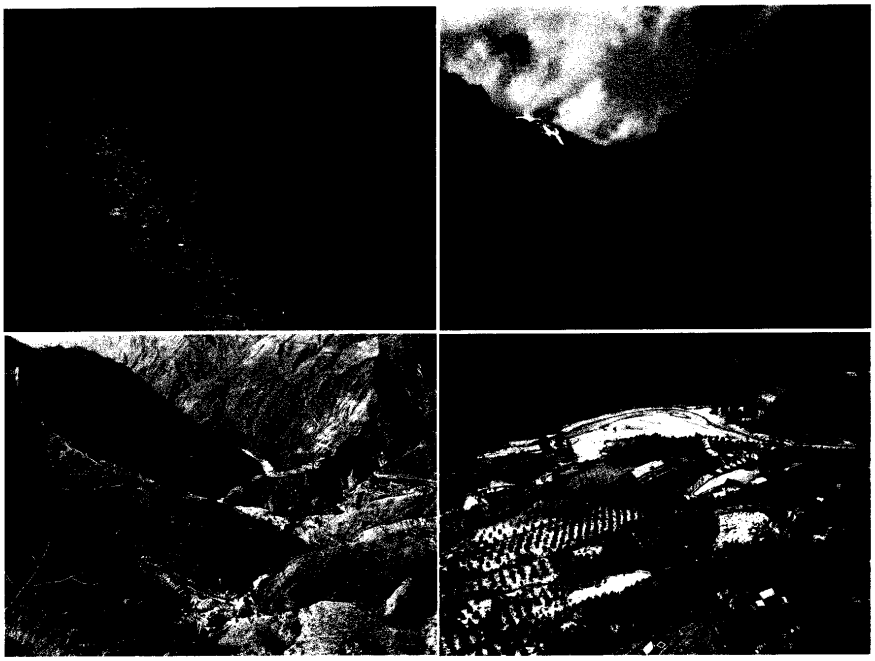
REPORT

ON

MONITORING AND EVALUATION OF CAT PLAN WORKS DONE BY SATLUJ VALLEY WATERSHED DEVELOPMENT SOCIETY, RAMPUR HP STATE DEPARTMENT OF FOREST



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1. INTRODUCTION

Satluj Valley Watershed Development Society has undertaken various activities prescribed under CAT Plans of 4 Hydro Electric Power Projects in Satluj River Basin under 102 Forest Blocks in the jurisdiction of 12 Forest Division and 5 Forest Circles. The monitoring and evaluation of the below mentioned prescribed activities was done in 20 Blocks those falls in the jurisdiction of 8 Forest Division namely: Shimla, Karsog, Suket, Kunihar, Ani, Rampur, Kinnaur and Sarahan (Wild Life) (Table.I).

1) Afforestation

2) Soil and Moisture Conservation including erosion control and protection against floods.

3) Infrastructure Development
   - i) Forest Infrastructure
   - ii) Rural infrastructure

Table.I : Details of the CAT Plan areas monitored (April-September, 2009)

S.No.	Name of CAT Plan	Year of Start	Name of Forest Division	Name of Forest Block
1.	**Kol Dam**	2004-05	Shimla	Sunni, Khatnol, Halog,
			Karsog	Mahunag, Tatapani, Richhani
			Suket	Jhungi, Pandhar, Nihaari
			Kunihar	Kandhar, Danoghat
2.	**Rampur Hydro-electric Project (RHEP)-Rampur**	2008-09	Ani	Arsoo, Margi,
			Rampur	Rampur, Gopalpur, Sarahan
3.	**Nathpa Jhakri Power Corporation (NJPC)**	2002-03	Rampur	Rampur, Sarahan, Gopalpur
			Kinnaur	Bhabanagar, Urni, Kilba
4.	**Baspa-II**	1999-2000	Sarahan (Wildlife)	Sangla

2. METHODOLOGY ADOPTED

CAT Plan activities of the 4 Hydel Projects in the Satluj River Basin are mostly in very inhospitable areas. The terrain of the catchment where works have been done, is steep and ecologically fragile. It is highly susceptible to erosion and mass movement problems which can be further aggravated if these sites are exploited unscientifically. The monitoring team visited each of the 20 blocks, examined physically the activities executed on site and interacted with field executing staff/functionaries. The following mode of evaluation was followed :-

- The pre-structured proformas containing most relevant indicators for establishing the authenticity of the work done, its quality as well as feasibility conforming to the site conditions and needs were used. Separate proformas were developed for activities, viz., afforestation, soil conservation, etc.

- Out of the total, 102 forest blocks, 20 representative were selected randomly for monitoring and evaluation.

- The norms/models of the various works prescribed in the respective CAT Plans whether followed or any deviation made were verified.

- The annual progress reports as well as the photo monitoring and budget records (pre- and post execution) of different activities were also consulted and examined.

- The quality and technical feasibility of the works done was assessed.

TABLE 2: Physical and financial norms followed under different CAT Plans for Soil Conservation and Afforestation activities

Activities	Dimensions/ Area	NJPC, Rampur		RHEP-Rampur	Baspa-II
		Tribal Area	Non-tribal Area		
A. SOIL CONSERVATION					
- Check Walls/Protection walls	i) 2 m.	2,700	2,300	2,700	2,700
	3 m.	5,000	4,300	4,400	5,000
	5 m.	7,300	6,120	6,900	7,300
	7 m.	-	-		-
	10 m.	-	-	10,050	-
B. AFFORESTATION					
- Replenishment	1 ha.	25,800	21,700	28,000	25,800
- Degraded Lands	1 ha.	30,900	26,000	33,500	30,900
- ANR	1 ha.	14,580	12,400	22,500	14,580
- NTFP	1 ha.	22,275	19,000	29,300	22,275

NOTE: **CAT Plans norms were more or less same for all CAT plans except Kol Dam.**

Soil Conservation (Check Dams)	Dimension	Rate (Rs.)
*Small	1 - 4.5 mt.	4000
**Medium	4.5 - 7 mt.	8000
***Large	> 7 mts.	20000

3. SALIENT RECOMMENDATIONS AND OBSERVATIONS

i) AFFORESTATION

- In each of the CAT Plan different types of plantations approved for providing adequate vegetative cover to the pre-selected catchment sites which were either barren, landslide inflicted, sparsely stocked or scruby were afforestation; assisted natural regeneration (ANR); non-timber forest plantation (NTFP); fuel and fodder, fruit, etc. The field functionaries have attempted to raise all these types depending upon the plantation area available. However, due to lack of clear comprehension of the technological terms, there were distinct differences in the types of the plantations raised and those intended to be raised.

- It is recommended that field staff be adequately made aware and trained for implementing the CAT Plan activities well in advance. Concurrent and effective monitoring system should always be in place so as to introduce needed interventions in time at required place.

- Medium to steep topographic features of the catchment areas makes it difficult to transport the bulk of nursery stock. Hence there is strong need for mix of plantation technology. Which besides involving planting of nursery raised seedling stock should invariably include direct seed sowing, too.

- Besides planting tree species suitable shrub species should also be included in plantation programme.

- Damage to the plantations due to fire was found very common. To some extent, it can be mitigated by involving people in the vicinity and by providing them some incentives which may be identified region specific.

- Soil and moisture conservation measures like mulching, appropriate soil working techniques, etc. are needed to be included in plans for better out planting success and growth.

- The tree species used for planting on most of the sites were indigenous and appropriate except at some sites in blocks e.g. Sunni, Bhabanagar, Urni and Sarahan.

- The survival per cent of plantations established under all CAT Plans ranged from 20-90% (Sunni/Khatnol-Jhungi). However, it was 100% under Eco-task force plantation work.

- River banks re-vegetation at different suitable sites as well as stabilization of debris on dumping sites has not been attended too. It should be undertaken on priority.

- *Expenditure incurred on all types of plantations both in tribal and non-tribal regions was strictly as per model norms. Number of plants per ha. was also adhered to as prescribed. At some sites it was changed on the official instructions.*

Table 3 : Outplanting success/survival percent of plantations under different CAT Plans

S.No.	Name of CAT Plan	Year of Start	Name of Forest Division	Name of Forest Block	Survival %
1.	**Kol Dam**	2004-05	Shimla	Sunni Khatnol Halog	20-30% 20-30% -
			Karsog	Mahunag Tatapani(Eco - task Force)) Richhani	60% 100% 60-80%
			Suket	Jhungi Pandhar Nihaari	70-90% 80% 70%
			Kunihar	Kandhar Danoghat	30-75%
2.	**Rampur Hydro-electric Project (RHEP)-Rampur**	2008-09	Ani	Arsoo Margi	N.A.
			Rampur	Rampur Gopalpur Sarahan	N.A.
3.	**Nathpa Jhakri Power Corporation (NJPC)**	2002-03	Rampur	Rampur Sarahan Gopalpur	75% 30-75% 75%
			Kinnaur	Bhabanagar Urni Kilba	20-65% 30-50% 50-60%
4.	**Baspa-II**	1999-2000	Sarahan (Wildlife)	Sangla	50%

ii) SOIL & MOSITURE CONSERVATION MEASURES:-

- Recognizing the vegetation, erosion and physiographic characteristics of the different catchments, it was noticed that the areas under NJPC, Baspa-II and RHEP Rampur catchments are highly prone to water erosion, land slips/mass movement with high vulnerability to plantation failures. Catchment under Kol Dam relative to above three catchments has similar erosion prone attributes but bears stable slopes. Its proneness to land slips and mass movement is moderate to high due to different soil binding characteristics.

- The major soil conservation measures in Kol dam adopted were check dams of three different sizes; whereas in NJPC, RHEP and Baspa-II, there was mix of check dams and protection walls.

- The construction of check dams under Kol Dam to treat the nullahas at Danoghat and Kandhar (Mangal region) blocks of Kunihar Forest division was physically very site specific and technically sound. Each gully/nullaha has been treated along its entire length.

- The location of check dams and quality of construction was very good in Mahunag, Jhungi and Pandhar too. But, it is recommended that entire length of nullahas be plugged .

- Protection walls constructed at Gopalpur under NJPC and at Sangla under Baspa-II were also found very suitable. However, needed to be strengthened with vegetative measures.

- The norms for soil conservation measures prescribed in the respective CAT Plans have been followed & implemented, as per prescriptions. However, these norms need improvement, so as to suit the sites requirements of a particular catchment. The NJPC and Baspa-II catchments needs different norms for site protection measures compared to the existing prescribed. Simple use of check dams/protection walls in isolation will not be sufficient and sustainable.

- The soil conservation structures e.g. check dams/protection walls constructed on nullahas and land slips, of course, were site specific but at most places lacked holistic approach which could have regulated the flow of water, silt detention and bank cutting along the entire nullaha. Attempts have been made to treat the entire nullahas and its tributaries at certain places under Kol dam and NJPC CAT plans. However, these are required to be supplemented with appropriate vegetative measures.

- *It is recommended that hydrological and site characteristics of all the drainage lines/nullahas belonging to a identified tributary be studied and on their basis an integrated treatment plan for the entire catchment be prepared and implemented.*

- Terrain mapping showing all drainage lines and nullahas be done.

- Clear prescriptions should be made comprising engineering, vegetative and mix of both (Bio-engineering) with respect to a tributary considering its water flow features and not just general topography of the catchment.

- In Nullahas, there are ample scope for creating water harvesting structures along its length and breadth besides silt detention structures/protection wall and check dams. Water stored can be gainfully utilized for irrigating newly established plantations or nearby agriculture lands. It will also enhance the recharge potential of catchments.

- Soil conservation activities should also include construction of percolation tanks/reservoirs along the slope/gradient as is done at Nihaari in Suket forest division.

- *Silt detention structures with gauging equipments for recording both silt detention rate and its quantity be established at different sites in each CAT plan.* At present, silt

detention function of different measures undertaken cannot be established. However, occular observations have showed that at many places, check dams have been filled half or full to their capacity with debris from roadside cutting or flood deposits.

- In BASPA-II catchment separate and specific plan is needed to control glacier movement, floods and regulation of river flow beyond Batsari and Bunzaro camps.

iii) INFRASTRUCTURE DEVELOPMENT

- Ample rural infrastructure has been created But at some places especially in NJPC catchment linkages with local people needs to be strengthened for gainful utilization.

- Under rural infrastructure water storage tanks were found more useful in Sunni block whereas village paths at Barel village, the extremely remote village in Kandhar Block (Mangal region) under Kol Dam..

- Forest infrastructure such as repair of forest range huts, gang huts, repair of approach roads/maintenance of offices, etc. have been strengthened under different CAT Plans.

4. CAT PLAN WISE WORK DONE

1. KOL DAM

a) Kol Dam General

This CAT Plan was started during 2004-05. Its activities are spread to four forest divisions viz., Shimla, Karsog, Suket and Kunihar (Table-I). The key observations on different activities are given as below :-

i) **AFFORESTATION**

Plantation done in the Kol dam CAT Plan area were afforestation, Assisted Natural Regeneration (ANR), replenishment, NTFP and patch planting. It was observed that in all the forest blocks plantations raised were afforestation type except Mahunag, Tattapani and Eco-task force where ANR type plantation and NTFP types were raised. The survival of plantation ranged from 30% to 75% in Kandhar Block (Kunihar Forest Division) whereas, it was 60-90% in the remaining blocks i.e. Jhungi, Pandhar, Nihari (Suket Forest Division), Richhani, Mahunag and Tattapani (Karsog Forest Division).

In Kunihar Forest Division, plantation blocks size ranged from 5 ha to 25 ha in different forest blocks. In Kandhar and Danoghat blocks, the main plantation species were Kachnar, Chil, Ritha, Khair and Toon. The survival percent of Chil, Kachnar and Ritha was noticed about 75 per cent whereas, at higher steep slopes like Heeramehta in Kandhar block, the survival of kachnar and Chil was only 30 per cent.

In Jhungi block of Suket Forest Division, the main plantation species were Daru, Kachnar, Chil and deodar, whereas in Pandhar and Nihari, Richhani and Mahunag, the main plantation species were deodar besides Ban Oak and Robinia in Richhani and Mahunag block of Karsog Forest Division. At Tattapani, Daru and Shisham were planted under ANR.

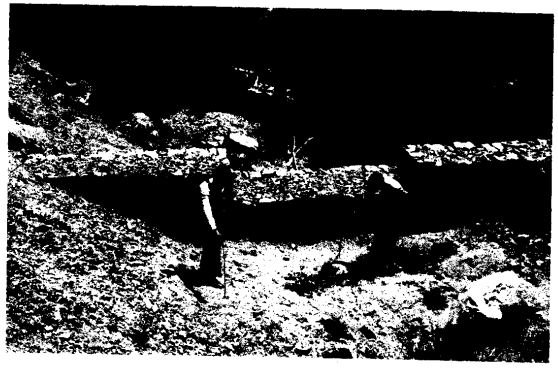
It was observed during monitoring that best efforts have been put in for selecting the plantation sites as well as species to be planted. However, some of the sites selected in Richhani, Jhungi, Mahunag. etc. were already under good forest cover. Similar is the case with some of the sites in Suni/Khatnol block. However, considerable damage due to fire has been observed in these blocks.

ii) **SOIL AND MOISTURE CONSERVATION**

Soil conservation activities undertaken in the catchment comprised plugging of gullies and big nallahas. In all the eleven forest blocks, check dams and protection walls have been used as standard measures for the alleviating the effect of flood, reducing runoff and silt retention. In addition, percolation tank e.g. Nihari (Suket) for harvesting the run off and recharging the down slopes water bodies was attempted. It was noticed

WORKS UNDER KOL DAM CAT PLAN
(KANDHAR BLOCK-KUNIHAR FOREST DIVISION)

Village path at Barail-Mangal



Observing the silt detention

Natural regeneration of Kachnar on extremely Rocky site at Heeramehta-Kandhar

WORKS UNDER KOL DAM CAT PLAN (SUKET FOREST DIVISION)

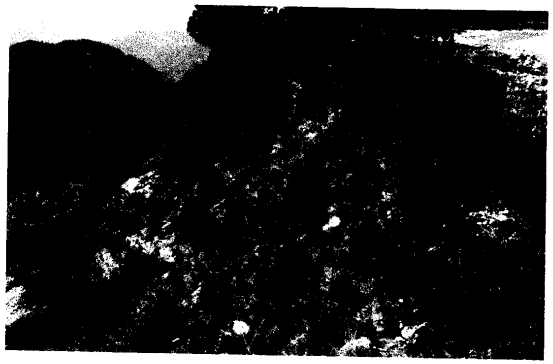
Percolation tank at Nihaari

Water conserved by check dam

Patch plantation of Deodar

B.O. office cum residence in Mahunag

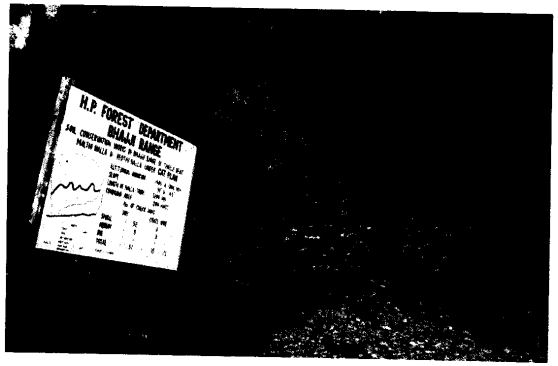
WORKS UNDER KOL DAM CAT PLAN



Leucaena plantation

Nursery at Sainj under CAT plan

Water tank under Rural infrastructure



Check dam at Malthi nallah-Khatnol

that most of the nallahas selected for treatment shall benefit the catchment area ranging from 100-200 ha. However, systematic treatment of the gullies/nallahas covering their entire length and breadth was observed in few places only e.g. *Kandhar Block and Chamu Nallah in Tattapani, Mahunag Nallah, Bhayankar Nallah in Pandhar, Kamocha Nallah in Richhani.*

In Khatnol Forest Block, Manodri nallah was treated by constructing about 102 crate wire check dams during 2004-05 to 2006-07, however, all structures have has been damaged due to floods. *This indicates that such nallahas are highly prone to floods and needs special treatment e.g. diversion of water flow at suitable points using Kuhal etc. and storage tanks. The water thus stored/harvested can be used for irrigation purposes in Plantation/agriculture/horticulture.*

Most of the structures were technically sound, yet needed to be supplemented with vegetative means. Unless supported with vegetative measures, their utility will be for short term, only. Many of these were already filled with silt.

iii) FOREST AND RURAL INFRASTRUCTURE

Under rural infrastructure, water storage tank, kacha paths and repair of tank etc. were carried out in Khatnol Forest Block for the benefit of the residents of the area (Annexure-I).

1 (b) Eco-task force

AFFORESTATION DONE BY ECO-TASK FORCE IN TATTAPANI BLOCK OF KARSOG FOREST DIVISION

Afforestation of the catchments in Tattapani block of Karsog Forest Division in Mandi District have been assigned to the Eco-task Force. Monitoring team visited the plantation established by Eco-task Force at place called Saraur. The details of which is given below:-

Name of the site	:	Saraur
Location	:	31°15'.804 N 77°04'.078 E Altitude: 2753 ft.
Year of Planting	:	2006-07 2009-10
Type of Plantation	:	NTFP ANR
Area Covered	:	20 ha. + 35 ha. = 55 ha.
Tree Species planted		
NTFP	:	Shisham, Khari, Jamun, Ritha, Bamboo, Kachnar, Daru, Amla, Robinia
ANR	:	Ban, Apricot, Daru, Jamun
Fencing	:	Barbed wire
Survival Per cent	:	100

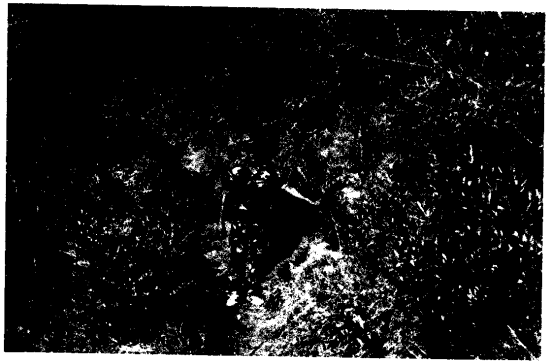
Observations

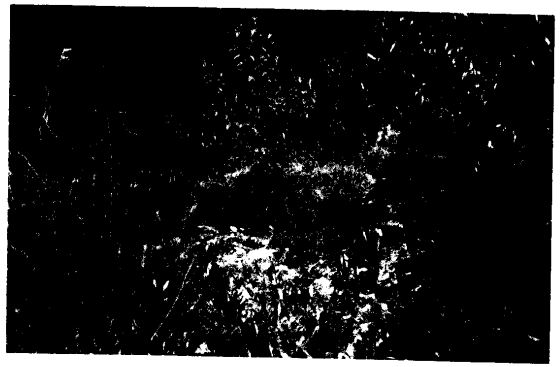
- Eco-task force was allotted a total area of 108 ha out of which 55 ha was planted during 2006-07 and 2009-10 in Tatapani Block. Soil working used was pits of 45 cm^3. The survival per cent of the species planted during 2006-07 was 100 per cent. The growth of the plants as well as their development was also good despite the harsh site conditions. The cent percent survival and better growth of plants was possibly due to the following reasons :-

ECO-TASK FORCE PLANTATION WORKS AT SARAUR (TATTAPANI)-KARSOG FOREST DIVISION

Base camp of Eco-task force

Interaction with Eco-task force staff





Subedar showing the performance of shisham plantation at Saraur (Tattapani)

- The Eco-task force monitoring and executing staff is stationed at the plantation site which enable them to undertake timely operations and intensive care.

- The soil working type i.e. pits of $45cm^3$ were dug about three months in advance of the planting and these were filled with suitable soil mix from outside wherever needed.

- Use of leaf litter and grass mulch in all the plant species established was made.

- Used life saving irrigation @ 2.5 litre per plant for about three months continuously.

2. NJPC RAMPUR

NJPC CAT Plan was started in 2002-03. Six forest blocks under two forest divisions were selected for this study. The details of the works evaluated is as below :-

I) AFFORESTATION

During 2005-06, afforestation works were undertaken in an area of 13 ha.in Kilba block. The replenishment plantation was undertaken in 6 ha area. These works however, were undertaken in UF-Kilba, C137 and UF Punang. The survival percentage was found ranging between 54 to 56 per cent. The plantations were enclosed with barbed wire fencing.

In 2006-07, afforestation area was 8 ha and maintenance works were carried out in 13 ha. The replenishment plantation was in 6 ha whereas, 6 ha area was covered under maintenance. The area covered under NTFP was 6 ha. These plantations were undertaken at C138 (b), C139(b), C136(b), C137(b) UF-Lingre, UF-Punang and UF-Kilba. In these areas, survival percentage ranged between 54 to 77 percent. In 2007-08, afforestation covered 3 ha area whereas, maintenance plantation in afforestation area was in 26 ha. The area under replenishment plantation was 11 ha whereas, under maintenance, it was 12 ha. Only. The new area under NTFP was 5 ha whereas, maintenance area under NTFP was 6 ha. These plantations were undertaken at Kilba nallah, C139(b), UF-Balyo, C136, C134(a), UF-Kilba C137(b), UF-Punang, C139(b) UF-Lingre, UF, Punang C136 (b) and C138(b). In 2008-09, new area of afforestation was 11 ha. and maintenance area was 29 ha. The replenishment area maintenance was in 17 ha. The new area under NTFP was 10 ha whereas, maintenance area was 11 ha. These plantations were undertaken at above mentioned sites at elevations ranging from 6052' at UF-Balyo to 10,445' at UF-punang. The survival rate varied from 53 to 70 per cent.

In Urni Block, during 2005-06, enrichment plantation was undertaken at UF-Urni and UF-Runang in 6 ha area. In 2006-07 afforestation of 6 ha Degraded forest land was undertaken in UF-Cholling nallah which (31°31.54'N and 78°8.375'E) at an elevation of 6445'. During 2007-08, 5 ha degraded forest land was afforested by plantation Behmi, Chuli and Walnut plants at UF-Runang with a survival percentage of 60 percent. In 2008-09, afforestation of 5 ha. Degraded forest land was undertakedn each at C258, C251 UF-Runang and C247. At these locations, survival percentage of plants ranged between 52 to 80 percent.

In Bhabanagar block during 2004-05, area covered under afforestation was 5 ha. The species planted were Chir, Rubinia, Alianthus and Drake. The survival was 70 percent, however, natural regeneration of rubinia and Alanthus was found growing at the site. During 2006-06, 12 ha. Area was afforestated at UF-Palingi, UF-Nathpa, DPF-Chaura and Safurti Kefor. At these sites, Rubinia, Chuli, and Alanthus were commonly

planted and a survival percentage of 30 to 65 per cent was observed. The lower survival percentage was edue to forest fire at DPF-Chaura.

In the year 2008-09, 20 ha forest land was afforestated at C68(b) DPF-Thach and UF-Sholding. At these locations, the survival percentage was 35 to 55 percent. In this block, maintenance plantation in old areas was done in an area of 17 ha. during 2006-07 to 2007-08. These sites were found ranging from 5005 ft. to 5580 ft. from sea level.

II) SOIL AND MOISTURE CONSERVATION

In Kilba block, soil conservation works were very meager. In the Thikroo area lying between 31°30.560'N and 76°08.020'E (7345 amsl). 52 crate wire check dams were constructed to benefit about 5 ha area during 2005-06. However, during 2006-07 due to heavy rolling stones and land slides, 43 check dams were damaged. In this block, no soil and moisture conservation works were undertaken from 2006-07 to 2008-09.

In Urni block (31°30.556'N, 76°0.216'E (6935 asml.), soil and moisture conservation works were carried out during 2005-06 only at three locations namely Markhona (Runang), UF Urni and UF Runang. At these locations, 96 check dams were constructed out of which 36 were of crate wire and 60 of loose stone. However, out of these, 24 were found damaged at UF Urni and rest were in good condition.

In Bhabanagar block, loose stone protection walls and 11 crate wire protection walls were constructed at two locations namely Chaura (31°34.009'N and 77°51.043'E (4985 asml.) and Bhabanagar (31°31.126' and 77°54.809'E (5541 asml.) during 2006-07 and 2007-08 only. These works benefited Kaber and Dhew villages. These structures were found in excellent conditions because on both sides of the wall, Robinia and Kunish plants were found growing naturally.

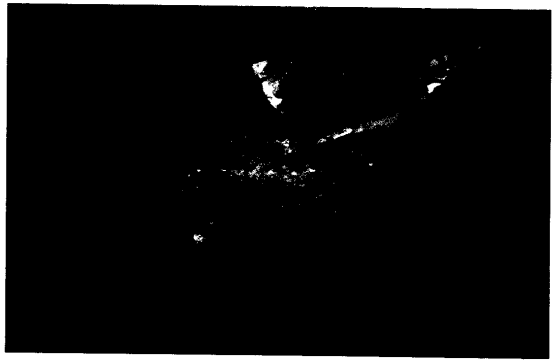
III) FOREST AND RURAL INFRASTRUCTURE

The infrastructure development works have been undertaken mainly under NJPC and Kol dam CAT Plan. The forest infrastructure included repair of forest range huts, gang huts, approach road to Range Office and maintenance of Range Office building at different places like Rampur, Sarahan and Gopalpur whereas in Kol dam, it was in the form of creation of B.O. quarters-cum-office at Pandhar.

Rural infrastructure included repair of springs/bauries/kuhls, construction of village ponds, water harvesting structures and village paths.

WORKS UNDER BASPA-II CAT PLAN

Protection walls on Baspa river at Batseri



Mounds for checking glacier movement

Check dams at Chhitkul

Monitoring land slip stabilization in Baspa catchment near Banjara camp

3. BASPA-II

This CAT Plan was started in 1999-2000. Sangla forest block under Sarahan Forest Division was selected for the evaluation works, the details of which is presented below :-

I) AFFORESTATION

In the Baspa-II CAT Plan, afforestation works need to be accelerated keeping in view the extent and intensity of erosion that is occurring. However, afforestation works have been undertaken at one or two locations only. At Chitkul, a nursery of locally available medicinal plants was also developed.

II. SOIL MOISTURE CONSERVATION

The team visited 10 sites as per the details given in Table for spot evaluation. On all sites except Mastrang, protection walls of different dimensions with crate wire were constructed as soil and moisture conservation measures to check the erosion and cutting of river banks. At Mastrang 8 mounds were constructed to control glacial movement to check the soil erosion. The engineering structures created for the purpose were technically adequate and sound, however norms prescribed in CAT Plan document need improvement. These should match the site characteristics. The engineering structures further need to be supplemented with vegetative measures to achieve long lasting solutions for the problem being encountered.

4. RHEP, RAMPUR

This CAT Plan was started in 2008-09. Ani and Rampur forest division were selected for the Monitoring and Evaluation purposes.

Soil conservation works in Rampur, Sarahan, Arsu and Margi blocks have been just initiated. The main activities were check dams (loose stone/crate wire). In the RHEP CAT Plan document, all check dams prescribed to be constructed are with crate wire. However a mixture of both i.e. loose stone and crate wire was observed on the site. In Arsu, main structures were protection walls only.

GENERAL REMARKS

Recognizing the terrain characteristics of both the river catchments work done has been rated as good. However, more emphasis be given to establish good plantation mixes and on bio-engineering measures.

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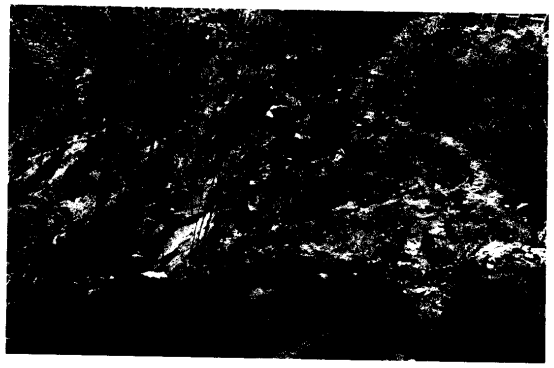
WORKS UNDER NJPC CAT PLAN

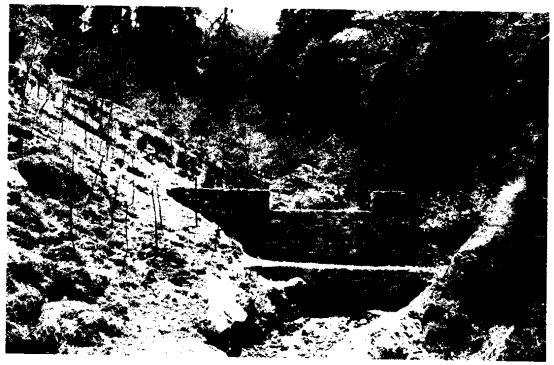


Fire damage to plantation at Bhawanagar

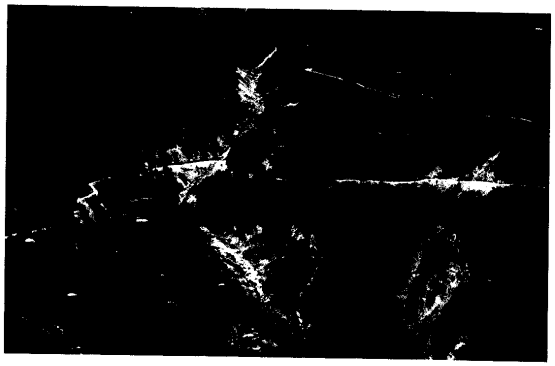
Ailanthus plantation in Urni-Kinnaur

Interaction with local people at Kilba in regard to CAT plan

WORKS UNDER RHEP CAT PLAN RAMPUR



Check Dam supported with salix stumps



Treatment of Sanarsa Nala at Gopalpur

ANNEXURE-I: **DETAILS OF SOIL MOISTURE CONSERVATION, AFFORESTATION AND INFRASTRUCTURAL ACTIVITIES FOR KOL DAM PROJECT**

SOIL AND MOISTURE CONSERVATION

CAT PLAN : KOL DAM
BLOCK : SUNNI

Year	Location	Check Dams (Nos.)	Type		Protection Wall	Type		Remarks	Area Covered
			Loose Stone	Crate Wire		Loose Stone	Crate Wire		
2008-09	Sainj Khud 31°13.427'N 77°02.99'E Elevation: 2631 ft.				2 1= (Water Storage Tank)		√	Protection Wall is not as per the course of river bed	
2004-05 **2005-06** **2006-07**	Manodri Nala 31°12.853'N 77°04.361'E Elevation: 3588 ft.	26 12 102		26 12 102				Damaged due to flood	
2008-09	Shali Nala 31°11.552'N 77°13.539'E Elevation: 3830 ft.	46 (3 km. Length)						Silt detention/rain water storage tank suggested.	
2005-06	Malthi Nala-2 + Deodhi Nala 31°08.609'N 77°16.019'E Elevation: 4528 ft.	72	57	15				To be supplemented with vegetative measures	284 ha.

AFFORESTATION

Kol Dam :
Block : Sunni/Khatnol

S.No.	Site/Location	Year	Area covered	Species planted	Survival	Type of Plantation	Remarks
1.	UF Taloti 31°10.184'N 77°16.283'E Elevation: 6596 ft.	2007-08	10 ha.	Daru, Leucaena, Deodar, Robinia & Darek	Damaged by fire	Afforestation	Site needs soil conservation measures
2.	U-27 Sakrori 31°13.611'N 77°07.733'E Elevation: 2455 ft.	2007-08	5 ha.	Daru, Leucaena, Khair	20-30%	Fueld and Fruit	Site not suitable for plantation. Already enough vegetation of shisham, kadi patta and simbal.
3.	U-47 Jaghar 31°11.769'N 77°13.052'E Elevation: 3948 ft.	2008-09	20 ha.	Daru, Khair, Jatropha, Leucaena			
		2006-07`	25 ha.	Daru, Khair, Ritha, Leucaenja, Shisham, Analtash, Behra, Robinia, Eucalyptus	25% damaged by fire	Afforestation	Oogenia coming up well as natural regeneration. Potential species for the area are Grewia, Kachar, Toon, and Oegenia, Chuli (People have rights) mulching needed.
4.	Khatnol U-22 Plag 31°13.572'N 77°12.823'E Elevation: 4425 ft.	2006-07	10 ha.	Leucaena, Kachnar, Simbal, Robinia, Darek	Damaged by fire		
		2007-08	12 ha.				

SOIL AND MOISTURE CONSERVATION

NAME OF CAT PLAN : KOL DAM
BLOCK : TATTAPANI

Year	Location	Check Dams/ Nos.	Type		Protection Wall	Type		Remarks	Area to be benefitted
			Loose Stone	Crate Wire		Loose Stone	Crate Wire		
2008-09	Chiana Nala N 31°16.273 E 77°05.095 Elev.: 3420 ft.	16	16					1. Site selection justified. 2. Technically structures need improvement (Lacks spill way)	200 ha.
2008-09	Chamu Nala N 31°18.41 E 77°08.365 Elev.: 4746 ft.	14	14					1. Site selection justified. 2. Biological measures not adopted	200 ha.

SOIL AND MOISTURE CONSERVATION

NAME OF CAT PLAN : KOL DAM
BLOCK : MAHUNAG

Year	Location	Check Dams/ Nos.	Type		Protection Wall	Type		Remarks	Area to be benefitted
			Loose Stone	Crate Wire		Loose Stone	Crate Wire		
2008-09	Mahunag N 31°18.454 E 77°12.783 Elev.: 6090 ft.	17	17					1. Site selection justified and structures were technically sound	12 ha.
2008-09	Bagshad N 31°18.279 E 77°13.015 Elev.: 6237 ft.	20 L=3 M=2 S=15						Structures were in good conditions	

SOIL AND MOISTURE CONSERVATION

NAME OF CAT PLAN : KOL DAM
BLOCK : RICHHANI

Year	Location	Check Dams/ Nos.		Type		Protection Wall	Type		Remarks	Area to be benefitted
				Loose Stone	Crate Wire		Loose Stone	Crate Wire		
2008-09	Dhuramu Nala N 31°23.521 E 77°17.181 Elev.: 6250 ft.		6	6					Technically sound. Site selection justified	250 ha.
2009-10 **2005-06** **2006-07** **2007-08** **2009-10**	Delag Nala	4 4 4 4 12	4 4 4 4 12						Technically sound. Site selection justified	
2008-09	Kanocha Nala N 31°24.907 E 77°15.678 Elev.: 7192 ft.		15						Good silt detention was found	
2007-08			14							200 ha.
2005-06			2							

SOIL AND MOISTURE CONSERVATION

NAME OF CAT PLAN : KOL DAM
BLOCK : PANDHAR

Year	Location	Check Dams/ Nos.	Type		Protection Wall	Type		Remarks	Area to be benefitted
			Loose Stone	Crate Wire		Loose Stone	Crate Wire		
2008-09	Bhayankar Nala N 31°26.630 E 77°03.031 Elev.: 7175 ft.	17 L=6 M=6 S=6						Technically sound. Site selection justified	10 ha. (5 villages)
2008-09	Ropra Nala N 31°25.453 E 77°04.614 Elev.: 6260 ft.	9 L=2 M=2 S=5						Site selection was excellent and technically structures were very sound	
2007-08	Manjlika Nala N 31°26.435 E 77°04.381 Elev.: 6660 ft.	13 L=4 M=5 S=4						Structures were in very good condition and were on justified site	250 ha.
	Kali Nala N 31°26.52 E 77°04.953 Elev.: 6237 ft.	7 M=4 S=3						Very good structures	100 ha.

SOIL AND MOISTURE CONSERVATION

NAME OF CAT PLAN : KOL DAM
BLOCK : NIHARI

Year	Location	Check Dams/ Nos.	Type		Protection Wall	Type		Remarks	Area to be benefitted
			Loose Stone	Crate Wire		Loose Stone	Crate Wire		
2008-09	Kotnala N 31°22.849 E 77°01.011 Elev.: 6775 ft.	5 M=2 S=3						Good silt detention was noticed and technically sound structures	10 ha. (5 villages)

SOIL AND MOISTURE CONSERVATION

NAME OF CAT PLAN : KOL DAM
BLOCK : JHUNGI

Year	Location	Check Dams/ Nos.	Type		Protection Wall	Type		Remarks	Area to be benefitted
			Loose Stone	Crate Wire		Loose Stone	Crate Wire		
2008-09	Banthal Nala N 31°23.586 E 77°03.976 Elev.: 6000 ft.	3 Large						Good silt detention was noticed and technically sound structures	Three villages namely Saral, Banthal & Ropari were benefited
2007-08	Jhungi Nala N 31°25.435 E 77°06.088 Elev.: 6204 ft.	1 Large						Site was justified and structures were in good condition	200 ha. Of Deodar forest
2007-08	Jhungi N 31°25.451 E 77°05.515 Elev.: 6145 ft.	1 Large						Good condition & justified. Almost filled with silt. Needs to be supplemented with biological means.	15 ha.
2008-09	Deva Nala N 31°25.182 E 77°05.198 Elev.: 6045 ft.	4 L=3 M=1						Site selection justified & structures were in good condition	25 ha..

AFFORESTATION

NAME OF CAT PLAN : KOL DAM
BLOCK : JHUNGI

Location & GPS Position	Year	Type of Plantation	Species Used	Enclosure	Total Area (ha.)	Survival	Remarks	Date of Assessment
SIMU-2 N 31°21.728" E 77°03.748" Elevation: 5700` ft.	2008-09	Afforestation	Daru, Kachnar, Chil	Barbered wire	10	75%	Site slection was justified	6-9-2009
Ukri-1 N 31°21.653" E 77°03.741" Elevation: 5400` ft.	2009-10	Fodder Plantation	Kakchnar	B/Wire	6	90%	Involvement of villagers for fencing is recommended	6-9-2009
UKRI-2 N 31°21.728" E 77°03.748" Elevation: 5700` ft.	2009-10	Fodder Plantation	Kachnarq	No fencing	5	90%	Involvement of villagers for protection of plantation in gree grass	6-9-2009
Fegal	2009-10	Afforestation	Daru, Kachnar, Chil	No fencing	5	90%	Involvement of villagers for protection of plantation in gree grass	6-9-2009
Khobla N 31°24.990" E 77°06.205748" Elevation: 6485 ft.	2005-06	Afforestation	Deodar	B/Wire	5	80%	Site is not justified	6-9-2009
OD-251 Shiv Shankar N 31°25.479" E 77°05.744" Elevation: 6148 ft.	2006-07	Afforestation	Deodar	B/Wire	5	70%	Site is not justified. However, patch plantation was done.	6-9-2009

AFFORESTATION

NAME OF CAT PLAN : KOL DAM

BLOCK : PANDHAR

Location & GPS Position	Year	Type of Plantation	Species Used	Enclosure	Total Area (ha.)	Survival	Remarks	Date of Assessment
MANJKI N 31°26.389" E 77°04.196" Elevation: 6825` ft.	2006-07	Afforestation	Deodar	Barbered wire	10	80%	Patch plantation has been done. Natural regeneration of Kail, Deodar & Berberis was observed	7-9-2009
MANJKI N 31°26.499" E 77°03.973" Elevation: 6870` ft.	2007-08	Afforestation	Deodar	Barbered wire	10	80%	Patch plantation has been done. Natural regeneration of Kail, Deodar & Berberis was observed	7-9-2009

AFFORESTATION

NAME OF CAT PLAN : KOL DAM

BLOCK : NEHRI

Location & GPS Position	Year	Type of Plantation	Species Used	Enclosure	Total Area (ha.)	Survival	Remarks	Date of Assessment
Marohara N 31°23.017" E 77°01.370" Elevation: 6799 ft.	2008-09	Afforestation	Deodar	Barbered wire	10	70%	Patch plantation was done. Natural regeneration of Kail was observed. Kail plantation suffered from excessive oozing out of sap during winter.	7-9-2009
Bah N 31°24.501" E 77°02.025" Elevation: 7000 ft.	2007-08	Afforestation	Deodar	Barbered wire	10	70%	Patch plantation.	7-9-2009

AFFORESTATION

NAME OF CAT PLAN : KOL DAM
BLOCK : RICHHANI

Location & GPS Position	Year	Type of Plantation	Species Used	Enclosure	Total Area (ha.)	Survival	Remarks	Date of Assessment
Pathrivi D-236 N 31°24.292" E 77°16.176370" Elevation: 6780 ft.	2007-08	Enrichment planting	Robinia, deodar, Ban	Barbered wire	10	60%	Already good forest of Kail, Ban Oak is standing. Plantation was not required.	5-9-2009
Kotkosh N 31°24.363" E 77°17.131" Elevation: 6508 ft.	2006-07	Afforestation	Deodar & Ban Oak	Barbered wire	10	80%	Plantation was not required	5-9-2009
D-235 Dhurmu N 31°23.523" E 77°17.115" Elevation: 6276 ft.	2008-09	Afforestation	Deodar, Ban Oak, Robinia	Barbered wire	5	80%	Plantation was not required. Total area of 100 ha. In Richhni block attached for plantation, 70 ha. Been done in existing forest.	5-9-2009

AFFORESTATION

NAME OF CAT PLAN : KOL DAM
BLOCK : MAHUNAG

Location & GPS Position	Year	Type of Plantation	Species Used	Enclosure	Total Area (ha.)	Survival	Remarks	Date of Assessment
Kalotha N 31°17.798" E 77°12.701" Elevation: 6583 ft.	2007-08	ANR	Deodar, Ban Oak	Barbered wire	5	60%	Well established forests of Chil. Natural regeneration of Ban Oak and Kail was found	5-9-2009

AFFORESTATION

NAME OF CAT PLAN : KOL DAM
BLOCK : TATTAPANI (ECO-TASK FORCE)

Location & GPS Position	Year	Type of Plantation	Species Used	Enclosure	Total Area (ha.)	Survival	Remarks	Date of Assessment
Saraur N 31°15.804" E 77°04.078" Elevation: 2753 ft.	2006-07	NTFP	Shisham, Khari, Amaltash, Jamun, Bamboo, Ritha, Robinia, Kachnar, Daru, Amla	Barbered wire	20	100%	Life saving irrigation for two months (2.5 litre/plant) was given. Plantation was done in consultation with forest department. Total area allotted was 108 ha. Plants were in good growth condition.	4-9-2009
	2009-10	ANR	Ban, Apricot, Daru, Jamun	Barbered Wire	35	100	Life saving irrigation for two months (2.5 litre/plant) was given. Plantation was done in consultation with forest department. Total area allotted was 108 ha. Plants were in good growth condition.	4-9-2009

AFFORESTATION

KOL DAM

S. No.	Site/Location	Year	Area covered	Species Planted	Survival	Type of Plantation	Remarks
1.	UF Taloti N 31°10.184 E 77°16.283 Elev.: 6596 ft.	2007-08	10 ha.	Daru, Leucaena, Deodar, Robinia & Darek	Damaged by fire	Afforestation	Site needs soil conservation measures.
2.	U-27 Sakrori N 31°13.611 E 77°07.733 Elev.: 2455 ft.	2007-08	5 ha.	Daru, Leucaena, Khair	20-30%	Fueld and Fruit	Site not suitable for plantation. Already enough vegetation of shisham, kadi patta & simbal.
3.	U-47 Jaghar N 31°11.769 E 77°13.052 Elev.: 3948 ft.	2008-09	20 ha.	Daru, Leucaena, Khair, Jatropha			
		2006-07	25 ha.	Daru, Khair, Ritha, Leucaena, Shisham, Analtash, behra, Robinia, Eucalyptus	25% damaged by fire	Afforestation	Oogenia coming up well as natural regeneration. Potential species for the area are Grewia, Kachnar, Toon and Oogenia, chuli (People have rights). Mulching needed.
4.	Khatnol U-22 Plag N 31°13.572 E 77°12.823 Elev.: 4425 ft.	2006-07 2007-08	10 ha. 12 ha.	Leucaena, Kachnar, Simbal, Robinia, Darek	Damaged by fire		Oogenia coming up well as natural regeneration. Potential species for the area are Grewia, Kachnar, Toon and oogenia, chuli (People have rights). Mulching needed.

RURAL INFRASTRUCTURE

CAT PLAN : KOL Dam
Block : Khatnol

Site/Location	Year	Area	Type of Work
Manjali Jayan 31°14.55'N 77° 401'E Elevation: 3503 ft	2007-08	15 bigha	Water Storage Tank
Bir ki Jayan 34°14.55'N 77° 01.664'E'E Elevation: 3240 ft.	2005-06	10 bigha	Water Storage Tank
Noti Khud 31°14.55'N 77° 401'E Elevation: 3503 ft.	2005-06	1.2 km. Manjali village connected to road benefitting 25 household	Kucha Path
Noti Khud	2005-06	Village Jhijar benefited to harness the overflow of IPH lift irrigation	Water Storage Tank (7X4.5X2m)
Noti Khud Jhigar Ganavi Devi Kadar 31°13.135'N 77° 12.099'E Elevation: 4595 ft.	2008-09	Hajal to thuru temple 850 meter Kadar village	Kacha Path (500 mt.) Tank repair Kacha path Water Storage Tank

FOREST INFRASTRUCTURE

NAME OF CAT PLAN : KOL DAM
BLOCK : NERI

Location & GPS Position	Year	Type of Infrastructure	Dimensions	Present status	Technically sound/Not	Date of Assessment
Kamrah N 31°24.916' E 77°02.603' Elevation: 7678 ft.	2008-09	Farm Pond	752.5m	Good	Yes	
Pandar N 31°26.984' E 77°03.229' Elevation: 7371 ft.	2009-10	BEO Quarter	Two bed room set, one store & one office (9.80X3.80mt) plinth area	Good	Yes	
Rangan N 31°18.454' E 77°12.783' Elevation: 6090 ft.	2007-09	BEO Quarter-cum-Office	Two Bed room set and office and store	Good	Yes	

Year wise summarized progress of CAT plan works of Kunihar Forest Division under Kol Dam CAT plan

	Component Work	Year	
		2004-2005	2005-2006
A	**i) Afforestation/ plantation (Area in ha)**	7.50	20.00
	ii) Maintenance of plantation		7.50
	iii) Advance works		
B	**Soil conservation (Nos.)**		
	Small check dams	20	529
	Medium check dams	10	13
	Large check dams	2	7
C	**Infrastructure**		
	Forest		
	Construction of FGD hut	1 No.	-
	Construction of FRH	-	1 No.
	Construction of Chowkidar quarter, FRH & Hut	-	-
	Repair of path		-
	Construction of store, Repair of hut	-	-
	Repair of paths	-	-
	Rural		
	Construction of WHS	1 No.	-
	Construction of village path	-	1 No.
	Construction of pucca path	-	-
	Construction of water tank, kuhal, kacha path	-	-

ANNEXURE-II: DETAILS OF SOIL MOISTURE CONSERVATION, AFFORESTATION AND INFRASTRUCTURAL ACTIVITIES FOR NJPC

SOIL CONSERVATION WORKS

NAME OF CAT PLAN : NJPC
BLOCK : Gopalpur (Forest Division, Rampur)

Year	Location & GPS Coordinates	Soil Conservation works Check Dams/Protection Wall	Type		Present Status	Area benefited	Whether technically sound	Site Selection justified	Date of Assess - ment
			Loose Stone	Crate Wire					
2003-04	Mashnu 31°27.340'N 77°48.990'E Elevation 7465 feet	Protection Wall (12 Nos)	v	X	Good condition	5 ha.	Yes	Yes	22-5-09
2003-04	Daran Nalla Magra Uchi Nala 31°27.818'N 77°45.285'E Eelevation 7385 feet	Crate Wire Check Dam (3)	X	v	-do-	50 ha.	Yes	Yes	22-5-09
2003-04	Chandroli Slip 31°29.055'N 77°45.073'E Eelevation 7158 feet	Check Wall/Check Dams	X	v	-do-	20 ha.	Natural vegetation has started coming up	Check Dams retained silt and debris which justified good site selection. However, check walls need to be supported with Deodar and Robinia Plantation.	22-5-09

2008-09 2008-09	Daran Slip 31°27.741'N 77°45.710'E Elevation 7536 feet & Latua Slip 31°28.023'N 76°48.165'E Elevation 6530 feet	Protection Walls Check Walls= (4)	v 2	X 12					
2008-09	Sanarsa Nalla 31°29.489'N 77°43.500'E Elevation 4858 feet	Check Dams =(23)	11	12	Good silt detentio n was noticed	80 ha	Yes	Yes	21-5-09
2008-09	Uchhi Slip 31°21.618'N 77°45.757'E Elevation 5770 feet	Protection Walls=(52) Check Walls= (2)	08	44	Good	100 ha.	Yes	Yes	21-5-09

SOIL CONSERVATION WORKS

NAME OF CAT PLAN : CAT Plan NJPC
BLOCK : Rampur Block

Year	Location & GPS Coordinates	Soil Conservation works Check Dams/Protection Wall	Type		Present Status	Area benefited	Whether technically sound	Site Selection justified	Date of Assess - ment
			Loose Stone	Crate Wire					
2007-08	Jhakari Nalla 31°29.320'N 77°42.381'E Elevation 4467 feet	Protection Wall (19) Protection Wall= (5) Check Dams=(8)	19	5 8	CD filled with silt	3 ha.	Yes	Yes	21-5-09
2008-09	Lahsa Nalla 31°25.442'N 77°37.670'E Elevation 3280feet	Crate Wire = (36)	22	14	Filled with debris and silt	1 ha.	Yes	Yes	21-5-09
2008-09	Browni Nalla 31°28.884'N 77°41.835'E Elevation 4892 feet	PW=(9)	3	16	Good	200 ha.	Yes	Yes	21-5-09

SOIL CONSERVATION WORKS

NAME OF CAT PLAN : CAT Plan NJPC
BLOCK : Sarahan

Year	Location & GPS Coordinates	Soil Conservation works Check Dams/Protection Wall	Type		Present Status	Area benefited	Whether technically sound	Site Selection justified	Date of Assess - ment
			Loose Stone	Crate Wire					
2008-09	Uchi Slip 31°21.618'N 76°45.757'E Elevation 5770 feet	Protection Walls (44) Check Dams S = (8) L = (2/10)	v	X	Supported with willow plantation	100 ha. Vill. Sher benefitted	Yes	Yes	22-5-09
2004-05 2005-06	Browni Nalla 31°28.884'N 77°41.835'E Elevation 4892 feet	Check =(21) Walls & Check Dams=(3)	v	X	Good	Old Badhal & Village of so household benefited	Yes	Yes	21-5-09

RAMPUR BLOCK (NJPC CAT PLAN)

a) Soil and Moisture Conservation

Year	Location	Check Dams (Nos.)		Type		Protection Wall	Type		Remarks	Area Covered
				Loose Stone	Crate Wire		Loose Stone	Crate Wire		
2002-03	Khili Nala	2m.								
		3m.								
		5m.	174	52	122					2.5 ha.
2003-04	-	-	-	-	-					
2004-05	-	-	-	-	-					
2005-06	Pashada Nala	-	4	-	4					1 ha.
	Baruni Nala	-	10	-	10					Not given
	Jabal Nala	-	5	-	5				2 check dams damaged in 2008 due to cloudburst	149 ha.
	Magra Nala	-	16	12	4					1.5 ha.
	Kapshai and UFTouni					39	17	22	2 structures damaged due to heavy rains (2008-09)	2.5 ha.
2006-07	Baruni Nala	-	133	77	56					
	Porhoda Nala	-	13	9	4					
	Jhakri (Road side erosion control)	-	14	9	5					
2007-08	Jhakri Nala	-	32	13	19					Not available
2008-09	C-181 (a)	-	42	22	20					4 ha.
	Thanti Slip	-	19	7	12					1 ha.
	Kapshai Slip	-	24	11	13					1 ha.
	Pashada Slip	-	21	7	14					1 ha.
	Pashada Nala	-	5	-	5					1 ha.
	Jaban Nala	-	14	10	4					2 ha.
	Jhakri Nala	-	22	4	18					Not available

GOPALPUR BLOCK (NJPC CAT PLAN)

b) Soil and Moisture Conservation

Year	Location	Check Dams (Nos.)	Type		Protection Wall	Type		Remarks	Area Covered
			Loose Stone	Crate Wire		Loose Stone	Crate Wire		
2002-03	Chadali slip	134	44	90					25 ha.
		49	04	45					40 ha.
2003-04	-	-	-	-	-	-	-	-	
2004-05	-	-	-	-	-	-	-	-	
2005-06	Uchhi Slip	112	-	112					30 ha.
	Daran Slip	56	-	56					25 ha.
	Gasso (Near Bridge)	11	-	11					5 ha.
	Jalind Nala	113	-	113					7 ha.
	Bajwa Nala	13	-	13					8 ha.
2006-07	Jalind Nala (Near Bridge)	22	8	14					10 ha.
2007-08	Koli Nala	14	-	14					15 ha.
2008-09	Uchhi Slip	65	8	57					70 ha.
	Daran Slip	83	5	78					25 ha.
	Maghara Slip	21	8	13					5 ha.
	Jalind Slip	16	6	10					10 ha.
	Basara Slip	16	6	10					8 ha.
	Sanarsa Nala	24	9	15					15 ha.
	Mashnoo Nala	14	-	14					12 ha.
	Maghara Nala	5	-	5					14 ha.

GOPALPUR BLOCK (NJPC CAT PLAN)

Annex.II contd...

c) Soil and Moisture Conservation

Year	Location	Check Dams (Nos.)	Type		Protection Wall	Type		Remarks	Area Covered
			Loose Stone	Crate Wire		Loose Stone	Crate Wire		
2002-03	-	-	-	-					
2003-04	-	-	-	-	-	-	-	-	
2004-05	Badhal nala	25	22	03	-	-	-	-	18 ha.
2005-06	Bhagnawat Slip	126	-	126					10 ha.
	KinooSlip	17	-	17					8 ha.
	Badhal Slip	5	1	4					25 ha.
	Gharat Nala	94	-	94					40 ha.
2006-07	Bhaghawat Slip	40	20	20					100 ha.
	Gharat Nala	150	60	90					10 ha.
2007-08	Bhaghawat Nala	21	-	21					20 ha.
2008-09	Bhaghawat Nala	42	6	36					10 ha.
	Badhal Slip	120	27	103					20 ha.
	Kuni Slip	27	5	22					5 ha.
	Kuni Nala	15	-	15					71 ha.

SOIL AND MOISTURE CONSERVATION

NAME OF CAT PLAN : NJPC, Rampur
BLOCK : Kilba

Year	Location	Check Dams/ Nos.	Type		Protection Wall	Type		Remarks	Area benefitted
			Loose Stone	Crate Wire		Loose Stone	Crate Wire		
2005-06	Thikroo N 31'30.560" E 76'08.020" Elevation: 7345ft.			52				43 Damaged by heavy rolling stones and land slides	5 ha.
Note: Soil conservation works during 2006-07, 2007-08 and 2008-09 were NIL.									

SOIL AND MOISTURE CONSERVATION

NAME OF CAT PLAN : NJPC, Rampur
BLOCK : Urni

Year	Location	Check Dams/ Nos.	Type		Protection Wall	Type		Remarks	Area benefitted
			Loose Stone	Crate Wire		Loose Stone	Crate Wire		
2004-05	-	-	Nil	-	-	-	-	-	-
2005-06	Markhona (Ranang) N 31'30.556" E 78'0.216" Elevation: 6935ft.	-	04	36	-	-	-	Good Condition	

SOIL AND MOISTURE CONSERVATION

NAME OF CAT PLAN : NJPC, Rampur
BLOCK : Bhabanagar

Year	Location	Check Dams/ Nos.	Type		Protection Wall	Type		Area benefitted	
			Loose Stone	Crate Wire		Loose Stone	Crate Wire		
2006-07	Below Kandlu bridge N 31'34.009" E 77'51.043" Elevation: 5541 ft.					18	09	Robinia and Kunish regeneration were found coming on both sides of the protection wall.	Village Kaber benefitted
2007-08	Sholding Nallah (left side) N 31'31.126" E 77'54.809" Elevation: 4985 ft.						02	Kunish plant found growing naturally	Village Dheu benefitted

AFFORESTATION

NAME OF CAT PLAN : NJPC
BLOCK : Gopalpur

Location & GPS Position	Year	Type of Plantation	Species Used	Enclosure	Total Area (ha.)	Survival	Remarks	Data of Assess-ment
Sanarsa 31°29.798'N 77°43.603'E Elevation: 4750 feet	2003-04	Fodder-cum-Avenue Plantation	Pinus, Robinia, Bottle Brush (15000 plants)	Barbered wire fencing	10	75%	Site is good for raising shrub species	22-5-2009

AFFORESTATION

NAME OF CAT PLAN : NJPC
BLOCK : Sarahan

Location & GPS Position	Year	Type of Plantation	Species Used	Enclosure	Total Area (ha.)	Survival	Remarks	Data of Assess-ment
Salabagh 31°32.185'N 77°47.00'E Elevation: 4820 feet	2003-04	Mixed plantation of Timber, Fodder and Fruit	Pinus, Robinia, Ban Oak, Nile, Gulmohar, Silver oak, Ritha, Dadu, Drake (15000 plants)	Stone & Wooden fencing	10	30%	Rocky area of the region with shallow soil depth need to have Chil and Dadu plantations only	21-5-2009
Det Badhal 31°33.288'N 77°49.157'E Elevation: 5264 feet	2005-06	Mixed plantation of Timber & Fodder spp.	Pinus, Bank Oak, Silver Oak, Dadu & Drake (75,000 plants)	Wooden barbered wire fencing	5	75%	Good natural regeneration of Rubus, Berberis & local grasses	21-5-2009

AFFORESTATION

NAME OF CAT PLAN : NJPC
BLOCK : Rampur

Location & GPS Position	Year	Type of Plantation	Species Used	Enclosure	Total Area (ha.)	Survival	Remarks	Data of Assess-ment
Jhakari near VVIP Rest House 31°29.347'N 77°41.953'E Elevation: 4275 feet	2003-04	Mixed Plantation of Timber and Avenue plants	Pinus + Broad leaved (11000 plants)	Barbered wire fencing	10	75%	Plantation will add to the landscape of the area natural regeneration of bushes	21-5-2009

AFFORESTATION

NAME OF CAT PLAN : NJPC, Rampur
BLOCK : Kilba

Location & GPS Position	Year	Type of Plantation	Species Used	Enclosure	Total Area (ha.)	Survival	Remarks	Date of Assessment
UF Kilba N 31°30.656' E 78°08.020' Elevation: 7345 ft.	2005-06	Afforestation	Deodar, Robinia, Alianthus, H.C. Net Neoza	B/wire	5 ha.	56%	Natural regeneration was observed	
C-139 (b) (Lingne) N 31°30.585' E 78°08.565' Elevation: 7220 ft.	2007-08	Enrichment Plantation	Robinia, Alianthus, Khanor Behmi	B/wire	03	50%	Wrongly mentioned as afforestation in the records.	
UF-Balya (Walthrung) N 31°30.687' E 78°08.978' Elevation: 6052 ft.	2007-08	Replenishment	Robinia, Chuli, Neoza, Alianthus,	B/wire	03 ha.	60&	-	-
C-138 (b) Thikroo N 31°30.560' E 78°07.892' Elevation: 7454 ft.	2006-07	Enrichment	Deodar, Robinia, Alianthus, Khanor, Behmi	B/wire	5 ha.	60%	Good regeneration. There was no need for plantation only enclosed was sufficient	-
F-Punang N 31°22.717' E 78°22.120' Elevation: 10445 ft.	2006-07	Afforestation	Deodar, Robinia, Alianthus, Khanor,	B/wire	08 ha.	58%	-	-

AFFORESTATION

NAME OF CAT PLAN : NJPC, Rampur
BLOCK : Urni

Location & GPS Position	Year	Type of Plantation	Species Used	Enclosure	Total Area (ha.)	Survival	Remarks	Date of Assessment
C-258 (Kalesthal) N 31°32.196' E 78°2.482' Elevation: 5390 f	2008-09	Afforestation	Behmi Alianthus, Deodar	B/wire	5 ha.	50%	Natural regeneration of Alianthus and Robina was found	-
UF-Cholling N N 31°31.524' E 78°8.375' Elevation: 6445 ft.	2006-07	Afforestation	Deodar, Chulli, Alianthus, Robinia	B/wire	06 ha.	30%	Engineering works are also required on the site.	-

AFFORESTATION

NAME OF CAT PLAN : NJPC, Rampur
BLOCK : Bhabanagar

Location & GPS Position	Year	Type of Plantation	Species Used	Enclosure	Total Area (ha.)	Survival	Remarks	Date of Assessment
DPF Chaura 31°34.009'N 77°51.843'E Elevation: 5541 ft.	2006-07	Afforestation	Alianthus, Deodar, Robinia, Chuli, Khanaur	Barbed wire	5 ha.	30 %	Affected by forest fire Natural Renegedration of Chir Pine found shrubs like Rubus and Berberis can be encouraged.	18-06-2009
Saforti Kafor 31°33.854'N 77°30.893'E Elevation: 5285 ft.	2006-07	Afforestation	Alianthus, Robinia, Chuli,	Barbed wire	2 ha.	60 %	Natural regeneration of Robinia found	15-06-2009
C-68(b) III Chaura 31°33.854'N 77°50.393'E Elevation: 5285 ft.	2008-09	Afforestation	Robinia, Chuli, Drake & Khanaur	Barbed wire	10 ha.	45 %	Natural Regeneration of Kail and Ban	18-06-2009
UF Nigulsari 31°33.709'N 77°52.474'E Elevation: 5555 ft.	2007-08	Afforestation	Robinia, Chuli, Drake	Barbed wire	5 ha.	20 %	Damaged by forest fire	18-06-2009

DPF Thach NC-5 31°33.457'N 77°52.799'E Elevation: 5580 ft.	2008-09	Afforestation	Robinia, Chuli, Drake	Barbered wire	5 ha.	50 %	Natural Regenmeration of Robinia, Alianthus found	19-06-2009
UF Solding 31°33.126'N 77°54.809'E Elevation: 5500 ft.	2008-09	Afforestation	Robinia, Chuli, Drake	Barbed wire	5 ha.	33 %	Natural Regeneration of Alianthus, Robinia found 2 ha. Area damaged by forest fire.	18-06-2009
UF Nathpa 31°30.811'N 77°57.852'E Elevation: 5290 ft.	2006-07	Afforestation	Chuli, Behmi, Robinia, Alianthus	Barbed wire	3 ha.	50%	Ficus spp. Drake, Alianthus, Robinia found growing naturally. Avenue plantation of trees interspersed with shrubs along roads was required.	18-06-2009
UF Bhabanagar 31°33.818'N 77°56.789'E Elevation: 5255 ft.	2004-05	Afforestation	Robinia, Chuli, Drake & Khanaur	Barbed wire	5 ha.	65 %	Robinia & Alianthus were found growing naturally	18-06-2009
UF Plingi 31°33.318'N 77°55.261'E Elevation: 5005 ft.	2006-07	Afforestation	Chuli, Robinia, Ailanthus, Drake, Behmi	Barbed wire fencing from one side only	2 ha.	55%	Heavy grazing pressure observed.	19-6-2009

TABLE: RURAL AND FOREST INFRASTRUCTURE DEVELOPMENT WORKS UNDERTAKEN IN GOPALPUR, SARAHAN AND RAMPUR FOREST BLOCKS OF RAMPUR FOREST DIVISION UNDER NJPC CAT PLAN

Rural Infrastructure			Forest infrastructure
Year	**Block**	**Type of Work**	**Type of Work**
2002-03	Sarahan	Nil	Nil
2003-04	Gopalpur	Nil	Nil
	Sarahan	Nil	Nil
	Rampur	Nil	Nil
2004-05	Gopalpur	Repair of spring/Bauri, Kuhl & other water resources at Ouchhi, Daran & Dobi.	Nil
	Sarahan	Village Pond, Repair of spring/Bauri Repair of Roads/Paths	Nil
	Rampur	Village pond/tank (2 Nos.) Repair of Bauri (10 Nos.) Repair of roads/path	Nil
2005-06	Gopalpur	Village pond/spring/paths	Repair of Forest Range Hut
	Sarahan	Nil	Landscaping around Bauri
	Rampur	Nil	Repair of Forest Range Hut Construction of Rain water Harvesting structure at Banauli (2 lacs)
2006-07	Gopalpur	Soil Water Harvesting structures (1 lac.)	Nil
	Sarahan	Village pond at Kuni (Rs. 57,000/-)	Repair of Gang hut at Badhal (Rs. 50,000/-).
	Rampur	Village pond/tank, SWH structures (1 lac)	1. Approach road to Range Office, Rampur (1.90 lac). 2. Maintenance of Buildings, Rampur (10 Nos.) (3.44 lac)
2007-08	Sarahan	Nil	Repair of Range Office-cum-residence & repair of path/roads (Rs. 75,000/-).
	Gopalpur	Nil	Nil
	Rampur	Nil	Maintenance of Range Office-cum-residence (Rs. 25,000/-)
2008-09	Sarahan	1. Repair of spring/Bauri/Kool etc. at Kurgu, Rangori, Dheu & Naini. 2. Repair of Village paths/pond etc.	Nil
	Gopalpur	Village pond at Manjauli, repair of spring/village road/paths	Nil

ANNEXURE-III: DETAILS OF SOIL MOISTURE CONSERVATION, AFFORESTATION AND INFRASTRUCTURAL ACTIVITIES FOR BASPA-II

SOIL AND MOISTURE CONSERVATION

NAME OF CAT PLAN: BASPA-II
NAME OF BLOCK : SANGLA

Year	Location	Check Dams/Nos.	Type		Protection Wall	Type		Remarks	Area benefitted
		Mounds	Loose Stone	Crate Wire		Loose Stone	Crate Wire		
2008-09	Hurba N 31'.25.08" E 78'17.32" Elevation: 9140 ft. (Near Helipad)						05	Good	
2008-09	Mastrang N 31'.25.011" E 78'17.885" Elevation: 9300 ft.	08 Mounds						Justified	Betsari Village (about 80 hourseholds covering 3-4 kms.)
2008-09	Batseri N 31'.25.08" E 78'17.32" Elevation: 8140 ft.						05	Good, Dimensions of check wall/spUR should be nalla specific	250 mtrs. Of Baspa river bank has been provided
2008-09	Shushang Nalla N 31'.21.800" E 78'23.97" Elevation: 10930 ft.						02		
2008-09	Raksham N 31'.23.147" E 78'21.479" Elevation: 10223 ft.							Bank of river Baspa has been protected.	

2008-09	Kharogla Nallah at Chispan slip N 31'43.345" E 78'19.541" Elevation: 9678 ft.						05	Good protection walls need to strengthen with biological measures - Flow of Kharogla Nallah needs to be diverted to Baspa river to safe Village Batseri	Batseri hill was protected from flood.
2005-06	Dandangshi N 31'.24.150" E 78'22.88" Elevation: 9525ft.						01		
2008-09	Syringcha Nallah N 31'.25.061" E 78'17.901" Elevation: 9209ft.						02	Needs modification should have been across the flow supported with brush wood barriers.	
2008-09	Batseri N 31'.24.515" E 78'18.361" Elevation: 8834 ft.						01 Double protection wall	Locally available stones were used.	120X25 sq. mtr.
2008-09	Batseri (Land slip) N 31'.24.518" E 78'18.361" Elevation: 8830ft.						02		Banjara camp area protected
2008-09	Chitkul N 31'21.041" E 78'26.131" Elevation: 11270 ft.						3	Locally available stones were used	Chitkul village protected

AFFORESTATION

NAME OF CAT PLAN : BASPA-II
BLOCK : SANGLA

Location & GPS Position	Year	Type of Plantation	Species Used	Enclosure	Total Area (ha.)	Survival	Remarks	Date of Assessment
Kharogla C-162 (a) N 31'.24.345" E 78'19.541" Elevation: 9678 ft.	2006-07	Afforestation	Deodar	Barbed wire	5 ha.	50%	-	17-06-2009

ANNEXURE-IV: DETAILS OF SOIL MOISTURE CONSERVATION, AFFORESTATION AND INFRASTRUCTURAL ACTIVITIES FOR RHEP, RAMPUR

SOIL & MOISTURE CONSEERVATION WORKS

RHEP CAT PLAN – RAMPUR
Rampur Block

Year	Location	Check Dams (Nos.)	Type		Protection Wall	Type		Remarks	Area covered
			Loose Stone	Crate Wire		Loose Stone	Crate Wire		
2008-09	Garola Slip	37	7	30					Not given
	Khargag Slip	74	4	70					-do-
	Temple Pipty	36	10	26				2 RCC structures	-do-
	Kalyanpur Nala	7	3	4					-do-
	Pacholi Nala	4	-	4					-do-
	Khaltoo Nala	19	9	10					-do-
	Lhasa Nala	36	22	14					-do-
	Bretta Nala	10	-	10					-do-
	Jhaku Nala	4	-	4					-do-
	Ropru Nala	6	-	6					-do-

SOIL & MOISTURE CONSEERVATION WORKS

Sarahan Block (RHEP Rampur CAT Plan)

Year	Location	Check Dams (Nos.)	Type		Protection Wall	Type		Remarks	Area covered
			Loose Stone	Crate Wire		Loose Stone	Crate Wire		
2008-09	C-187 Bari	56	6	50					15 ha.
	Aksha Bhaghawat	39	-	39					10 ha.
	Badrai	20	5	15					5 ha.
	Lothoa	18	4	14					6 ha.
	Thara Nala	7	2	5					6 ha.
	Manglad (Near Badlai)	21	-	21					10 ha.
	Garteda Nala	15	-	15					10 ha.
	Gharat Nala	109	44	65					45 ha.

Title: Afforestation works done in Sarahan, Rampur, Gopalpur Forest Blocks of Rampur Forest Division and RHEP, Rampur CAT Plan

NAME OF CAT PLAN : RHEP RAMPUR

Block	Year	Type of Plantation & Area/ha.			Total area/ha.	Survival	Species planted	Natural regeneration	Type of Enclosure	Remarks
		Fuel/ Fodder	NTFP	ANR						
Sarahan	2008-09	-	-	-	-	-	-	-	-	No plantation undertaken
Rampur	2008-09	-	-	-	-	-	-	-	-	-do-
Gopalpur	2008-09	-	-	-	-	-	-	-	-	-do-

RHEP Rampur was started in 2008-09 in Rampur Forest Division. Afforestation works have been shown to be undertaken in nine blocks viz. Sarahan, Phancha, Jaghori, Nogli, Deothi, Rampur, Palhi, Taklech & Nankhari. But in three blocks namely Sarahan, Rampur & Gopalpur which were visited by the team, no afforestation activity was found.