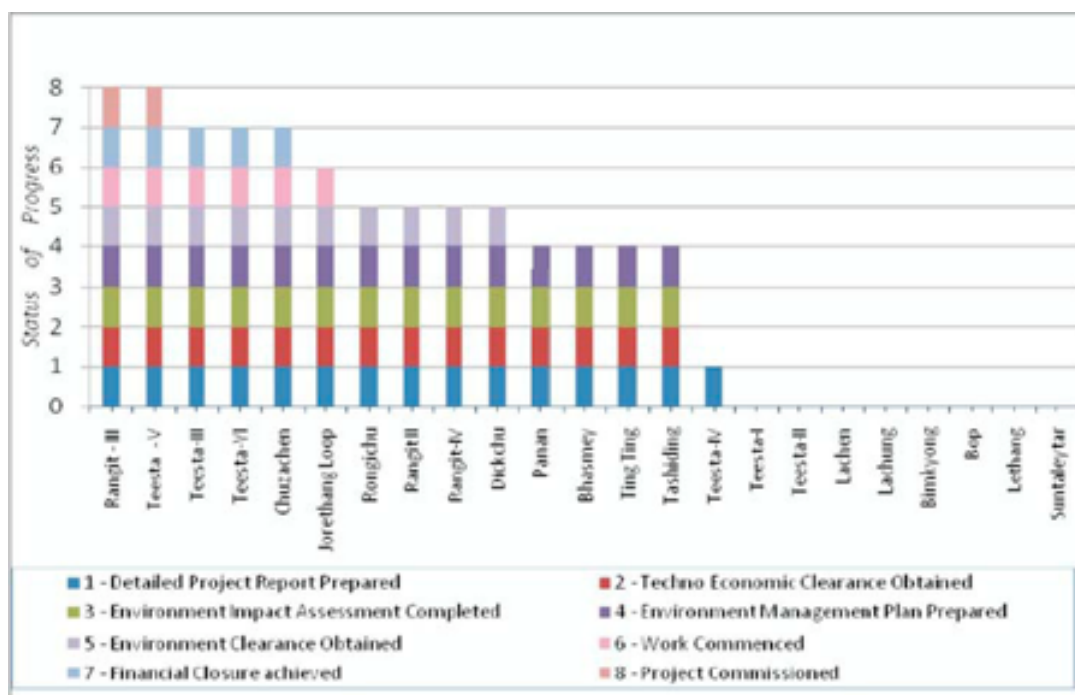
¹ According to Census 2001, about 44 per cent of the households in the country do not have access to electricity.

Table – 1.1.1

Sl No	Particulars	No of projects	Capacity (MW)
1	Total number of projects identified	35	5,741.20
2	LOIs issued	33	5,681.20
3	LOIs withdrawn	2	139
4	LOIs against which agreements are yet to be drawn	3	120.50
5	Agreements signed	28	5,421.70
6	Agreements withdrawn	5	314
7	Agreements valid	23	5,107.70
8	Projects awarded to NHPC	4	1300
9	Projects awarded to IPPs	19	3,807.70
10	Projects commissioned (NHPC)	2	570

Source: Information obtained from the Department.

As of September 2009, only two projects viz; Rangeet Stage III (60 MW) and Teesta Stage V (510 MW) aggregating 570 MW constituting 10 per cent of the total capacity identified had been commissioned by the NHPC in February 2000 and March 2008 respectively. 13 projects were at various stages of progress while 8 projects were yet to make any progress. The status of progress of the projects is depicted in the graph below:

Chart 1.1.1

1.1.2 Organisational set-up

Development of hydro power projects in Sikkim was entrusted to the Sikkim Power Development Corporation (SPDC), a fully owned State Government undertaking, as a facilitator under the overall control of the Energy and Power Department. The SPDC is headed by a Managing Director (MD) who is also the Principal Chief Engineer-cum-Secretary, Energy and Power Department (EPD). The MD, SPDC is

assisted by one Senior General Manager (Chief Engineer. EPD), one General Manager, one Manager and one Assistant Manager in the discharge of his duties relating to development of hydro power projects through the IPPs/NHPC.

1.1.3 Scope of Audit

The performance of the State Government in developing hydro power projects in collaboration with the private sector was reviewed with reference to the activities undertaken by the State Government and the SPDC during the period 2003-08. The audit was carried out during March - August 2008 and May - June 2009. All 23 projects awarded so far to the IPPs / NHPC for which agreements signed were valid were selected for examination in audit.

1.1.4 Audit objective

The main objectives of the performance audit were to assess whether:

- the State Government had a clear vision and a well defined policy for development of its hydro power potential;
- due diligence was exercised in awarding the development of power projects to the IPPs;
- the projects were implemented in strict compliance with the norms laid down for establishment of hydro power projects; and
- the issues relating to protection of environment were adequately addressed while awarding projects to the IPPs.

1.1.5 Audit criteria

The audit objectives were benchmarked against the following criteria:

- Electricity Act 2003 and National Hydro power Policy.
- Agreements entered into with the IPPs / NHPC.
- Guidelines issued by the Union Ministry of Power, Central Electricity Authority, Ministry of Environment and Forests and the Central Water Commission from time to time.
- Private power policies of other hydro power States.
- Private power policy prepared by the Administrative Staff College of India for Sikkim.

1.1.6 Audit methodology

The Performance audit commenced with an entry conference (March 2008) with the Department wherein the audit objectives, audit methodology and criteria for drawing audit conclusions were discussed. Audit was conducted by examination of records maintained in the Energy and Power Department, SPDC office and obtaining related information from various departments such as Forest, Environment and Wildlife

Management; Mines, Minerals and Geology and the Fisheries Directorate. Audit findings were discussed with the Departmental officers in an exit conference (September 2009) and their views appropriately incorporated in the report.

1.1.7 Acknowledgement

Accountant General, Sikkim acknowledges the cooperation and support extended by the Energy & Power Department, Sikkim Power Development Corporation, Directorate of Fisheries, Forest Environment & Wildlife Management Department and the Mines, Minerals & Geology Department during audit.

Audit Findings

1.1.8 Private Power Policy

Government of India launched the private power policy as early as 1991. As the methodologies regarding independent power projects (IPP) had not been firmed up by then, the initial project solicitation was done through the Memorandum of Understanding (MOU) route. Subsequently, in order to bring in transparency and to ensure better deal for the States, GOI advised (October 1993) all the States to introduce competitive bidding and forwarded (October 1995) guidelines thereof.

The State Government, however, had not spelt out any vision, mission, policy or a plan for development of hydro power projects through private sector participation. In 2002 - 03, after more than a decade of announcement of the private power policy by the GOI, the State Government engaged² the Administrative Staff College of India (ASCI), Hyderabad as consultants for preparing hydro power policy for the State. The ASCI submitted (September 2003) a draft policy for the State which, inter alia, envisaged advertisement of the projects to seek potential bidders; award of projects to the highest bidder; laying down qualifying criteria for the IPPs such as past experience of hydro power development; determining financial capability of the IPPs; rate of royalty; norms for maintenance of projects etc. However, no further action was taken by the Power Department to get the private power policy approved and notified by the Government even as of September 2009.

While accepting the facts stated by audit, the Department replied (September 2009) that since hydro power is the only available source of revenue generation for the State, they awarded the projects before finalisation of the hydro power policy to quicken up the implementation of the projects.

However, absence of hydro power policy and a well defined plan led to a number of inconsistencies in award of projects to IPPs, loss of revenue to the State, environmental risk, etc. as discussed in the succeeding paragraphs.

² At a cost of Rs. 30 lakh.

1.1.9 Award of Projects

1.1.9.1 Transparency in award of projects

Despite many encouraging attributes of the State, open advertisement and dissemination of information regarding availability of hydro power potential in the State for development by the private sector, was not done either in the print or electronic (internet) media with a view to solicit best deals from reliable and competent firms. Instead, all the projects, irrespective of the size, were awarded by the State Government through the MOU route without calling for bids. Despite considerable hue and cry in the State regarding the methodology adopted for award of the projects, the Government had not notified the details of potential available, modality for award of projects, technical capability, financial strength and experience of IPPs chosen, etc. to the public.

The Department stated (September 2009) that the details of projects, location, IPPs etc. are available in the official website of the Department. Besides, a white paper on hydro power resources in Sikkim has been brought out by the Government.

Audit scrutiny revealed that the official website of the Energy and Power Department contained an outdated list of 26 projects detailing only the name of the projects and address of the IPPs. The website did not capture the projects cancelled, new projects allotted, details of potential available, modality for award of projects, technical capability, experience and financial strength of IPPs etc. Even the white paper brought out in April 2009, also categorically mentioned that the basic facts regarding the hydro power projects were not available in the public domain.

1.1.9.2 Safeguards against plants remaining defunct

The State Government should have incorporated specific conditions in the agreements to safeguard its interest in cases where the plants, after commissioning, remain shut down for considerable lengths of time due to reasons attributable to the developers. However, no such condition was incorporated in the agreements. Hence, the State had no enabling provision to compel the IPPs for payment of appropriate compensation in lieu of the free power receivable from the projects.

The Department stated (September 2009) that provision was made in the agreements for levy of penalty in case of delay in construction by more than 12 months. However, it was seen in audit that no clause for levy of penalty for plant remaining defunct after commissioning was incorporated in the agreements.

1.1.9.3 Modality for transfer of projects

The agreements did not incorporate the modalities for transfer of the assets and liabilities of the projects to the State Government after the termination of the award

period. No mention was made in the agreement as to what would happen to the manpower engaged in the projects after the award period and whether the manpower would also be transferred to the State Government alongwith the project or whether it would be left to the discretion of the State Government to retain the manpower in the projects. Further, the State Government had also till date not formulated any strategy for taking over the projects after the award period.

The Department stated (September 2009) that the modalities and strategy for taking over the projects after the award period shall be formulated shortly by the State Government.

1.1.9.4 Imposition of cost of Rajiv Gandhi Gram Viudyutikaran Yojana on the developers

Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY), a centrally sponsored scheme (90:10 CSS) for Rural Electricity Infrastructure & Household Electrification was launched by the Prime Minister of India in April 2005 with the objective of providing access to electricity to all households and improving the rural electricity infrastructure. In the agreements drawn (November/December 2008) by the State Government with M/s KHC Lethang Hydro Project Pvt Ltd (60 MW Lethang HEP) and M/s Shreya Powertech Pvt Ltd (40 MW Suntaleytar HEP), the IPPs were made to bear 10 *per cent* of the RGGVY scheme cost within the surface distance of 2 Kms from the project site. The above condition was not imposed on the other developers who had been awarded projects thereby resulting in inequitable terms of execution of the projects.

The Department stated (September 2009) that the condition of bearing 10 *per cent* cost of RGGVY schemes could not be imposed on agreements signed earlier as this condition was laid down by the GOI only in 2008. The reply, though a fact, further affirms audit contention that the agreements did not contain relevant provision for incorporation of new policy measures introduced by the GOI and the State Government from time to time.

1.1.10 Revenue model

The revenue model adopted by the State Government for development of hydro power projects by IPPs / NHPC was inconsistent and was determined without considering the report of the ASCI, the situation prevailing in other forerunner hydro power states like Himachal Pradesh and Uttarakhand and the goodwill that the State of Sikkim had in the country. This resulted in loss of potential revenue to the State as detailed in the following paragraphs:

1.1.10.1 Royalty from IPP / NHPC projects

The Sikkim Government did not impose uniform royalty on all developers. In respect of 17 IPP projects, the Government imposed 12 *per cent* free power for the first 15 years and 15 *per cent* free power for the remaining agreement period of 20 years (16th to 35th year). However, in respect of two projects³ awarded to an IPP (*Gati Infrastructures Ltd*), and four projects awarded to the NHPC, the Government charged 12 *per cent* free power for the entire agreement period. Out of the four NHPC projects, two - Rangeet Stage III and Teesta Stage V - were already commissioned in year 2000 and 2008. The other two projects (Teesta Stage IV and Lachen HEP) awarded to NHPC in March 2006 were yet to be taken up for execution.

Award of two projects to Gati Infrastructures Ltd (November 2003) and two other projects to NHPC (March 2006) at a comparatively low rate of 12 *per cent* royalty for the entire agreement period may lead to a potential loss of Rs. 143.50 crore per year⁴ from the 16th year of operation onwards.

The Department stated (September 2009) that the condition of 12 *per cent* free power was imposed on the NHPC for the entire life of the projects based on GOI guidelines as it was a GOI agency. In case of Gati Infrastructures Limited, royalty of 12 *per cent* was imposed for the entire agreement period as M/s Gati was the first IPP to venture into the State and the two projects awarded to Gati were of very small capacities located in remote areas. Award of projects at a low rate of royalty to M/s Gati was due to absence of a defined policy and an effective revenue model. The projects which were later awarded to other IPPs at higher rate of revenue were of even smaller capacities situated at even more remote locations.

1.1.10.2 Upfront premium

The State Government had signed agreements with various IPPs and NHPC for development of 28 hydro power projects with total installed capacity of 5,421.70 MW as of December 2008. An amount of Rs. 10,000 per MW was charged as 'processing fees' in the agreements drawn with 18 IPPs between July 2005 and December 2008, irrespective of the size of the projects. No such fees were charged on the developers of 10 projects (*six IPP projects of 346.70 MW agreements signed between December 2002 and November 2003 and four NHPC projects of 1300 MW*).

Audit scrutiny revealed that the States of Himachal Pradesh, Uttarakhand, Jammu & Kashmir and Arunachal Pradesh charged minimum upfront premium at rates ranging

³ Chuzachen (99 MW) and Bhasmey (51.7 MW)

⁴ (99 + 51.7 + 520 + 210) MW = 880.70 MW; 880.70 x 1000 x Rs. 6.20 = Rs. 143.50 crore. The loss to the State has been calculated at current average trading rate of Rs. 6.20 per unit of electricity on full installed capacity. The rise in tariff with time is presumed to offset the generation below installed capacity.

between Rs. 1.5 lakh and Rs. 10 lakh per MW for projects of 100 MW and above capacity. The imposition of upfront premium on the IPPs at a meagre rate of Rs. 10,000 per MW by the State would lead to a reduction of revenue by a minimum of Rs. 279.87 crore as compared to Himachal Pradesh, Rs. 138.52 crore as compared to J&K / Uttarakhand and Rs. 60.08 crore as compared to Arunachal Pradesh for projects above 100 MW.

The states of Uttarakhand and J&K also charged minimum upfront premium of Rs. 5 lakh per MW for projects above 25 MW but below 100 MW. If fee was imposed at this rate, the State of Sikkim would have collected Rs. 64.74 crore⁵ from 17 IPP projects in the range of 25 MW to 100 MW of total 1,294.70 MW capacity. However, the State could collect only Rs. 0.95 crore from 11 projects having total installed capacity of 947 MW leading to a loss of Rs. 63.79 crore.

The Department stated (September 2009) that it was a conscious decision of the State Government and upfront premium were not charged on the developers as (i) the developers had to do the pre-feasibility study at their own cost for most of the projects, unlike in other hydro power states (ii) collection of application fees and upfront premium would unnecessarily burden the capital cost of the projects thereby raising the cost of generation. The reply was not acceptable as upfront premium charged by other hydro power states was part of the project allotment process not related to cost of Pre-feasibility Reports while application fee was charged separately. Further, when all other hydro power states including Arunachal Pradesh were imposing upfront premium at substantial rates, a peaceful State like Sikkim with a record good governance and excellent law and order situation should have charged the application fees / upfront premium.

1.1.10.3 Application fees

The States of Himachal Pradesh, Uttarakhand and Jammu & Kashmir also charged a non-refundable application fee of Rs. 5 lakh per project on the IPPs. The State did not impose any application fees on the 41 IPPs who had applied to the State Government for development of power projects, as charged by other forerunner hydro power states. This led to a loss of Rs. 2.05 crore to the State Exchequer.

1.1.10.4 Penalty for delay in commissioning of IPP projects

The Sikkim Government imposed penalty of Rs. 10,000 per MW per month on the IPPs for delay in commissioning of the projects beyond the stipulated time period. A comparison of such penalty imposed by other hydro power States revealed that the penalty imposed by the State was appallingly low. Where Arunachal Pradesh charged a penalty of Rs. 40,000 per MW per month of delay, the States of Himachal Pradesh

⁵ 1294.70 MW x Rs. 5 lakh per MW = Rs. 64.74 crore.

and Jammu & Kashmir imposed penalty equivalent to the royalty revenue that would have been payable to the Government had the project been commissioned in time. Uttarakhand imposed penalty of one *per cent* for one year over and above the 12 *per cent* free power for each year of delay (*totaling 13 per cent penalty per year*). Thus, due to imposition of penalty at an abysmal low rate, the State stood to lose⁶ between Rs. 2,514.49⁷ crore to Rs. 2,622.76 crore for each year of delay in commissioning the projects, when compared to the rate of penalty imposed by Uttarakhand, Himachal Pradesh and Jammu & Kashmir. Even when compared to Arunachal Pradesh, the State would be losing Rs. 137.08 crore per year towards royalty revenue for each year of delay. The meagre penalty of Rs. 10,000 per MW per month of delay imposed by the State had no logical basis as it was not linked to the royalty that the State would be receiving had the projects been commissioned in time. The agreements, thus, favoured the IPPs at the expense of the Exchequer.

The Department stated (September 2009) that the rate of penalty for delay in commissioning the projects was kept low as chances of non-completion of projects within scheduled time in the State of Sikkim with peaceful and enabling environment were very low. The reply was not acceptable as there was delay of more than 14 months in the commissioning of the 510 MW Teesta Stage V project executed by the NHPC leading to potential loss of Rs. 382.48 crore⁸ to the State on its quota of 12 *per cent* free power receivable from the project during the 14 month period.

1.1.10.5 Local area development fund

The terms of agreements entered into with the project developers were not standard and uniform. Only in seven projects (593 MW) out of the twenty three (5,107.70 MW), the State Government incorporated a condition in the agreements that the project developer would supply additional one *per cent* free energy or money equivalent thereof from the project for the entire 35 years from the date of commercial operation of the project towards local area development fund. In case of the other 16 projects awarded, no specific condition on the developers had been imposed towards contribution for local area development. Non-imposition of specific condition for regular contribution towards local area development on the other developers with total 4,514.70 MW capacity led to a

⁶ The loss to the State have been calculated at current trading rate of Rs. 6.20 per unit of electricity on full installed capacity. The rise in tariff with time is presumed to offset the generation below installed capacity.

⁷ As per Himachal Pradesh = 3807.70 MW x 365 x 24 x 1000 x 6.2 x 12% = Rs. 2560.18 crore.

Uttarakhand = 3807.70 MW x 365 x 24 x 1000 x 6.2 x 13% = Rs. 2688.45 crore. Arunachal

Pradesh = 3807.70 MW x 40,000 x 12 = 182.77 crore.

State norm = 3807.7 x Rs. 10,000 x 12 months = Rs. 45.69 crore.

Loss as compared to: Uttarakhand = Rs. (2688.45 – 45.69) crore = Rs. 2622.76 crore; Himachal

Pradesh = Rs. (2560.18 – 45.69) crore = Rs. 2514.49 crore; Arunachal Pradesh = Rs. (182.77 –

45.69) crore = Rs. 137.08 crore.

⁸ 12% of 510 MW = 61.2 MW x 14 months x 30 days x 24 hrs x 1000 Kwh x Rs- 6.2 = Rs. 382.48 crore

loss of Rs. 245.20 crore⁹ annually.

The Department stated (September 2009) that the provision of one *per cent* local area development fund was kept in all agreements signed on or after 2008 based on the revised hydro power policy of the GOI announced in 2008. This condition could not be incorporated earlier as there was no such provision. The reply, however, reveals that the agreements did not contain relevant provision for incorporation of new policy measures introduced by the GOI and the State Government from time to time.

1.1.11 Execution of projects

1.1.11.1 Equity subscription agreements

In terms of the agreements entered with the IPPs between July 2005 and March 2006, in the six¹⁰ Joint Venture Projects of 100 MW and above, the IPPs would allocate 26 *per cent* of the company's equity to the Government by way of execution of equity subscription agreement, which was to be executed within a period of 6 months from the date of signing of the agreements for award of the project. It was however, seen that even after more than three years of award of the projects to the IPPs, the equity subscription agreements had not been signed as of September 2009 which is indicative of the absence of seriousness of the State Government in following the terms of the agreements and achieving the laid down milestones. Similarly, in case of joint venture projects of below 100 MW capacity in respect of which the IPPs would allocate 11 *per cent* equity to the State Government, neither the target date for executing the subscription agreement was fixed nor the agreements executed as of September 2009.

The Department stated (September 2009) that the process of equity subscription agreement has been initiated.

1.1.11.2 Power purchase agreements

Of the 19 private IPPs whose agreements were still in currency till date (September 2009), power purchase agreements (PPA) in respect of only two developers had been drawn. This indicated that the remaining 17 IPPs had not been able to enter into PPA with any agency till date. In the absence of the PPAs, it was not clear how the IPPs would achieve financial closure and mobilise resources required for execution of the projects. More importantly, it was seen that the State Government had not fixed any deadline for the private developers to draw the PPAs. Failure to draw the PPAs with the prospective electricity consumers, traders or any other parties was therefore fraught with the risk of inordinate delay in completing the projects or abandonment

⁹ 45.147 MW x 365 days x 24 hrs x 1000 kw x Rs. 6.20 = Rs. 245.20 crore.

¹⁰ (i) Teesta-I, (ii) Teesta-II, (iii) Teesta-III, (iv) Teesta-IV, (v) Panan, and (vi) Rangit-IV

of the projects at a later date.

The Department stated (September 2009) that two IPPs had till date completed the PPAs while the other IPPs were making efforts to finalise the PPAs early.

1.1.11.3 Abandonment of projects

The agreement signed by the State Government with the IPPs allowed various time periods, stretching upto 7 years, for commissioning of the projects after the date of signing agreement. It was however seen in audit that no condition was included in the agreements by the State Government for payment of compensation by IPPs for abandonment of the projects midway through implementation. No security deposit in the form of earnest money or otherwise, to ensure seriousness of the private developers was imposed. Absence of appropriate safeguards in the agreement against non-performance/abandonment was fraught with the risk of desertion of the projects by the IPPs midway. Absence of such safeguards also encouraged non-serious players and middlemen to apply for the projects.

The above observation was corroborated by the fact that the State Government had issued letter of intent (LOI) in August 2002 to the consortium of M/s Amalgamated Transpower Limited (ATPIL) and Karnataka Power Corporation Ltd. (KPCL), for drawing of agreement for development of the projects Teesta Stage IV (495 MW) and Teesta Stage VI (440 MW). No target date was fixed for drawing the agreement, although the Department mentioned that the agreement should be drawn at the earliest. The ATPIL/KPCL failed to draw the agreements even after a lapse of two years of issue of the LOI, while the Department dilly dallied with the matter. The LOIs were later cancelled in August 2004. The two projects were subsequently awarded to the NHPC (Stage IV) in March 2006 and M/s Lanco Energy Pvt. Ltd (Stage VI) in December 2006.

The negligence of the Department in fixing a target date for finalising the agreement and its failure to timely cancel the LOI issued to ATPIL/KPCL and non-exercise of due diligence pushed back development of the projects by a further four years and led to potential loss of Rs 2,437.52 crore¹¹ to the State Government against the free power receivable from the projects.

Subsequently, in June 2008, agreements in respect of 5 other projects, 3 of which had been awarded as early as December 2002 (126 MW) and two in March 2006 (213 MW) and LOIs issued in respect of 2 projects (160 MW) were also cancelled, indicating lack of due diligence while awarding the projects.

The Department stated (September 2009) that the delay in signing agreements was

¹¹ $(440 + 495) \text{ MW} = (935 \text{ MW} \times 4 \text{ yrs} \times 365 \text{ days} \times 24 \text{ hrs} \times 1000) \text{ units} \times \text{Rs. } 6.20 \times 12\% = \text{Rs. } 2,437.52 \text{ crore}$

caused due to delay in approval of draft, delay in vetting draft by concerned Departments etc. It was further stated that while some projects were cancelled due to public sentiments, others were cancelled due to failure of the IPPs to achieve the prescribed milestones and on technical grounds.

1.1.11.4 Engagement of Amalgamated Transpower (India) Ltd for developing power projects

The Government through the SPDC proposed (December 1998) execution of four¹² small hydel power projects of 61 MW capacity by arranging funds of Rs. 300 crore through Market borrowings, targeted for completion within a period of four years on fixed cost and fixed time principle. The firm Amalgamated Transpower (India) Ltd. (ATPIL) was engaged for arranging funds through issue of bonds through an agreement (April 1999). The ATPIL raised (July to October 1999) bonds for Rs. 50.01 crore in the name of SPDC, guaranteed by State Government. Against this amount, expenditure of Rs. 51.34 crore¹³ was incurred on various preliminary activities such as cost of raising bonds, preparation of DPRs etc. upto November 2003. Despite this fact, the ATPIL failed to raise further bonds for the projects. Although the SPDC decided (July 2001) to recover Rs. 9.16¹⁴ crore from the ATPIL, no such recovery was made.

Subsequently, in June 2002, the SPDC decided to hand over the projects with enhanced capacity of 126 MW to the ATPIL on Build, Own, Operate and Transfer basis (BOOT) on the condition that the responsibilities of payment of Rs. 50.01 crore on account of bonds, interest and other incidentals would rest with ATPIL besides payment of Rs. 38.64 crore to SPDC to make up the losses. The Cabinet approved (October 2002) the proposal and a fresh agreement was signed (December 2002). The fresh agreement provided for completion of the projects between December 2006 and December 2007 (*Rolep I&II - December 2006, Ralong - December 2007 & Chakungchu - December 2007*). The SPDC paid Rs. 9.33 crore towards interest on bonds after signing of the fresh agreement.

The dues of Rs. 38.64 crore and interest of Rs. 9.33 crore paid by the SPDC on bonds were never paid back by ATPIL, as this had not been factored in the new agreement. Even after the fresh agreement, the ATPIL did not furnish Bank guarantee before December 2003 or thereafter for due discharge of the liabilities as agreed. The new agreement was later cancelled by the Government.

¹² Rolep (I&II) 21 MW, Ralong 16 MW and Chakungchu 24 MW.

¹³ Rs. 19.64 crore paid to ATPIL towards commission (Rs. 1.89 crore), advance for raising bonds (Rs. 6.56 crore), preparation of DPRs & CAT plans (Rs. 6.19 crore) construction of approach road (Rs. 5 crore), Rs. 2.65 crore spent on stamp duty and registration. Rs. 29.05 crore spent on payment of interest to Bond holders.

¹⁴ Rs. 8.19 crore towards fees of raising of bonds with interest, interest of Rs. 62.25 lakh on advance paid for DPR and Rs. 35.09 lakh towards interest paid in excess due to delay in allotment of bonds.

Thus, action of the Government for executing the projects with borrowed funds by engaging the firm ATPIL without exercising due diligence resulted in wastage of Rs. 51.34 crore (more than the entire borrowed funds) on preliminary expenses and undue favour to the ATPIL. The inefficient functioning of SPDC and absence of close monitoring and supervision by Government led to ultimate cancellation of the projects which had not been awarded till date (September 2009).

The Department stated (September 2009) that action has been initiated by the Government to find new prospective developers for taking up implementation of the three projects under new terms and conditions keeping in mind overall interest of the State.

1.1.11.5 Award of projects to Gati Investments Limited (GIL)

The Government of Sikkim signed (November 2003) an agreement with Gati Infrastructures Limited (GIL), a Public Limited Company, for development of the following three hydro power projects in the State: i) Sada Mangder, ii) Chuzachen and iii) Bhasmey with installed capacity of 63 MW, 57 MW and 32 MW respectively. The installed capacities of the projects were later enhanced to 71 MW, 99 MW and 51.7 MW, respectively. The agreement in respect of the first project (71 MW) was later withdrawn by the Government.

At a later date, between July 2005 and December 2008, the Government signed 18 agreements with other IPPs for development of various hydroelectric projects with installed capacities of the order of 40 MW to 1200 MW. In respect of all these 18 projects, the Government, inter alia, imposed the following conditions:

a) Non-refundable processing fees of Rs. 10,000 per MW to be paid upfront by the IPPs for the projects awarded to them, *b)* the IPPs shall at their costs construct, widen and strengthen such roads or bridges within the State as are considered necessary for implementation of the project, *c)* in case the IPPs fail to commission the projects within the specified time periods for reasons attributable to the IPPs, the IPPs shall be liable to pay penalty of Rs. 10,000 per MW per month to the Government for delay beyond the stipulated time period for commercial operation of the project, *d)* The Government shall impose an environmental cess at one paise per unit of electricity generated and sold by the IPPs to its customers and *e)* Any reasonable liabilities incurred on account of investigation studies for the projects by the Government shall be reimbursed by the company after the financial closure.

None of the above conditions were imposed on the GIL. Besides, the Government expressly agreed to provide access roads to all the three project sites of the GIL at its own cost and entered (January 2006) into a loan agreement with the GIL through the SPDC for availing loan of Rs. 4.20 crore (at the actual interest rate being paid by the GIL for such borrowing) to be utilised for construction of approach road to the power

house for its Chuzachen project. The SPDC also proposed to avail additional loan for the GIL's other projects, later on. As of December 2007, the SPDC had already availed loan of Rs. 3.68 crore from the GIL, against the loan facility of Rs. 4.20 crore, for construction of access road to the Chuzachen project.

Further, the SPDC had incurred Rs. 17 lakh on account of investigation studies for the three projects, prior to award of the projects to the GIL. The GIL however refused to re-imburse this expenditure to the Government, being well aware of the fact that there was no enabling clause in the agreement to bind the GIL for such reimbursement.

Thus, the agreement with the GIL for award of the three projects were unduly skewed in favour of the GIL thereby resulting in i) outright loss of Rs. 22.17 lakh¹⁵ towards processing fees, ii) unnecessary loan liability of Rs. 3.68 crore (*plus interest*) borrowed for road construction, iii) loss of Rs. 21.70 lakh per¹⁶ year on penalty in the event of delay in commissioning the projects, iv) loss of Rs. 1.32 crore¹⁷ per year towards environmental cess, and v) loss of Rs. 17 lakh incurred by the SPDC on investigation studies for the three projects, prior to award of the projects to the GIL.

The Department stated (September 2009) that M/s GIL being the first IPP to venture into the State was given certain extra incentives with a view to attract other developers to the State. The reply was not acceptable as the discrepancy was due to non-existence of hydro power policy and absence of any standard terms, conditions and criteria for award of the projects to the IPPs.

1.1.12 Environment aspects

1.1.12.1 Environment Impact Assessment

The IPPs were required to carry out environmental impact assessment (EIA) in association with the Forest, Environment and Wildlife Management (FEWM) Department as required under the Environment Protection Act 1986 through consultants drawn from reputed organisations.

Test-check of records revealed that in respect of two Projects (Teesta Stage VI and Dikchu HEP) being developed by M/s Lanco Energy Private Limited and Sneha Kinetic Power Projects limited, the Environment Impact Assessment (EIA) and Environment Management Plan (EMP) were prepared by the FEWM Department. In respect of all other projects, the EIA/EMP were prepared by agencies based outside the State. Project-wise details of personnel in the FE&WM Department who were

¹⁵ 221.7 MW x Rs. 10,000 per MW = Rs.11.17 lakh (calculated for all 3 projects for which agreement was signed)

¹⁶ 150.70 MW x Rs. 10,000 per month x 12 months = Rs. 21.70 lakh per year (calculated for 2 projects under implementation)

¹⁷ 150.70 MW x 1000 x 24 hrs x 365 days x 1 paise = Rs. 1.32 crore (calculated for 2 projects under implementation)

associated in preparation of the ETA and EMP by these agencies and the preliminary data sheets relating to collection of data and survey/investigation reports prepared after field survey and ground testing were not furnished to audit. As a result, audit could not vouchsafe authenticity of the data incorporated in the EIA and EMP reports. The Principal Chief Conservator of Forests-cum-Secretary, FEWM Department complained as early as January 2006 that the project developers were conducting survey and investigation of forest lands without involving officers of the Department. Site clearance was being applied to GOI without the knowledge of the FEWM Department and hence data provided to the GOI was not correct. EIA/EMP was being done by agencies about whom the FEWM Department was not aware. In most cases, the mandatory one year comprehensive data required for preparation of the EIA was not gathered as indicated by the period between the grant of site clearance and the grant of environment clearance.

The above facts indicate that the EMPs had been prepared through assessment of secondary data without diligent study, observation and research of the prevailing ground realities over an adequate period of time.

The Department while skirting the audit observation stated (September 2009) that since the experts in the Ministry of Environment and Forests (MoEF) scrutinised and cleared the EIA and EMP, these reports were presumed to conform to the prevalent norms. The reply was not acceptable as the developers had not associated the FEWM Department as per terms of the agreement in preparation of the EIA/EMPs before approval of the same by the MoEF.

1.1.12.2 Catchment Area Treatment Plans

The Catchment Area Treatment (CAT) Plans portray the ecological health of the catchment areas and also the various soil and moisture conservation programmes required for the treatment of catchments for their stabilisation against future erosion so that life of a reservoir in case of a seasonal storage dam is not reduced. The measures adopted for catchment area treatment, inter alia, consist of various types of plantations and allied activities followed by adequate maintenance to ensure survival of the plantations. Test check of EMPs of ten projects revealed that provision for plantation was kept for only one year in one project¹⁸, three years in six projects¹⁹ and four years in remaining three projects²⁰. No provision for subsequent weeding and maintenance of the plantations was kept in respect of four projects²¹. In respect of the remaining six projects²², provision for maintenance for subsequent years' plantations

¹⁸ Teesta VI

¹⁹ Panan, Rochnichu, Ting Ting, Tashiding, Rangit II and Jorethang Loop

²⁰ Teesta III, Dikchu and Rangit IV

²¹ Teesta III, Ting Ting, Tshiding, Dikchu

²² Teesta VI, Panan, Rongnichu, Rangit II, Rangit IV, Jorethang Loop

was inadequate - ranging from 0 to 4 years. Thus, CAT plans were prepared without taking into account the field requirement for survival of the plantations and were therefore, arbitrary and inadequate.

The Department stated (September 2009) that since the CAT plans are accorded approval by experts of the MoEF, the same were presumed to conform to the prevalent norms. The reply was not acceptable as the FEWM Department which was supposed to be associated in preparation of the EMPs before approval of the same by the MoEF had not ensured adherence of the CAT plans to the prevalent norms.

1.1.12.3 Implementation of Compensatory Afforestation, Catchment Area Treatment, Wildlife Preservation etc

The FEWM Department had not yet taken up Compensatory Afforestation (CA), Catchment Area Treatment (CAT), Wildlife protection/preservation and allied activities to mitigate the distress caused to the forest, wildlife and environment due to diversion of forest lands for establishment of the hydro power projects. These activities were to be implemented simultaneously with the execution of the power projects. Six²³ IPPs deposited Rs. 26.37 crore (December 2005 to May 2009) towards cost of CA, CAT, Net Present Value, Wildlife Preservation and Biodiversity Preservation. The FEWM Department had prepared annual plan of operation (APO) for implementation of CAT programme in respect of only two projects²⁴ and a five year plan of operation for compensatory afforestation in respect of only one project (99 MW Chuzachen Project). No plan had so far been prepared for wildlife protection, biodiversity preservation, infrastructure development and forest protection for any project.

The APO for implementation of CAT Plan for the Jorethang Loop Project was prepared for seven years and the cost accordingly worked out for a seven year period. The Plan in respect of the Chuzachen Project was prepared for five years. Since the treatment measures adopted in the CAT Plans of all the projects were similar, reasons for adopting varying treatment periods of 5 and 7 years in respect of different projects was inexplicable. If a seven year intervention was called for, treatment plan should have been prepared for a seven year period for all projects without discrimination. In reply, the FEWM Department, inter alia, stated that no work could be undertaken towards Compensatory Afforestation, CAT programme and preservation of biodiversity as the funds received from the project developers were transferred to the Compensatory Afforestation Management & Planning Agency (CAMPA) account under the MoEF, GOI. The Department had not received back the funds from the GOI for taking up the works.

²³ Teesta III, Teesta VI, Rongnichu, Chuzachen, Rangit IV, Jorethang Loop

²⁴ Jorethang Loop, Chuzachen

1.1.12.4 Disposal of excavated material from the projects

The terms of agreement drawn by the State Government required the IPPs/NHPC to ensure that the material excavated from the construction sites were dumped in specific sites identified and approved by the State Pollution Control Board (SPCB). Despite this, no action had been taken by the SPCB for identifying specific locations for dumping the excavated material. Thus, there was indiscriminate disposal of muck by the developers thereby causing degradation of land, air and water. A study conducted by the Mines, Minerals and Geology Department revealed gross negligence by the NHPC in disposal of muck generated from execution of the Teesta Stage V project. Spoils were thrown along the river banks raising the river bed of the Teesta leading to change in the flood behavior of the river, acceleration of the erosion and degradation of the overall geo-environmental setting of the area. In the case of another project (Panan HEP), the sites identified for disposal of muck was too small to retain safely the huge quantity of muck which could lead to future disasters such as enhanced siltation of reservoirs of the downstream projects, toe erosion and change in the geo-environmental setting of the downstream areas.

The Department stated (September 2009) that sufficient areas for dumping muck are identified jointly by the Developers, FEWM Department and Land Revenue & Disaster Management Department. Such areas are properly demarcated and suitable measures taken to prevent flow of muck into the river. The reply is not acceptable as the findings by the Mines, Minerals and Geology Department revealed indiscriminate disposal of muck into the rivers.

1.1.12.5 Protection and preservation of riverine fishes

The agreement drawn with the developers provided for appropriate steps to be taken by the project developers for protection of fish culture as per environmental requirements. Records indicated that altogether 63 species of Phytoplankton, 17 species of Zooplankton and 48 species of fish inhabit the river systems of the State. The creation of reservoirs, fluctuation in natural river discharge and diversion of river waters through closed tunnels would completely change the ecological conditions of the river systems. It was, therefore, necessary for making adequate provisions in the environment management plans for establishment of a well equipped research centre for undertaking research and designing suitable measures to mitigate the effect of construction of hydel projects on the aquatic life. MOUs were needed to be signed with the project developers securing their commitment for a long term comprehensive strategy for preservation and protection of the fishes and aquatic life in the river systems of the State.

Test-check of EMPs of ten projects, however, revealed that the measures ²⁵

²⁵ Development of hatcheries, nursery ponds, fish farms, stocking tanks, rearing ponds etc.

incorporated in the EMPs for protection of fishes were mainly alternative strategies for raising culturable varieties of farm fish for consumption of the people which would not help in protection and preservation of the indigenous varieties of fishes in the river systems of the State. No provision towards protection of the fish and other aquatic life inhabiting the river system was made in the EMPs of two projects (*Chuzachen and Bhasmey*). Although a provision of Rs. 50 lakh for fisheries development had been kept in the EMP of the Teesta Stage V project commissioned in March 2008, steps had not been taken to plan and implement any tangible action. About 23 Km of the river Teesta between the dam site and the tail end of this project was diverted through tunnels. The fish species and other aquatic organisms along this stretch of the river thus already suffered possible damages due to the change in the flow of water. The Directorate of Fisheries had not entered into any MOU with the project developers securing their commitment for long term strategies for preservation and protection of the fishes and aquatic life in the river systems of the State.

The Department stated (September 2009) that the MoEF being the nodal agency for vetting and approving the EMPs, all necessary provisions had been made as per the prescribed guidelines and specifications. The reply did not address the issues raised in audit.

1.1.12.6 Disaster management plans

The land profile of the State of Sikkim consists of steep slopes and narrow gorges, and with a high average annual rainfall of 3,120 mm, is prone to weathering, erosion and frequent landslides. Further, it is also located in Zone IV according to seismic zoning map of India where maximum intensity of over 5 in the Richter scale is expected. During the last 50 years, as many as 115 cases of major landslides and nine major earthquakes of magnitude more than 5 on the Richter scale were recorded²⁶. Establishment of the hydro power projects in the State entailed extensive excavation, tunneling, blasting, construction of mammoth water reservoirs, power houses and allied activities. These construction activities put tremendous stress on the fragile environment of the State which could bring about unanticipated disasters and calamities. Unless a robust disaster management plan is prepared and put in place towards prevention and preparedness to face the disasters, the State would suffer tremendous loss of life and property besides long term damage to environment.

Audit scrutiny revealed that the issue on disaster management was incorporated in the Environment Management Plans (EMPs) of only two power projects - Teesta Stage-III and Dikchu HEPs - out of ten projects whose EMPs were examined. A

²⁶ In terms of the studies conducted (2004 and 2006) by the Wadia Institute of Himalayan Geology, Dehradun and the School of Community Science and Technology, Bengal Engineering and Science University, Shibpur.

nominal amount of Rs 2 crore and Rs 1 crore, respectively, had been included in the EMPs of these two projects towards disaster management plan. The Land Revenue and Disaster Management Department mandated by the State Government to address the issues of disaster management had not been consulted and involved in the process of preparation of disaster management plans either by the State Government or the Project developers. No effective and specific risk and responsibility sharing arrangement between the State Government and the project developers had been worked out till date.

The Department stated (September 2009) that a coordinated system for dealing with disasters was being worked out for sharing of information and evolving a proper mechanism for disaster management.

1.1.13 Relief and rehabilitation

The DPRs of the projects indicated that there would be minimum dislocation of people due to establishment of the projects. Rehabilitation and resettlement of project affected families due to establishment of the projects, therefore, did not appear to be a serious issue as on the date of audit. Actual effect of establishment of the projects on the people residing in and around the project areas would however, be known only after the construction works on the projects commence.

1.1.14 Monitoring

1.1.14.1 Monitoring of project implementation by SPDC

Although the development of hydro power projects in Sikkim was overseen by the Sikkim Power Development Corporation (SPDC), no specific responsibility within the SPDC was assigned to the officers and staff towards regular project monitoring, field visit and supervision of implementation of the projects by the developers. The SPDC did not even have in its possession vital documents like initial project proposals submitted by the developers, documents regarding business profile, audited statement of accounts, experience in implementing hydro power projects and other credentials of IPPs, copies of power purchase agreements, details of local manpower engaged by the developers, copies of EIA and EMP etc. This indicated that monitoring of implementation of the hydro power projects by the SPDC was not being done adequately.

The Department stated (September 2009) that the role of SPDC commenced after allotment of projects by the State Government. Scrutiny of credentials/profiles, experience and other documents of the IPPs was done by a Hydro Committee appointed by the Government due to which such documents were not available with the SPDC. The reply indicated that the modalities for implementation of all the vital aspects of hydro power projects had not been ironed out till date. It was further

observed that the Hydro Committee was constituted comprising of heads of various State Government departments and did not have a separate office where its records could be kept. Limited records were only available with the SPDC. The reply of the Department thus indicated lack of coordination and absence of focused action in implementation of the projects in the State.

1.1.14.2 Monitoring by multi-disciplinary committee

In terms of the agreements drawn with the IPPs, the State Government was to constitute a multi-disciplinary committee comprising representatives of the IPPs and representatives from various departments of the Government to monitor the various issues arising during implementation of the projects. The committee was to draw methodology to regulate the payments to be made by the IPPs to the various departments of the Government for implementation of the projects. The committee was to meet at such intervals, preferably quarterly at such places as may be decided by it. The committee or any of its members would not have any authority to alter, amend or modify in any manner whatsoever the terms and conditions of the agreements.

The SPDC could not provide any record regarding either constitution of the multi-disciplinary committee, minutes of meeting of the committee or any reports indicating any monitoring or supervision of implementation of the projects conducted by the committee. Thus, the clause in the agreement regarding constitution of the committee for monitoring the projects was included only on paper.

The State Government displayed no serious intention to act on it. The Department stated (September 2009) that the proposal for constitution of project monitoring committee had been initiated.

1.1.14.3 Monitoring by project level welfare committees

The State Government was to constitute a Project Level Welfare Committee for each project consisting of the local politicians, gram panchayats, village representatives, local administrations and IPP representatives to look after the welfare of the local people in respect of socio-economic development and employment opportunities etc.

The SPDC was categorically asked to provide details of constitution of the Project Level Welfare Committees for each project with details of members, minutes of meetings of the committees, reports of the committees and the welfare activities undertaken. No such details could be provided to audit. This indicated laxity of the SPDC in monitoring implementation of the welfare activities in the project areas.

The Department stated (September 2009) that proposal for constitution of Project Level Welfare Committees had already been submitted and was under active consideration of the Government.

1.1.14.4 Vigil to prevent pilferage of precious materials

During implementation of the projects, in case any objects of archaeological importance or any precious or semi-precious materials were found by the developers or any of their employee/contractors, the developers were to hand over such objects to the Government free of cost or to inform the Government immediately. Despite incorporation of the above condition in the agreements, no mechanism had been laid down by the State Government to regularly monitor execution of the projects and keep a constant vigil to see if any objects of value were unearthed during the course of implementation of the projects. There was thus, no deterrent in the existing system to prevent the developers or any of their employee/contractors from pilfering any precious material that may be unearthed during execution of the projects.

The Department stated (September 2009) that the State Government had initiated the process for constituting a monitoring committee to monitor all activities related to hydro power development.

1.1.14.5 Vetting of DPRs by the SPDC

The SPDC was equipped with only one officer each holding the designation of Senior General Manager, General Manager and Manager, besides the Managing Director. These State officers did not possess adequate experience and exposure in planning and execution of large hydro power projects. The DPRs of even small projects of 1 to 2 MW capacity executed by the SPDC on behalf of the State were prepared and vetted by either the IITs or any other well recognised technical institutes of the country. Despite this fact the technical soundness and economic viability of all projects below 100 MW (total 13 projects) awarded to the IPPs were cleared by the SPDC for execution. This was fraught with the risk of future non-performance/under-performance and non-viability.

The Department stated (September 2009) that the SPDC sought expert opinion of retired/serving eminent geologists, hydrologists and other experienced engineers of reputed organisations like the Geological Survey of India, Central Water Commission etc on the DPRs of the projects before granting techno-economic clearance. The reply was not acceptable as no evidence was furnished to substantiate the Department's claim.

1.1.15 Conclusion

The State Government commenced award of hydro power projects to IPPs without working out any effective modality and finalising any plan or policy. Projects were

awarded at throwaway charges which compared very poorly with the charges imposed by all other hydro power States in the country in respect of royalty revenue, Upfront premium, penalty for delay, local area development etc. Performance guarantee was not obtained to ensure earnestness of the developers to execute the projects resulting in cancellation of a number of agreements due to non-performance by the developers, which resulted in loss of substantial time and revenue receivable from the projects. Effective safeguards were not incorporated in the agreements against delay in completing various milestones laid down for completion of the projects and negligence in maintaining the projects after commissioning. Environmental issues such as identification of proper dumping sites, safe disposal of excavated materials, compensatory afforestation, catchment area treatment and bio-diversity preservation were neglected and delayed. Monitoring of execution of the projects was virtually non-existent.

1.1.16 Recommendations

- The State hydro power policy and plan may be finalised and announced at the earliest;
- All projects in future may be awarded following a transparent bidding procedure;
- The State may consider levying appropriate application fee, upfront premium and royalty keeping in view the prevalent best practices;
- Suitable conditions against non-performance/abandonment of the projects and negligence in proper maintenance of the assets may be imposed on the IPPs forthwith;
- Strict adherence to environmental concerns may be ensured;
- Monitoring and vigil of the project execution by the IPPs may be strengthened.