Attachment for Chapter 6

Outline of the Proposed Project Scope

Attachment 6.3.1 Long List of Sub-projects (296 sites + 49 Sites) - 1

Hamirpur

Sr. No.	Name & Type of Scheme	Source of Discharge (Observation : Month Year etc.)	New or Improvement	Solar Pump (Y/N)	Farm Access Road (Km)	GPS Location of Source			C.C.A (Hect.)	No. of farm Households/Farmers	Major crops		Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total vegetable farmers)		Dominant Farmers (Advanced/ Intermediate/ Conservative)		
						Latitude	Longitude	Elevation			In Kharif	In Rabi	Nos.	% age	Nos.	% age	Advanced	Intermedi	Conserv
1	LIS Kharwar	Kharwar Nallah: 2 lps, June 2020	New	Y	-	N31° 36' 35.7"	E76° 37' 37.0"	1034 m	8.00	20	Maize	Wheat	4	20%	3	75%	1	19	-
2	LIS Kotlu Upper	Kotlu Nallah: 8 lps, March 2020	New	Y	0.2	N31° 36' 29.0"	E76° 26' 04.5"	715 m	10.00	20	Maize, sugarcane	Wheat, sugarcane	3	15%	1	33%	-	19	1
3	LIS Khatrod	Reoulla Nallah: 5 lps, June 2020	New	Y	-	N31° 40' 02.1"	E76° 24' 30.7"	596 m	12.00	26	Maize	Wheat	4	15%	-	-	6	20	-
4	LIS Kot	Kangral Nallah: 7 lps, June 2020	New	Y	-	N31° 42' 37.6"	E76° 33' 10.1"	829 m	15.00	50	Maize	Wheat	1	2%	1	100%	-	50	-
5	LIS Dakhol	Kunah Khad: 20 lps, March 2020	New	Y	-	N31° 40' 49.3"	E76° 27' 01.7"	567 m	12.00	50	Maize	Wheat	3	6%	1	33%	1	49	-
6	LIS Tajyar	Gawald Khad: 10 lps, March 2020	New	-	0.1	N31° 29' 28.4"	E76° 34' 18.5"	720 m	10.00	38	Maize	Wheat	5	13%	-	-	-	38	-
7	LIS Tikkar	Dugh Nallah: 8 lps, March 2020	New	-	-	N31° 39' 54.3"	E76° 26' 58.7"	601 m	10.00	50	Maize	Wheat	3	6%	1	33%	1	46	3
8	STW Siuni	Ground Water: Resistivity Survey Required	New	Y	-	N31° 42' 07.4"	E76° 30' 52.4"	923 m	8.00	30	Maize	Wheat	4	13%	2	50%	-	30	-
9	LIS Dalchera	Dalchera Nallah: 5 lps, June 2020	New	Y	-	N31° 29' 22.7"	E76° 32' 03.4"	829 m	12.00	12	Maize	Wheat	3	25%	2	67%	3	9	-
10	LIS Rohwin	Sanihal Khad:20 lps, June 2020	New	Y	-	N31° 37' 46.0"	E76° 38' 26.8"	941 m	20.40	65	Maize	Wheat	2	3%	2	100%	5	60	-
11	LIS Maslana	Sarhyali Khad: 10 lps, June 2020	New	Y	-	N31° 27' 57.3"	E76° 30' 19.6"	673 m	10.00	75	Maize	Wheat	4	5%	1	25%	-	73	2
12	LIS Chak Kathal	Jamli Khad: 200 lps, June 2020	New	-	-	N31° 40' 33.3"	E76° 33' 07.2"	777 m	20.00	81	Maize	Wheat	2	2%	-	-	26	51	4
13	LIS Jhanjyani	Sahyali Khad: 10 lps, June 2020	New	Y	-	N31° 28' 35.4"	E76° 30' 22.3"	704 m	30.00	38	Maize	Wheat	6	16%	3	50%	7	30	1
14	LIS Samella	Gawald Khad: 10 lps,	New	Y	-	N31° 28' 39.9"	E76° 34' 48.4"	685 m	18.00	44	Maize	Wheat	6	14%	3	50%	3	41	-
15	LIS Baroha	Jamli Khad: 5 lps, June 2020	Improvement	Y	-	N31° 40' 22.6"	E76° 32' 18.5"	745 m	21.00	30	Maize	Wheat	-	-	-	-	-	30	-
16	LIS Pidhartta	Sanehal Khad: 8 lps, June 2020	New	Y	0.3	N31° 37' 06.1"	E76° 39' 03.3"	885 m	10.00	50	Maize	Wheat	4	8%	-	-	1	49	-
17	LIS Ramehra	Balhi Nallah: 3 lps, June 2020	New	-	-	N31° 36' 44.1"	E76° 38' 32.8"	882 m	15.00	38	Maize	Wheat	6	16%	2	33%	2	35	1
18	LIS Badaran	Mutard Khad: 5 lps, June 2020	New	Y	-	N31° 37' 08.2"	E76° 28' 11.8"	784 m	8.00	28	Maize	Wheat	3	11%	-	-	3	22	3
19	LIS Nukhel	Mutard Khad: 5 lps, March 2020	New	Y	-	N31° 37' 59.3"	E76° 26' 48.3"	730 m	8.00	25	Maize	Wheat	1	4%	-	-	-	25	-
20	LIS Balduhak	Salasi Khad: 5 lps, June 2020	New	Y	-	N31° 45' 51.3"	E76° 26' 57.6"	728 m	10.00	10	Maize	Wheat	-	-	-	-	3	7	-
21	LIS Jamreda	Chamned Nallah: 12 lps, June 2020	New	-	-	N31° 39' 00.6"	E76° 35' 01.2"	878 m	10.00	38	Maize	Wheat	2	5%	-	-	-	38	-
22	LIS Langiyana	Bai Da Chou: 15 lps, June 2020	New	-	-	N31° 35' 47.7"	E76° 26' 40.8"	768 m	20.00	70	Maize	Wheat	7	10%	3	43%	-	70	-
23	LIS Kwant	Rakkar Cho: 2 lps, June 2020	New	-	-	N31° 41' 20.0"	E76° 20' 48.6"	635 m	10.00	34	Maize	Wheat	5	15%	4	80%	4	27	3
	Total			**16**	**0.60**				**307.40**	**922**			**78**		**29**		**66**	**838**	**18**

Attachment 6.3.1 Long List of Sub-projects (296 sites + 49 Sites) - 2

Bilaspur

Sr. No.	Name & Type of Scheme	Source of Discharge (Observation : Month Year etc.)	New or Improvement	Solar Pump (Y/N)	Farm Access Road (Km)	GPS Location of Source			C.C.A (Hect.)	No. of farm Households/ Farmers	Major crops		Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total vegetable farmers)		Dominant Farmers (Advanced/ Intermediate/ Conservative)		
						Latitude	Longitude	Elevation			In Kharif	In Rabi	Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative
1	LIS Daloh	Perenial Source: 18 lps, March 2020	New	Y	-	N31° 29' 41.1"	E76° 36' 55.6"	669 m	10.00	41	Maize	Wheat	7	17%	-	-	-	7	34
2	LIS Dhadus	Ali Khad: 20 lps, June 2020	New	Y	-	N31° 19' 18.3"	E76° 49' 20.3"	700 m	20.00	35	Maize	Wheat	10	28%	2	20%	2	10	23
3	LIS Kuddi	Ali Khad: 16 lps, June 2020	New	Y	-	N31° 22' 44.9"	E76° 47' 42.8"	547 m	15.00	13	Maize	Wheat	3	23%	-	-	-	3	10
4	LIS Makri	Makri Ka Kiar: 15 lps, June 2020	New	Y	-	N31° 18' 54.3"	E76° 48' 41.3"	771 m	10.00	25	Maize	Wheat	10	40%	2	20%	2	10	13
5	LIS Fatoh	Chhiber Fatoh Nallah: 10 lps, March 2020	New	Y	-	N31° 24' 24.0"	E76° 44' 07.9"	538 m	10.00	47	Maize	Wheat	10	21%	2	20%	2	10	35
6	LIS Chanjyara (Himar Chatt)	Didwan Khad: 10 lps, March 2020	New	Y	-	N31° 27' 11.0"	E76° 38' 33.7"	614 m	12.00	53	Maize	Wheat	10	18%	-	-	-	10	43
7	LIS Chanjota	Ali Khad Katli Nallah: 15 lps, June 2020	Improvement	Y	0.15	N31° 16' 36.9"	E76° 51' 31.2"	828 m	10.00	24	Maize	Wheat	5	20%	-	-	-	5	19
8	LIS Sangrana	Kanouni Khad: 15 lps, June 2020	New	-	0.1	N31° 19' 12.8"	E76° 50' 15.9"	755 m	10.00	14	Maize	Wheat	4	28%	1	25%	1	4	9
9	LIS Trauntra	Trauntra Nallah: 12 lps, March 2020	New	Y	0.15	N31° 26' 04.0"	E76° 43' 26.8"	610 m	12.00	18	Maize	Wheat	2	11%	1	50%	1	2	15
10	LIS Challei	Jarad Khad: 16 lps, June 2020	New	Y	0.2	N31° 15' 24.1"	E76° 48' 27.1"	684 m	20.00	30	Maize	Wheat	5	16%	2	40%	2	5	23
11	LIS Dadhol Kalan	Daliyan-Ka-Cho: 16 lps, June 2020	New	Y	-	N31° 29' 19.2"	E76° 40' 01.8"	681 m	22.00	25	Maize	Wheat	5	20%	3	60%	3	5	17
12	LIS Dadhol Khurd	Rohal Khad: 15 lps, March 2020	New	Y	-	N31° 29' 34.3"	E76° 40' 22.5"	665 m	15.00	25	Maize	Wheat	5	20%	-	-	-	5	20
13	LIS Chanjoli	Rohal Khad: 15 lps, March 2020	New	Y	-	N31° 31' 05.9"	E76° 39' 22.4"	703 m	15.00	90	Maize	Wheat	10	11%	1	10%	1	10	79
14	LIS Parli	Pani Ki Bauri: 10 lps, June 2020	New	Y	0.3	N31° 16' 01.4"	E76° 38' 18.4"	557 m	12.00	20	Maize	Wheat	6	30%	1	17%	1	6	13
15	LIS Kotlu Brahmna	Soda Cho: 16 lps, June 2020	New	Y	0.15	N31° 26' 02.3"	E76° 38' 46.1"	620 m	40.00	40	Maize	Wheat	4	10%	-	-	-	4	36
16	LIS Sayar	Jhambloo Sayar: 10 lps, June 2020	New	Y	-	N31° 19' 49.49"	E76° 50' 26.26"	798 m	15.00	40	Maize	Wheat	7	17%	2	29%	2	7	31
17	LIS Daloli	Fatla Nallah: .5 lps Balhian: 12 lps, March 2020	New	-	-	N31° 31' 16.8"	E76° 42' 17.8"	714 m	10.00	25	Maize	Wheat	2	8%	-	-	-	2	23
18	LIS Dharbyain	Souli Khad (Daryaindu di aal): 15 lps, March 2020	New	Y	0.8	N31° 31' 43.7"	E76° 43' 11.8"	693 m	15.00	35	Maize	Wheat	-	-	-	-	-	-	35
19	LIS Chambi Kahran	Chambi Kehran Nallah: 20 lps, June 2020	Improvement	-	0.5	N31° 18' 01.0"	E76° 53' 42.4"	1026 m	20.00	90	Maize	Wheat	54	60%	10	19%	10	54	26
	Total			**16**	**2.35**				**293**	**690**			**159**		**27**		**27**	**159**	**504**

Attachment 6.3.1 Long List of Sub-projects (296 sites + 49 Sites) - 3

Una

Sr. No.	Name & Type of Scheme	Source of Discharge (Observation : Month Year etc.)	New or Improvement	Solar Pump (Y/N)	Farm Access Road (Km)	GPS Location of Source			C.C.A (Hect.)	No. of farm Households/Farmers	Major crops		Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total vegetable farmers)		Dominant Farmers (Advanced/ Intermediate/ Conservative)		
						Latitude	Longitude	Elevation			In Kharif	In Rabi	Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative
1	TW Babehar	Ground Water: Resistivity Survey Required	New	Y	-	N31° 47' 09.9"	E75° 59' 02.8"	556 m	15.00	100	Maize	Wheat	-	-	-	-	-	-	100
2	TW Labana Majra (Nagnoli)	Ground Water: Resistivity Survey Required	New	Y	0.3	N31° 33' 14.8"	E76° 05' 49.1"	459 m	12.00	60	Maize	Wheat	7	12%	-	-	-	7	53
3	TW Pathak Mohalla	Ground Water: Resistivity Survey Required	New	Y	-	N31° 30' 06.6"	E76° 10' 27.2"	403 m	15.00	70	Maize	Wheat	11	16%	-	-	-	11	59
4	STW Nakdoh (Ramnagar)	Ground Water: Resistivity Survey Required	New	Y	-	N31° 44' 05.1"	E76° 03' 16.3"	519 m	12.00	45	Maize	Wheat	-	-	-	-	-	-	45
5	LIS Dohgi	Dugh Nallah: 5 lps, June 2020	New	N	-	N31° 37' 17.0"	E76° 21' 02.7"	641 m	15.00	84	Maize	Wheat	4	5%	-	-	-	4	80
6	STW Lower Bhanjal	Ground Water: Resistivity Survey Required	New	Y	-	N31° 42' 47.3"	E76° 04' 07.2"	494 m	15.00	65	Maize	Wheat	7	11%	-	-	-	7	58
7	LIS Sohari Baduha No. 2	Dhug Nallah: 3 lps, June 2020	New	Y	-	N31° 40' 06.9"	E76° 13' 16.4"	572 m	12.00	45	Maize	Wheat	5	11%	-	-	-	5	40
8	LIS Talmehra	Badoha Nallah: 6 lps, June 2020	New	Y	-	N31° 38' 43.8"	E76° 16' 49.4"	640 m	10.00	51	Maize	Wheat	4	8%	-	-	-	4	47
9	STW Loharli	Ground Water: Resistivity Survey Required	New	Y	-	N31° 34' 50.2"	E76° 06' 56.8"	430 m	15.00	34	Maize	Wheat	-	-	-	-	-	-	34
10	STW Behdala	Ground Water: Resistivity Survey Required	New	Y	-	N31° 28' 16.9"	E76° 20' 16.4"	418 m	15.00	47	Maize	Wheat	5	11%	-	-	-	5	42
11	STW Chattara	Ground Water: Resistivity Survey Required	New	Y	-	N31° 28' 16.9"	E76° 20' 16.4"	418 m	10.00	41	Maize	Wheat	3	7%	-	-	-	3	38
12	LIS Lamlehri (Majra Badla)	Perenial source: 0.5 lps, June 2020	New	Y	0.2	N31° 30' 20.4"	E76° 19' 04.4"	479 m	10.00	28	Maize	Wheat	-	-	-	-	-	-	28
13	STW Samoor Kalan	Ground Water: Resistivity Survey Required	New	Y	-	N31° 30' 46.6"	E76° 17' 23.2"	456 m	12.00	20	Maize	Wheat	-	-	-	-	-	-	20
14	LIS Mandholi	Mandholi Khad: 10 lps, June 2020	New	Y	-	N31° 43' 07.4"	E76° 06' 35.6"	577 m	18.00	25	Maize	Wheat	3	12%	-	-	-	3	22
15	STW Fatehpur Bhadarkali Ward No.-2	Ground Water: Resistivity Survey Required	New	Y	0.2	N31° 46' 40.2"	E76° 03' 01.7"	628 m	15.00	40	Maize	Wheat	4	10%	-	-	-	4	36
16	WHS Cum LIS Majhiani	Majhiani Chou: 10 lps, March 2020	New	N	-	N31° 39' 30.1"	E76° 19' 50.0"	569 m	10.00	35	Maize	Wheat	-	-	-	-	-	-	35
17	WHS Cum LIS Muchhali Khas	Khuh wali choi: 5 lps, March 2020	New	N	-	N31° 37' 05.2"	E76° 20' 55.9"	553 m	10.00	40	Maize	Wheat	-	-	-	-	-	-	40
18	WHS Cum LIS Gurudwara Blah Khalsa	Manki Wala Nallah: 4 lps, March 2020	New	Y	0.2	N31° 28' 49.11"	E76° 21' 22.38"	516 m	10.00	20	Maize	Wheat	3	15%	-	-	-	3	17
19	LIS Sakoun	Kalma da Chou: 4 lps, June 2020	New	Y	-	N31° 33' 14.0"	E76° 19' 59.6"	625 m	12.00	20	Maize	Wheat	-	-	-	-	-	-	20
	Total			**16**	**0.90**				**243.00**	**870**			**56**					**56**	**814**

Attachment 6.3.1 Long List of Sub-projects (296 sites + 49 Sites) - 4

Mandi

Sr. No.	Name & Type of Scheme	Source of Discharge (Observation : Month Year etc.)	New or Improvement	Solar Pump (Y/N)	Farm Access Road (Km)	GPS Location of Source			C.C.A (Hect.)	No. of farm Households/Farmers	Major crops		Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total vegetable		Dominant Farmers (Advanced/ Intermediate/ Conservative)		
						Latitude	Longitude	Elevation			In Kharif	In Rabi	Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative
1	FIS Lohara	Lohara Khad: 30 lps, June 2020	New	N	-	N31° 35' 00.8"	E76° 56' 52.5"	785 m	40	120	Maize, Paddy, Vegetables	Wheat, Barley, Vegetables	42	35%	10	24%	5	37	78
2	FIS Rati Malther	Rati Nallah: 15 lps, June 2020	New	N	-	N31° 35' 53.9"	E76° 54' 12.1"	779 m	65	300	Maize, Paddy, Vegetables	Wheat, Barley, Vegetables	161	54%	18	11%	4	157	139
3	FIS Challi Nallah to Jawalapar	Challi Nallah: 25 lps, June 2020	New	N	-	N31° 45' 18.6"	E77° 07' 58.7"	2265 m	50	250	Maize, Veg., Orchard	Wheat, Barley, Vegetables	75	30%	12	16%	2	73	175
4	FIS Kasan to Sanj	Perenial Source: 30 lps, June 2020	Improvement	N	-	N31° 36' 58.6"	E77° 03' 07.2"	1140 m	32	55	Maize, Paddy, Vegetables	Wheat, Barley, Vegetables	13	24%	3	23%	-	13	42
5	FIS Baloh	Perenial Source: 5 lps, June 2020	Improvement	N	-	N31° 42' 25.5"	E76° 53' 15.3"	1099 m	24	60	Maize, Paddy, Vegetables,Pulses	Wheat, Barley, Vegetables	10	17%	4	40%	-	10	50
6	FIS Khunag to Saroh	Perenial Source: 20lps, March 2020	New	N	-	N31° 35' 07.5"	E77° 08' 35.0"	1625 m	15	100	Maize, Paddy, Vegetables,Pulses	Wheat, Barley, Vegetables	49	49%	9	18%	1	48	51
7	FIS Auhun	Perenial Source: 10 lps, March 2020	New	N	-	N31° 32' 24.5"	E77° 08' 41.8"	2266 m	60	125	Maize, Vegetables,Pulses	Wheat, Barley, Vegetables	45	36%	12	27%	1	45	80
8	FIS Godhiman Majhothi	Perenial Source: 12 lps, March 2020	Improvement	N	-	N31° 33' 18.0"	E77° 04' 57.3"	1618 m	14	70	Maize, Vegetables,Pulses	Wheat, Barley, Vegetables	9	13%	2	22%	1	9	61
9	FIS Rohara to kataru	Perenial Source: 20 lps, June 2020	New	N	-	N31° 30' 01.9"	E77° 11' 38.7"	2383 m	45	300	Maize, Paddy, Vegetables,Pulses	Wheat, Barley, Vegetables	99	33%	16	16%	1	94	201
10	FIS Bajrohru to Kot	Tanpalu Nallah: 15 lps, June 2020	Improvement	N	-	N31° 32' 13.5"	E77° 01' 51.3"	1513 m	20	30	Maize, Paddy, Vegetables	Wheat, Barley, Vegetables	7	23%	3	43%	1	7	23
11	FIS Jauli Badan	Shilli Khad: 30 lps, June 2020	Improvement	N	-	N31° 30' 27.0"	E77° 05' 08.1"	1838 m	17	195	Maize, Paddy, Vegetables,Pulses	Wheat, Barley, Vegetables	64	33%	14	22%	1	62	131
12	FIS Panredi to Baghi	Perenial Source: 12 lps, June 2020	New	N	-	N31° 46' 31.3"	E77° 04' 45.2"	1940 m	18	70	Maize, Vegetables,Pulses	Wheat, Barley, Vegetables	37	53%	8	22%	1	37	33
13	FIS Suma to Shivabadar	Summa Khad: 12 lps, June 2020	New	N	-	N31° 42' 59.6"	E77° 03' 41.4"	1261 m	15	150	Maize, Paddy, Vegetables,Pulses	Wheat, Barley, Vegetables	14	9%	4	29%	1	14	136
14	FIS Juddi Ropa Mahidhar	Perenial Source: 30 lps, March 2020	New	N	-	N31° 32' 05.3"	E77° 08' 58.9"	2184 m	18	25	Maize, Vegetables,Pulses	Wheat, Barley, Vegetables	9	36%	2	22%	1	9	16
15	FIS Gambhar Khad	Gambhar Khad: 10 lps, June 2020	Improvement	N	-	N31° 40' 37.4"	E76° 51' 37.2"	1174 m	25	40	Maize	Wheat	7	18%	2	29%	1	7	33
16	FIS Dhalwas Rahidhar	Perenial Source: 10 lps, March 2020	New	N	-	N31° 33' 00.7"	E77° 08' 09.7"	2132 m	18	100	Maize	Wheat	37	37%	7	19%	1	37	63
17	FIS Cheuni Khad to Nihri	Cheuni Khad: 35 lps, June 2020	Improvement	N	-	N31° 34' 13.3"	E77° 11' 59.8"	1947 m	30	210	Maize, Vegetables,Pulses	Wheat, Barley, Vegetables	94	45%	16	17%	1	90	116
18	FIS Kansa Khad to Ganehar Ropa	Kansa Khad: 25 lps, June 2020	Improvement	N	0.75	N31° 32' 10.4"	E76° 56' 09.4"	885 m	24	35	Maize, Paddy, Vegetables	Wheat, Barley, Vegetables	9	26%	1	11%	1	9	26
19	FIS Masog Nalag	Perenial Source: 4 lps, June 2020	Improvement	N	-	N31° 22' 03.1"	E77° 12' 49.5"	1267 m	80	35	Maize, Paddy, Vegetables	Wheat, Barley, Vegetables	11	31%	4	36%	1	11	24
20	FIS Girjhanu Khad to Kao Chalaru	Girjhanu Khad: 12 lps, June 2020	Improvement	N	-	N31° 22' 08.3"	E77° 13' 21.9"	1239 m	25	35	Maize, Paddy, Vegetables	Wheat, Barley, Vegetables	8	23%	2	25%	1	8	27
21	FIS Chinnu to Vakhrog	Jiuni Khad: 60 lps, June 2020	Improvement	N	-	N31° 31' 33.9"	E77° 03' 41.8"	1595 m	60	110	Maize, Paddy, Vegetables	Wheat, Barley, Vegetables	40	36%	6	15%	1	40	70
22	FIS Got Khad to Kandi	Gor Khad: 25 lps, June 2020	Improvement	N	-	N31° 29' 33.9"	E77° 04' 50.6"	2095 m	22	40	Maize, Paddy, Vegetables	Wheat, Barley, Vegetables	21	53%	8	38%	1	21	19
23	FIS Padhar to Aarang	Dev Pani Nallah: 16 lps, June 2020	New	N	-	N31° 52' 16.3"	E77° 01' 19.7"	1573 m	10	45	Maize	Wheat	9	20%	3	33%	1	9	36
24	FIS Kotang to Tha	Kotang Khad: 20 lps, June 2020	Improvement	N	-	N31° 51' 05.6"	E77° 01' 04.4"	1344 m	35	130	Maize	Wheat	45	35%	8	18%	1	45	85
25	FIS Bhadrohi	Perenial Source: 10 lps, June 2020	New	N	1	N31° 38' 38.1"	E76° 48' 03.0"	1267 m	35	62	Paddy, Maize, fooder, pulses	Wheat, pulses, fodder	4	6%	1	25%	1	3	58
26	WHS cum LIS Nawahi	Perenial Source: 10lps, March 2020	New	Y	-	N31° 39' 47.8"	E76° 43' 46.8"	833 m	20	125	Paddy, Maize, fooder	Wheat, fodder	12	10%	2	17%	1	11	113
27	LIS Bakarta	SeerKhad: 12 lps, March 2020	New	Y	-	N31° 40' 45.5"	E76° 43' 21.3"	866 m	12	75	Paddy, Maize, fooder, pulses	Wheat, pulses, fodder	9	12%	1	11%	1	8	66
28	LIS Jol to Mudhai Ransed	Perenial Source: 5 lps, March 2020	New	Y	-	N31° 32' 21.8"	E76° 44' 19.3"	723 m	16	35	Paddy, Maize, fooder, pulses	Wheat, pulses, fodder	5	14%	-	-	1	5	30
29	FIS Bharnal	Sihl Khad: 10 lps, June 2020	New	N	-	N31° 36' 09.9"	E76° 47' 26.6"	1037 m	12	60	Paddy, Maize, Vegetables	Wheat, Vegetables	6	10%	1	17%	1	6	54
30	FIS Alsogi	Chamba Nallah: 10 lps, March 2020	New	N	-	N31° 31' 09.4"	E76° 47' 01.9"	1126 m	20	170	Paddy, Maize, Vegetables	Wheat, Vegetables	14	8%	1	7%	1	14	156
31	LIS Kotlu	Kansa Khadd: 15 lps, March 2020	New	N	-	N31° 29' 47.0"	E76° 58' 23.2"	1268 m	20	27	Paddy, Maize, Vegetables	Wheat, Vegetables	3	11%	-	-	1	3	24
32	LIS Therahred/ Phihar	Ganed Khad: 14 lps, June 2020	New	Y	-	N31° 47' 35.5"	E76° 42' 49.0"	733 m	8	100	Paddy, Maize, Vegetables	Wheat, Vegetables	11	11%	-	-	1	11	89

Attachment 6.3.1 Long List of Sub-projects (296 sites + 49 Sites) - 5

Mandi

Sr. No.	Name & Type of Scheme	Source of Discharge (Observation : Month Year etc.)	New or Improvement	Solar Pump (Y/N)	Farm Access Road (Km)	GPS Location of Source			C.C.A (Hect.)	No. of farm Households/Farmers	Major crops		Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total vegetable		Dominant Farmers (Advanced/ Intermediate/ Conservative)		
						Latitude	Longitude	Elevation			In Kharif	In Rabi	Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative
33	FIS Idli Sainji	Sai & Kansa Khadd 10 lps, March 2020	New	N	1	N31° 30' 31.5"	E76° 58' 02.9"	1144 m	12	35	Paddy, Maize, Vegetables	Wheat, Vegetables	9	26%	2	22%	1	8	26
34	FIS Gumma	Bhamani Nalla: 20 lps,June 2020	New	N	1	N31° 58' 37.4"	E76° 51' 10.4"	1605 m	20	60	Paddy, Maize, Vegetables	Wheat, Vegetables	9	15%	1	11%	1	8	51
35	LIS Roparu	Roparu Khad: 12 lps, June 2020	New	N	-	N31° 57' 47.0"	E76° 42' 31.0"	756 m	15	100	Paddy, Maize, Vegetables	Wheat, Vegetables	19	19%	1	5%	1	19	81
36	FIS Upper Behna & Lower Behna	Behna Nallah: 10 lps, June 2020	New	N	-	N31° 38' 50.8"	E76° 47' 39.4"	1150 m	12	25	Paddy, Maize, Vegetables, Ginger	Wheat, Vegetables	4	16%	-	-	1	4	21
37	LIS Yoh	Balhi(yoh) near Sir Khad: 15 lps, March 2020	New	N	-	N31° 41' 03.9"	E76° 43' 38.1"	849 m	15	45	Paddy, Maize, Pulses,Vegetables	Wheat, Vegetables, Fooder	8	18%	1	13%	1	7	37
38	LIS Malhua Jol	Beas River: 200 lps, March 2020	New	Y	-	N31° 50' 23.2"	E76° 45' 05.5"	599 m	16.00	50	Paddy, Maize	Wheat	6	12%	-	-	-	6	44
39	LIS Sidhpur Balh	Beas River: 200 lps, March 2020	New	Y	-	N31° 51' 15.6"	E76° 45' 12.7"	599 m	16.00	100	Paddy, Maize	Wheat	17	17%	-	-	1	16	83
40	LIS Sayoh Balh	Beas River: 200 lps, March 2020	New	Y	-	N31° 52' 53.4"	E76° 43' 04.6"	595 m	48.00	262	Paddy, Maize	Wheat	35	13%	3	9%	2	33	227
41	FIS Ghulanu	Ghulanu Nallah: 8 lps, March 2020	New	N	-	N31° 39' 54.2"	E76° 44' 17.4"	839 m	12.00	30	Paddy	Wheat	6	20%	1	17%	1	5	24
42	LIS Beri Pantheda	Bhaleti Nallah: 3 lps, March 2020	New	N	-	N31° 44' 44.9"	E76° 46' 10.6"	816 m	16.00	50	Paddy, Maize	Wheat	9	18%	1	11%	-	9	41
43	LIS Ludhiana (Kharehad)	Kunth Nalla: 10 lps, March 2020	New	N	-	N31° 48' 02.0"	E76° 48' 20.4"	1054 m	16.00	15	Paddy, Maize	Wheat	2	13%	-	-	-	2	13
44	FIS Kounsil	Saryal Nallah: 12 lps, March 2020	New	N	-	N31° 48' 19.3"	E76° 48' 08.1"	971 m	16.00	40	Paddy, Maize	Wheat	4	10%	-	-	-	4	36
45	LIS Baggi (Ponta)	Seer Khad: 25 lps, June 2020	New	Y	1	N31° 36' 51.4"	E76° 43' 11.2"	755 m	25.00	90	Paddy, Maize	Wheat	11	12%	2	18%	1	10	79
46	FIS Dohag (Jasehd)	Neharu Nallah: 10 lps, June 2020	New	N	-	N32° 00' 34.0"	E76° 46' 12.2"	1204 m	25.00	50	Paddy, Maize	Wheat	7	14%	1	14%	-	7	43
47	FIS Harwani	Sikandri Khad (Kalthri Khad): 13 lps, June 2020	New	N	-	N31° 34' 18.9"	E76° 47' 36.5"	923 m	14.00	150	Paddy, Maize	Wheat	23	15%	-	-	1	22	127
48	LIS Mandir Tanda (Chowki)	Lohara Khad: 30 lps, June 2020	New	N	-	N31° 35' 00.8"	E76° 56' 52.5"	785 m	100.00	200	Paddy, Maize	Wheat	109	55%	15	14%	4	105	91
49	FIS Trambi Nallah to Jadda	Trambi Nallah: 10 lps, June 2020	New	N	-	N31° 37' 16.8"	E76° 49' 32.7"	1294 m	8.00	50	Paddy, Maize	Wheat	9	18%	1	11%	-	9	41
50	FIS Nagni Gad to Sainjab	Nagni Nallah: 12 lps, June 2020	New	N	-	N31° 29' 57.5"	E77° 18' 19.7"	2080 m	10.00	60	Paddy, Maize	Wheat, Veg.	12	20%	2	17%	-	12	48
51	FIS Naun	Gharol Nallah: 12 lps,June 2020	Improvement	N	-	N31° 31' 58.4"	E77° 01' 55.4"	1587 m	18.00	60	Paddy, Maize	Wheat, Veg.	35	58%	7	20%	2	33	25
52	LIS Hajara Khad to Kao	Hajra Khad: 8 lps, June 2020	New	N	-	N31° 21' 06.8"	E77° 13' 53.1"	1181 m	15.00	25	Paddy, Maize	Wheat	6	24%	1	17%	-	6	19
53	FIS Khuda Nallah to Jiung Dhar	Dhamal Nallah: 15 lps, June 2020	New	N	-	N31° 26' 21.5"	E77° 08' 48.3"	1984 m	32.00	45	Maize	Wheat	11	24%	3	27%	-	11	34
54	FIS Badar Nallah to Kushal Sanad	Bathar Nallah: 10 lps, June 2020	New	N	-	N31° 24' 24.1"	E77° 09' 54.9"	1860 m	15.00	30	Paddy, Maize	Wheat	8	27%	3	38%	-	8	22
				8	**4.75**				**1381**	**4856**			**1338**		**225**		**55**	**1297**	**3518**

Attachment 6.3.1 Long List of Sub-projects (296 sites + 49 Sites) - 6

Kangra

Sr. No.	Name & Type of Scheme	Source of Discharge (Observation : Month Year etc.)	New or Improvement	Solar Pump (Y/N)	Farm Access Road (Km)	GPS Location of Source			C.C.A (Hect.)	No. of farm Households/Farmers	Major crops		Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total vegetable farmers)		Dominant Farmers (Advanced/ Intermediate/ Conservative)		
						Latitude	Longitude	Elevation			In Kharif	In Rabi	Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative
1	FIS Gartuhal Kuhal	Chorat Nallah: 40 lps, March 2020	New	N	-	N32° 02' 57.8"	E76° 43' 37.3"	1584 m	40.00	110	Paddy	Wheat	25	23%	5	20%	5	101	4
2	FIS Bhattiyadi Da Chou	Soon Khad: 50 lps, June 2020	Improvement	N	0.20	N32° 05' 05.7"	E76° 29' 39.8"	1044 m	27.00	65	Paddy	Wheat	15	23%	2	13%	2	60	3
3	FIS Chamruhal Kuhal	Niugal Khad: 150 lps, March 2020	Improvement	N	-	N32° 07' 00.4"	E76° 30' 42.9"	1158 m	32.00	185	Paddy	Wheat	35	19%	5	14%	5	175	5
4	FIS Riduan(Rehru) Kuhal	Jogal Khad 100 lps, June 2020	Improvement	N	-	N32° 05' 22.0"	E76° 20' 44.6"	768 m	60.00	165	Paddy	Wheat	45	27%	10	22%	10	147	8
5	FIS Bharwana Chowthammi Kuhal	Awa Khad 150 lps, June 2020	Improvement	N	-	N32° 04' 13.8"	E76° 35' 01.3"	1095 m	50.00	150	Paddy	Wheat	30	20%	4	13%	4	142	4
6	FIS Anuhal Kuhal	Niugal Khad: 200 lps, March 2020	Improvement	N	1.50	N32° 06' 51.7"	E76° 30' 07.6"	1130 m	45.00	190	Paddy	Wheat	55	29%	10	18%	15	170	5
7	FIS Kand Kosri(HDPE Pipe)	Magroo Nallah: 5 lps, March 2020	New	N	1.00	N32° 04' 46.9"	E76° 41' 35.7"	1598 m	25.00	70	Maize	Barley	20	29%	10	50%	10	55	5
8	FIS Dhooni Kuhal	Soon Khad: 50 lps, June 2020	Improvement	N	-	N32° 02' 11.2"	E76° 28' 28.2"	873 m	70.00	180	Paddy	Wheat	50	28%	15	30%	18	156	6
9	FIS Soian Kuhal	Neugal Khad: 200 lps, June 2020	Improvement	N	-	N32° 03' 05.9"	E76° 27' 26.8"	872 m	27.00	65	Paddy	Wheat	10	15%	2	20%	2	60	3
10	FIS Changre Da Chau	Naid Nallah: 15 lps, March 2020	Improvement	N	-	N32° 07' 01.5"	E76° 28' 03.8"	1116 m	20.00	110	Paddy	Wheat	22	20%	3	14%	3	102	5
11	FIS Chhoo Nala Kuhal	Chhoo Nalah: 25 lps, March 2020	Improvement	N	0.50	N32° 02' 03.3"	E76° 36' 49.6"	927 m	35.00	40	Paddy	Wheat	10	25%	3	30%	3	35	2
12	FIS Chetu Da Chou	Bhager Nallah: 8 lps, March 2020	Improvement	N	0.40	N32° 03' 06.1"	E76° 33' 27.4"	1030 m	12.00	40	Paddy	Wheat	5	13%	1	20%	1	38	1
13	FIS Vaidan Di Kuhal	Soon Khad: 50 lps, June 2020	Improvement	N	1.00	N32° 04' 46.5"	E76° 29' 28.2"	1030 m	60.00	80	Paddy	Wheat	15	19%	5	33%	5	71	4
14	FIS Kothi Kohar (HPDE Pipes)	Kohar Nallah: 30 lps, June 2020	New	N	-	N32° 05' 40.9"	E76° 48' 21.0"	2525 m	15.00	60	Maize, Pulses	Wheat	25	42%	9	36%	9	48	3
15	FIS Badagran(HPDE Pipes)	Badgran Nala 15 lps, June 2020	New	N	-	N32° 05' 12.6"	E76° 46' 34.1"	2355 m	18.00	45	Maize, Pulses	Wheat	20	44%	5	25%	5	35	5
16	FIS Brehi Kuhal	Baner Khadd: 4 cumecs, June 2020	Improvement	N	-	N32° 05' 39.2"	E76° 20' 16.3"	730 m	40.00	45	Paddy	Wheat	18	40%	5	28%	5	37	3
17	FIS Balehar Kuhal	Ghar Nallah: 40 lps, June 2020	Improvement	N	-	N32° 03' 12.6"	E76° 32' 18.5"	1008 m	15.00	70	Paddy	Wheat	5	7%	2	40%	2	64	4
18	FIS Nalohata (HPDE Pipes)	Badagran Nallah: 80 lps, June 2020	New	N	-	N32° 05' 29.5"	E76° 46' 38.8"	2382 m	35.00	125	Maize, Pulses	Wheat	25	20%	5	20%	5	116	4
19	FIS Dawar	Manuni Khad 850 lps, March 2020	Improvement	N	2.00	N32° 08' 07.2"	E76° 17' 55.4"	755 m	50.00	400	Paddy	Wheat	20	5%	2	10%	15	368	17
20	FIS Nai Kuhal	Manuni Khad 800 lps, March 2020	Improvement	N	-	N32° 08' 34.5"	E76° 18' 28.6"	795 m	50.00	425	Paddy	Wheat	20	5%	3	15%	17	384	24
21	FIS Parul	Manuni Khad: 750 lps, March 2020	Improvement	N	-	N32° 07' 51.7"	E76° 17' 40.9"	734 m	50.00	441	Paddy	Wheat	25	6%	5	20%	20	406	15
22	FIS Malti Kuhal	Manuni Khad 870 lps, March 2020	New	N	1.50	N32° 08' 20.9"	E76° 18' 16.3"	780 m	50.00	340	Paddy	Wheat	25	7%	4	16%	25	297	18
23	FIS Rori Kori	Chanaur Khad: 70 lps, March 2020	Improvement	N	2.00	N31° 53' 05.3"	E76° 06' 21.8"	634 m	50.00	310	Paddy	Wheat	18	6%	2	11%	7	293	10
24	LIS Takipur Khas	Daddan Nallah: 6 lps, March 2020	New	Y	-	N32° 02' 34.0"	E76° 15' 29.4"	580 m	30.00	225	Maize/Paddy	Wheat	8	4%	-	-	5	211	9
25	LIS Bather	Basa Nallah: 20 lps, March 2020	New	Y	1.00	N32° 00' 29.1"	E76° 10' 32.2"	445 m	30.00	80	Maize/Paddy	Wheat	10	13%	1	10%	4	71	5
26	FIS Surani	Surani Nallah: 4 lps, June 2020	New	N	-	N31° 53' 31.0"	E76° 20' 47.1"	699 m	10.00	95	Paddy	Wheat	12	13%	-	-	2	83	10
27	LIS Mour	Mour Nallah: 5 lps, June 2020	New	Y	-	N31° 53' 33.1"	E76° 24' 09.8"	667 m	15.00	80	Maize/Paddy	Wheat	15	19%	2	13%	3	68	9
28	FIS Jhikli Ichhi	Manjhi Khad 960 lps, March 2020	Improvement	N	-	N32° 09' 26.4"	E76° 17' 03.2"	792 m	60.00	360	Paddy	Wheat	20	6%	5	25%	5	337	18
29	FIS Pule wali kuhal	Manuni Khad 850 lps, March 2020	Improvement	N	-	N32° 08' 14.8"	E76° 18' 10.1"	766 m	90.00	450	Paddy	Wheat	20	4%	5	25%	18	416	16
30	FIS Rainta	Bagdwari Nallah: 450 lps, June 2020	New	N	3.00	N31° 52' 31.9"	E76° 16' 17.5"	442 m	40.00	110	Paddy	Wheat	15	14%	5	33%	5	93	12
31	FIS Adhwani	Suhag Nallah: 120 lps, March 2020	New	N	-	N31° 49' 09.1"	E76° 18' 35.9"	455 m	35.00	95	Maize/Paddy	Wheat	25	26%	3	12%	3	83	9

Attachment 6.3.1 Long List of Sub-projects (296 sites + 49 Sites) - 7

Kangra

Sr. No.	Name & Type of Scheme	Source of Discharge (Observation : Month Year etc.)	New or Improvement	Solar Pump (Y/N)	Farm Access Road (Km)	GPS Location of Source			C.C.A (Hect.)	No. of farm Households/Farmers	Major crops		Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total vegetable farmers)		Dominant Farmers (Advanced/ Intermediate/ Conservative)		
						Latitude	Longitude	Elevation			In Kharif	In Rabi	Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative
32	LIS Riri Kuthera -II	Kan Khad: 30 lps, March 2020	New	Y	1.00	N31° 55' 01.0"	E75° 56' 35.4"	354 m	48.00	120	Maize/Paddy	Wheat	5	4%	-	-	5	100	15
33	FIS Naggan Patt	Manjhi Khad 960 lps, March 2020	Improvement	N	-	N32° 09' 26.4"	E76° 17' 03.2"	792 m	40.00	225	Paddy	Wheat	8	4%	2	25%	6	204	15
34	FIS Dann Kuhal	Daroon Khad: 60 lps, March 2020	Improvement	N	-	N32° 08' 34.7"	E76° 21' 46.5"	923 m	28.00	80	Paddy	Wheat	10	13%	2	20%	2	77	1
35	FIS Bhedi Kuhal	Gajj Khad: 100 lps, June 2020	Improvement	N	-	N32° 11' 05.2"	E76° 13' 55.8"	718 m	96.00	200	Paddy	Wheat	20	10%	5	25%	5	192	3
36	FIS Traimbla Kuhal(Khabli Kuhal)	Johar Nallah: 60 lps, March 2020	Improvement	N	-	N32° 09' 45.9"	E76° 14' 16.2"	656 m	25.00	120	Paddy	Wheat	15	13%	2	13%	2	116	2
37	FIS Manuni Kuhal	Manuni Khad: 100 lps, March 2020	Improvement	N	2.00	N32° 10' 23.7"	E76° 20' 00.1"	980 m	40.00	150	Paddy	Wheat	10	7%	2	20%	2	146	2
38	LIS Nana Khas	Nanna Khad: 50 lps, March 2020	New	Y	-	N32° 07' 37.5"	E76° 03' 56.3"	478 m	14.00	30	Maize/Paddy	Wheat	3	10%	1	33%	1	28	1
39	FIS Lakhnehar Khabbal	Khakhod Khad: 200 lps, March 2020	New	N	0.20	N32° 10' 15.4"	E76° 02' 29.4"	445 m	19.00	40	Paddy	Wheat	3	8%	1	33%	1	37	2
40	LIS Jagnoli	Baruna Khad 20 lps, March 2020	New	Y	1.00	N32° 03' 24.9"	E75° 56' 45.4"	434 m	45.00	150	Maize/Paddy	Wheat	10	7%	-	-	2	144	4
41	FIS Salli Bhaled Kuhal	Jagnoli Chatta Khad: 50 lps, March 2020	Improvement	N	1.00	N32° 18' 07.6"	E76° 14' 28.5"	1735 m	60.00	160	Paddy	Wheat	4	3%	-	-	2	155	3
42	LIS Sunhi	Bardi Khad: 15 lps, June 2020	New	Y	0.50	N32° 01' 24.4"	E76° 18' 28.9"	701 m	25.00	65	Maize/Paddy	Wheat	8	12%	2	25%	2	61	2
43	FIS Grayen Di Kuhal	Neugal Khadd: 5 cumecs, June 2020	Improvement	N	-	N32° 09' 27.4"	E76° 32' 38.2"	1508 m	80.00	225	Paddy	Wheat	35	16%	10	29%	10	211	4
44	FIS Katuhal Kuhal	Krini Khadd: 100 lps, June 2020	Improvement	N	-	N32° 07' 18.0"	E76° 27' 08.9"	1134 m	30.00	90	Paddy	Wheat	14	16%	3	21%	3	84	3
45	FIS Daduhal Kuhal	Baner Khadd: 250 lps, June 2020	Improvement	N	-	N32° 09' 35.9"	E76° 27' 19.6"	1257 m	80.00	250	Paddy	Wheat	22	9%	3	14%	3	236	11
46	FIS Ghamota Chou	Soon Khad: 50 lps, June 2020	New	N	0.50	N32° 05' 23.7"	E76° 29' 58.9"	1069 m	25.00	50	Paddy	Wheat	8	16%	3	38%	3	45	2
47	FIS Badehar&Acharyan Kuhal	Arla Nallah: 15 lps, June 2020	Improvement	N	-	N32° 04' 11.9"	E76° 29' 39.5"	1008 m	24.00	60	Paddy	Wheat	5	8%	2	40%	2	56	2
48	LIS Balu Galoa	Nakehar Khadd: 30 lps, June 2020	New	Y	-	N31° 56' 12.1"	E76° 16' 03.9"	484 m	30.00	80	Maize/Paddy	Wheat	6	8%	1	17%	5	65	10
49	LIS Baklehar	Pule Wala Nalla: 4 lps, June 2020	New	Y	1.00	N32° 02' 28.3"	E76° 08' 23.2"	524 m	11.00	34	Maize/Paddy	Wheat	6	18%	1	17%	1	26	7
50	FIS Chanaur	Chanaur Khad: 70 lps, March 2020	New	N	1.00	N31° 53' 35.4"	E76° 07' 06.3"	576 m	60.00	150	Paddy	Wheat	3	2%	-	-	2	138	10
51	LIS Nagrota	Sardaran Da Nalla: 5 lps, June 2020	New	Y	1.00	N31° 56' 19.6"	E75° 56' 58.5"	354 m	16.00	45	Maize/Paddy	Wheat	3	7%	1	33%	2	37	6
52	LIS Amb Pathiar-I	Chamoti Nalla: 100 lps, March 2020	New	Y	-	N31° 50' 55.8"	E76° 18' 47.2"	461 m	22.00	60	Maize/Paddy	Wheat	5	8%	1	20%	3	48	9
53	LIS Amb Pathiar-II	Chamoti Nalla: 100 lps, March 2020	New	Y	0.50	N31° 51' 14.0"	E76° 18' 36.8"	465 m	30.00	80	Maize/Paddy	Wheat	5	6%	1	20%	2	68	10
54	LIS Nagrota	Doda Nalla: 50 lps, March 2020	New	Y	0.40	N31° 50' 08.9"	E76° 18' 16.7"	422 m	30.00	90	Maize/Paddy	Wheat	5	6%	1	20%	3	75	12
55	LIS Dhaneti Garla	Chhonchh Khadd: 14 lps, June 2020	New	Y	1.00	N32° 13' 30.9"	E75° 52' 23.5"	471 m	40.00	120	Maize/Paddy	Wheat	5	4%	-	-	2	115	3
56	LIS Kior Gharian	Garhian da Nalla: 8 lps, June 2020	New	Y	1.00	N32° 20' 23.2"	E75° 56' 37.6"	607 m	25.00	40	Maize/Paddy	Wheat	5	13%	-	-	2	34	4
57	FIS Sandh Kuhal	Gharloo Nallah: 25 lps, June 2020	Improvement	N	1.00	N32° 09' 38.2"	E76° 18' 06.6"	852 m	30.00	85	Paddy	Wheat	10	12%	2	20%	2	82	1
58	FIS Baddi/Dondu Kuhal	Gharloo Nallah: 60 lps, June 2020	Improvement	N	-	N32° 09' 37.4"	E76° 17' 50.7"	837 m	60.00	165	Paddy	Wheat	15	9%	2	13%	2	162	1
59	FIS Nannayia Kuhal	Gharloo Nalla/Manjhi Khad: 60 lps, June 2020	Improvement	N	-	N32° 09' 34.4"	E76° 17' 38.8"	822 m	30.00	70	Paddy	Wheat	10	14%	3	30%	3	65	2
60	FIS Chhadul Kuhal	Dhaloon Khad: 100 lps, March 2020	Improvement	N	-	N32° 10' 21.0"	E76° 23' 11.4"	1097 m	40.00	120	Paddy	Wheat	5	4%	-	-	5	113	2
	Total			**15**	**27.20**				**2289**	**8360**			**926**		**189**		**323**	**7642**	**395**

Attachment 6.3.1 Long List of Sub-projects (296 sites + 49 Sites) - 8

Kullu

Sr. No.	Name & Type of Scheme	Source of Discharge (Observation : Month Year etc.)	New or Improvement	Solar Pump (Y/N)	Farm Access Road (Km)	GPS Location of Source			C.C.A (Hect.)	No. of farm Households/Farmers	Major crops		Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total		Dominant Farmers (Advanced/ Intermediate/ Conservative)		
						Latitude	Longitude	Elevation			In Kharif	In Rabi	Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative
1	FIS Sharagha	Kais Nallah: 25 lps, June 2020	Improvement	N	-	N 32° 01' 23.8"	E 077° 08' 38.7"	1514 m	30.00	66	Maize, Paddy, Orchard	Wheat, Barley, Peas, Orchard	43	65%	15	35%	13	42	11
2	FIS Parsha	Parsha Nallah: 20 lps, March 2020	Improvement	N	-	N 32° 12' 24.7"	E 077° 10' 59.3"	1887 m	32.00	74	Maize, Paddy, Orchard	Wheat, Barley, Peas, Orchard	44	59%	15	34%	10	50	14
3	FIS Dodani Bai	Kais Nallah: 30 lps, June 2020	Improvement	N	-	N 32° 01' 15.2"	E 077° 08' 08.1"	1447 m	48.00	107	Maize, Paddy, Orchard	Wheat, Barley, Peas, Orchard	66	62%	27	41%	12	85	10
4	FIS Bran Bihal Seri	Bran Nallah: 20 lps, March 2020	Improvement	N	-	N 32° 10' 29.9"	E 077° 10' 23.8"	1784 m	32.00	39	Maize, Paddy, Orchard	Wheat, Barley, Peas, Orchard	12	31%	6	50%	9	25	5
5	FIS Khanor Hirni Seri	Mashala Nallah: 30 lps, June 2020	Improvement	N	-	N 32° 05' 27.1"	E 077° 09' 24.3"	1690 m	80.00	250	Maize, Paddy, Orchard	Wheat, Barley, Peas, Orchard	145	58%	63	43%	30	210	10
6	FIS Nashala	Mashala Nallah: 30 lps, March 2020	Improvement	N	-	N 32° 05' 23.3"	E 077° 09' 45.7"	1747 m	40.00	85	Maize, Paddy, Orchard	Wheat, Barley, Peas, Orchard	51	60%	21	41%	14	65	6
7	FIS Dobha Seri	Bran Nallah: 20 lps, March 2020	Improvement	N	-	N 32° 09' 51.5"	E 077° 10' 03.8"	1834 m	28.00	98	Maize, Pulses, Orchard	Wheat, Barley, Peas, Orchard	39	40%	15	38%	18	68	12
8	FIS Tharas	Thrash Nallah: 50 lps, March 2020	Improvement	N	-	N 31° 50' 03.6"	E 077° 11' 12.4"	1082 m	35.00	70	Maize, Pulses, Orchard	Wheat, Barley, Peas, Orchard	49	70%	21	43%	14	49	7
9	FIS Falatnala	Falat Nallah: 25 lps, March 2020	Improvement	N	-	N 31° 50' 30.9"	E 077° 08' 57.5"	1170 m	20.00	180	Maize, Paddy, Orchard	Wheat, Barley, Peas, Orchard	126	70%	54	43%	35	140	5
10	FIS Tinder Nohanda	Tinder Nallah: 15 lps, June 2020	Improvement	N	-	N 31° 38' 40.8"	E 077° 27' 21.3"	1937 m	12.00	40	Maize, Rajmash	Wheat, Barley	18	45%	6	60%	8	27	5
11	FIS Tipudhar (Shalera)	Tipudhar Nallah: 20 lps, June 2020	Improvement	N	-	N 31° 41' 16.7"	E 077° 20' 33.7"	1812 m	10.00	48	Maize	Wheat, Barley	4	8%	10	25%	10	33	5
12	LIS Bathogi (Shil)	Tirthan River: 25 lps, June 2020	New	Y	-	N 31° 39' 07.9"	E 077° 19' 21.1"	1414 m	10.00	75	Maize, Rajmash	Wheat, Barley	41	55%	15	71%	15	53	7
13	FIS Ghayagi	Perenial Nallah: 50 lps, June 2020	Improvement	N	-	N 31° 34' 38.4"	E 077° 22' 21.4"	2111 m	10.00	45	Maize	Wheat, Barley	23	51%	11	73%	12	28	5
14	FIS Barnogi	Perenial Nallah: 18 lps, June 2020	New	N	-	N 31° 38' 41.4"	E 077° 27' 20.6"	1871 m	10.00	55	Maize	Wheat, Barley	33	60%	11	61%	8	43	4
	Newly Proposed																		
15	FIS Malana	Perennial Nallah: 60 lps, March 2020	New	N	-	N 032° 03' 47.4"	E 077° 15' 41.3"	2633 m	12.00	115	Maize, Pulses, Potato, Milet	Wheat, Barley	46	40%	12	26%	5	100	10
16	FIS Sheglu	Perennial Nallah: 70 lps, March 2020	Improvement	N	-	N 032° 01' 23.1"	E 077° 08' 31.9"	1497 m	24.00	120	Maize, Pulses, Oil seed	Wheat, Barley, pulses	84	70%	42	50%	15	100	5
17	FIS Much Kuhl	Perennial Nallah: 30 lps, March 2020	Improvement	N	-	N 032° 01' 23.6"	E 077° 08' 28.3"	1489 m	20.00	108	Maize, Paddy, Orchard	Wheat, Barley, peas	76	70%	42	55%	18	85	5
18	FIS Bran Behal Rampur Seri	Perennial Nallah: 25 lps, March 2020	Improvement	N	-	N 032° 06' 46.4"	E 077° 12' 51.0"	2117 m	14.00	50	Maize, Pulses, Oil seed	Wheat, Barley, pulses	25	50%	13	52%	8	38	4
19	FIS Chhaki Seri	Chakki Nallah: 75 lps, June 2020	Improvement	N	3	N 031° 57' 49.2"	E 077° 06' 35.3"	1632 m	40.00	280	Maize, Pulses, Oil seed	Wheat, Barley, pulses	154	55%	84	55%	30	240	10
20	LIS Ratwah	Tirthan Khad: 50 lps, June 2020	New	Y	-	N 031° 40' 34.1"	E 077° 17' 36.1"	1146 m	20.00	50	Maize, Pulses, Oil seed	Wheat, Barley, pulses	30	60%	18	60%	12	35	3
21	FIS Shirar Sauni Pul Rouda Seri	Shirar Nallah: 80 lps, March 2020	Improvement	N	-	N 032° 04' 01.1"	E 077° 06' 41.8"	1581 m	24.00	120	Maize, Pulses, Oil seed	Wheat, Barley, peas	78	65%	48	61%	30	82	8
22	FIS Bhuthi	Bhuthi Nallah: 25 lps, June 2020	New	N	-	N 031° 57' 46.5"	E 077° 02' 52.9"	1615 m	12.00	105	Maize, Pulses, Oil seed	Wheat, Barley, pulses	63	60%	32	51%	25	70	10
23	FIS Chinsh Ropa	Perennial Malhaj Nalla 27 lps, March 2020	Improvement	N	-	N 032° 09' 35.1"	E 077° 09' 36.7"	1878 m	16.00	90	Maize, Pulses, Oil seed, Orchard	Wheat, Barley, pulses, Orchard	59	65%	32	54%	20	65	5
24	FIS Kalehali	Bajoura Nallah: 60 lps, March 2020	Improvement	N	-	N 031° 50' 40.8"	E 077° 09' 19.7"	1141 m	20.00	120	Maize, Pulses, Oil seed, Orchard	Wheat, Barley, pulses, Orchard	84	70%	60	71%	40	75	5
25	FIS Gadherni	Shaleen Nallah: 60 lps, June 2020	Improvement	N	-	N 032° 13' 09.5"	E 077° 11' 08.8"	1893 m	30.00	80	Maize, Pulses, Oil seed, Orchard	Wheat, Barley, pulses, Orchard	48	60%	16	33%	25	50	5
26	FIS Bhalyani	Perennial Nallah: 20 lps, June 2020	Improvement	N	-	N 031° 56' 48.7"	E 077° 02' 50.7"	1917 m	14.00	120	Maize, Pulses, Oil seed	Wheat, Barley, pulses	60	50%	18	30%	15	95	10
	Total			**2**	**3**				**643**	**2590**			**1501**		**707**		**451**	**1953**	**186**

Kinnaur

Sr. No.	Name & Type of Scheme	Source of Discharge (Observation : Month Year etc.)	New or Improvement	Solar Pump (Y/N)	Farm Access Road (Km)	GPS Location of Source			C.C.A (Hect.)	No. of farm Households/Farmers	Major crops		Total Vegetable		Commercial		Dominant Farmers (Advanced/		
						Latitude	Longitude	Elevation			In Kharif	In Rabi	Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative
1	FIS Japroden (Khawangi Kanda)	Shwalling Nallah: 6 lps	Improvement	N	-				5.00	23	Rajmash, Peas, Apple, Buckwheat		18	78%	4	22%	8	7	8
2	FIS Nichla Bhaturi	Natural River	Improvement	N	-				10.00	17	Rajmash, Potato, Apple	Wheat, Barley, Pea	17	100%	12	71%	5	8	4
3	FIS Rogfa to Kothi Kanda	Rogfa Pond: 5 lps	Improvement	N	-				4.50	30	Buckwheat, Rajmash, Potato, Apple		10	33%	5	50%	12	10	8
	Total								**19.50**	**70**			**45**		**21**		**25**	**25**	**20**

Attachment 6.3.1 Long List of Sub-projects (296 sites + 49 Sites) - 10

Shimla

Sr. No.	Name & Type of Scheme	Source of Discharge (Observation : Month Year etc.)	New or Improvement	Solar Pump (Y/N)	Farm Access Road (Km)	GPS Location of Source			C.C.A (Hect.)	No. of farm Households/Farmers	Major crops		Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total		Dominant Farmers (Advanced/ Intermediate/ Conservative)		
						Latitude	Longitude	Elevation			In Kharif	In Rabi	Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative
1	FIS Paneo Nallah to Dharku	Pau Nallah: 6 lps, March 2020	New	N	-	N31° 30' 16.4"	E77° 20' 28.4"	2142 m	12.00	38	Maize	Wheat	8	21%	2	25%	6	32	-
2	FIS Karmad to Guhanda	Karmad Nallaha: 4 lps, June 2020	New	N	-	N31° 29' 37.9"	E77° 24' 55.4"	1986 m	20.00	120	Maize	Wheat, Garlic	20	17%	6	30%	18	102	-
3	FIS Thanach to Rumali	Thanach Nallaha: 15 lps, June 2020	New	N	-	N31° 31' 41.7"	E77° 28' 02.0"	2338 m	30.00	130	Maize	Wheat, Garlic	15	12%	12	80%	18	112	-
4	FIS Sunara Dhagaon	Sunara Nallah: 20 lps, March 2020	New	N	2.00	N31° 26' 38.6"	E77° 31' 42.1"	1245 m	23.00	55	Paddy, Maize	Wheat	8	15%	6	75%	8	47	-
5	FIS Thanda Pani to Odia	Thanda Pani: 12 lps, March 2020	New	N	2.00	N31° 32' 30.3"	E77° 32' 21.5"	2111 m	19.00	85	Maize, Pulses	Wheat, Garlic	15	18%	12	80%	13	72	-
6	FIS Saladi Khad to Bathada	Saladi Nallah: 12 lps, March 2020	New	N	1.50	N31° 24' 02.2"	E77° 41' 54.9"	1189 m	15.00	85	Paddy, Maize	Wheat, Gram	10	12%	8	80%	8	77	-
7	FIS Deothi Nallah to Keem	Deothi Nallah: 15 lps, March 2020	New	N	-	N31° 25' 47.3"	E77° 43' 14.2"	2155 m	20.00	125	Maize	Wheat, Apple, Peas	18	14%	18	10%	18	107	-
8	FIS Garasu to Suha	Garasu Nallah: 30 lps, June 2020	New	N	-	N31° 17' 57.2"	E77° 36' 26.5"	1722 m	45.00	145	Maize, Apple, Pulses	Wheat, Apple, Peas, Garlic	19	13%	15	79%	18	127	-
9	FIS Sadoli to Siyarla	Sadoli Nallah: 15 lps, March 2020	New	N	-	N31° 21' 44.0"	E77° 44' 27.3"	1768 m	18.00	45	Maize, Potato, Pulses	Wheat, Garlic, Peas	8	18%	6	75%	8	37	-
10	FIS Madholi to Bajetly	Madholi Khad: 12 lps, June 2020	New	N	-	N31° 18' 51.4"	E77° 38' 21.7"	1781 m	30.00	85	Maize, Potato, Pulses	Wheat, Garlic, Peas	15	18%	12	80%	15	70	-
11	FIS Kepu	Khekhar Nallah: 25 lps, March 2020	Improvement	N	-	N31° 19' 43.3"	E77° 27' 14.1"	1003 m	30.00	85	Paddy, Maize, Potato, Pulses	Wheat, Garlic, Peas	20	24%	8	40%	12	73	-
12	FIS Shakrori	Sakrori Nallah: 5 lps, March 2020	Improvement	N	-	N31° 13' 26.9"	E77° 09' 10.6"	742 m	30.00	70	Maize	Wheat, Mix Vegetables	12	17%	4	33%	4	66	-
13	FIS Gharyana	Satluj River, March 2020	Improvement	N	0.50	N31° 14' 30.0"	E77° 06' 20.7"	693 m	20.00	85	Maize, Pulses	Wheat, peas	20	24%	6	30%	8	77	-
14	FIS Karyali	Bhoon ka Jhal: 2 lps Dumli Ki Kuhl: 8 lps, March 2020	Improvement	N	-	N31° 13' 43.3"	E77° 15' 19.8"	1399 m	17.00	60	Maize, pulses	Wheat, peas	15	25%	4	27%	5	55	-
15	FIS Ajeetpur	Kui Nallah: 8 lps, June 2020	Improvement	N	-	N30° 53' 42.8"	E77° 38' 43.2"	1311 m	15.00	54	Maize, Vegetables	Wheat, Tomato	10	19%	-	-	4	47	3
16	FIS Jhaldi to Gadda Gram	Jhaldi Nallah: 10 lps, June 2020	Improvement	N	-	N30° 52' 40.0"	E77° 38' 30.8"	1643 m	19.00	43	Maize, Pulses, Vegetables	Wheat, Tomato, capsicum	13	30%	4	31%	5	36	2
17	FIS Kui Nallah to Shillinia	Kui Nallah: 10 lps, June 2020	Improvement	N	-	N30° 53' 10.1"	E77° 38' 29.7"	1531 m	13.00	22	Maize, Puses, Vegetabes	Wheat, Tomato, beans	7	32%	-	-	5	13	4
18	FIS Bharanu to Nalli	Bharanu Khad: 16 lps, June 2020	Improvement	N	1.00	N30° 57' 08.8"	E77° 40' 15.8"	1253 m	15.00	41	Wheat, Pulses, Vegetables	Wheat, Tomato, Beans	13	32%	-	-	5	33	3
19	FIS Dudhvi Nallah to Kandugad	Dudhwi Nallah: 10 lps, June 2020	Improvement	N	-	N31° 29' 19.9"	E77° 24' 26.0"	1695 m	8.00	55	Maize, Potato, Nurseries of Apple, Pulses	Wheat, Gram, Nerseries of apple	2	4%	-	-	-	50	5
20	FIS Kedas (Kandu) to Shavar	Out fall: 15 lps, March 2020	Improvement	N	-	N31° 27' 01.4"	E77° 33' 25.4"	1192 m	15.00	85	Maize, Palm, Potato, Pulses	Wheat, Gram, Palm, Veg.	20	24%	15	75%	15	70	-
21	FIS Kurpan Khad to Khatal	Kurpan Khad: 20 lps, March 2020	Improvement	N	-	N31° 24' 00.6"	E77° 34' 28.5"	884 m	7.00	15	Paddy, Potato, Mix Veg.	Wheat, Mix Veg.	5	33%	5	10%	5	10	-
22	FIS Buini Nallah to Kalaras	Buini Nallah: 12 lps, March 2020	New	N	-	N31° 30' 06.5"	E77° 34' 06.4"	1681 m	20.00	35	Maize, Potato, Paddy, Pulses	Wheat, gram, pulses, Veg.	10	29%	8	80%	8	27	-
23	FIS Pashad Nallah to Bari Lanj	Pashad Nallah: 15 lps, June 2020	New	N	1.5	N31° 27' 53.7"	E77° 30' 48.6"	1618 m	20.00	85	Maize, Paddy, Potato	Wheat, gram, pulses, Veg.	10	12%	8	80%	8	77	-
24	FIS Jood to Bhawana	Jood Nallah: 7 lps, June 2020	Improvement	N	1.5	N31° 06' 05.1"	E77° 05' 49.6"	1619 m	15.00	70	Paddy	Wheat	28	40%	14	50%	12	58	-
	Total				**10.00**				**476.00**	**1718**			**321**		**173**		**226**	**1475**	**17**

Attachment 6.3.1 Long List of Sub-projects (296 sites + 49 Sites) - 11

Chamba

Sr. No.	Name & Type of Scheme	Source of Discharge (Observation : Month Year etc.)	New or Improvement	Solar Pump (Y/N)	Farm Access Road (Km)	GPS Location of Source			C.C.A (Hect.)	No. of farm Households/Farmers	Major crops		Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total		Dominant Farmers (Advanced/ Intermediate/ Conservative)		
						Latitude	Longitude	Elevation			In Kharif	In Rabi	Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative
1	FIS Gohanana	Churi Nallah: 4 lps, June 2020	Improvement	N	1	N32° 29' 10.0"	E76° 10' 23.4"	1089 m	12.00	35	Maize	Wheat	7	20%	2	29%	2	31	2
2	FIS Tadgrawn	Tadgrawn Nallah: 6 lps, June 2020	Improvement	N	-	N32° 31' 35.5"	E76° 07' 58.5"	955 m	12.00	50	Maize	Wheat	5	10%	1	20%	1	45	4
3	FIS Kolka	Kolka Nallah: 7 lps, June 2020	Improvement	N	-	N32° 30' 43.9"	E76° 06' 55.0"	1516 m	12.00	55	Maize	Wheat	8	15%	2	25%	2	50	3
4	FIS Rupiana	Rupiana Khad: 20-25 lps, March 2020	Improvement	N	-	N32° 22' 05.1"	E76° 03' 54.9"	1331 m	10.00	35	Paddy	Wheat	4	11%	1	25%	1	30	4
5	FIS Naroli Nala to Hagga Kuther	Naroli Nallah: 7 lps, March 2020	Improvement	N	-	N32° 26' 27.9"	E76° 01' 39.1"	1233 m	35.00	30	Paddy	Wheat	5	17%	1	20%	1	24	5
6	FIS Tar Se Dharwai	Lohali Khad: 20 lps, March 2020	Improvement	N	2	N32° 20' 34.7"	E76° 06' 41.6"	1248 m	30.00	36	Paddy	Wheat	3	8%	1	33%	1	31	4
7	FIS Seri Dharna	Tundi Nallah: 10 lps, March 2020	Improvement	N	-	N32° 20' 01.2"	E76° 03' 28.9"	998 m	15.00	40	Paddy	Wheat	4	10%	2	50%	2	36	2
8	FIS Ritta Urehla	Sach Khad: 30 lps, June 2020	Improvement	N	1.80	N32° 28' 36.7"	E76° 10' 40.5"	1133 m	12.00	40	Maize	Wheat	4	10%	2	50%	2	35	3
9	FIS Bharodi	Bhatalwan Nalah: 18 lps, June 2020	Improvement	N	1	N32° 33' 10.4"	E76° 06' 31.0"	977 m	16.00	40	Maize	Wheat	10	25%	3	30%	3	34	3
10	FIS Nagori	Mehla Khadd: 200 lps, June 2020	Improvement	N	-	N32° 34' 07.7"	E76° 06' 06.9"	1011 m	25.00	25	Maize	Wheat	8	32%	2	25%	2	19	4
11	FIS Priyungal	Satsar: 6 lps, June 2020	Improvement	N	-	N32° 30' 40.1"	E76° 07' 00.6"	1535 m	11.00	70	Maize	Wheat	6	9%	1	17%	1	67	2
12	FIS Bhadsar	Dehgran Nallah: 10 lps, June 2020	Improvement	N	-	N32° 50' 29.1"	E76° 04' 09.4"	1999 m	24.00	60	Maize	Barley	7	12%	2	29%	2	54	4
13	FIS Kukren to Thanoti	Kukren Nallah: 40 lps, June 2020	Improvement	N	-	N32° 47' 42.0"	E75° 55' 44.3"	1701 m	35.00	90	Maize	Barley	5	6%	1	20%	1	85	4
14	FIS Nandan and Jusab	Gharat Nallah: 35 lps, June 2020	Improvement	N	1.80	N32° 42' 11.2"	E76° 02' 52.8"	1008 m	20.00	55	Maize	Wheat	4	7%	2	50%	2	46	7
15	FIS Dharmeran	Sua Nallah: 50 lps, June 2020	Improvement	N	-	N32° 47' 42.0"	E75° 55' 44.3"	1701 m	15.00	70	Maize	Barley	5	7%	1	20%	1	63	6
16	FIS Sanooh	Kali Mata Nallah: 50 lps, June 2020	Improvement	N	-	N32° 47' 31.4"	E75° 56' 19.3"	1734 m	12.00	40	Maize	Oil Seed/Barley	8	20%	2	25%	2	33	5
	Total				**7.60**				**296**	**771**			**93**		**26**		**26**	**683**	**62**

Attachment 6.3.1 Long List of Sub-projects (296 sites + 49 Sites) - 12

Sirmour

Sr. No.	Name & Type of Scheme	Source of Discharge (Observation : Month Year etc.)	New or Improvement	Solar Pump (Y/N)	Farm Access Road (Km)	GPS Location of Source			C.C.A (Hect.)	No. of farm Households/Farmers	Major crops		Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total		Dominant Farmers (Advanced/ Intermediate/ Conservative)		
						Latitude	Longitude	Elevation			In Kharif	In Rabi	Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative
1	FIS Lohara Khala	Lohara Nallah: 6 lps, June 2020	New	N	-	N30° 39' 09.2"	E77° 25' 55.7"	984 m	10.00	16	Maize, Ginger, Mix Veg.	Wheat, Oat, Mix. Veg.	7	44%	1	14%	4	8	4
2	FIS Pandhara Choken	Pandhara Khad: 10 lps, June 2020	New	N	-	N30° 49' 51.2"	E77° 17' 33.3"	1303 m	15.00	30	Maize, Ginger, Mix Veg.	Wheat, Oat, Mix. Veg.	13	43%	3	23%	5	15	10
3	FIS Godia Chhuni	Chunji Khala: 8 lps, June 2020	New	N	-	N30° 43' 45.1"	E77° 17' 40.5"	1223 m	10.00	14	Maize, Ginger, Mix Veg.	Wheat, Oat, Mix. Veg.	6	43%	2	33%	3	6	5
4	LIS Chod Ka Malavan	Chod ka Malavan: 12 lps, June 2020	New	Y	-	N30° 52' 33.8"	E77° 17' 17.7"	1150 m	16.00	42	Maize, Ginger, Mix Veg., Pulses	Wheat, Oat, Mix. Veg., Pulses	16	38%	5	31%	12	15	15
5	LIS Tai Tisri Khad	Thanoh Nallah: 12 lps, June 2020	New	Y	-	N30° 53' 33.9"	E77° 20' 23.0"	1769 m	30.00	75	Maize, Ginger, Mix Veg., Pulses	Wheat, Oat, Mix. Veg., Pulses	30	40%	4	13%	10	45	20
6	LIS Bhool to Tikkri	Bhool Khurla, June 2020	New	Y	-	N30° 48' 17.0"	E77° 18' 47.7"	1389 m	18.00	100	Maize, Ginger, Mix Veg., Pulses	Wheat, Oat, Mix. Veg., Pulses	40	40%	6	15%	20	50	30
7	FIS Adwar	Suka Khad: 8 lps, June 2020	New	N	-	N30° 32' 34.8"	E77° 42' 16.3"	866 m	8.00	9	Maize, Ginger, Mix Veg.	Wheat, Oat, Mix. Veg.	3	33%	1	33%	2	5	2
8	FIS Patti Bass	Borad Khala: 12 lps, June 2020	New	N	-	N30° 34' 26.2"	E77° 44' 58.6"	994 m	8.50	15	Maize, Ginger, Mix Veg., Pulses	Wheat, Oat, Mix. Veg., Pulses	7	47%	2	29%	3	8	4
9	FIS Dhayan Khala to Thontha, Naya, Kafenu, Panjod, Kukdech, Bheev	Dhayan Nallah: 15 lps	New	-	1	N30° 42' 28.1"	E77° 36' 05.9"	1805 m	156.85	318	Maize, Ginger, Veg. Pulses	Wheat, Vegetables, Pulses, Oat	140	44%	10	7%	38	200	80
	Total			**3**	**1**				**272.35**	**619**			**262**		**34**		**97**	**352**	**170**

Attachment 6.3.1 Long List of Sub-projects (296 sites + 49 Sites) - 13

Solan

Sr. No.	Name & Type of Scheme	Source of Discharge (Observation : Month Year etc.)	New or Improvement	Solar Pump (Y/N)	Farm Access Road (Km)	GPS Location of Source			C.C.A (Hect.)	No. of farm Households/Farmers	Major crops		Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total		Dominant Farmers (Advanced/ Intermediate/ Conservative)		
						Latitude	Longitude	Elevation			In Kharif	In Rabi	Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative
1	FIS Chandpur	Ghornu Nallah: 8 lps, June 2020	New	N	-	N31° 10' 03.4"	E76° 56' 03.5"	1130 m	20.00	250	Maize, Paddy, Pulses	Wheat, Barley, Oil seed	100	40%	2	2%	20	170	60
2	FIS Manjhu Khad	Manshu Khad: 20 lps, June 2020	New	N	-	N31° 08' 04.1"	E76° 59' 51.3"	1016 m	40.00	100	Maize, Paddy, Pulses	Wheat, Barley, Oil seed, Mix Veg.	40	40%	2	5%	10	50	40
3	FIS Sari	Dagech: 10 lps, June 2020	New	N	-	N31° 11' 40.4"	E76° 57' 15.1"	1521 m	20.00	25	Maize, Mix Veg.	Wheat, Barley, Oil seed, Mix	10	40%	1	10%	5	10	10
4	FIS Beral	Beral Nallah: 7 lps, June 2020	New	N	-	N31° 19' 37.1"	E76° 56' 44.8"	695 m	10.00	55	Maize, Paddy, Pulses	Wheat, Barley, Oil seed	25	45%	2	8%	5	25	25
5	FIS Changer Chalama	Chalama Nallah: 6 lps, June 2020	New	N	2	N31° 12' 35.1"	E76° 50' 47.6"	1096 m	45.00	20	Maize, Ginger, Tomato	Wheat, Onion, Garlic	6	30%	1	17%	2	9	9
6	LIS Kolthi	Kolthi Nallah: 6 lps, June 2020	New	Y	-	N31° 02' 00.4"	E76° 58' 09.1"	920 m	10.00	70	Maize, Pulses	Wheat, Pulses, Mustard	30	43%	2	7%	10	40	20
7	LIS Mahog	Tandi Ka nallah Nallah: 15 lps, March 2020	New	Y	-	N30° 57' 57.6"	E77° 10' 23.0"	1539 m	45.00	40	Maize, Mix Veg.	Wheat, Mix Veg.	10	25%	5	50%	5	25	10
8	LIS Jhaja	Tandi Ka nallah Nallah: 15 lps, March 2020	New	Y	-	N30° 57' 53.5"	E77° 10' 23.4"	1562 m	25.00	45	Maize, Mix Veg.	Wheat	20	44%	1	5%	8	27	10
9	LIS Anji	Anji Ka Nallah: 7 lps, March 2020	New	Y	-	N30° 58' 21.3"	E77° 05' 41.3"	1248 m	13.00	15	Maize	Wheat	6	40%	1	17%	2	10	3
10	FIS Mahi	Kalon Ka Nallah: 12 lps, March 2020	New	N	-	N30° 57' 25.4"	E77° 06' 55.8"	1466 m	13.00	25	Maize	Wheat	9	36%	1	11%	4	14	7
11	LIS Bola	Dagan Ka Nallah: 15 lps, March 2020	New	Y	-	N31° 01' 37.7"	E77° 01' 36.9"	911 m	13.00	23	Maize	Wheat	10	44%	1	10%	3	10	10
12	FIS Redu	Kool Khud Methal: 5 lps, June 2020	New	N	-	N31° 06' 15.7"	E76° 42' 37.0"	410 m	100.00	183	Maize, Paddy	Wheat	80	44%	2	3%	23	80	80
13	FIS Gharwa Plasara	Perenial Source: 5 lps, June 2020	New	N	-	N31° 04' 47.0"	E76° 43' 48.5"	426 m	30.00	60	Maize, Paddy	Wheat	15	25%	1	7%	10	25	25
14	LIS Navti Thura	Chatyan ka Nallah: 6 lps, June 2020	New	Y	-	N30° 56' 47.8"	E76° 58' 48.6"	1051 m	11.50	28	Maize, Fooder	Wheat, Fooder	11	39%	2	18%	5	13	10
15	LIS Kanda Kathyadu	Kandoli Khad: 8 lps, June 2020	New	Y	1	N30° 55' 56.9"	E76° 59' 39.3"	1129 m	11.66	51	Maize, Fooder	Wheat, Fooder	16	31%	3	19%	11	25	15
16	FIS Dhayari- Dhalli-Jadari	Baandh Ka Nallah: 10 lps, March 2020	Improvement	N	-	N30° 57' 45.1"	E77° 05' 41.6"	1457 m	40.00	110	Maize, Fooder	Wheat, Fooder	50	45%	2	4%	20	50	40
17	FIS Sarawan	Stream: 7 lps, May 2020	Improvement	N	1	N30° 52' 41.1"	E77° 09' 32.8"	1562 m	20.00	35	Maize, Fooder	Wheat, Fooder	10	28%	1	10%	10	15	10
18	FIS Kailar	Nauni: 6 lps, June 2020	Improvement	N	-	N30° 54' 41.2"	E77° 04' 37.4"	1479 m	16.00	119	Maize, Fooder	Wheat, Fooder	55	46%	2	4%	19	65	35
19	FIS Khaldar (Ghatti)	Khaldar: 5 lps, June 2020	Improvement	N	-	N30° 55' 04.6"	E77° 03' 42.5"	1490 m	45.00	156	Maize, Fooder	Wheat, Fooder	70	45%	2	3%	26	70	60
20	FIS Bhumbak to Top ki Ber (Nau) (Manlog)	Bhumbak Nallah: 6 lps, June 2020	Improvement	N	-	N30° 55' 42.5"	E77° 02' 50.8"	1458 m	18.00	261	Maize, Fooder	Wheat, Fooder	110	42%	2	2%	40	121	100
21	FIS Rawan Ka ban to Choura (Sheel)	Rawan Ka Ban: 7 lps, June 2020	Improvement	N	-	N30° 55' 48.5"	E77° 02' 50.0"	1397 m	22.00	300	Maize, Fooder	Wheat, Fooder	120	40%	3	3%	50	180	70
22	FIS Chakli (Shawad to Dadla)	Shawad: 6 lps, May 2020	Improvement	N	1	N30° 56' 24.6"	E77° 02' 36.5"	1342 m	11.00	45	Maize, Fooder	Wheat, Fooder	20	44%	1	5%	6	20	19
	Total			**7**	**5**				**579.16**	**2016**			**823**		**40**		**294**	**1054**	**668**

Attachment 6.3.1 Long List of Sub-projects (296 sites + 49 Sites) - 14

Lahaul & Spiti

Sr. No.	Name & Type of Scheme	Source of Discharge (Observation : Month Year etc.)	New or Improvement	Solar Pump (Y/N)	Farm Access Road (Km)	GPS Location of Source			C.C.A (Hect.)	No. of farm Households/Farmers	Major crops		Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out		Dominant Farmers (Advanced/ Intermediate/ Conservative)		
						Latitude	Longitude	Elevation			In Kharif	In Rabi	Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative
1	FIS Panahi	Chanas Nallah: 55 lps, June 2020	New	N	-	N 32° 47' 43.7"	E 076° 43' 44.2"	3146 m	20.00	18	Potato, veg, pulses barley	snow No crop	12	67%	7	58%	5	10	3
2	FIS Dara Nallah (Jasrath)	Nalda Nallah: 60lps, June 2020	Improvement	N	-	N 32° 38' 11.3"	E 076° 51' 21.3"	2777 m	15.00	16	Potato, veg, pulses barley	snow No crop	11	69%	7	64%	7	6	3
3	FIS Telang Way	Shamsha Nallah: 50 lps, June 2020	Improvement	N	-	N 32° 36' 44.5"	E 076° 56' 07.4"	3315 m	30.00	10	Potato, veg, pulses barley	snow No crop	7	70%	4	57%	3	5	2
4	FIS Rawaling Kuhal	Perenial Source: 60 lps, June 2020	Improvement	N	-	N 32° 36' 46.6"	E 076° 55' 20.6"	3209 m	25.00	18	Potato, veg, pulses barley	snow No crop	12	67%	8	67%	4	11	3
5	FIS Grooni (Thakurti)	Jahlman Nallah: 80 lps, June 2020	Improvement	N	-	N 32° 37' 49.6"	E 076° 52' 34.0"	2991 m	30.00	10	Potato, veg, pulses barley	snow No crop	6	60%	5	83%	4	4	2
6	FIS Paadi	Jahlman Nallah: 75 lps, June 2020	Improvement	N	-	N 32° 37' 50.6"	E 076° 52' 31.3"	2978 m	30.00	10	Potato, veg, pulses barley	snow No crop	6	60%	5	83%	4	4	2
7	FIS Kardang	Peukas Nallah: 85 lps, June 2020	Improvement	N	-	N 32° 34' 00.0"	E 077° 01' 20.5"	3135 m	40.00	12	Potato, veg, pulses barley	snow No crop	8	67%	5	62%	5	5	2
8	FIS Murticha & Jagla	Perenial Source: 20 lps, June 2020	Improvement	N	-	N 32° 30' 20.6"	E 077° 03' 18.8"	3284 m	25.00	25	Potato, veg, pulses barley	snow No crop	15	60%	9	60%	7	16	2
9	FIS Rahling	Perenial Source: 18 lps, June 2020	Improvement	N	-	N 32° 30' 20.6"	E 077° 03' 18.8"	3284 m	25.00	18	Potato, veg, pulses barley	snow No crop	11	61%	6	54%	5	11	2
10	FIS Khurpani	Perenial Source: 15 lps, June 2020	Improvement	N	-	N 32° 30' 20.6"	E 077° 03' 18.8"	3284 m	20.00	17	Potato, veg, pulses barley	snow No crop	10	58%	6	60%	6	9	2
11	FIS Jobrang	Jobrang Nallah: 90 lps, June 2020	Improvement	N	-	N 32° 37' 02.5"	E 076° 52' 46.5"	2897 m	20.00	16	Potato, veg, pulses barley	snow No crop	11	68%	7	63%	7	6	3
12	FIS Purad	Spring: 45 lps, June 2020	Improvement	N	-	N 32° 30' 31.5"	E77° 01' 48.4"	3231 m	30.00	20	Potato, veg, barley	snow bound No crop	13	65%	7	54%	4	12	4
13	FIS Madgran	Sangrana Nalla: 40 lps, June 2020	Improvement	N	-	N 32° 42' 50.8"	E 076° 40' 30.8"	2666 m	60.00	46	Potato, veg, barley	snow bound No crop	32	70%	21	65%	10	31	5
14	FIS Mayur Kuhl Gemoor	Kolong Nallah: 50 lps, June 2020	Improvement	N	-	N32° 36' 43.1"	E77° 08' 46.7"	3295 m	20.00	25	Potato, veg, barley	snow bound No crop	16	64%	10	62%	5	18	2
15	FIS Yarti (Tinno)	Perennial Nallah: 45 lps, June 2020	Improvement	N	-	N 32° 34' 50.9"	E 077° 07' 53.3"	3231 m	40.00	28	Potato, veg, barley	snow bound No crop	18	64%	11	61%	6	19	3
16	FIS Peukar	Perenial Nalla: 40 lps, June 2020	Improvement	N	-	N 32° 33' 43.5"	E 077° 04' 34.2"	3154 m	32.00	20	Potato, veg, barley	snow bound No crop	14	70%	10	71%	7	11	2
17	FIS Barbog	Peukar Nallah: 60 lps, June 2020	Improvement	N	-	N 32° 44' 43.2"	E 076° 38' 02.4"	3213 m	50.00	33	Potato, veg, barley	snow bound No crop	23	70%	17	74%	10	20	3
18	FIS Khangsar	Pernnial Nallah: 20 lps, June 2020	Improvement	N	-	N32° 30' 20.6"	E77° 03' 18.8"	3284 m	42.00	21	Potato, veg, barley	snow bound No crop	13	62%	8	62%	7	11	3
19	FIS Shooling	Perenial Nallah: 26 lps, June 2020	Improvement	N	-	N32° 30' 20.6"	E77° 03' 18.8"	3284 m	30.00	45	Potato, veg, barley	snow bound No crop	30	67%	18	60%	12	28	5
20	FIS Dhawansha	Perennial Nalla: 60 lps, June 2020	Improvement	N	-	N 32° 36' 46.8"	E 076° 55' 22.2"	3121 m	30.00	15	Potato, veg, barley	snow bound No crop	11	73%	8	73%	5	8	2
21	FIS Gawazang	Bravy Nallah: 35 lps, June 2020	Improvement	N	-	N32° 33' 24.0"	E77° 00' 21.1"	3130 m	20.00	19	Potato, veg, barley	snow bound No crop	12	63%	7	58%	4	13	2
	Total				**0.00**				**634**	**442**			**291**		**186**		**127**	**258**	**57**

Attachment 6.3.1 Long List of Sub-projects (296 sites + 49 Sites) - 15

Standby List of Irrigation Infrastructure (49 sites)

Sr. No.	Name & Type of Scheme	New or Improvement	Source of Discharge (Observation : Month Year etc.)	Proposed Facilities	C.C.A (Hect.)	Project Cost (In Lakh)	GPS Location of Source			No. of farm Households/ Farmers	Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total vegetable farmers)		Dominant Farmers (Advanced/ Intermediate/ Conservative)			Major crops		Scope of Farm Access Road (In Km.)	Scope of Solar Pumping	Collection Centre
							Latitude	Longitude	Elevation		Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative	In Kharif	In Rabi			
Hamirpur																						
1	LIS Gharyani	New	Gawald Khad: 10 lps	Percollation well: 1 No., Pump House: 1 No., Protection Work/Spur: 4 Rmt., Pumping Machinery: 1 No., Rising Main: 600 mtr., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 4000 mtr., Outlet Chambers: 60 Nos., Storage Tank: 3 No., Retaining Wall: 3 No., Sluice Valve Chambers: 10 Nos., SOP.	15.00	75.00	N31° 28' 32.5"	E76° 35' 18.2"	646 m	60	5	8%	-	-	5	25	30	Maize	Wheat	-	-	-
2	LIS Patta	New	Rohli Nallah: 3 lps	WHS: 1 No., Pump House: 1 No., Protection Work/Spur: 1.5 Rmt., Pumping Machinery: 1 No., Rising Main: 500 mtr., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 3500 mtr., Outlet Chambers: 20 Nos., Storage Tank: 1 No., Retaining Wall: ..., Sluice Valve Chambers: 10 Nos., SOP.	10.00	65.00	N31° 39' 04.6"	E76° 35' 13.7"	858 m	32	3	9%	1	33%	5	2	25	Maize	Wheat	-	Yes	-
3	LIS Masalana Kalan	New	Dugh Khad: 10 lps	WHS: 1 No., Sump Well: 1 No., Pump House: 1 No., Protection Work/Spur: 1.5 Rmt., Pumping Machinery: 1 No., Rising Main: 400 mtr., Tank: 1 No., Distribution System: HDPE pipeline: 3000 mtr., Outlet Chambers: 30 Nos., Storage Tank: 1 No., Retaining Wall: 1 No., Sluice Valve Chambers: 8 Nos., SOP.	12.00	48.00	N31° 28' 30.5"	E76° 29' 22.8"	663 m	40	1	3%	1	100%	4	10	26	Maize	Wheat	-	-	-
4	LIS Badagran	New	Gawald Khad: 20 lps	Percollation Well: 1 No., Pump House: 1 No., Protection Work/Spur: 3 No., Pumping Machinery: 1 No., Rising Main: 500 mtr., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 4000 mtr., Outlet Chambers: 25 Nos., Sluice Valve Chambers: 7 Nos., Retaining Walls: 2 Nos., SOP.	15.00	60.00	N31° 27' 51.6"	E76° 35' 51.2"	659 m	25	3	12%	2	67%	-	3	22	Maize	Wheat	-	-	-
5	LIS Mandhyani	New	Bag Nallah: 0.5 lps, June 2020	Percollation well: 1 No., Pump House: 1 No., Pumping Machinery: 1 No., Rising Main: 500 mtr., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 3000 mtr., Outlet Chambers: 30 Nos.,Sluice Valve Chambers: 8 Nos., SOP.	12.00	55.10	N31° 37' 45.0"	E76° 28' 00.9"	781 m	25	-	-	-	-	2	12	11	Maize	Wheat	-	Yes	-
6	LIS Ghardat	New	Salasi Khad: 10 lps, June 2020	Water Harvesting Structure: 1 No., Pump House: 1 No., Protection Work/Spur: 3 No., Pumping Machinery: 1 No., Rising Main: 600 mtr., Main Delivery Tank: 1 No., Nallah Crossing: 4 Nos., Distribution System: HDPE pipeline: 3500 mtr., Outlet Chambers: 48 Nos., Sluice Valve Chambers: 10 Nos., Storage Tank: 1 No., SOP.	10.00	40.00	N31° 43' 22.3"	E76° 28' 59.3"	775 m	30	2	7%	-	-	-	10	20	Maize	Wheat	-	-	-
7	LIS Balh Patyala	New	Balh Patyala Dugh: 10 lps, June 2020	Pump House: 1 No., Pumping Machinery: 1 No., Rising Main: 500 mtr., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 3500 mtr., Outlet Chambers: 20 Nos., Sluice Valve Chambers: 10 Nos., Retaining Walls: 5 Nos., SOP.	10.00	35.00	N31° 42' 47.9"	E76° 23' 07.6"	591 m	25	-	-	-	-	-	5	20	Maize	Wheat	-	-	-
8	LIS Tohu	New	Duhha Nalah: 6 lps	Water Harvesting Structure: 1 No., Pump House: 1 No., Protection Work/Spur: 3 Nos., Pumping Machinery: 1 No., Rising Main: 350 mtr., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 5500 mtr., Outlet Chambers: 75 Nos., Storage Tank: 1 No., Sluice Valve Chambers: 7 Nos., Retaining wall: 2 Nos., SOP.	20.00	86.00	N31° 34' 51.4"	E76° 39' 50.6"	865 m	45	10	22%	2	20%	2	10	33	Maize	Wheat			
	Total				**104**	**464**				**282**			**4**		**18**	**77**	**187**			**0**	**2**	
Bilaspur																						
9	LIS Neri	New	Ali Khad Neri: 15 lps	Water Harvesting Structure: 1 No., Sump Well: 1 No., Pump House: 1 No., Fencing: 60 mtr., Protection Work/Spur: 1 Nos., Pumping Machinery: 1 set of 20 HP, Rising Main: 220 mtr., Main Delivery Tank: 1 No., Nallah Crossing/Road Crossing: 2 Nos.,Distribution System: HDPE pipeline: 3500 mtr., Outlet	7.00	48.00	N31° 17' 07.3"	E76° 50' 29.2"	831 m	12	2	17%	0	0%	0	8	4	Maize	Wheat	-	Yes	-
	Total				**7**	**48**				**12**	**2**		**0**		**0**	**8**	**4**			**0**	**1**	
Una																						
10	FIS Kokra & Chaplah	Improvement	Chaplah Khad: 25 lps, June 2020	Storage Tank: 2 No., HDPE pipe: 2500 Rmt., Outlet Chamber: 20 Nos.	35.00	20.00	N31° 38' 05.2"	E76° 18' 16.7"	560 m	50	10	20%	1	10%	0	10	40	Maize	Wheat	-	-	-
11	FIS Deehar, Sarnoti, Kherian	Improvement	Deehar Nallah: 6 lps, June 2020	Storage Tank: 3 No., HDPE pipe: 3500 Rmt., Outlet Chamber: 25 Nos.	35.00	25.00	N31° 38' 39.2"	E76° 17' 18.0"	644 m	40	8	20%	0	0%	0	8	32	Maize	Wheat	-	-	-
	Total				**70**	**45**				**90**	**18**		**1**		**0**	**18**	**72**			**0**	**0**	

Attachment 6.3.1 Long List of Sub-projects (296 sites + 49 Sites) - 16

Standby List of Irrigation Infrastructure (49 sites)

Sr. No.	Name & Type of Scheme	New or Improvement	Source of Discharge (Observation : Month Year etc.)	Proposed Facilities	C.C.A (Hect.)	Project Cost (In Lakh)	GPS Location of Source			No. of farm Households/ Farmers	Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total vegetable farmers)		Dominant Farmers (Advanced/ Intermediate/ Conservative)			Major crops		Scope of Farm Access Road (In Km.)	Scope of Solar Pumping	Collection Centre
							Latitude	Longitude	Elevation		Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative	In Kharif	In Rabi			
Mandi																						
12	LIS Kalthar	New	Kalthari Khad: 10 lps	Storage Structure / WHS / Gravity Dam with detail : 1 No.; Intake Chamber : 1 No.; Sump Well: 1 No.; Pump House: 1 No.; Pumping Machinery: 1 No.(10-15 hp); Supply of Power(SOP): 0.5 Km (aaprox.); Rising Main : 450 mtrs; Nallah Crossing/ Road croosing: 1 No.; Main Delivery Tank : 1 No.;HDPE Pipe/RCC pipe : 6000 mtrs; Outlet Chamber: 80 Nos.; Storage Tank if Required : 2 Nos.;Water Opening Gate : 18 Nos.; ; Retaining Wall : 2 Nos.	16	80.00	N31° 34' 32.8"	E76° 46' 24.4"	784 m	80	18	23%	1	6%	0	18	62	Paddy, Maize, Vegetables	Wheat, Vegetables	-	-	-
13	FIS Rohan Dharnasi	Improvement	Tikkari Khad: 15 lps	Diversion Weir: 1 No., Main Delivery Tank: 2 Nos., HDPE pipe: 6000 Rmt., RCC Pipe/ GI: 300 Rmt., Outlet Chamber: 120 Nos., Water opening Gates: 30 Nos., Retaining Wall: 3 Nos.	48.00	144.00	N31° 39' 35.3"	E76° 47' 49.0"	1069 m	100	22	22%	0	0%	0	22	78	Paddy, Maize	Wheat	-	-	-
14	LIS Katli	New	Suketi Khad: 50 lps	Diversion Weir: 1 No., Intake chamber: 1 No., Sump Well: 1 No., Rising Main: 700 Rmt. Main Delivery Tank: 2 Nos., HDPE pipe: 4000 Rmt., RCC Pipe/ GI: 300 Rmt., Outlet Chamber: 120 Nos., Water opening Gates: 30 Nos., Retaining Wall: 3 Nos.	15.00	45.00	N31° 33' 32.3"	E76° 53' 33.1"	808 m	50	10	20%	0	0%	0	10	40	Paddy, Maize	Wheat	-	-	-
15	FIS Bede Nallah to Samkhetar	Improvement	Bede Nallah: 25 lps	Main Channel: 2500 Rmt., Pucca field Channel: 15Rmt., HDPE/RCC pipe: 4000 Rmt., Water opening gate: 10 Nos., Diversion Weir: 1 No., Intake chamber: 1 No., Outlet Chamber: 25 Nos., Dropping Structure: 10 Nos., Retaining Wall: 2 Nos.	15.00	40.00	N31° 53' 53.1"	E76° 47' 81.9"	941 m	70	15	21%	1	7%	0	15	55	Paddy, Maize, Vegetables	Wheat, Vegetables	-	-	-
	Total				**94**	**309**				**300**	**65**		**2**		**0**	**65**	**235**			**0**	**0**	
Kangra																						
16	FIS Jaangli Kuhal	Improvement	Binwa Khad: 200 lps	Main Channel = 900 Rmt;Pucca Field Channel=610 Rmt; Diversion Weir=1 No.;Intake Chamber=1 No.;Outlet Chamber= 3 Nos.; Retaining Wall= 4 Nos./24 m Rmt	8.50	21.25	N32^{0}02'54.3"	E76^{0}38'21.5"	930 m	40	10	25%	2	20%	2	34	4	Paddy	Wheat	-	-	-
17	FIS Hareri Kuhal	Improvement	Charot Nallah: 150 lps	Main Channel = 1400 Rmt;Pucca Field Channel=3600 Rmt; Pattra Cutting = 150 Cum; Diversion Weir=1 No.;Intake Chamber=1 No.; Outlet Chamber= 20 Nos.; Dropping Structure = 40Nos. ;Retaining Wall= 1 No	40.00	100.00	N32° 03' 05.4"	E76° 43' 45.5"	1617 m	125	23	18%	5	22%	5	117	3	Paddy	Wheat	0.50	-	-
18	FIS Kochhe da Chou	Improvement	Bhiral Khad: 55 lps	Main Channel = 2100 Rmt;Pucca Field Channel=600 Rmt; Pattra Cutting if any =80 Cum; Diversion Weir=1 No.;Intake Chamber=1 No.;Outlet Chamber= 5 Nos.; Retaining Wall= 3 Nos./18 m Rmt	35.00	87.50	N32° 04' 41.1"	E76° 31' 00.7"	1073 m	83	12	14%	3	25%	3	78	2	Paddy	Wheat	-	-	-
19	FIS Sethuan da Chou	Improvement	Sethu Nallah: 30 lps	Main Channel = 2100 Rmt;Pucca Field Channel=600 Rmt; Pattra Cutting if any =80 Cum; Diversion Weir=1 No.;Intake Chamber=1 No.;Outlet Chamber= 5 Nos.; Retaining Wall=2 Nos./12 m Rmt	29.00	72.50	N32° 03' 07.8"	E76° 29' 25.5"	976 m	70	5	7%	0	0%	0	66	4	Paddy	Wheat	-	-	-
20	FIS Doli Da Chou	Improvement	Soon Khad: 50 lps	Main Channel = 1500 Rmt;Pucca Field Channel=800 Rmt; Water Opening Gate=5 Nos.;Diversion Weir=1 No.;Intake Chamber=1 No.;Outlet Chamber= 5 Nos.; Retaining Wall= 6 Nos./33m Rmt	25.00	62.50	N32° 05' 05.7"	E76° 29' 39.8"	1044 m	75	15	20%	2	13%	2	71	2	Paddy	Wheat	0.20	-	-
21	FIS Panj Kuhal	Improvement	Sansali Khad: 40 lps	Main Channel =2500 Rmt;Pucca Field Channel=1100 Rmt.; Diversion Weir =1 No.;Intake Chamber=1 No.;Outlet Chamber= 10 Nos.; Dropping Structure = 15 Nos.; Retaining Wall= 3 Nos. / 20 m Rmt	35.00	87.50	N32° 03' 56.8"	E76° 41' 39.8"	1320 m	90	14	16%	2	14%	2	85	3	Paddy	Wheat	-	-	-
22	FIS Baduhal Kuhal	Improvement	Damela Nalah: 90 lps	Main Channel = 2100 Rmt;Pucca Field Channel=600 Rmt; Pattra Cutting if any =80 Cum; Diversion Weir=1 No.;Intake Chamber=1 No.;Outlet Chamber= 5 Nos.; Retaining Wall= 3 Nos./18 m Rmt	22.00	55.00	N32° 03' 16.4"	E76° 29' 19.9"	944 m	60	5	8%	3	60%	3	52	5	Paddy	Wheat	-	-	-
23	LIS Dhanot	New	Suhag Nallah: 70 lps	Intake chamber= 1 no.;Sump Well =1 No.; Pump House= 1 No.; Fencing=50 mtr; Protection Work/Spur= 1 No.; Pumping Machinery=2 No.; Supply of Power(SOP)=1 Job; Rising Main =950m Rmt; Nallah Crossing/Road Crossing= 5 Nos.; Main delivery Tank=1 No.;HDPE Pipe/RCC Pipe=4500 Rmt;Outlet Chamber= 55 Nos.; Storage Tank if required=2 Nos.; Alfa Valve= 30 Nos.; Retaining Wall= 3 Nos./15 Rmt ;	35.00	140.00	N31° 49' 09.1"	E76° 18' 35.9"	455 m	80	10	13%	2	20%	2	68	10	Maize/Paddy	Wheat	-	Yes	-

Attachment 6.3.1 Long List of Sub-projects (296 sites + 49 Sites) - 17

Standby List of Irrigation Infrastructure (49 sites)

Sr. No.	Name & Type of Scheme	New or Improvement	Source of Discharge (Observation : Month Year etc.)	Proposed Facilities	C.C.A (Hect.)	Project Cost (In Lakh)	GPS Location of Source			No. of farm Households/ Farmers	Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total vegetable farmers)		Dominant Farmers (Advanced/ Intermediate/ Conservative)			Major crops		Scope of Farm Access Road (In Km.)	Scope of Solar Pumping	Collection Centre
							Latitude	Longitude	Elevation		Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative	In Kharif	In Rabi			
24	LIS Kuhna	New	Balhari Nallah: 6 lps	Storage Structure/WHS/Gravity Dam with Detail= 1 No/20 Rmt; Sump Well =1 No.; Pump House= 1 No.; Fencing=30 mtr; Protection Work/Spur= 10 Nos.; Pumping Machinery=1 No.; Supply of Power(SOP)=1 Job; Rising Main =70 Rmt; Nallah Crossing/Road Crossing= 2 Nos.; Main delivery Tank=1 No.;HDPE Pipe/RCC Pipe=4500 Rmt;Outlet Chamber= 55 Nos.; Storage Tank if required=2 Nos.; Alfa Valve= 25 Nos.; Retaining Wall= 2 Nos./25 Rmt ; Water Measuring Device=1 No.	35.00	140.00	N31° 48' 56.1"	E76° 16' 49.8"	433 m	90	10	11%	1	10%	2	78	10	Maize/Paddy	Wheat	0.25	Yes	-
25	FIS Samlekhar Kuhal	Improvement	Aganjhar Mahadev: 50 lps	Main Channel =2.5 Km;Pucca Field Channel=1.8 Km.; Diversion weir= 1 No.; Retaining Wall=05 No.(2.5 mtr, 4 mtr, 6.5 mtr , 7 mtr & 10 mtr)	40.00	100.00	N32° 11' 55.9"	E76° 22' 30.0"	1288 m	70	2	3%	0	0%	1	67	2	Paddy	Wheat	-	-	-
26	FIS Majhenu	Improvement	Majhenu Nallah: 4 lps	Main Channel = 1000 Rmt;Pucca Field Channel=500 Rmt.; Diversion Weir =1 No.;Intake Chamber=1 No.;Outlet Chamber= 11 Nos.; Retaining Wall= 2 Nos. / 15 m Rmt	15.00	37.50	N32° 03' 40.1"	E76° 33' 21.1"	1058 m	50	3	6%	0	0%	0	46	4	Paddy	Wheat	-	-	-
27	FIS Mandayalan da Banh	Improvement	Dehan Nallah: 35 lps	Main Channel = 1500 Rmt;Pucca Field Channel= 900 Rmt.; Water Opening Gate = 7 Nos.;Diversion Weir =1 No.;Intake Chamber=1 No.;Outlet Chamber= 6 Nos.; Dropping Structure =7 Nos.;Retaining Wall= 6 Nos./ 32 m Rmt	25.00	62.50	N32° 03' 57.2"	E76° 30' 17.4"	1016 m	60	5	8%	0	0%	0	53	7	Paddy	Wheat	-	-	-
28	FIS Sareri Kuhal	Improvement	Gajj Khadd: 50 cumecs	Main Channel = 1800 Rmt;Pucca Field Channel= 1500 Rmt.; Water Opening Gate = 11 Nos.;Diversion Weir =1 No.;Intake Chamber=1 No.;Outlet Chamber= 10 Nos.; Dropping Structure = 20 Nos.;Retaining Wall= 8 Nos./ 34m Rmt	80.00	200.00	N32° 10' 50.2"	E76° 13' 48.2"	699 m	250	3	1%	1	33%	1	245	4	Paddy	Wheat	-	-	-
29	FIS Sapruhal Kuhal	Improvement	Manjhi Khad , 50 cumecs	Main Channel = 1500 Rmt;Pucca Field Channel=1200 Rmt; Pattra Cutting if any =110 Cum; Diversion Weir=1 No.;Intake Chamber=1 No.;Outlet Chamber= 15 Nos.; Retaining Wall= 10 Nos./76m Rmt	50.00	125.00	N32° 10' 50.2"	E76° 13' 48.2"	699 m	136	3	2%	0	0%	3	131	2	Paddy	Wheat	-	-	-
30	FIS Gojju Kuhal	Improvement	Kholi Khad, Served by Jal Shakti Bhiwag Kuhal	HDPE Pipe/RCC pipe : 2500 mtrs; RCC/G.I. Pipe: 100 mtrs; Water Opening Gate : 12 Nos.; Storage Tank : 1 Nos.; Diversion Wier : 1 No.; Intake Chamber : 1 No., Outlet Chamber: 40 Nos.; Retaining Wall : 2 Nos.	5.00	12.50	N32° 12' 16.2"	E76° 12' 46.9"	753 m	20	1	5%	0	0%	1	17	2	Paddy	Wheat	-	-	-
	Total				**480**	**1304**				**1299**	**121**		**21**		**27**	**1208**	**64**			**0.95**	**2**	
Kullu																						
31	LIS Chahani	New	Bachak Spring: 10 lps, June 2020	Water Harvesting Structure: 1 No., Pump House: 1 No., Pumping Machinery: 1 No., Rising Main: 600 mtr., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 1500 mtr., Outlet Chambers: 10 Nos., Retaining Wall: 4 Nos., SOP.	13.00	30.00	N31° 37' 22.6"	E77° 21' 21.3"	1975 m	70	39	56%	18	46%	20	45	5	Maize, Pulses, Orchard	Wheat, Barley, Orchard	-	Yes	-
32	FIS Chalauri	Improvement	Spring: 15 lps, June 2020	Main Channel: 800 Rmt., Pucca Field Channel: 1500 Rmt., Pattra Cutting: 2300 Cum., HDPE Pipe: 1500 Rmt., Diversion Weir: 1 No., Intake Chamber: 1 No., Outlet Chamber: 10 No., Retaining Wall: 4 No.	12.00	15.00	N31° 37' 37.8"	E77° 18' 35.0"	1792 m	45	23	51%	7	30%	10	32	3	Maize, Pulses, Oil Seed, Orchard	Wheat, Barley, Peas, Orchard	-	-	-
33	FIS Narayani Pirdi	Improvement	Pah Nallah: 30 lps, March 2020	Main Channel: 700 Rmt., Pucca Field Channel: 1500 Rmt., Pattra Cutting: 2200 Cum., HDPE Pipe: 200 Rmt., Diversion Weir: 1 No., Intake Chamber: 1 No., Outlet Chamber: 15 No., Retaining Wall: 10 No.	21.00	40.00	N32° 03' 47.6"	E77° 11' 12.4"	1203 m	130	85	65%	52	61%	30	93	7	Maize, Pulses, Oil Seed	Wheat, Barley, Peas	-	-	-
34	FIS Sohchu Gharat to Suma Gongan	New	Cheonr Nallah: 40 lps	Main Channel: 1500 Rmt., Pucca Field Channel: 800 Rmt., HDPE Pipe: 1100 Rmt., RCC pipe: 1600 Rmt., Water opening Gate: 2 No., Storage Tank: 11 No., Diversion Weir: 1 No., Intake Chamber: 1 No., Outlet Chamber: 15 No., Dropping Structure: 5 No., Retaining Wall: 8 No.	30.00	55.00	N31° 57' 18.57"	E77° 11' 03.16"	1342 m	133	65	49%	5	8%	20	20	25	Cabbage, Cauliflower, Tomato	Peas, Wheat	-	-	-
35	FIS Nihari Nallah to Chhenour	Improvement	Cheonr Nallah: 40 lps	Main Channel: 2000 Rmt., Pucca Field Channel: 1000 Rmt., HDPE Pipe: 1200 Rmt., RCC pipe: 800 Rmt., Storage Tank: 14No., Diversion Weir: 1 No., Intake Chamber: 1 No., Outlet Chamber: 15 No., Dropping Structure: 3 No., Retaining Wall: 10 No.	25.00	40.00			1800	200	100	50%	5	5%	15	30	155	Cabbage, Cauliflower, Tomato	Peas, Wheat	-	-	-
	Total				**101**	**180**				**578**	**312**		**87**		**95**	**220**	**195**			**0**	**1**	

Standby List of Irrigation Infrastructure (49 sites)

Sr. No.	Name & Type of Scheme	New or Improvement	Source of Discharge (Observation : Month Year etc.)	Proposed Facilities	C.C.A (Hect.)	Project Cost (In Lakh)	GPS Location of Source			No. of farm Households/ Farmers	Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total vegetable farmers)		Dominant Farmers (Advanced/ Intermediate/ Conservative)			Major crops		Scope of Farm Access Road (In Km.)	Scope of Solar Pumping	Collection Centre
							Latitude	Longitude	Elevation		Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative	In Kharif	In Rabi			
Sirmour																						
36	FIS Siddi Road	Improvement	Garath Khala: 8 lps	Main Channel: 2805 Rmt., Pucca Field Channel: 870 Rmt., Pattra Cutting: 275 Cum., HDPE Pipe: 455 Rmt., Diversion Weir: 1 No., Intake Chamber: 1 No., Outlet Chamber: 6 No., Dropping Structure: 2 No., Retaining Wall: 5 No.	8.00	23.75	N30° 34' 52.1"	E77° 43' 54.8"	1165 m	10	4	40%	1	25%	2	6	2	Maize, Ginger, Mix Veg., Pulses	Wheat, Oat, Mix. Veg., Pulses	-	-	-
37	LIS Chevla	New	Kawal Khad: 15 lps	Intake Chamber: 1 No., Sump Well, Pump House, Protection Work/ Spur: 1 No., Pumping Macginery, Rising Main: 1000 Rmt., Nallah Crossing: 2 No., Main Delivery Tank: 1 No., HDPE Pipe: 2000 Rmt., Outlet Chamber: 5 No., Storage Tank: 3 No.	14.00	39.75	N30° 51' 48.9"	E77° 11' 49.0"	984 m	30	12	40%	1	8%	5	15	10	Maize, Ginger, Veg. Pulses	Wheat, Vegetables, Pulses, Oat	-	Yes	-
	Total				**22**	**64**				**40**	**16**		**2**		**7**	**21**	**12**			**0**	**1**	
Solan																						
38	LIS Dochi	New	Dochi Ka Nallah: 6 lps	WHS: 1 No., Intake Chamber: 1 No., Sump Well: 1 No., Pump House: 1 No., Fencing: 100 Rmt., Protection work /spur: 1 No., Pumping Machinery: 1 No., Rising Main: 3000 mtr.,Nallah Crossing: 1 No., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 5500 mtr., Outlet Chambers: 50 Nos., Storage tank: 1 No., Water opening Gates: 5 No., Retaining Wall: 1 No., SOP.	12.00	12.00	N30° 59' 08.8"	E77° 09' 17.3"	1298 m	64	15	23%	1	7%	0	14	50	Maize	Wheat	0.5	-	-
39	LIS Kot	New	Katli Ka Nallah: 3 lps	WHS: 1 No., Intake Chamber: 1 No., Pump House: 1 No., Pumping Machinery: 1 No., Rising Main: 142 mtr.,Nallah Crossing: 1 No., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 1000 mtr., Outlet Chambers: 30 Nos., Storage tank: 1 No., Water opening Gates: 5 No., Retaining Wall: 1 No., SOP.	36.00	110.00	N30° 58' 14.1"	E77° 10' 52.8"	1637 m	26	10	38%	1	10%	6	10	10	Maize	Wheat	-	Yes	-
40	LIS Sainj-Kawarag-Kot-Tikkari	New	Stream: 25 lps	Water Harvesting Structure: 1 No., Intake Chamber: 1 No., Pump House: 1 No., Protection Work/Spur: 4 Nos., Pumping Machinery: 1 , Rising Main: 300 mtr., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 4400 mtr., Outlet Chambers: 25 Nos., Storage Tank: 2 No., Retaining Wall: 2 Nos., SOP.	60.50	180.00	N30° 58' 24.9"	E77° 04' 18.1"	1070 m	70	25	36%	1	4%	10	35	25	Maize	Wheat	-	Yes	-
41	LIS Chakli	New	Jabbal Ka Nallah: 7 lps	WHS: 1 No., Intake Chamber: 1 No., Pump House: 1 No., Pumping Machinery: 1 No., Rising Main: 200 mtr.,Nallah Crossing: 1 No., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 800 mtr., Outlet Chambers: 10 Nos., SOP.	11.00	44.00	N30° 56' 29.4"	E77° 02' 45.8"	1270 m	45	16	36%	2	13%	5	20	20	Maize, Pulses	Wheat, Tomato	-	Yes	-
42	FIS Damkari to Kanaha	Improvement	Damkari Nallah: 5 lps	Main Channel: 600 Rmt.	15.00	45.00	N30° 54' 32.5"	E77° 08' 30.3"	1354 m	72	34	47%	3	9%	6	45	21	Maize, Tomato	Wheat	-	-	-
43	FIS Chamb ka Pani to Kot seri	Improvement	Chamb Ka Pani: 6 lps	Main Channel: 2000 Rmt.	8.00	24.00	N30° 53' 03.0"	E76° 59' 30.7"	1222 m	34	15	44%	1	7%	4	20	10	Maize, Mix Veg.	Wheat, Mix Veg.	-	-	-
44	LIS Salai- Naroodh	New	Shelai Ka Nallah: 20 lps	WHS: 1 No., Intake Chamber: 1 No., Pump House: 1 No., Pumping Machinery: 1 No., Rising Main: 600 mtr.,Nallah Crossing: 1 No., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 2000 mtr., Outlet Chambers: 15 Nos., SOP.	35.00	110.00	N30° 59' 39.4"	E77° 10' 58.7"	1495 m	106	45	42%	2	4%	16	55	35	Maize, Mix Veg.	Wheat, Mix Veg.	-	Yes	-
45	FIS Sanjada Khud	New	Sanjada Khad: 5 lps	Main Channel: 1000 Rmt.	9.00	25.00	N30° 55' 45.1"	E77° 04' 06.9"	1272 m	24	10	42%	1	10%	4	10	10	Maize	Wheat	-	-	-
46	FIS Siharth Khud	New	Siharth Khad: 5 lps	Main Channel: 1000 Rmt.	27.00	80.00	N30° 55' 47.8"	E77° 04' 22.4"	1295 m	54	20	37%	2	10%	14	20	20	Maize	Wheat	-	-	-
47	FIS Redu Khad to Manlog	New	Redu Khad: 6 lps	Main Channel: 2500 Rmt.	28.00	82.00	N30° 56' 04.6"	E77° 03' 00.6"	1301 m	85	15	18%	1	7%	15	40	30	Maize	Wheat	0.5	-	-
48	LIS Sohal	New	Chhobli Nallah: 8lps	Intake Chamber: 1 No., Pumping Machinery: 1 No., Rising Main: 700 Rmt, Pump House: 1 No., Main Delivery Tank: 1 No., Distribution Tank: 2 Nos., Outlet Chambers: 25 Nos., Retaining Wall: 1 No., HDPE pipe: 2500 Rmt., SOP: 1No.	10.00	40.00	N30° 58' 27.8"	E77° 01' 17.2"	1113 m	17	10	59%	1	10%	0	2	15	Maize	Wheat	0.7	Yes	-
49	LIS Rihana	New	Baliana Khad: 15 lps	Intake Chamber: 1 No., Pumping Machinery: 1 No., Rising Main: 500 Rmt, Pump House: 1 No., Main Delivery Tank: 1 No., Distribution Tank: 3 Nos., Outlet Chambers: 30 Nos., Retaining Wall: 1 No., HDPE pipe: 3000 Rmt., SOP: 1No.	12.00	48.00	N30° 59' 42.6"	E77° 02' 04.4"	949 m	53	16	30%	1	6%	1	15	37	Maize	Wheat	0.5	Yes	-
	Total				**264**	**800**				**650**	**231**		**17**		**81**	**286**	**283**			**2.20**	**6**	
	G. Total				**1141**	**3213**				**3251**	**765**		**134**		**228**	**1903**	**1052**			**3.15**	**13**	

Standby List of Irrigation Infrastructure (49 sites)

Sr. No.	Name & Type of Scheme	New or Improvement	Source of Discharge (Observation : Month Year etc.)	Proposed Facilities	C.C.A (Hect.)	Project Cost (In Lakh)	GPS Location of Source			No. of farm Households/ Farmers	Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total vegetable farmers)		Dominant Farmers (Advanced/ Intermediate/ Conservative)			Major crops		Scope of Farm Access Road (In Km.)	Scope of Solar Pumping	Collection Centre
							Latitude	Longitude	Elevation		Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative	In Kharif	In Rabi			
Hamirpur																						
1	LIS Gharyani	New	Gawald Khad: 10 lps	Percollation well: 1 No., Pump House: 1 No., Protection Work/Spur: 4 Rmt., Pumping Machinery: 1 No., Rising Main: 600 mtr., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 4000 mtr., Outlet Chambers: 60 Nos., Storage Tank: 3 No., Retaining Wall: 3 No., Sluice Valve Chambers: 10 Nos., SOP.	15.00	75.00	N31° 28' 32.5"	E76° 35' 18.2"	646 m	60	5	8%	-	-	5	25	30	Maize	Wheat	-	-	-
2	LIS Patta	New	Rohli Nallah: 3 lps	WHS: 1 No., Pump House: 1 No., Protection Work/Spur: 1.5 Rmt., Pumping Machinery: 1 No., Rising Main: 500 mtr., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 3500 mtr., Outlet Chambers: 20 Nos., Storage Tank: 1 No., Retaining Wall: ..., Sluice Valve Chambers: 10 Nos., SOP.	10.00	65.00	N31° 39' 04.6"	E76° 35' 13.7"	858 m	32	3	9%	1	33%	5	2	25	Maize	Wheat	-	Yes	-
3	LIS Masalana Kalan	New	Dugh Khad: 10 lps	WHS: 1 No., Sump Well: 1 No., Pump House: 1 No., Protection Work/Spur: 1.5 Rmt., Pumping Machinery: 1 No., Rising Main: 400 mtr., Tank: 1 No., Distribution System: HDPE pipeline: 3000 mtr., Outlet Chambers: 30 Nos., Storage Tank: 1 No., Retaining Wall: 1 No., Sluice Valve Chambers: 8 Nos., SOP.	12.00	48.00	N31° 28' 30.5"	E76° 29' 22.8"	663 m	40	1	3%	1	100%	4	10	26	Maize	Wheat	-	-	-
4	LIS Badagran	New	Gawald Khad: 20 lps	Percollation Well: 1 No., Pump House: 1 No., Protection Work/Spur: 3 No., Pumping Machinery: 1 No., Rising Main: 500 mtr., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 4000 mtr., Outlet Chambers: 25 Nos., Sluice Valve Chambers: 7 Nos., Retaining Walls: 2 Nos., SOP.	15.00	60.00	N31° 27' 51.6"	E76° 35' 51.2"	659 m	25	3	12%	2	67%	-	3	22	Maize	Wheat	-	-	-
5	LIS Mandhyani	New	Bag Nallah: 0.5 lps, June 2020	Percollation well: 1 No., Pump House: 1 No., Pumping Machinery: 1 No., Rising Main: 500 mtr., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 3000 mtr., Outlet Chambers: 30 Nos.,Sluice Valve Chambers: 8 Nos., SOP.	12.00	55.10	N31° 37' 45.0"	E76° 28' 00.9"	781 m	25	-	-	-	-	2	12	11	Maize	Wheat	-	Yes	-
6	LIS Ghardat	New	Salasi Khad: 10 lps, June 2020	Water Harvesting Structure: 1 No., Pump House: 1 No., Protection Work/Spur: 3 No., Pumping Machinery: 1 No., Rising Main: 600 mtr., Main Delivery Tank: 1 No., Nallah Crossing: 4 Nos., Distribution System: HDPE pipeline: 3500 mtr., Outlet Chambers: 48 Nos., Sluice Valve Chambers: 10 Nos., Storage Tank: 1 No., SOP.	10.00	40.00	N31° 43' 22.3"	E76° 28' 59.3"	775 m	30	2	7%	-	-	-	10	20	Maize	Wheat	-	-	-
7	LIS Balh Patyala	New	Balh Patyala Dugh: 10 lps, June 2020	Pump House: 1 No., Pumping Machinery: 1 No., Rising Main: 500 mtr., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 3500 mtr., Outlet Chambers: 20 Nos., Sluice Valve Chambers: 10 Nos., Retaining Walls: 5 Nos., SOP.	10.00	35.00	N31° 42' 47.9"	E76° 23' 07.6"	591 m	25	-	-	-	-	-	5	20	Maize	Wheat	-	-	-
8	LIS Tohu	New	Duhha Nalah: 6 lps	Water Harvesting Structure: 1 No., Pump House: 1 No., Protection Work/Spur: 3 Nos., Pumping Machinery: 1 No., Rising Main: 350 mtr., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 5500 mtr., Outlet Chambers: 75 Nos., Storage Tank: 1 No., Sluice Valve Chambers: 7 Nos., Retaining wall: 2 Nos., SOP.	20.00	86.00	N31° 34' 51.4"	E76° 39' 50.6"	865 m	45	10	22%	2	20%	2	10	33	Maize	Wheat			
	Total				**104**	**464**				**282**			**4**		**18**	**77**	**187**			**0**	**2**	
Bilaspur																						
9	LIS Neri	New	Ali Khad Neri: 15 lps	Water Harvesting Structure: 1 No., Sump Well: 1 No., Pump House: 1 No., Fencing: 60 mtr., Protection Work/Spur: 1 Nos., Pumping Machinery: 1 set of 20 HP, Rising Main: 220 mtr., Main Delivery Tank: 1 No., Nallah Crossing/Road Crossing: 2 Nos.,Distribution System: HDPE pipeline: 3500 mtr., Outlet	7.00	48.00	N31° 17' 07.3"	E76° 50' 29.2"	831 m	12	2	17%	0	0%	0	8	4	Maize	Wheat	-	Yes	-
	Total				**7**	**48**				**12**	**2**		**0**		**0**	**8**	**4**			**0**	**1**	
Una																						
10	FIS Kokra & Chaplah	Improvement	Chaplah Khad: 25 lps, June 2020	Storage Tank: 2 No., HDPE pipe: 2500 Rmt., Outlet Chamber: 20 Nos.	35.00	20.00	N31° 38' 05.2"	E76° 18' 16.7"	560 m	50	10	20%	1	10%	0	10	40	Maize	Wheat	-	-	-
11	FIS Deehar, Sarnoti, Kherian	Improvement	Deehar Nallah: 6 lps, June 2020	Storage Tank: 3 No., HDPE pipe: 3500 Rmt., Outlet Chamber: 25 Nos.	35.00	25.00	N31° 38' 39.2"	E76° 17' 18.0"	644 m	40	8	20%	0	0%	0	8	32	Maize	Wheat	-	-	-
	Total				**70**	**45**				**90**	**18**		**1**		**0**	**18**	**72**			**0**	**0**	

Standby List of Irrigation Infrastructure (49 sites)

Sr. No.	Name & Type of Scheme	New or Improvement	Source of Discharge (Observation : Month Year etc.)	Proposed Facilities	C.C.A (Hect.)	Project Cost (In Lakh)	GPS Location of Source			No. of farm Households/ Farmers	Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total vegetable farmers)		Dominant Farmers (Advanced/ Intermediate/ Conservative)			Major crops		Scope of Farm Access Road (In Km.)	Scope of Solar Pumping	Collection Centre
							Latitude	Longitude	Elevation		Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative	In Kharif	In Rabi			
Mandi																						
12	LIS Kalthar	New	Kalthari Khad: 10 lps	Storage Structure / WHS / Gravity Dam with detail : 1 No.; Intake Chamber : 1 No.; Sump Well: 1 No.; Pump House: 1 No.; Pumping Machinery: 1 No.(10-15 hp); Supply of Power(SOP): 0.5 Km (aaprox.); Rising Main : 450 mtrs; Nallah Crossing/ Road crooosing: 1 No.; Main Delivery Tank :	16	80.00	N31° 34' 32.8"	E76° 46' 24.4"	784 m	80	18	23%	1	6%	0	18	62	Paddy, Maize, Vegetables	Wheat, Vegetables	-	-	-
13	FIS Rohan Dharnasi	Improvement	Tikkari Khad: 15 lps	Diversion Weir: 1 No., Main Delivery Tank: 2 Nos., HDPE pipe: 6000 Rmt., RCC Pipe/ GI: 300 Rmt., Outlet Chamber: 120 Nos., Water opening Gates: 30 Nos., Retaining Wall: 3 Nos.	48.00	144.00	N31° 39' 35.3"	E76° 47' 49.0"	1069 m	100	22	22%	0	0%	0	22	78	Paddy, Maize	Wheat	-	-	-
14	LIS Katli	New	Suketi Khad: 50 lps	Diversion Weir: 1 No., Intake chamber: 1 No., Sump Well: 1 No., Rising Main: 700 Rmt. Main Delivery Tank: 2 Nos., HDPE pipe: 4000 Rmt., RCC Pipe/ GI: 300 Rmt., Outlet	15.00	45.00	N31° 33' 32.3"	E76° 53' 33.1"	808 m	50	10	20%	0	0%	0	10	40	Paddy, Maize	Wheat	-	-	-
15	FIS Bede Nallah to Samkhetar	Improvement	Bede Nallah: 25 lps	Main Channel: 2500 Rmt., Pucca field Channel: 15Rmt., HDPE/RCC pipe: 4000 Rmt., Water opening gate: 10 Nos., Diversion Weir: 1 No., Intake chamber: 1 No., Outlet	15.00	40.00	N31° 53' 53.1"	E76° 47' 81.9"	941 m	70	15	21%	1	7%	0	15	55	Paddy, Maize, Vegetables	Wheat, Vegetables	-	-	-
	Total				**94**	**309**				**300**	**65**		**2**		**0**	**65**	**235**			**0**	**0**	
Kangra																						
16	FIS Jaangli Kuhal	Improvement	Binwa Khad: 200 lps	Main Channel = 900 Rmt;Pucca Field Channel=610 Rmt; Diversion Weir=1 No.;Intake Chamber=1 No.;Outlet	8.50	21.25	N32^{0}02'54.3"	E76^{0}38'21.5"	930 m	40	10	25%	2	20%	2	34	4	Paddy	Wheat	-	-	-
17	FIS Hareri Kuhal	Improvement	Charot Nallah: 150 lps	Main Channel = 1400 Rmt;Pucca Field Channel=3600 Rmt; Pattra Cutting = 150 Cum; Diversion Weir=1 No.;Intake Chamber=1 No.; Outlet Chamber= 20 Nos.; Dropping	40.00	100.00	N32° 03' 05.4"	E76° 43' 45.5"	1617 m	125	23	18%	5	22%	5	117	3	Paddy	Wheat	0.50	-	-
18	FIS Kochhe da Chou	Improvement	Bhiral Khad: 55 lps	Main Channel = 2100 Rmt;Pucca Field Channel=600 Rmt; Pattra Cutting if any =80 Cum; Diversion Weir=1 No.;Intake	35.00	87.50	N32° 04' 41.1"	E76° 31' 00.7"	1073 m	83	12	14%	3	25%	3	78	2	Paddy	Wheat	-	-	-
19	FIS Sethuan da Chou	Improvement	Sethu Nallah: 30 lps	Main Channel = 2100 Rmt;Pucca Field Channel=600 Rmt; Pattra Cutting if any =80 Cum; Diversion Weir=1 No.;Intake Chamber=1 No.;Outlet Chamber= 5 Nos.; Retaining Wall=2	29.00	72.50	N32° 03' 07.8"	E76° 29' 25.5"	976 m	70	5	7%	0	0%	0	66	4	Paddy	Wheat	-	-	-
20	FIS Doli Da Chou	Improvement	Soon Khad: 50 lps	Main Channel = 1500 Rmt;Pucca Field Channel=800 Rmt; Water Opening Gate=5 Nos.;Diversion Weir=1 No.;Intake Chamber=1 No.;Outlet Chamber= 5 Nos.; Retaining Wall= 6	25.00	62.50	N32° 05' 05.7"	E76° 29' 39.8"	1044 m	75	15	20%	2	13%	2	71	2	Paddy	Wheat	0.20	-	-
21	FIS Panj Kuhal	Improvement	Sansali Khad: 40 lps	Main Channel =2500 Rmt;Pucca Field Channel=1100 Rmt.; Diversion Weir =1 No.;Intake Chamber=1 No.;Outlet	35.00	87.50	N32° 03' 56.8"	E76° 41' 39.8"	1320 m	90	14	16%	2	14%	2	85	3	Paddy	Wheat	-	-	-
22	FIS Baduhal Kuhal	Improvement	Damela Nalah: 90 lps	Main Channel = 2100 Rmt;Pucca Field Channel=600 Rmt; Pattra Cutting if any =80 Cum; Diversion Weir=1 No.;Intake Chamber=1 No.;Outlet Chamber= 5 Nos.; Retaining Wall= 3 Nos./18 m Rmt	22.00	55.00	N32° 03' 16.4"	E76° 29' 19.9"	944 m	60	5	8%	3	60%	3	52	5	Paddy	Wheat	-	-	-
23	LIS Dhanot	New	Suhag Nallah: 70 lps	Intake chamber= 1 no.;Sump Well =1 No.; Pump House= 1 No.; Fencing=50 mtr; Protection Work/Spur= 1 No.; Pumping	35.00	140.00	N31° 49' 09.1"	E76° 18' 35.9"	455 m	80	10	13%	2	20%	2	68	10	Maize/Paddy	Wheat	-	Yes	-
24	LIS Kuhna	New	Balhari Nallah: 6 lps	Storage Structure/WHS/Gravity Dam with Detail= 1 No/20 Rmt; Sump Well =1 No.; Pump House= 1 No.; Fencing=30	35.00	140.00	N31° 48' 56.1"	E76° 16' 49.8"	433 m	90	10	11%	1	10%	2	78	10	Maize/Paddy	Wheat	0.25	Yes	-
25	FIS Samlekhar Kuhal	Improvement	Aganjhar Mahadev: 50 lps	Main Channel =2.5 Km;Pucca Field Channel=1.8 Km.; Diversion weir= 1 No.; Retaining Wall=05 No.(2.5 mtr, 4 mtr, 6.5 mtr , 7 mtr & 10 mtr)	40.00	100.00	N32° 11' 55.9"	E76° 22' 30.0"	1288 m	70	2	3%	0	0%	1	67	2	Paddy	Wheat	-	-	-
26	FIS Majhenu	Improvement	Majhenu Nallah: 4 lps	Main Channel = 1000 Rmt;Pucca Field Channel=500 Rmt.; Diversion Weir =1 No.;Intake Chamber=1 No.;Outlet Chamber= 11 Nos.; Retaining Wall= 2 Nos. / 15 m Rmt	15.00	37.50	N32° 03' 40.1"	E76° 33' 21.1"	1058 m	50	3	6%	0	0%	0	46	4	Paddy	Wheat	-	-	-
27	FIS Mandayalan da Banh	Improvement	Dehan Nallah: 35 lps	Main Channel = 1500 Rmt;Pucca Field Channel= 900 Rmt.; Water Opening Gate = 7 Nos.;Diversion Weir =1 No.;Intake Chamber=1 No.;Outlet Chamber= 6 Nos.; Dropping Structure =7 Nos.;Retaining Wall= 6 Nos./ 32 m Rmt	25.00	62.50	N32° 03' 57.2"	E76° 30' 17.4"	1016 m	60	5	8%	0	0%	0	53	7	Paddy	Wheat	-	-	-
28	FIS Sareri Kuhal	Improvement	Gajj Khadd: 50 cumecs	Main Channel = 1800 Rmt;Pucca Field Channel= 1500 Rmt.; Water Opening Gate = 11 Nos.;Diversion Weir =1 No.;Intake Chamber=1 No.;Outlet Chamber= 10 Nos.; Dropping Structure = 20 Nos.;Retaining Wall= 8 Nos./ 34m Rmt	80.00	200.00	N32° 10' 50.2"	E76° 13' 48.2"	699 m	250	3	1%	1	33%	1	245	4	Paddy	Wheat	-	-	-
29	FIS Sapruhal Kuhal	Improvement	Manjhi Khad , 50 cumecs	Main Channel = 1500 Rmt;Pucca Field Channel=1200 Rmt; Pattra Cutting if any =110 Cum; Diversion Weir=1 No.;Intake Chamber=1 No.;Outlet Chamber= 15 Nos.; Retaining Wall= 10 Nos./76m Rmt	50.00	125.00	N32° 10' 50.2"	E76° 13' 48.2"	699 m	136	3	2%	0	0%	3	131	2	Paddy	Wheat	-	-	-
30	FIS Gojju Kuhal	Improvement	Kholi Khad, Served by Jal Shakti Bhiwag Kuhal	HDPE Pipe/RCC pipe : 2500 mtrs; RCC/G.I. Pipe: 100 mtrs; Water Opening Gate : 12 Nos.; Storage Tank : 1 Nos.; Diversion Wier : 1 No.; Intake Chamber : 1 No., Outlet Chamber: 40 Nos.; Retaining Wall : 2 Nos.	5.00	12.50	N32° 12' 16.2"	E76° 12' 46.9"	753 m	20	1	5%	0	0%	1	17	2	Paddy	Wheat	-	-	-
	Total				**480**	**1304**				**1299**	**121**		**21**		**27**	**1208**	**64**			**0.95**	**2**	

Standby List of Irrigation Infrastructure (49 sites)

Sr. No.	Name & Type of Scheme	New or Improvement	Source of Discharge (Observation : Month Year etc.)	Proposed Facilities	C.C.A (Hect.)	Project Cost (In Lakh)	GPS Location of Source			No. of farm Households/ Farmers	Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total vegetable farmers)		Dominant Farmers (Advanced/ Intermediate/ Conservative)			Major crops		Scope of Farm Access Road (In Km.)	Scope of Solar Pumping	Collection Centre
							Latitude	Longitude	Elevation		Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative	In Kharif	In Rabi			
Kullu																						
31	LIS Chahani	New	Bachak Spring: 10 lps, June 2020	Water Harvesting Structure: 1 No., Pump House: 1 No., Pumping Machinery: 1 No., Rising Main: 600 mtr., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 1500 rmtr., Outlet Chambers: 10 Nos., Retaining Wall: 4 Nos., SOP.	13.00	30.00	N31° 37' 22.6"	E77° 21' 21.3"	1975 m	70	39	56%	18	46%	20	45	5	Maize, Pulses, Orchard	Wheat, Barley, Orchard	-	Yes	-
32	FIS Chalauri	Improvement	Spring: 15 lps, June 2020	Main Channel: 800 Rmt., Pucca Field Channel: 1500 Rmt., Pattra Cutting: 2300 Cum., HDPE Pipe: 1500 Rmt., Diversion Weir: 1 No., Intake Chamber: 1 No., Outlet Chamber: 10 No., Retaining Wall: 4 No.	12.00	15.00	N31° 37' 37.8"	E77° 18' 35.0"	1792 m	45	23	51%	7	30%	10	32	3	Maize, Pulses, Oil Seed, Orchard	Wheat, Barley, Peas, Orchard	-	-	-
33	FIS Narayani Pirdi	Improvement	Pah Nallah: 30 lps, March 2020	Main Channel: 700 Rmt., Pucca Field Channel: 1500 Rmt., Pattra Cutting: 2200 Cum., HDPE Pipe: 200 Rmt., Diversion Weir: 1 No., Intake Chamber: 1 No., Outlet Chamber: 15 No., Retaining Wall: 10 No.	21.00	40.00	N32° 03' 47.6"	E77° 11' 12.4"	1203 m	130	85	65%	52	61%	30	93	7	Maize, Pulses, Oil Seed	Wheat, Barley, Peas	-	-	-
34	FIS Sohchu Gharat to Suma Gongan	New	Cheonr Nallah: 40 lps	Main Channel: 1500 Rmt., Pucca Field Channel: 800 Rmt., HDPE Pipe: 1100 Rmt., RCC pipe: 1600 Rmt., Water opening Gate: 2 No., Storage Tank: 11 No., Diversion Weir: 1 No., Intake Chamber: 1 No., Outlet Chamber: 15 No., Dropping Structure: 5 No., Retaining Wall: 8 No.	30.00	55.00	N31° 57' 18.57"	E77° 11' 03.16"	1342 m	133	65	49%	5	8%	20	20	25	Cabbage, Cauliflower, Tomato	Peas, Wheat	-	-	-
35	FIS Nihari Nallah to Chhenour	Improvement	Cheonr Nallah: 40 lps	Main Channel: 2000 Rmt., Pucca Field Channel: 1000 Rmt., HDPE Pipe: 1200 Rmt., RCC pipe: 800 Rmt., Storage Tank: 14No., Diversion Weir: 1 No., Intake Chamber: 1 No., Outlet Chamber: 15 No., Dropping Structure: 3 No., Retaining Wall: 10 No.	25.00	40.00			1800	200	100	50%	5	5%	15	30	155	Cabbage, Cauliflower, Tomato	Peas, Wheat	-	-	-
	Total				**101**	**180**				**578**	**312**		**87**		**95**	**220**	**195**			**0**	**1**	
Sirmour																						
36	FIS Siddi Road	Improvement	Garath Khala: 8 lps	Main Channel: 2805 Rmt., Pucca Field Channel: 870 Rmt., Pattra Cutting: 275 Cum., HDPE Pipe: 455 Rmt., Diversion Weir: 1 No., Intake Chamber: 1 No., Outlet Chamber: 6 No., Dropping Structure: 2 No., Retaining Wall: 5 No.	8.00	23.75	N30° 34' 52.1"	E77° 43' 54.8"	1165 m	10	4	40%	1	25%	2	6	2	Maize, Ginger, Mix Veg., Pulses	Wheat, Oat, Mix. Veg., Pulses	-	-	-
37	LIS Chevla	New	Kawal Khad: 15 lps	Intake Chamber: 1 No., Sump Well, Pump House, Protection Work/ Spur: 1 No., Pumping Macginery, Rising Main: 1000 Rmt., Nallah Crossing: 2 No., Main Delivery Tank: 1 No., HDPE Pipe: 2000 Rmt., Outlet Chamber: 5 No., Storage Tank: 3 No.	14.00	39.75	N30° 51' 48.9"	E77° 11' 49.0"	984 m	30	12	40%	1	8%	5	15	10	Maize, Ginger, Veg. Pulses	Wheat, Vegetables, Pulses, Oat	-	Yes	-
	Total				**22**	**64**				**40**	**16**		**2**		**7**	**21**	**12**			**0**	**1**	
Solan																						
38	LIS Dochi	New	Dochi Ka Nallah: 6 lps	WHS: 1 No., Intake Chamber: 1 No., Sump Well: 1 No., Pump House: 1 No., Fencing: 100 Rmt., Protection work /spur: 1 No., Pumping Machinery: 1 No., Rising Main: 3000 mtr.,Nallah Crossing: 1 No., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 5500 mtr., Outlet Chambers: 50 Nos., Storage tank: 1 No., Water opening Gates: 5 No., Retaining Wall: 1 No., SOP.	12.00	12.00	N30° 59' 08.8"	E77° 09' 17.3"	1298 m	64	15	23%	1	7%	0	14	50	Maize	Wheat	0.5	-	-
39	LIS Kot	New	Katli Ka Nallah: 3 lps	WHS: 1 No., Intake Chamber: 1 No., Pump House: 1 No., Pumping Machinery: 1 No., Rising Main: 142 mtr.,Nallah Crossing: 1 No., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 1000 mtr., Outlet Chambers: 30 Nos., Storage tank: 1 No., Water opening Gates: 5 No., Retaining Wall: 1 No., SOP.	36.00	110.00	N30° 58' 14.1"	E77° 10' 52.8"	1637 m	26	10	38%	1	10%	6	10	10	Maize	Wheat	-	Yes	-
40	LIS Sainj-Kawarag-Kot-Tikkari	New	Stream: 25 lps	Water Harvesting Structure: 1 No., Intake Chamber: 1 No., Pump House: 1 No., Protection Work/Spur: 4 Nos., Pumping Machinery: 1 , Rising Main: 300 mtr., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 4400 mtr., Outlet Chambers: 25 Nos., Storage Tank: 2 No., Retaining Wall: 2 Nos., SOP.	60.50	180.00	N30° 58' 24.9"	E77° 04' 18.1"	1070 m	70	25	36%	1	4%	10	35	25	Maize	Wheat	-	Yes	-

Standby List of Irrigation Infrastructure (49 sites)

Sr. No.	Name & Type of Scheme	New or Improvement	Source of Discharge (Observation : Month Year etc.)	Proposed Facilities	C.C.A (Hect.)	Project Cost (In Lakh)	GPS Location of Source			No. of farm Households/ Farmers	Total Vegetable Farmers (% out of total farm HHs)		Commercial Vegetable Farmers (% out of total vegetable farmers)		Dominant Farmers (Advanced/ Intermediate/ Conservative)			Major crops		Scope of Farm Access Road (In Km.)	Scope of Solar Pumping	Collection Centre
							Latitude	Longitude	Elevation		Nos.	% age	Nos.	% age	Advanced	Intermediate	Conservative	In Kharif	In Rabi			
41	LIS Chakli	New	Jabbal Ka Nallah: 7 lps	WHS: 1 No., Intake Chamber: 1 No., Pump House: 1 No., Pumping Machinery: 1 No., Rising Main: 200 mtr.,Nallah Crossing: 1 No., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 800 mtr., Outlet Chambers: 10 Nos., SOP.	11.00	44.00	N30° 56' 29.4"	E77° 02' 45.8"	1270 m	45	16	36%	2	13%	5	20	20	Maize, Pulses	Wheat, Tomato	-	Yes	-
42	FIS Damkari to Kanaha	Improvement	Damkari Nallah: 5 lps	Main Channel: 600 Rmt.	15.00	45.00	N30° 54' 32.5"	E77° 08' 30.3"	1354 m	72	34	47%	3	9%	6	45	21	Maize, Tomato	Wheat	-	-	-
43	FIS Chamb ka Pani to Kot seri	Improvement	Chamb Ka Pani: 6 lps	Main Channel: 2000 Rmt.	8.00	24.00	N30° 53' 03.0"	E76° 59' 30.7"	1222 m	34	15	44%	1	7%	4	20	10	Maize, Mix Veg.	Wheat, Mix Veg.	-	-	-
44	LIS Salai- Naroodh	New	Shelai Ka Nallah: 20 lps	WHS: 1 No., Intake Chamber: 1 No., Pump House: 1 No., Pumping Machinery: 1 No., Rising Main: 600 mtr.,Nallah Crossing: 1 No., Main Delivery Tank: 1 No., Distribution System: HDPE pipeline: 2000 mtr., Outlet Chambers: 15 Nos., SOP.	35.00	110.00	N30° 59' 39.4"	E77° 10' 58.7"	1495 m	106	45	42%	2	4%	16	55	35	Maize, Mix Veg.	Wheat, Mix Veg.	-	Yes	-
45	FIS Sanjada Khud	New	Sanjada Khad: 5 lps	Main Channel: 1000 Rmt.	9.00	25.00	N30° 55' 45.1"	E77° 04' 06.9"	1272 m	24	10	42%	1	10%	4	10	10	Maize	Wheat	-	-	-
46	FIS Siharth Khud	New	Siharth Khad: 5 lps	Main Channel: 1000 Rmt.	27.00	80.00	N30° 55' 47.8"	E77° 04' 22.4"	1295 m	54	20	37%	2	10%	14	20	20	Maize	Wheat	-	-	-
47	FIS Redu Khad to Manlog	New	Redu Khad: 6 lps	Main Channel: 2500 Rmt.	28.00	82.00	N30° 56' 04.6"	E77° 03' 00.6"	1301 m	85	15	18%	1	7%	15	40	30	Maize	Wheat	0.5	-	-
48	LIS Sohal	New	Chhobli Nallah: 8lps	Intake Chamber: 1 No., Pumping Machinery: 1 No., Rising Main: 700 Rmt, Pump House: 1 No., Main Delivery Tank: 1 No., Distribution Tank: 2 Nos., Outlet Chambers: 25 Nos., Retaining Wall: 1 No., HDPE pipe: 2500 Rmt., SOP: 1No.	10.00	40.00	N30° 58' 27.8"	E77° 01' 17.2"	1113 m	17	10	59%	1	10%	0	2	15	Maize	Wheat	0.7	Yes	-
49	LIS Rihana	New	Baliana Khad: 15 lps	Intake Chamber: 1 No., Pumping Machinery: 1 No., Rising Main: 500 Rmt, Pump House: 1 No., Main Delivery Tank: 1 No., Distribution Tank: 3 Nos., Outlet Chambers: 30 Nos., Retaining Wall: 1 No., HDPE pipe: 3000 Rmt., SOP: 1No.	12.00	48.00	N30° 59' 42.6"	E77° 02' 04.4"	949 m	53	16	30%	1	6%	1	15	37	Maize	Wheat	0.5	Yes	-
	Total				**264**	**800**				**650**	**231**		**17**		**81**	**286**	**283**			**2.20**	**6**	
	G. Total				**1141**	**3213**				**3251**	**765**		**134**		**228**	**1903**	**1052**			**3.15**	**13**	

Attachmen 6.5.1 Modernizing Facilities and Equipment in Mandis

No	*Mandi* /APMC	Upgrading Works	Number	Unit
1	Jassor/Kangra	1 Construction of collection hall and upgrading of existing yard	-	-
2	Passu/Kangra	1 Conversion of auction hall in shops and provision of interlocking concrete paver blocks in open yard area	8	shops
		2 Provision of bore well	-	-
		3 Construction of boundary wall & retaining walls etc.	-	-
		4 Provision of high mast light	1	unit
3	Chauribihal/Kulu & LS	1 Provision of interlocking concrete paver blocks in the yard with U-shaped drain	11,400	m2
4	Patlikuhal/Kulu & LS	1 Construction of protection walls and steel gate at entry	-	-
5	Khegsu/Kulu & LS	1 Construction of boundary wall	300	m
6	Takoli/Mandi	1 Expansion of market yard building	3,100	m2
		2 Provision of interlocking concrete paver blocks in the yard	2,800	m3
		3 Renovation of existing toilet	-	-
		4 Renovation of existing drains	-	-
7	Bhattakuffar/ Shimla & Kinnaur	1 Provision of electrical works (wiring/replacing cableing etc)/high mast light	-	-
		2 Construction of enrty & existing gates	2	gates
		3 Paver block flooring	3,500	m2
		4 Fencing/retaining walls /breast wall	-	-
		5 Installing of weigh bridge	-	-
8	Tapri/ Shimla & Kinnaur	1 Provision of electrical works (wiring/replacing cableing etc)/high mast light	-	-
		2 Construction of enrty & exit gates	2	gates
		3 Cobble Stone flooring	4,060	m2
		4 Fencing/retaining walls /breast wall	-	-
9	Ghandoori/Sirmaur	1 Construction of shops	350	m2
		2 Construction of toilet block	24	m2
		3 Installing toilet facilities (septic tank & soak pit)	-	-
		4 Provision of electrical works & installation of high mast light	-	-
10	Khairi/Sirmaur	1 Construction of office & shops	300	m2
		2 Construction of auction hall	250	m2
		3 Construction of toilet block	20.76	m2
		4 Installing toilet facilities (septic tank & soak pit)	-	-
11	Solan/Solan	1 Construction of shops	900	m2
		2 Construction of auction platform	2,000	m2
		3 Construction of toilet block	62.28	m2
		4 Installing toilet facilities (septic tank & soak pit)	-	-
		5 Installing of boundary wall	1,000	m
		6 Construction of entry gates	2	units
		7 Provision of electrical works & installation of high mast light	-	-
12	Vaknaghat/Solan	1 Construction of office & shops (10 shops)	750	m2
		2 Construction of auction platform	350	m2
		3 Construction of check posts (4m x 4m x2)	32	m2
		4 Construction of toilet block	20.76	m2
		5 Installing toilet facilities (septic tank & soak pit)	-	-
		6 Installing of boundary wall	350	m
		7 Construction of entry gates	2	units
		8 Provision of electrical works & installation of high mast light	-	-
13	Kunihar/Solan	1 Construction of office & shops	600	m2
		2 Construction of auction platform	250	m2
		3 Construction of toilet block	20.76	m2
		4 Installing toilet facilities (septic tank & soak pit)	-	-
		5 Installing of boundary wall	160	m
		6 Provision of electrical works & installation of high mast light	-	-

Source: JICA Preparatory Surey Team

Att.6.6.1-1

Attachment 6.6.1 Draft Plan of Overseas Training in Japan

1. Project Title

Himachal Pradesh Crop Diversification Promotion Project Phase-II (HPCDP II) (hereafter referred to as "the Project")

2. Title of the Training Program

Overseas training on the techniques of agricultural supply-chain system of Japanese agribusiness companies to promote crop diversification in Himachal Pradesh

3. Background

The agriculture sector is a crucial industry in securing employment and improving livelihood in India, where currently 890 million of the people live in rural settings. Himachal Pradesh (HP) is a hill state located at the foot of the Western Himalayas with the total land area of 56,000 km2 and population of 6.8 million (Population Census 2011). Due to its topographic feature of the hilly terrain, irrigated land is limited to 15% of the total cultivable area. About 60% of the working population of the state is engaged

in agriculture, of which 80% are small farmers with less than two hectares of farming land. Therefore, majority of the farmers remain engaged in self-subsistence crop cultivation. Despite its high potential of value addition adopting cash crops such as vegetables suitable in hilly and highland areas, the increase of farm income in the rural areas through shifting from self-subsistence crop cultivation to diversified agriculture has been limited due to shortage of irrigation facilities and insufficient marketing facilities.

Under the agricultural situation, the "Himachal Pradesh Crop Diversification Promotion Project" was launched by the HP Department of Agriculture (DoA) in 2011 as an official development assistance (ODA) loan project, targeting five districts in HP state. The government of HP has recognized the project as a model that realizes the increase of farm income through the transition from self-subsistence crop cultivation to diversified agriculture in conjunction with improvement of irrigation facilities. Therefore, DoA has taken charge of the Project "Himachal Pradesh Crop Diversification Promotion Project Phase-II" in 2021 as the succeeding project intending to strengthen the model in the aspects of post-harvesting technology, processing and marketing, targeting the whole twelve districts in HP state.

4. Objectives of the Training Program

Main objectives of the overseas training in Japan are (1) to learn the techniques for agricultural supply-chain system such as production, post-harvesting, processing and marketing, etc. of Japanese agribusiness companies, and (2) to discuss with Japanese agribusiness companies to apply the techniques to the agriculture in HP state.

Att.6.6.1-2

5. Tentative Itinerary of the Training Program (tentative)

The training program is planned tentatively to achieve the abovementioned objectives in the following table. The private companies shown in the table are examples based on the list of "candidate of company to participate in agribusiness trial" obtained from questionnaire survey carried out by the Preparatory Survey on Himachal Pradesh Crop Diversification Promotion Project Phase-II (HPCDP II). The list is attached with this paper.

No. of Days	Type*	Program	Lodging
1	-	Arrival at Tokyo	JICA Tokyo
2	L	Orientation in JICA	JICA Tokyo
3	L/O/D	Production (Quality input-1): • Sakata Seed Corporation • Mitsui Chemicals Agro, Inc. • Futaba Sankyo Co., Ltd.	JICA Tokyo
4	L/O/D	Production (Quality input-2): • Toyo Agricultural Machinery Manufacturing Co., Ltd. • Agritree Co., Ltd. • Kett Electric Laboratory	JICA Tokyo
5	L/O/D	Production (Land improvement): • Japan Conservation Engineer & Co., Ltd. • Kyouwa Kensetsu Kougyou Co.,Ltd	JICA Tokyo
6	L/O/D	Production (Farm management with IoT): • Amegumi India Pvt. Ltd. • Integrity Japan Corporation • Mikawa Genki Monogatari Co., Ltd.	JICA Tokyo
7	L/O/D	Post harvesting handling & Processing: • Merry Time Foods Co., Ltd. • Nissan Steel Industry Co., Ltd.	JICA Tokyo
8	L/O/D	Post harvesting handling & Processing: • Shinmei Co., Ltd. • Premium Seat Co., Ltd.	JICA Tokyo
9	L/O/D	Distribution: • Ntl-Logistics (India) Pvt. Ltd. • Toyo Wharf & Warehouse Co., Ltd.	JICA Tokyo
10	L/O/D	Marketing: • Japan Agricultural Cooperative (JA) (collaboration with private company)	JICA Tokyo
11	D	• Courtesy call to of Ministry of Agriculture, Forestry and Fisheries • Courtesy call and discussion with consultant company	JICA Tokyo
12	D	Discussion with JICA	JICA Tokyo
13	-	Departure from Tokyo Arrival at Delhi	

Source: JICA Survey Team
Remarks: Types of each program are as follows: L: Lecture, O: Observation, P: Presentation, D: Discussion

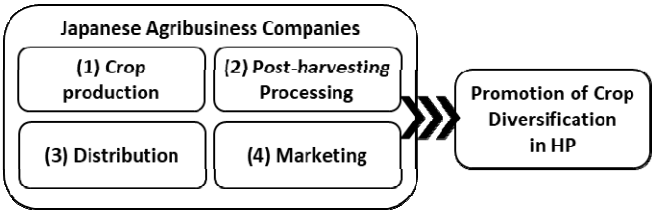
6. Number of Participants and Target Group

8 to 10 persons shall be dispatched from officials of management class of PMU, DoA and

Farmer Producer Organizations (FPO) established by the Project.

7. Contents of the Training

The training participants are expected to extract hints through the discussions with Japanese agribusiness companies to make collaboration so as to apply the techniques in HP state, shown in the right figure. Contents of the training is considered in accordance with module outputs, (1) crop production, (2) post-harvesting and processing, (3) distribution and (4) marketing, in aspect of agriculture supply-chain system, shown in the following table.



Module Outputs	Contents	Means
(1)-1 Crop production (quality input)	• Learn and observe the techniques of Japanese companies on crop seed, agrochemicals (fertilizer, pesticide), organic fertilizer, farm machinery, solar panel using, measuring devise (crop moisture etc.), etc. • Discuss on application the techniques to HP state with Japanese companies	Lecture Observation Discussion
(1)-2 Crop production (land improvement)	• Learn and observe the techniques of Japanese companies on soil conditioner, materials for farm drainage, etc. • Discuss on application the techniques to HP state with Japanese companies	Lecture Observation Discussion
(1)-3 Crop production (farm management with IoT)	• Learn and observe the techniques of Japanese companies on smartphone & application, IoT censer, remote sensing technology with drone, etc. • Discuss on application the techniques to HP state with Japanese companies	Lecture Observation Discussion
(2) Post-harvesting handling & processing	• Learn and observe the techniques of Japanese companies on freezing processing, packaging, improvement of food loss, etc. • Discuss on application the techniques to HP state with Japanese companies	Lecture Observation Discussion
(3) Distribution	• Learn and observe the techniques of Japanese companies on cold chain, general distribution service, etc. • Discuss on application the techniques to HP state with Japanese companies	Lecture Observation Discussion
(4) Marketing	• Learn and observe JA's activity on collaboration between farmers' cooperative and private company.	Lecture Observation

Source: JICA Survey Team

Att.6.6.1-4

Attachment

Table Candidate of Company to Participate in Agri Business Trial

Name of Company	Business Field (conducting / planning business in India or HP)	Website	Contact
Japan Based Company			
1) Agriculture Production			
Quality Input			
Sakata Seed Corporation	Production and sales of crop seeds	https://corporate.sakataseed.co.jp/english/index.html (English)	t-nakai@sakata-seed.co.jp
Mitsui Chemicals Agro, Inc.	Production and sales of agrochemical products	https://www.mitsui-agro.com/tabid/215/Default.aspx (English)	Nobuhiro.Kondo@mitsuichemicals.com
Futaba Sankyo Co., Ltd.	Development and sales of recycled fertilizers (organic fertilizer)	https://www.tsuneishi-group.jp/en/category/environment/futaba-sankyo-co-ltd/ (English)	yasuo.matsumoto@tsuneishi.com
Toyo Agricultural Machinery Manufacturing Co., Ltd.	Sales and extension service of small potato harvester	http://www.toyonoki.co.jp/english/download/pdf/Company%20profile.pdf (English)	t-ohhashi@toyonoki.co.jp
Agritree Co., Ltd.	Extension and technical services of solar sharing with solar panel	https://www.agritree.jp/ (Japanese only)	nishi.koji@agritree.jp
Kett Electric Laboratory	Development and sales of moisture measuring devices for cereals mainly	https://www.kett.co.jp/english/ (English)	n-yoshida@kett.co.jp
Land Improvement			
Japan Conservation Engineer & Co., Ltd.	Development and sales of plant growth promoter "Fujimin" to improve soil condition	https://www.jce.co.jp/en/ (English)	t-shimizutani@jce.co.jp
Kyouwa Kensetsu Kougyou Co.,Ltd	Development and sales of sheet pipe for farm drainage management	http://kyouwagrp.jp/kyouwa/wp-content/themes/o2_theme356/images/company-profile.pdf (English)	tamurako@kyouwagrp.jp
Farm Management with IoT			
Amegumi India Pvt. Ltd.	Development and sales of reasonable smartphone and applications for farm management	https://www.sunblaze.jp/ (English)	kotaro.fukuoka@amegumi.com
Integrity Co. Ltd.	Development and sales of farm management censor with IoT	No website	moritsuki@integrityjapan.com
Mikawa Genki Monogatari Co., Ltd.	Extension service of farm management with drone and remote sensing technology	https://mgm-japan.info/ (only Japanese)	suzutatsu.japan@gmail.com
2) Post harvesting handling & Processing			
Merry Time Foods Co., Ltd.	Processing service of frozen vegetables	http://mtfoods.co.jp/ (only Japanese)	merrytime@mtfoods.co.jp

Att.6.6.1-5

Name of Company	Business Field (conducting / planning business in India or HP)	Website	Contact
Nissan Steel Industry Co., Ltd.	Development and sales of the materials for keeping crop freshness	https://nsk-kk.co.jp/ (only Japanese)	freshmama@nsk-kk.co.jp
Shinmei Co., Ltd.	Sales and extension service of packaging products	http://www.shinmei-pac.co.jp/index.html?PHPSESSID=67f58b4fbdbb4232a73baadf61db9397 (only Japanese)	manabu.kayama@co-shinmei.com
Premium Seat Co., Ltd.	Sales of lunch box with the disposal crops for improvement of food loss	No website	shigeki@premium-seat.com
3) Distribution			
Ntl-Logistics (India) Pvt. Ltd.	Distribution service of farm products	http://www.ntllogistics.com/ (English)	mishima.tatsuya@ntllogistics.com
Toyo Wharf & Warehouse Co., Ltd.	Technical support of cold chain service	https://www.toyofuto.co.jp/index.html (only Japanese)	yosuke-yamada@toyofuto.co.jp
4) Others			
Asahifuji Co., Ltd.	Planning and production of the crops for export to Japan	https://www.asahifuji.com/company (only Japanese)	fujio.bon.saeki@asahifuji.com

Source: JICA Survey Team

Attachment for Chapter 7

Implementation Plan

Attachment 7.2.1 (a) Tentative Salary Estimate of DOA Staff (Non-Eligible)

Att.7.2.1-1

Sr. No.	Name of PMU	Total Units	Total Staff	Annual Salary	Years	Total
1	SPMU	1	8	12840000	9 Years	115560000
2	DPMU (Kangra & Mandi)	2	6	8400000	8 Years	67200000
2	DPMU (Hamirpur & Solan)	2	4	6840000	8 Years	54720000
3	BPMU	14	42	40278000	8 Years	322224000
	Total	**19**	**60**	**30540000**		**559704000**

Unit Cost for Institutional Development (1)									
Unit Cost for Strengthening of SPMU, DPMU & BPMU **1. Recruitment of PMU Staff (DOA)**									
Name of PMU	**Name of Post**	**Per Unit**	**Total Number of Staff**			**Monthly Salary**	**Annual Salary**		
			DOA	**Contractual**	**Total**		**DOA**	**Contractual**	**Total**
		(Persons)	**(Persons)**	**(Persons)**	**(Persons)**	**Rs.**	**Rs.**	**Rs.**	**Rs.**
State Level PMU	Project Director	1	1	-	1	.@ 1.5 = 1,50,000	1800000		1800000
	Deputy Proejct Director	3	3	-	3	.@1.45 = 4,35,000	5220000		5220000
	Subject Matter Specialist	3	3	-	3	.@1.40 = 4,20,000	5040000		5040000
	Agr. Develop. Officer	1	1	-	1	.@0.65 = 65,000	780000		780000
	Sub-Total	**8**	**8**		**8**		**12840000**		**12840000**
District Level PMU	**2 Units Kangra and Mandi**								
	Dristrict Project Manager	1+1	2		2	.@1.45 = 2,90,000	3480000	-	3480000
	Subject Matter Specialist	1+1	2		2	.@1.40 = 2,80,000	3360000	-	3360000
	Agri. Dev. Officer	1+1	2		2	.@ 0.65= 1,30,000	1560000		1560000
	Sub-Total	**6**	**6**		**6**		**8400000**		**8400000**
District Level PMU	**2 Units Hamirpur and Solan**								
	Dristrict Project Manager	1+1	2		2	.@1.45 = 2,90,000	3480000	-	3480000
	Subject Matter Specialist	1+1	2		2	.@1.40 = 2,80,000	3360000	-	3360000
	Sub-Total	**4**	**4**		**4**		**6840000**		**6840000**

Block Level PMU			**14 Units**						
	Block Project Manager	1x14	14		14	.@1.40=1960000	23520000	-	23520000
	Agr. Develop. Officer	1x14	14		14	.@0.65=910000	10920000	-	10920000
	A.E.O.	1x14	14		14	.@34750=486500	5838000		5838000
	Sub-Total	**1x14**	**42**		**42**		**40278000**		**40278000**
Grand Total		**42**	**60**		**60**				

Attachment 7.2.1 (b) Tentative Salary Estimate of DOA Staff (Eligible)

Att.7.2.1 (b) -1

Tentative Salary Estimate of External Source staff (Eigible) With 2% (Two precent) annual increase every year					
Sr no.	**Name of PMU**	**Total Units**	**Total Staff**	**Years**	**Total Salary**
1	SPMU	1	27	9	86644320
2	DPMU	4	64	8	143010000
3	BPMU	14	294	8	631730400
	Total	**19**	**385**		**861384720** ★

Unit cost of Strengthening of SPMU																
Recruitment of PMU Staff (Out Source)																
				Annual Salay with 2% (Two Precent) annual increase every year												
Sr.No.	**Name of Post**	**Monthly Basic Salary**	**Per Unit Posts**	**First Year**	**2nd Year**	**3rd Year**	**4th Year**	**5th Year**	**6th Year**	**7th Year**	**8th Year**	**9th Year**		**Total Amount for 9 year**	**Total Units**	**Total Person**	**Grand Total**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**		**14**	**15**	**16**	**17**
1	Chief Project Advisor	Rs. 1,25,000	1	1500000	1530000	1560600	1591800	1623720	1656240	1689360	1723200	1757760		14632680	1	1	14632680
2	Finance Officer	Rs. 55,000	1	660000	673200	686760	700560	714600	728880	743520	758400	773640		6439560	1	1	6439560
3	Planning Officer	Rs. 40, 000	1	480000	489600	499440	509400	519600	530040	540720	551640	562680		4683120	1	1	4683120
4	Office Manager	Rs. 32,000	1	384000	391680	399600	407640	415800	424200	432720	441480	450360		3747480	1	1	3747480
5	Manager (HRD)	Rs. 32,000	1	384000	391680	399600	407640	415800	424200	432720	441480	450360		3747480	1	1	3747480
6	Accountant	Rs. 26,000	1	312000	318240	324600	331080	337680	344520	351480	358560	365760		3043920	1	1	3043920
7	Computer Assistant	Rs. 15,000	2	180000	183600	187320	191100	194940	198840	202800	206880	211020		1756500	1	2	3513000
8	Office Assistant	Rs. 15,000	1	180000	183600	187320	191100	194940	198840	202800	206880	211020		1756500	1	1	1756500
9	Private Secretary	Rs. 23,000	1	276000	281520	287160	292920	298800	304800	310920	317160	323520		2692800	1	1	2692800
10	Drivers	Rs. 15,000	2	180000	183600	187320	191100	194940	198840	202800	206880	211020		1756500	1	2	3511800
11	Office Attendent	Rs. 10,000	4	120000	122400	124860	127380	129960	132600	135300	138060	140880		1171440	1	4	4685760
12	Office upkeep	Rs. 10,000	1	120000	122400	124860	127380	129960	132600	135300	138060	140880		1171440	1	1	1171440
13	Night Watch Man	Rs. 10,000	1	120000	122400	124860	127380	129960	132600	135300	138060	140880		1171440	1	1	1171440
14	Design Engineer	Rs. 38,000	1	456000	465120	474420	483900	493620	503520	513600	523920	534420		4448520	1	1	4448520
15	H.D.M.	Rs. 30,000	1	360000	367200	374580	382080	389760	397560	405900	414060	422340		3513480	1	1	3513480
16	Junior Engineer	Rs. 22,000	1	264000	269280	274680	280200	285840	291600	297480	303480	309540		2576100	1	1	2576100
17	J.D.M	Rs. 20,000	1	240000	244800	249720	254760	259860	265080	270420	275820	281340		2341800	1	1	2341800
18	GIS/MIS Operator	Rs. 32,000	1	384000	391680	399600	407640	415800	424200	432720	441480	450360		3747480	1	1	3747480
19	I.T Experts	Rs. 35,000	2	420000	428400	436980	445740	454680	463800	473100	482580	492240		4097520	1	2	8195040
20	Senior Marketing Officer	Rs. 40, 000	1	480000	489600	499440	509400	519600	530040	540720	551640	562680		4683120	1	1	4683120
21	AEO	Rs. 20,000	1	240000	244800	249720	254760	259860	265080	270420	275820	281340		2341800	1	1	2341800
		Grand Total	**27**	**7740000**	**7894800**	**8053440**	**8214960**	**8379720**	**8548080**	**8720100**	**8895540**	**9074040**		**75520680**	**1**	**27**	**86644320**

Unit cost of Strengthening of DPMUs														
Recruitment of DPMUsStaff (Out Source)														
				Annual Salay with 2% (Two Precent) annual increase every year										
Sr.No.	Name of Post	Monthly Basic Salary	Per Unit Posts	First Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	Total Amount for 8 year	Total Units	Total Person	Grand Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Agri Expert	36000	1	432000	440640	449460	458460	467640	477000	486540	496260	3708000	4	4	14832000
2	Agri. Officer	30000	1	360000	367200	374580	382080	389760	397560	405900	414060	3091140	4	4	12364560
3	Office Manger cum Accountant	32000	1	384000	391680	399600	407640	415800	424200	432720	441480	3297120	4	4	13188480
4	Office Assistant	15000	1	180000	183600	187320	191100	194940	198840	202800	206880	1545480	4	4	6181920
5	Computer Assistant	15000	2	180000	183600	187320	191100	194940	198840	202800	206880	1545480	4	8	12363840
6	GIS/MIS Operator	32000	1	384000	391680	399600	407640	415800	424200	432720	441480	3297120	4	4	13188480
7	Office Attendent	10000	2	120000	122400	124860	127380	129960	132600	135300	138060	1030560	4	8	8244480
8	Night Watchman	10000	1	120000	122400	124860	127380	129960	132600	135300	138060	1030560	4	4	4122240
9	office up Keep	10000	1	120000	122400	124860	127380	129960	132600	135300	138060	1030560	4	4	4122240
10	Design Engineer	30000	1	360000	367200	374580	382080	389760	397560	405900	414060	3091140	4	4	12364560
11	Construction Engineer	30000	1	360000	367200	374580	382080	389760	397560	405900	414060	3091140	4	4	12364560
12	Droughtman	22000	1	264000	269280	274680	280200	285840	291600	297480	303480	2266560	4	4	9066240
13	J.D.M.	20000	1	240000	244800	249720	254760	259860	265080	270420	275820	2060460	4	4	8241840
14	Marketing Officer	30000	1	360000	367200	374580	382080	389760	397560	405900	414060	3091140	4	4	12364560
		Grand Total	**16**	**3864000**	**3941280**	**4020600**	**4101360**	**4183740**	**4267800**	**4354980**	**4442700**	**33176460**		**64**	**143010000**

Unit cost of Strengthening of BPMUs														
Recruitment of BPMUs Staff (Out Source)														
				Annual Salay with 2% (Two Precent) annual increase every year										
Sr.No.	Name of Post	Monthly Basic Salary	Per Unit Posts	First Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	Total Amount for 8 year	Total Units	Total Person	Grand Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Agri Expert	36000	2	432000	440640	449460	458460	467640	477000	486540	496260	3708000	14	28	103824000
2	Agri. Officer	30000	1	360000	367200	374580	382080	389760	397560	405900	414060	3091140	14	14	43275960
3	AEO	20000	2	240000	244800	249720	254760	259860	265080	270420	275820	2060460	14	28	57692880
4	JE	22000	2	264000	269280	274680	280200	285840	291600	297480	303480	2266560	14	28	63463680
5	Construction Engineer	30000	1	360000	367200	374580	382080	389760	397560	405900	414060	3091140	14	14	43275960
6	JDM	20000	1	240000	244800	249720	254760	259860	265080	270420	275820	2060460	14	14	28846440
7	Surveyor	20000	2	240000	244800	249720	254760	259860	265080	270420	275820	2060460	14	28	57692880
8	Supervisor	16000	2	192000	195840	199800	203820	207900	212040	216300	219900	1647600	14	28	46132800
9	Teh. Assistant (Surveryor)	20000	1	240000	244800	249720	254760	259860	265080	270420	275820	2060460	14	14	28846440
10	Teh. Assistant (Drawing & Estimates)	20000	1	240000	244800	249720	254760	259860	265080	270420	275820	2060460	14	14	28846440
11	Office Manger cum Accountant	30000	1	360000	367200	374580	382080	389760	397560	405900	414060	3091140	14	14	43275960
12	Computer Assistant	15000	1	180000	183600	187320	191100	194940	198840	202800	206880	1545480	14	14	21636720
13	Office Assistant	15000	1	180000	183600	187320	191100	194940	198840	202800	206880	1545480	14	14	21636720
14	office Attended	10000	1	120000	122400	124860	127380	129960	132600	135300	138060	1030560	14	14	14427840
15	Night watchman	10000	1	120000	122400	124860	127380	129960	132600	135300	138060	1030560	14	14	14427840
16	office up keep	10000	1	120000	122400	124860	127380	129960	132600	135300	138060	1030560	14	14	14427840
	Grand Total		**21**	**3888000**	**3965760**	**4045500**	**4126860**	**4209720**	**4294200**	**4381620**	**4468860**	**33380520**			**631730400**

Att.7.2.2-1

Attachment 7.2.2 Terms of Reference for Consulting Services of Himachal Pradesh Crop Diversification Promotion Project (Phase II)

1. Background

The Government of India has received a loan from the Japan International Cooperation Agency (hereinafter referred to as "JICA") to finance the Himachal Pradesh Crop Diversification Promotion Project Phase II which is intending to promote crop diversification for profitable agriculture in the state of the Himachal Pradesh (hereinafter reffered as “HP”), twelve districts, continuing from the project in Phase I which has established a model of crop diversification approach in five district.

The outline of the Project is as follows:

(1) Executing Agency

Department of Agriculture (hereinafter reffered as “DOA”) and Project Management Unit (hereinafter referred to as "PMU") of Himachal Pradesh State

(2) Location of the Project

The target area of the Project is 12 districts in the state of HP (Hamirpur, Mandi, Kangra, Una, Bilaspur, Shimla, Sirmaur, Kinnaur, Kullu, Lahul & Spiti, Chamba, and Solan).

(3) Major output and expected project completion

To promote crop diversification and value addition of the agriculture produce in the State of HP through the development of infrastructure facilities such as irrigation facilities and farm access roads, along with the promotion of marketing and strengthening of agriculture extension services, to improve the livelihood of the farmers in the area.

(4) Project Component

At this moment, the Project is expected to comprise the following contract packages

Table 1 Project Component

Package No.	Package name	Procurement method (ICB/LCB, following P/Q/ with Qualification)	Applicable Standard Bidding Documents
1	Farmers Support (Vegetable Promotion) and Infrastructure Development (Batch-1)	LCB with qualification standard in HP	N.A. (Local Bidding Documents)
2	Farmers Support (Vegetable Promotion) and Infrastructure Development (Batch-2)	LCB with qualification standard in HP	N.A. (Local Bidding Documents)
3	Farmers Support (Vegetable Promotion) and Infrastructure Development (Batch-3)	LCB with qualification standard in HP	N.A. (Local Bidding Documents)
4	Farmers Support Program (Except Vegetable promotion)	LCB with qualification standard in HP	N.A. (Local Bidding Documents)
5	Value Chain and Market Development Component (Modernizing facilities and equipment in Mandis)	LCB with qualification standard in HP	N.A. (Local Bidding Documents)
6	Value Chain and Market Development Component (except Facility construction)	LCB with qualification standard in HP	N.A. (Local Bidding Documents)
7	Institutional Development (Recruitment of PMU outsource staff, Procurement of PMU tool)	LCB with qualification standard in HP	N.A. (Local Bidding Documents)
8	Institutional Development (except Package 7)	LCB with qualification standard in HP	N.A. (Local Bidding Documents)

Source: JICA Study Team

Att.7.2.2-2

(5) Scope of the Project

The scope of the Project is as stated below:

Table 2 Scope of the Project

No.	Component	Scope of Works
1	Infrastructure Development	(1) Infrastructure Development for sub-projects 1) Minor Irrigation, 2) Micro Irrigation Schemes 3) Catchment area treatment 4) Provision of Solar powered pumping machinery for lift irrigation and STW 5) Farm access roads 6) Solar/ electric fencing for protection of vegetables on cost sharing (2) Crop Diversification through Convergence in created irrigation potential of irrigation Schemes of IPH/DOA (3) Others (Provision for infrastructure development support, investigation, design, etc.)
2	Farmar Sopport Component	(1) Formation and Strengthening KVA (2) Vegetable Promotion (3) Other activities (R&D support, Infrastructure development at SAU for vegetable seed production) (4) Innovative activities (5) Livelihood support activities for on /off farm activities (6) Nutrition Improvement
3	Value Chain, Market Development	1) Bringing FPOs up as a business entity 2) Establishment of FPO's Collection Center 3) Matching FPOs with agribusiness operators 4) Modernizing facilities and equipment in Mandis 5) Empowerment of CA
4	Institutional Development	1) Strengthening of DOA 2) Strengthening of Extension Service Function 3) Baseline Survey and Impact Assessment

Source: JICA Study Team

(6) Related projects

The related project funded by central government, state government and other donor agencies are summarized as follows.

Table 3 Related Project

Project Components	Central Sponsored Scheme	State Sponsored Scheme	Donor Funded Scheme
Infrastructure Development	・ Rural Infrastructure Development Fund (RIDF) ・ Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan Scheme (PM-KUSUM) ・ Mukhya Mantri Khet Sansarkshan Yojna (MMKSY)	・ Rajiv Gandhi Micro-Irrigation Scheme (Efficient Irrigation through Micro-irrigation Scheme) ・ Saur Sinchayee Yojna ・ Lift Irrigation and Borewell Scheme ・ Flow Irrigation Scheme ・ Jal Se Krishi Ko Bal Yojna	
Farmers' support	・ National Food Security Mission (NFSM) ・ Prampragat Krishi Vikas Yojna (PKVY) ・ National Mission on Agriculture Extension and Technology (NMAET)	・ Prakritik Kheti Khushal Kisan Yojna ・ Uttam Chara Utpadan Yojna	・ Himachal Pradesh Subtropical Horticulture, Irrigation and Value Addition Project (ADB)
Value chain and marketing development	・ Promotion of Farmers' Producer Organisation (FPO) ・ E-National Agriculture Market (E-NAM)		・ Himachal Pradesh Horticulture Development Project (World Bank) ・ Himachal Pradesh Subtropical Horticulture, Irrigation and Value Addition

Att.7.2.2-3

			Project (ADB)
Institutional Development			・ Phase II Project for Crop Diversification in Himachal Pradesh (JICA) ・ Phase III Project for Crop Diversification in Himachal Pradesh (JICA)

Source : JICA Survey Team

2. Objectives of Consulting Services

The consulting services shall be provided by consulting firm(s) (hereinafter referred to as "the Consultant") in compliance with Guidelines for the Employment of Consultants under Japanese ODA Loans, April 2012. The objective of the consulting services is to achieve the efficient and proper preparation and implementation of the Project through the following works:

(1) Overall project management,

(2) Support for Infrastructure Development,

(3) Support for Farmar Sopport Component,

(4) Support for for Value Chain, Market Development, and

(5) Support for Institutional Development.

3. Scope of Consulting Services

In this Project, the position of the Consultant in principle is on advisory services to PMU. In case of "Assist", the Consultant will support PMU in the project activities.

(1) Overall project management

The Consultant shall:

1-1 Undertake the overall project management, monitoring of the progress of the Project and coordinate among PMU, DOA, JICA, and other agencies concerned for project implementation;

1-2 Prepare the inception report with review of the overall implementation plan containing the outline of the project plan, implementation method, schedule, etc.;

1-3 Prepare the monthly, quarterly and annual reports containing the present status of the Project such as physical and financial progress, loan use, performance and problems within the reporting period, work schedule for coming reporting period and other necessary information;

1-4 Attend the regular and ad hoc meeting and workshops;

1-5 Prepare the services completion report containing necessary information such as the project performance and consultant activities with supporting data;

1-6 Assist PMU in monitoring the performance, progress, issue and problem of on-going works and program from time to time for taking the necessary action;

1-7 Assist PMU in safety in the project activities including preventive measures for COVID-19;

1-8 Assist PMU in selection of priority components to be implemented in the Project;

1-9 Assist PMU in preparation of annual work plan and budget plan;

1-10 Assist PMU in fund management;

1-11 Assist PMU in monitoring and evaluation such as benchmark survey and environmental monitoring survey;

1-12 Assist PMU in preparation of technical reports related to the Project, if request;

1-13 Assist PMU in formulation of the future project, if required; and

1-14 In case of accidents during the construction, assist the Employer to report to JICA the details of such accidents in manner reasonably requested by JICA.

Att.7.2.2-4

(2) Support for Infrastructure Development

The Consultant shall:

2-1 Review of detailed design and intestigation

1) Review all available design criteria and design manuals for infrastructure under Infrastructure Development Component:

2) Assist PMU in review of the detailed design to be carried out by BPMU's engineer during the implementation of the Project, whether or not the detailed design be in sufficient detail to ensure clarity and understanding by the DPMU/SPMU, contractors, and other relevant stakeholders;

3) Advise PMU/PIUs to modify the detailed design whenever necessary; and

4) Monitor the monthly progress of detailed design works and design review.

5) Support PMU in implementation of needed investitigation during detailed design.

2-2 Procurement Support

1) Review the bidding documents currently used by PMU and modify it if necessary;

2) Assist PMU in issuing bid invitation, conducting pre-bid conference, issuing addendum/corrigendum, and clarifications to bidders' queries;

3) Assist PMU in evaluating bids in accordance with the criteria set forth in the bidding documents;

4) Assist PMU in preparation of a bid evaluation report for approval of the bid evaluation committee;

5) Monitor the monthly progress of procurement works.

2-3 Support for Construction Supervision

1) Prepare the construction check list for infrastructure development;

2) Assist the Engineer (PMU) in construction supervision for civil works including time control, quality control, cost control, finishing the contract, safety management and settlement of disputes;

3) Monitor the monthly physical and financial progress, problems and solutions of each contract packages;

4) Assist the Engineer in issuing variations during the construction;

5) Assist the Engineer in settlement of claims issued by the contractors.

(3) Support for Farmar Sopport Component

The Consultant shall:

3-1 Assist PMU in formation and strengthening of KVAs by refining of the sencitization and training material prepared by PMU;

3-2 Assist PMU in vegetable promotion activities by providing the technical advises on the preparation of the training material and support for specification writing and procurement of suppliers for farm machinery and farm equipment and provide necessary guidance to conduct the next generation program to be carried out the local NGOs

3-3 Assist PMU for implementation of R&D support with SAU

3-4 Assist PMU for procurement and implementation of innovative activities with providing the technical advise

3-5 Assist PMU for identification of potential SHG for livelihood activities and give technical advise for capacity development of SHG.

3-6 Assist PMU/SCTC in machinery operation and maintenance and advise for business planning

(4) Support for for Value Chain, Market Development

The Consultant shall:

4-1 Assist PMU for formation and formalization of FPOs and support executor of training to FPOs and provide necessary advise for improvement of capacity development training to be carried out by NABARD / SFAC or other service providers

4-2 Assist PMU / HPSAMB in preparation of DPR of collection center;

4-3 Assist PMU for implement matching FPOs with agribusiness operators and pilot business trial; and
4-4 Assist PMU in review of DPR of modernizing facilities and equipment in mandis.

(5) Support for Institutional Development

The Consultant shall:

5-1 Conduct training on capacity development of PMU staff on project cycle managemt
5-2 Conduct TOT on technical subject as required to PMU staff
5-2 Assist PMU preparation and monitoring of supply chain and market development plans at collection centre level
5-4 Assist PMU preparation and monitoring of crop diversification plan prepared at sub-project level
5-5 Assist PMU establishment ofr MIS and ICT system within PMU
5-6 Assist PMU for review of DPR on constriction of training center in DDAs
5-7 Assist PMU in preparation of IEC material and provide technical advises for implementation
5-8 Conduct capacity development training to extension staff in DOA on the following subjects
1) Farming practices on common and exotic vegetables with field exercises
2) Protected cultivation with field exercises
3) Integrated Pest Management
4) Integrated Nutrition Management
5) Soil analysis and soil health management
6) Market-led extension
7) Extension management and HRD skills
8) Office procedure / record keeping / PDCA
9) Gender sensitization
10) Food diversification / nutrition improvement
11) Other subjects depending on needs / requirement of extension officers
12) Exposure visits

5-9 Conduct capacity development training to engineering staff in DOA on the following subjects
1) Application of the Guideline and Check list which are prepared in Phase-1 project.
2) Data preparation and record keeping of pre-condition of each sub-projects.
3) Design of Pumping machinery.
4) Collaboration with extension officers for O&M activities such as supervision of Micro Irrigation System installation and selection of sprinkler type and drip tube type.
5) Organization of design documents such as design drawings and properties of installed facilities with extension officers and in-charge of MIS and GIS for future O&M.

5-10 Assist PMU for strengthening of research- extension-farmer linkages and joint visits and to establish FPO based extension system
5-11 Conduct international/national/state level workshop/seminars
5-12 Conduct overseas training , exposure/study visits of Project staff and other stakeholders
5-13 Assit PMU for conducting baseline, mid-line and end line survey.

4. Expected Time Schedule

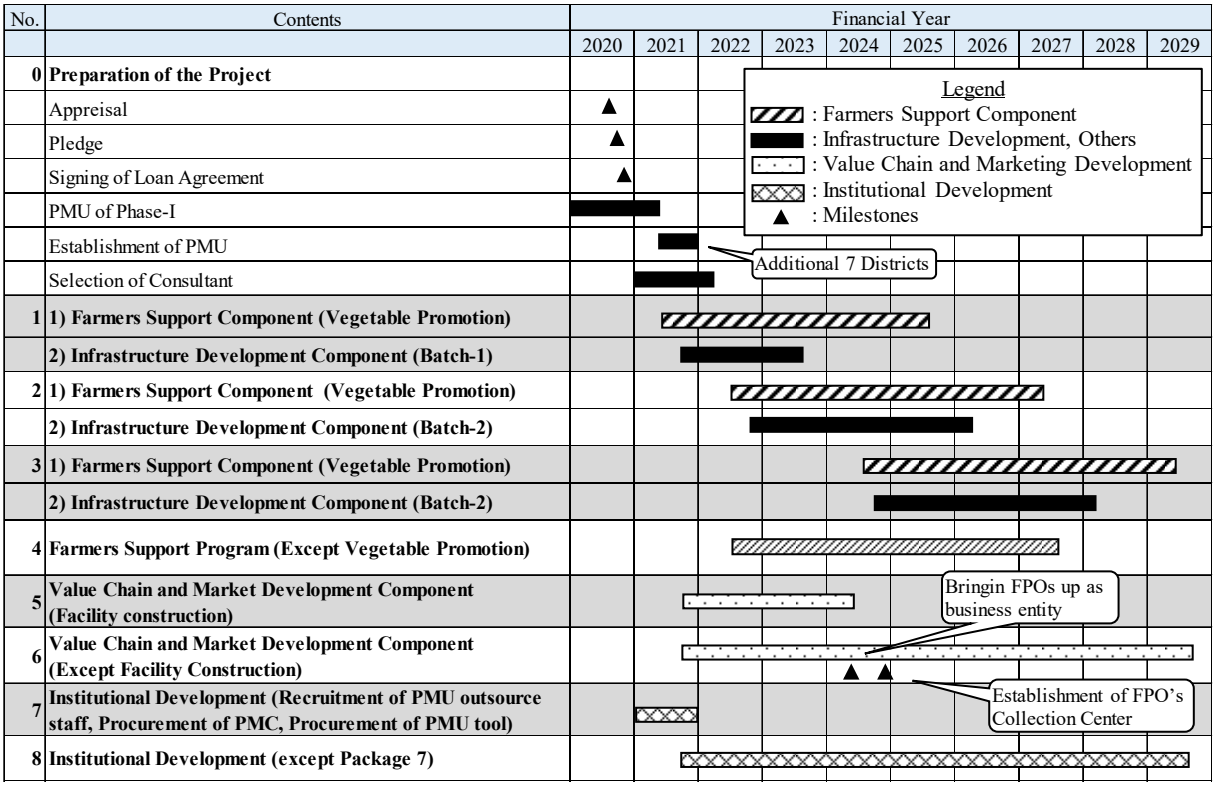
The total duration of consulting services will be ninety one months followed by 6 months of defects liability (notification) period. The implementation schedule expected is as shown below.

Att.7.2.2-6

Table 3 Implementation Schedule Expected

Key Activities	Date	Duration in Months
Commencement of Consulting Services	1 April 2022	(Batch 1) 5 x 1 time (Batch 2) 5 x 2 time (Batch 3) 5 x 2 time
Completion of detail design, preparation of drawings and tender documents	(Batch 1) 31 July 2022 (Batch 2) 31 July 2023 31 July 2024 (Batch 3) 31 July 2025 31 July 2026	
Bidding process including prequalification	-	(Batch 1) 3 x 1 time (Batch 2) 3 x 2 time (Batch 3) 3 x 2 time
Commencement of Civil works	(Batch 1) 1 Oct. 2022 (Batch 2) 1 Oct. 2023 1 Oct. 2024 (Batch 3) 1 Oct. 2025 1 Oct. 2026	(Batch 1) 8 x 1 time (Batch 2) 8 x 2 time (Batch 3) 8 x 2 time
End of Civil works	31 May 2027	
Defects Liability (Notification) Period	6 months after completion of the construction	12
End of Consulting Services	30 Oct. 2029	-

Source : JICA Survey Team



Source : JICA Survey Team

Figure 1 Implementation Schedule of the Project

5. Staffing (Expertise required)

The minimum man-month (M/M) input of the Consultant is estimated at 164 M/M of International Experts (Professional-A) and 560 M/M of National Experts (Professional-B) for the contract period of 93 months (from April 2022 to December 2029).

The following tables are reference and the Consultant may modify it or propose additional experts to better

accomplish the tasks indicated in the TOR. Other than the above, supporting staff such as office manager, secretary, accountant, site supervisor, CAD operators and surveyors are to be assigned.

(1) Classification of Key and Non-Key Expert

Each Expert are classified as Key or Non-Expert depentding on the role in the Project.

Table 4 Staffing of the Consultant Team

Designation	No.	Key or Non-Key Expert
Professional (A) : International Expert		
Team Leader/ Project Management	A1	Key
Institutional Dev. (DOA) Expert-A	A2	Key
Institutional Dev. (FPO) Expert-A	A3	Key
Sinior Engineer -A / O&M Expert -A	A4	Key
Monitoring Evaluation Expert -A	A5	Key
Shitake Mushroom Expert -A	A6	Key
Professional (B): National Expert		
Co-Team Leader	B1	Key
Hydro-geological Engineer -B	B2	Key
Design Engineer -B	B3	Key
Construction Engineer-B1 (1st Stage)	B4	Key
Construction Engineer-B2 (2nd Stage)	B5	Key
Construction Engineer-B3 (3rd Stage)	B6	Key
O&M Expert -B	B7	Key
Solar PV Pump Expert -B	B8	Non-Key
Architect -B	B9	Non-Key
Agronomist (Cereal) Expert -B	B10	Non-Key
Agronomist (Vegetable) Expert -B	B11	Key
Institutional Development Expert -B (DOA)	B12	Key
Institutional Development Expert -B (FPO)	B13	Key
MIS &GIS Expert -B	B14	Key
Nutrition Expert -B	B15	Non-Key
Gender and Livelihood Support Expert -B	B16	Non-Key
Environmental Management Expert -B	B17	Non-Key
Mass-Media Expert -B	B18	Non-Key

Source: JICA Survey Team

(2) Qualification of Key Experts

The qualification of Key Experts is shown as follows. The qualification of National Non-Key Experts is not evaluated in the evaluation of technical proposals.

Table 5 Qualification of Key Experts

Category	Designation	Qualification
International Expert	A1 Team Leader	Education: • BS in irrigation or civil engineering. Experience: • 15 years' work experience in irrigation-related projects; • Two comprehensive irrigation projects in which he/she served as team leader or co-team leader; • Two irrigation-related projects in South Asian countries, preferably India; and • 10 years' work experience in Japanese ODA loan or granted projects.

Att.7.2.2-8

Category	Designation	Qualification
	A2 Institutional Dev. (DOA) Expert-A	Education: ・ BA or BS. in agricultuee, sociology or commerce Experience: ・ 7 years working experience for institutional development, training/extension work, irrigation water management, etc. ・ 3 years in Japanese ODA Loan and or Grant Aid projects working experience or Grant Aid projects.working experience in participatory approach aspect in the agricultural and irrigation projects including minimum 3 years in Japanese ODA Loan and or Grant Aid projects.
	A3 Institutional Dev. (FPO) Expert-A	Education: ・ BA or BS. in agricultuee or commerce Experience: ・ 7 years working experience for institutional development, training/extension work, irrigation water management, etc. ・ 3 years in Japanese ODA Loan and or Grant Aid projects working experience or Grant Aid projects.working experience in participatory approach aspect in the agricultural and irrigation projects including minimum 3 years in Japanese ODA Loan and or Grant Aid projects. ・ 3 years working experience as an international marketing expert in Japanese ODA Loan and or Grant Aid projects or Grant Aid projects
	A4 Senior Engineer / O&M (Key Expert)	Education: • BS in irrigation or civil engineering. Experience: • 15 years' work experience in irrigation-related projects; • Two comprehensive irrigation projects in which he/she served as design, construction or O&M engineer; • Two irrigation-related projects in South Asian countries, preferably India; and • 5 years' work experience in Japanese ODA loan or granted projects
	A5 Monitoring Evaluation (Key Expert)	Education: ・ BA or BS. in agricultuee or commerce Experience: ・ 7 years working experience for monitoring and evaluation of the agriculture or irrigation related project etc. ・ Two irrigation-related projects in South Asian countries, preferably India;
	A6 Shitake Mushroom Expert -A	Education: ・ BA or BS. in agricultuee or commerce Experience: ・ Experience of 10 years Shiitake Mushroom cultivation and operation and maintenance of Shitake related machinery
National Expert	B1 Co-Team Leader (Key Expert)	Education: • BS in irrigation or civil engineering. Experience: ・ 15 years' work experience in agricultural projects. ・ 2 comprehensive agricultural projects in which he/she served as team leader or co-team leader ・ 3 years' work experience in foreign funded projects, specially in the field of crop diversification project.
	B2 Hydro-geological Engineer (Key Expert)	Education: • BS in irrigation or civil engineering. Experience: • 10 years' work experience in hydro geological work under groud water irrigation-related projects; • Two comprehensive hydro geological work in the hilly state of India
	B3 Design Engineer (Key Expert)	Education: • BS in irrigation or civil engineering. Experience: • 10 years' work experience in design work under irrigation-related projects; • Two comprehensive irrigation works in the hilly state of India
	B4 Construction Engineer (Key Expert)	Education: • BS in irrigation or civil engineering. Experience: • 10 years' work experience in design work under irrigation-related projects; • Two comprehensive irrigation works in the hilly state of India

Att.7.2.2-9

Category	Designation	Qualification
	B5 O&M Expert (Key Expert)	Education: • BS in irrigation or civil engineering. Experience: • 10 years' work experience in design work under irrigation-related projects; • Two comprehensive irrigation works in the hilly state of India_
	B9 Agronomist (Vegetable) (Key Expert)	Education: • BA or BS in Agriculture. Experience: • 10 years' work experience in vegetable cultivation as a trainer under government or privade funded projects; • Two comprehensive agriculture works in the hilly state of India
	B12 Institutional Development Expert -B (DOA) (Key Expert)	Education: ・ BA or BS. in agricultuee, sociology or commerce Experience: ・ 10 years' work experience in national funded projects; and ・ 5 years' work experience in agriculture development, preferably agriculture processing and marketing.
	B13 Institutional Development Expert -B (FPO) (Key Expert)	Education: ・ BA or BS. in agricultuee or commerce Experience: ・ 10 years' work experience in national funded projects; and ・ 5 years' work experience in agriculture development, preferably agriculture processing and marketing.
	B14 MIS & GIS Expert -B (Key Expert)	Education: ・ BS in information. Experience: ・ 5 years' work experience in GIS development. ・ 5year's work experience in formulation of MIS.

Source: JICA Study Team

(3) Scope of Works for the Respective Personnel

Detailed information on the major tasks and duties each member of consultant team shall perform is provided as follows. The following table is reference and the Consultant may modify it or propose additional experts to better accomplish the tasks indicated in the TOR. Other than above, supporting staff such as office manager, secretary, accountant, site supervisors, CAD operators and surveyors are to be assigned.

Table 6 Major Tasks and Duties of Key Experts of the PMC

No	Position	I :International Experts or L: Local Experts	Major Tasks and Duties
A1	Team Leader (Key Expert)	I	• Assist overall project management (time/schedule management, quality control, budget management, safety management) • Hold a sensitization program for project officials and government officials such as DOA • Assist progress and result monitoring and conduct necessary progress meetings • Assist coordination among government organizations and other donor agencies • Assist necessary public relations activities related to project contents and results • Prepare and conduct foreign and domestic trainings and study tours • Prepare required documents / reports • Manage national consultant works and outputs

Att.7.2.2-10

A2	Institutional Development. Expert (Key Expert)	I	• Survey of state and central government agricultural policies and development plans, current government and donor schemes and update of contents • Examining the role of the related organizations of agriculture-related departments (DOA, DOH, HPSAMB, etc.) in the technology extension and FPO & KVA capacity development system, and extracting issues • Assist to formulate action plan for organizational capacity development of DOA • Implementation of TOT related to the dissemination of agricultural technology by PMU staff • Implementation of TOT related to the dissemination of agricultural technology by DOA staff • Monitoring of agricultural extension activities and necessary technical guidance during project implementation
A3	Institutional Development Expert. (FPO) (Key Expert)	I	• Support for the establishment of the FPO and consideration of necessary guidelines • Technical guidance for preparation and update of supply chain and marketing plan • Technical guidance for formulation of FPO's business management training program • Technical guidance for conduct post-harvest handling and value-addition to the agriculture produce to FPO • Support for procurement of service providers • Assist for monitoring of FPO activities and provide necessary advises to service providers • Support for the collection of agribusiness company information and the construction of a matching platform with the FPO • Support for the planning and implementation of business trials between FPO and Agribusiness companies
A4	Senior Engineer / O&M (Key Expert)	I	• Technical guidance on DPR formulation • Support for creating construction supervision plans and construction quality control plans • Technical guidance on construction supervision • Formulation of O & M guidelines and technical guidance
A5	Monitoring Evaluation (Key Expert)	I	• Support for baseline survey implementation • Necessary advise for project indicator modification and setting • Support for conducting mid-term evaluation • Support for conducting end-line surveys
A6	Shitake Mushroom (Key Expert)	I	• Technical guidance on Shiitake Mushroom cultivation • Necessary advise for O&M of facilities for Shiitake Mushroom.
B1	Co-Team Leader (Key Expert)	L	• Assist overall project management as the Co-Team Leader of the Consultant Team. • Assist overall project management (time/schedule management, quality control, budget management, safety management) • Support a sensitization program for project officials and government officials such as DOA • Assist progress and result monitoring and conduct necessary progress meetings • Assist coordination among government organizations and other donor agencies • Assist necessary public relations activities related to project contents and results • Prepare and conduct foreign and domestic trainings and study tours • Prepare required documents / reports • Manage national consultant works and outputs • Assist and advise DOA in communicating and negotiating with JICA regarding the Project activity.
B2	Hydro-geological Engineer (Key Expert)	L	• Assist to conduct the ground water study to confirm ground water resource of the Sub-project for tube well irrigation system

Att.7.2.2-11

B3	Design Engineer (Key Expert)	L	• Assist PMU for preparation of format of contract document and support standardization of procurement procedure • Review and assist to modify the prepared design of infrastructure development and improvement facilities (DPR). • Prepare the standardization of design criteria and design procedure for infrastructure development and improvement facilities under the coordination of the International Senior Engineer.
B4	Construction Engineer (Key Expert)	L	• Assist in construction supervision of infrastructure development and improvement facilities under the coordination of the International Senior Engineer. • Random inspection of developed infrastructures including minor irrigation facilities, catchment area treatment, farm access roads, solar pump, and solar fencing.
B5	O&M Expert (Key Expert)	L	• Formulation of O & M guidelines and provision of technical guidance • Strengthening of PMU/DOA extension and monitoring function on Minor irrigation development and KVA's O&M activities with MIS & GIS expert.
B6	Solar PV Pump Expert (Non-Key Expert)	L	• Assist to review and modify the existing design and supervise construction of Solar PV Pump development. • Assist preparation of a guideline/ manuals for O&M of the PV Pump under the coordination of the International Senior Engineer.
B7	Architect (Non-Key Expert)	L	• Assist to review and modify the existing design of buildings such as PMU office and collection center, and to supervise the construction of the buildings.
B8	Agronomist (Cereal) (Non-Key Expert)	L	Assist international expert for implementation of following tasks regarding cereal cultivation • Implementation of TOT related to the dissemination of agricultural technology by PMU staff • Implementation of TOT related to the dissemination of agricultural technology by DOA staff • Monitoring of agricultural extension activities and necessary technical guidance during project implementation
B9	Agronomist (Vegetable) (Key Expert)	L	Assist international expert for implementation of following tasks regarding vegetable cultivation • Implementation of TOT related to the dissemination of agricultural technology by PMU staff • Implementation of TOT related to the dissemination of agricultural technology by DOA staff • Monitoring of agricultural extension activities and necessary technical guidance during project implementation
B10	Institutional Development Expert (DOA) (Key Expert)	L	Assist international expert for implementation of following tasks • Survey of state and central government agricultural policies and development plans, current government and donor schemes and update of contents • Examining the role of the related organizations of agriculture-related departments (DOA, DOH, HPSAMB, etc.) in the technology extension and FPO & KVA capacity development system, and extracting issues • Assist to formulate action plan for organizational capacity development of DOA • Implementation of TOT related to the dissemination of agricultural technology by PMU staff • Implementation of TOT related to the dissemination of agricultural technology by DOA staff • Monitoring of agricultural extension activities and necessary technical guidance during project implementation

Att.7.2.2-12

B11	Institutional Development Expert (FPO) (Key Expert)	L	Assist international expert for implementation of following tasks • Support for the establishment of the FPO and consideration of necessary guidelines • Technical guidance for preparation and update of supply chain and marketing plan • Technical guidance for formulation of FPO's business management training program • Technical guidance for conduct post-harvest handling and value-addition to the agriculture produce to FPO • Support for procurement of service providers • Assist for monitoring of FPO activities and provide necessary advises to service providers • Support for the collection of agribusiness company information and the construction of a matching platform with the FPO • Support for the planning and implementation of business trials between FPO and Agribusiness companies
B12	MIS &GIS Expert (Key Expert)	L	• Assist DOA and PMU in conceptual design of MIS & GIS system to be established under PMU/DOA • Assist DOA and PMU to procure Local IT company.
B13	Nutrition Expert (Non-Key Expert)	L	• Assist PMU/DOA for preparation of nutrition improvement plan and implementation of activities including nutrition sensitization and capacity development training on extension officers
B14	Gender & Livelihood Support Expert (Non-Key Expert)	L	• Assist PMU for preparation of livelihood implementation plan and gender mainstreaming activities
B15	Environmental monitoring Expert (Non-Key Expert)	L	• Assist PMU for implementation of environmental monitoring plan
B16	Mass-Media Expert (Non-Key Expert)	L	• Assist PMU to organize workshop and other advertisement activities with Team Leader and Co-Team Leader.

Source: JICA Study Team

6. Reporting

Within the scope of consulting services, the Consultant (PMC) shall prepare and submit reports and documents to PMU as shown in Table below. PMC shall provide 20 electronic copies of each reports of relevants.

Table 7 Summary of Reports to be submitted by the PMC

No.	Type of Report	Schedule	No. of Copies to be submitted	
			Draft	Final
1	Inception Report including the organizational structure, working procedure, decision making procedure, time schedule, Project Management Plan, obligation of the employer and consultants, etc.	Within three months from inception of services	1 hard copies and soft copy	20 hard copies and 1 soft copy
2	Preparation of Design Review Reports on the Detailed Project Report and Bid Schedule of sub projects.	On monthly basis	1 hard copy and soft copy	20 hard copies and 1 soft copy
3	Final revised Detailed design, Engineering Drawings and Detailed Project Report for all works.	Within fifteen days from design review reports	1 hard copy and soft copy	20 hard copies and 1 soft copy
4	Pre-qualification bid documents and final bid documents for all the works.	Within fifteen days from final revised design	1 hard copy and soft copy	20 hard copies and 1 soft copy
5	Guidelines on improving the Contract Management practices after studying the existing practices.	Within four months from inception of services and on year to year basis	1 hard copy and soft copy	20 hard copies and 1 soft copy

Att.7.2.2-13

No.	Type of Report	Schedule	No. of Copies to be submitted	
			Draft	Final
6	Monthly & Quarterly progress reports on Construction, supervision assistance, Quality Assurance, review & monitoring including photographs as required.	Before 5th of next month	1 hard copy and soft copy	20 hard copies and 1 soft copy
7	Preparation of Operation & Maintenance Manual (English) for category wise sub projects.	Within twelve months from inception of services	1 hard copy and soft copy	20 hard copies and 1 soft copy
8	Completion reports for sub proects.	Within one month from the date of completion	1 hard copy and soft copy	20 hard copies and 1 soft copy
9	Other reports and documents as necessary during the implemention of the project as required.	As per requirement within seven days	1 hard copy and soft copy	20 hard copies and 1 soft copy
10	One Video documentary film (One hour duration) for each fiscal year from the beginning of the project till completion highlighting important events as well as different stages of the project work with commentary both in English and local language.	Within one month after the fiscal Year	1 copy	20 copy
11	Annual Progress Report	Annually	1 copy	25 copy
12	Services Completion Report	At the end of Services	1 copy	25 copy

Note) Report No.1 to No.20 will be submitted to SPMU:1, DOA:1, DPMU:4, and BPMU:14 (20 copies in total). Report No. 11 and 12 will be submitted to DOA:1, Secretary Agriculture: 1, the Govt. of HP: 1, the Govt. of India: 1, JICA India: 1, JICA Tokyo: 1, SPMU:1, DPMU:4, BPMU14 (25 copies in total). Source: JICA Study Team

7. Obligation of the Executing Agency

A certain range of arrangements and services will be provided by the Executing Agency to the PMC for smooth implementation of the Consulting Services in accordance with relevant sub-clauses of General Conditions of Contract. In this context, the DOA and PMU shall:

(1) Reports and data

Make available to the Consultant existing reports and data related to the Project.

(2) Cooperation and counterpart staff

Appoint counterpart officials, agent and representative as may be necessary for effective implementation of the Consulting Services;

(3) Office space

Provide office space sufficient for the Consulting Services, with necessary equipment, furniture and utilities free of any charge.

(4) Vehicles and Motorbikes

Make available to the Consultant needed vehicles with drivers. The consultant should include costs and needed numbers of vehicles in the proposal.

(5) Assistance and exemption

Use its best efforts to ensure that the assistance and exemption, as described in the Standard Request for

Att.7.2.2-14

Proposal issued by JICA, shall be provided to the Consultant, in relation to

- work permit and such other documents;
- entry and exit visas, residence permits, exchange permits and such other documents
- clearance through customs;
- instructions and information to officials, agent and representatives of the Client's Government;
- exemption from any requirement for registration to practice their profession; and
- privilege pursuant to the applicable law in the Client's Country.

Attachment for Chapter 8

Project Cost

Att.8.2.1-1 Cost Breakdown of Infrastructure Development

1.1 Infrastructure Development for sub-projects

No.	Item	Unit	Quantity	Unit Price (INR)	Total Cost ('000 INR)	Remarks
1.1	**Infrastructure Development for sub-projects**					
1.1.1	**Minor Irrigation**				**2,210,000**	
1.1.2	**Micro Irrigation Systems**				**320,000**	
(1)	**Micro Irrigation System for LIS & TW**					
1)	Drip	ha	92	81,460	31,000	5% of CCA, unit cost is as per 0.24 ha
2)	Micro & Mini Sprinkler	ha	184	47,200	36,000	10% of CCA, unit cost is as per 0.24 ha
3)	Storage Tank (9 cum Capacity)	No.	1,104	21,000	23,000	1 tank for 0.24 ha
4)	Booster Pump	No.	1,104	10,000	11,000	1 booster pump for 0.24 ha
(2)	**Micro Irrigation System for FIS**					
1)	Drip	ha	280	81,460	95,000	5% of CCA
2)	Micro & Mini Sprinkler	ha	280	47,200	55,000	10% of CCA
3)	Storage Tank (9 cum Capacity)	No.	2,240	21,000	47,000	1 tank for 0.24 ha
4)	Booster Pump	No.	2,240	10,000	22,000	1 booster pump for 0.24 ha
1.1.3	**Catchment Area Treatment**				**127,000**	
(1)	Wire Crates	No.	189	169,771	32,000	10m per one No. besed on the schedule of rate in HPPWD
(2)	Silt Retention Structures	No.	204	463,429	95,000	17m per one No. besed on the schedule of rate in HPPWD
1.1.4	**Solar Pumping**				**88,000**	
	Solar panel with supporting frame, pump, Motor, Electrical Panel, Installation of electric devise and wires, etc.	HP	1037.5	84,700	88,000	Pump capacitiy will be decided after survey and detailed design, 12.5 HP have applied temtatively at this moment.
1.1.5	**Access Farm Roads**				**237,000**	
	Cement Concrete Road W= 2.0 - 4.0m	km	62.4	3,796,514	237,000	
1.1.6	**Solar/ electric fencing**				**130,000**	
1)	Solar electric powered fencing	m	99,795	717	72,000	Project Assistance: 90% of standard rate
2)	Chain fencing with angle iron	m	29,980	320	10,000	Project Assistance: 50% of standard rate
3)	Chain fencing with RCC poles	m	19,967	350	7,000	Project Assistance: 50% of standard rate
4)	Composite fencing with welded mesh & Solar power system	m	19,948	665	13,000	Project Assistance: 70% of standard rate
5)	Barbed wire fencing with angle iron	m	98,745	208	21,000	Project Assistance: 50% of standard rate
6)	Barbed wire fencing with iron poles	m	24,783	265	7,000	Project Assistance: 50% of standard rate
1.2	**Crop Diversification through Convergence in created irrigation potential of irrigation Schemes of IPH/DOA**					
1.2.2	**Crop Diversification through Convergence in created irrigation potential of irrigation Schemes of IPH/DOA**				**20,000**	
(1)	Improvement of existing Irrigation schimes for distribution system	ha	500	20,000	10,000	
(2)	Provision of MIS portable	ha	100	100,000	10,000	
1.3	**Others**					
1.3.1	**Miscellaneous of above works (Infrastructure development support)**				**39,000**	
(1)	For FIS sub projects	Sites	97	75,000	7,000	
(2)	For LIS sub projects	Sites	184	150,000	28,000	Including Convergence Components
(3)	For TW Sub Projects	Sites	25	150,000	4,000	
1.3.2	**Survey, Investigation, Design & Estimation**				136,200	5% of the project cost (Minor Irrigation, Catchment Area Treatment, Solar Pumping, Access Farm Roads)
Total - 1. Rehabilitation and Improvement of Irrigation Schemes					**3,307,200**	

Source: JICA Survey Team

Att.8.2.1-2 Cost Breakdown of Farmers' Support Component

2. Farmers' Support Component

No.	Item	Unit	Site / Cluster	Time / Unit	Unit Price (INR)	Total Cost ('000 INR)	Remarks
2. Farmers' Support Component							
2.1	**Formation and Strengthening KVA**					**29,000**	
2.1.1	Awareness Camp involving Community		306	1	8,000	**2,000**	
2.1.2	Formation and formalization of KVAs					**12,000**	
	(1) Workshop of group to develop objectives and norms		306	2	4,000	2,000	
	(2) Training to MC members on role and responsibility		21	2	46,000	2,000	
	(3) Exposure visit of MC members to KVA in other area of HP		51	2	80,000	8,000	
2.1.3	Capacity development of KVAs for O&M Management					**15,000**	
	(1) Workshop to discuss principal and practices of irrigation and water management		306	2	4,000	2,000	
	(2) Training on techniques of water management		51	2	86,000	9,000	
	(3) Field training on basic engineering skills		306	2	6,000	4,000	
2.2	**Vegetable Promotion**					**564,000**	
2.2.1	Incubation and capacity development of community motivators					**80,000**	
	(1) Engagement of Community Motivators		306	2	108,000	66,000	
	(2) Training on Institutional Development Processes		16	1	100,000	2,000	
	(3) Training on basics of irrigation management and enhancing agriculture production		16	2	100,000	3,000	
	(4) Training on promotion and strengthening of SHG (concept)		16	2	60,000	2,000	
	(5) Exposure Visits on Participatory Irrigation Management		16	2	200,000	6,000	
	(6) Peer Learning Interactions for Community Motivators		306	1	2,500	1,000	
2.2.2	Farm Economy Management, Training on farm management by farm type (advanced, intermidiate and conservative)					**65,000**	
	(1) Orientation & Need Assessment		306	9	3,000	8,000	
	(2) Training on farm management and Bookkeeing		306	9	3,000	8,000	
	(3) Workshop of Farmres Group on croping pattern arrangement		306	4	40,000	49,000	
2.2.3	Training cum method demostration on Cultivation Practice of vegetable crops					**119,000**	
	(1) Sub-projects having CCA less than 25 hacts(109no.)		109	64	3,000	21,000	
	(2) Sub-projects having CCA more than 25 hacts (187 nos +10 nos)		197	128	3,000	76,000	
	(3) Water saving and soil moisture conservation techniques		50	1	77,000	4,000	
	(4) Promotion of Organic farming: Organic fertilizer application		50	1	34,000	2,000	
	(5) Promotion of Organic farming: Organizing Kisan Mera and vegetable shows		10	1	100,000	1,000	
	(6) Promotion of Organic farming: OPM and IPM: Training of farmers group		50	1	33,000	2,000	
	(7) Promotion of Organic farming: OPM and IPM: Exposure visit to model farm for IPM		50	1	30,000	2,000	
	(8) Promotion of Organic farming: Organic fertilzier preparation		50	1	34,000	2,000	
	(9) Promotion of Organic farming: ICS and third party certificate for 3 years in Phase-1 organic cluster		500	1	10,000	5,000	
	(10) Promotion of post-harvest processing & marketing: Training/demonstration on agro-processing / preservation		50	1	40,000	2,000	
	(11) Promotion of post-harvest processing & marketing: Training on market information, food safety, and quality grading		50	1	25,000	1,000	
	(12) Promotion of post-harvest processing & marketing: Buyer and seller meet at District level		10	1	100,000	1,000	
2.2.4	Food Grain's Productivity Training & demonstration		306	16	3,000	**15,000**	
2.2.5	Provision of Farm Machinery					**187,000**	
	(1) Providing support to farmers on cost sharing basis (50:50) project share 50%	LS	1	1	186,750,000	186,750	Rs. 373,500,000×0.5= 186,750,000 Tractor, power tiller, equipment, harvestor, sprayer, etc.
2.2.6	Provision of poly housese & poly tunnels					**68,000**	
	(1) Training cum method demostration(low tunnels) for vegetable seedlings		1,184	1	5,000	6,000	
	(2) Installation of walk in tunnels(10mtsX4 mts=1 unit): 2 units in the sub project having CCA <25 ha(109 nos.)		109	1	24,000	3,000	
	(3) Installation of walk in tunnels(10mtsX4 mts=1 unit): 4 units in sub projects having CCA >25 ha (187 nos)		197	1	24,000	5,000	
	(4) Installation of poly houses including MIS		50	1	167,000	8,000	
	(5) Small poly houses in kitchen garden on cost sharing basis 85:15: 105 sqm poly house		306	1	150,150	46,000	
	(6) Small poly houses in kitchen garden on cost sharing basis 85:15: 252 sqm poly house		100	0	287,280	0	
	(7) Small poly houses in kitchen garden on cost sharing basis 85:15: 504 sqm poly house		50	0	498,960	0	
2.2.7	Program for Next Generation					**30,000**	
	(1) For School Students	LS	1	1	14,973	15,000	
	(2) Young Farmers	LS	1	1	14,853	15,000	
2.3	**Other activities**					**131,000**	
2.3.1	R & D support					**25,000**	
	1) Multi-location testing of CMS based hybrids of cauliflower in Himachal Pradesh	LS	1	1	2,406,000	2,000	
	2) Multi-location testing of GMS based bacterial wilt resistant hybrids of chilli in Himachal Pradesh	LS	1	1	2,406,000	2,000	
	3) Generation of double haploid through induced androgenesis in head cabbage (Brassica oleracea var. capitata)	LS	1	1	1,760,000	2,000	
	4) Multilocational testing and validation of newly developed bacterial wilt resistant and high yielding bell pepper lines/hybrids in H.P	LS	1	1	960,000	1,000	
	5) Multilocational testing and validation of newly developed yellow vein mosaic virus resistant and high yielding okra lines/hybrids in H.P	LS	1	1	960,000	1,000	
	6) Development and promotion of management technology against insect-pests of brinjal	LS	1	1	1,759,000	2,000	
	7) Management of root-knot nematode, Meloidogyne incognita in cucumber under protected cultivation	LS	1	1	1,759,000	2,000	
	8) Assessment, validation and refinement of disease management technology for vegetable crops	LS	1	1	3,029,000	3,000	
	9) Enhancing rice production in high-altitude areas of Himachal Pradesh by development and popularization of high yielding, cold tolerant japonica rice varieties through farmers' participatory approach.	LS	1	1	4,406,000	4,000	
	10) Genetic amelioration of Kala zeera (Bunium persicum Boiss) using tissue culture/micropropagation approach	LS	1	1	3,364,000	3,000	
	11) Popularization of potential A B C crops of North Western Himalayas as vegetable and seed under organic and natural farming conditions through participatory plant breeding. (A B C= Amaranthus, Buckwheat and Chenopodium.)	LS	1	1	2,877,000	3,000	
2.3.2	Assistence for soil testing kits		50	1	105,000	**5,000**	
2.3.3	Infrastructure development at SAU for vegetable seed production					**101,000**	
	(1) Farm Dev Cost	LS	1	1	73,825,000	74,000	
	(2) Non recurring cost	LS	1	1	17,500,000	18,000	
	(3) Recurring cost	LS	1	1	9,125,000	9,000	
2.4	**Innovative activities**					**42,000**	
2.4.1	Establishment of centre of exellence for vegetable nursery production		2	1	6,800,000	14,000	
2.4.2	Trial for soil less cultivation/Fan Pad GH with vertical system		1	1	10,000,000	10,000	Guideline of India
2.4.3	Provision of tubular structure shade net houses		50	100	816	4,000	
2.4.4	Provision of plastic mulching material		306	10,000	4	11,000	
2.4.5	Provision of Anti- Hail nets in hail prone areas		153	500	35	3,000	
2.5	**Livelihood support activities for on /off farm activities and service sector activities**					**196,000**	
2.5.1	Formation and formalization of SHGs					5,000	
	(1) Workshop of group to develop objectives and norms		306	1	4,000	1,000	
	(2) Training to SHG members on role and responsibility		21	2	97,000	4,000	
2.5.2	Mushroom cultivation on cost sharing basis 80:20		700	1	36,000	25,000	unit price is Rs. 36,000 = 45,000*0.8
2.5.3	Rearing of honey bees on cost sharing basis 80:20					9,000	
	(1) 10 colony apiary unit		280	1	32,000	9,000	unit price is Rs. 32,000 = 40,000*0.8
2.5.4	Dairy Farming on cost sharing basis 80:20 (Provision of 2 cows/ Buffalos per site)		140	1	241,600	34,000	unit price is Rs. 241,600 = 302,000*0.8 14 BPMU x 10 sites
2.5.5	Back yard poultry on cost sharin basis 80:20 (50 birds Per unit)		306	1	64,000	20,000	unit price is Rs. 64,000 = 80,000*0.8 Guideline of India
2.5.6	Service Sector	LS	1	1	38,000,000	38,000	to be confirmed (Guideline of India)
2.5.7	Promotion of Shiitake Mushroom Cultivation (Management Cost for SCTC)	LS	1	1	55,300,000	55,000	Referto 2_Att-6 Cost Breakdown for Promotion of Shiitake Mushroom Cultivation (Management Cost for SCTC)
2.5.8	Promotion of on farm of fish culture					10,000	to be confirmed (Guideline of India)
	(1) C/O Raceways of minimum of 50 cubic mtrs. 80:20 cost sharing basis.		10	1	240,000	2,000	unit price is Rs. 240,000 = 300,000*0.8
	(2) Input for Trout Rearing Unit on 80:20 cost sharing basis.		10	1	200,000	2,000	unit price is Rs. 200,000 = 250,000*0.8
	(3) C/O new grow out Fish ponds on 80:20 cost sharing basis.		10	1	560,000	6,000	unit price is Rs. 560,000 = 700,000*0.8
2.6	**Nutrition Improvement Program**		100	5	10,000	**5,000**	tea and lunch
2.6.1	Dissemination of recipes using nutritious ingredients						
2.6.2	Promotion of school garden						
2.6.3	Dissemination of kitchen garden for nutrition improvement						
Total -2 . Farmers' Support Component						**967,000**	

Source: JICA Survey Team

Att.8.2.1-3 Cost Breakdown of Value Chain and Market Development Component

3. Value Chain and Market Development Component

No.	Item	Unit	Quantity	Unit Price (INR)	Total Cost ('000 INR)	Remarks
3. Value Chain and Market Development Component						
3.1	**Bringing FPOs up as a business entity**				**158,000**	Establishment of FPO's in three years, training of O&M
3.1.1	Formation and formalization of FPO					
3.1.2	Business management training					
3.1.3	Training on post harvest handling and value addition	LS	10	5,800,000	58,000	
3.1.4	Corporus funds	LS	1	100,000,000	100,000	
3.2	**Establishment of FPO's Collection Center**	LS	1	43,000,000	**43,000**	
3.2.1	Construction of collection center	No.	10			<Main Items for each> Collenction Center (RCC, 2 floors, aprox. 190m2), Septic Tank and Soak Pit, Boundary Wall with Gate, Sanitary Fitting, Electricity Fitting, P/F of Cool Chamber (W 4.41m x D 4.41m x H 3.05m)
3.2.2	Procurement of machinery & equipment and O & M training					
3.3	**Matching FPOs with agribusiness operators**	LS	1		**10,000**	
3.3.1	Matching FPOs with agribusiness operators					
3.3.2	Facilitation of pilot business trials					
3.4	**Modernizing facilities and equipment in Mandis**				**310,100**	
3.4.1	Facility construction with equipment					
3.4.2	O & M of facilities & equipment					
1	**Kangra/Jassor**				**15,000**	
1-1	Construction of collection hall and upgrading of existing yard	LS	1	15,000,000	15,000	
2	**Kangra/Passu**				**12,500**	
2-1	Conversion of auction hall in shops and provision of interlocking concrete paver blocks in open yard area (8 shops)	LS	1	7,000,000	7,000	
2-2	Provision of bore well	LS	1	500,000	500	
2-3	Construction of boundary wall & retaining walls etc.	LS	1	4,000,000	4,000	
2-4	Provision of high mast light	No.	1	1,000,000	1,000	
3	**Kulu & LS/Chauribihal**				**28,500**	
3-1	Provision of interlocking concrete paver blocks in the yard with U-shaped drain	m2	11,400	2,500	28,500	
4	**Kulu & LS/Patlikuhal**				**4,500**	
4-1	Construction of protection walls and steel gate at entry	LS	1	4,500,000	4,500	
5	**Kulu & LS/Khegsu**				**900**	
5-1	Construction of boundary wall	m	300	3,000	900	
6	**Mandi/Takoli**				**83,000**	
6-1	Expansion of market yard building	m2	3100	24,436	75,800	
6-2	Provision of interlocking concrete paver blocks in the yard	m3	2800	1,500	4,200	
6-3	Renovation of existing toilet	LS	1	1,000,000	1,000	
6-4	Renovation of existing drains	LS	1	2,000,000	2,000	
7	**Shimla & Kinnaur/Bhattakuffar**				**18,500**	
7-1	Provision of electrical works (wiring/replacing cableing etc)/high mast light	LS	1	2,900,000	2,900	
7-2	Construction of enrty & existing gates	gates	2	2,000,000	4,000	
7-3	Paver block flooring	m2	3500	1,750	6,100	
7-4	Fencing/retaining walls /breast wall	LS	1	4,500,000	4,500	
7-5	Installing of weigh bridge	LS	1	1,000,000	1,000	
8	**Shimla & Kinnaur/Tapri**				**20,600**	
8-1	Provision of electrical works (wiring/replacing cableing etc)/high mast light	LS	1	5,000,000	5,000	
8-2	Construction of enrty & exit gates	gates	2	1,000,000	2,000	
8-3	Cobble Stone flooring	m2	4,060	1,750	7,100	
8-4	Fencing/retaining walls /breast wall	LS	1	6,500,000	6,500	
9	**Sirmaur/Ghandoori**				**12,800**	
9-1	Construction of shops	m2	350	22,625	7,900	
9-2	Construction of toilet block	m2	24	22,625	500	
9-3	Installing toilet facilities (septic tank & soak pit)	LS	1	592,778	600	
9-4	Provision of electrical works & installation of high mast light	LS	1	3,762,435	3,800	
10	**Sirmaur/Khairi**				**10,700**	
10-1	Construction of office & shops	m2	300	22,625	6,800	
10-2	Construction of auction hall	m2	250	11,313	2,800	
10-3	Construction of toilet block	m2	21	22,625	500	
10-4	Installing toilet facilities (septic tank & soak pit)	LS	1	592,778	600	
11	**Construction of shops**				**51,600**	
11-1	Construction of shops	m2	900	11,313	10,200	
11-2	Construction of auction platform	m2	2,000	11,313	22,600	
11-3	Construction of toilet block	m2	62	22,625	1,400	
11-4	Installing toilet facilities (septic tank & soak pit)	LS	1	592,778	600	
11-5	Installing of boundary wall	m	1,000	4,200	4,200	
11-6	Construction of entry gates	units	2	500,000	1,000	
11-7	Provision of electrical works & installation of high mast light	LS	1	11,584,484	11,600	
12	**Solan/Vaknaghat**				**29,400**	
12-1	Construction of office & shops (10 shops)	m2	750	22,625	17,000	
12-2	Construction of auction platform	m2	350	11,313	4,000	
12-3	Construction of check posts (4m x 4m x2)	m2	32	22,625	700	
12-4	Construction of toilet block	m2	21	22,625	500	
12-5	Installing toilet facilities (septic tank & soak pit)	LS	1	592,778	600	
12-6	Installing of boundary wall	m	350	4,200	1,500	
12-7	Construction of entry gates	units	2	200,000	400	
12-8	Provision of electrical works & installation of high mast light	LS	1	4,707,779	4,700	
13	**Solan/Kunihar**				**22,100**	
13-1	Construction of office & shops	m2	600	22,625	13,600	
13-2	Construction of auction platform	m2	250	11,313	2,800	
13-3	Construction of toilet block	m2	21	22,625	500	
13-4	Installing toilet facilities (septic tank & soak pit)	LS	1	592,778	600	
13-5	Installing of boundary wall	m	160	4,200	700	
13-6	Provision of electrical works & installation of high mast light	LS	1	3,939,271	3,900	
3.5	**Empowerment of CAs**	LS	1		**20,000**	
	<Trainings>					
(1)	Concept of fair trading and necessary skills of auction management					
(2)	Lows and regulations related to agri. marketing business					
(3)	Quality standards, grading and evaluation of agri. produce					
(4)	Post-harvest management of agri. produce					
(5)	Sanitary management of market facility and agri. produce					
(6)	Market information system (eNAM, EMI cell of HPSAMC, etc.)					
(7)	Business management (business planning, financing, accounting, documentation & filing, computer operation & communication, etc.)					
Total - 3.	**Value Chain and Market Development Component**				**541,100**	

Source: JICA Survey Team

Att.8.2.1-4 Cost Breakdown of Institutional Development Component

4. Institutional Development Component

No.	Item	Unit	Quantity	Unit Price '000	Total Cost '000	Remarks
4. Institutional Development Component						
4.1	**Strengthening of DOA**				**1,347,000**	
4.1.1	Recruitment of PMU Staff (Out-Source)				**861,000**	
	(1) State PMU	year	9.0		86,644	newly proposed in Dec. 2020 (considering 2% annual increase of salary)
	(2) District PMU	year	8.0		143,010	newly proposed in Dec. 2020 (considering 2% annual increase of salary) 4 Marketing Officer are added
	(3) Block PMU	year	8.0		631,730	newly proposed in Dec. 2020 (considering 2% annual increase of salary)
4.1.2	Capacity Development of Project Staff on PDCA Cycle				**16,000**	
	(1) Orientation Workshop of PMU Staff	year	4	103	412	
	(2) Training of District & Block Project Managers on PIM, PRA and CDP	year	3	155	465	
	(3) Conceptual Training for PMU Staff on PDCA Cycle	year	2	161	321	
	(4) Workshops to establish PDCA cycle	year	3	103	309	
	(5) Exposure Visits of PMU Staff (Other States)	year	8	204	1,632	
	(6) Peer Learning Workshop		60	10	600	
	(7) Organising periodical review meetings, workshops etc.		50	35	1,750	
	(8) HRD training on Team building , leadership, Motivation/inspiration and Stress management .		76	60	4,560	
	(9) Agriculuture Extension Training		8	515	4,120	
	(10) Engineering Training		8	265	2,120	
4.1.3	Review of overall project implementation plan	LS	1		**1,000**	
4.1.4	Preparation, monitoring & update of Supply Chain	LS	1		**1,000**	
4.1.5	Preparation , monitoring & update of CDP for each sub-project	LS	1		**1,000**	
4.1.6	Establishment of MIS &GIS and Monitoring System	LS	1		**10,000**	
4.1.7	Procurment of ICT related equipment				**126,000**	
	(1) Procurement of general use IT equipment	LS	1	72,738	72,738	
	(2) Procurement of Engineering survey equipment	LS	1	20,047	20,047	
	(3) Establishment of GIS/MIS Cell (New)	LS	1	2,434	2,434	
	(4) Strengthening of GIS/MIS Cell (Existing)	LS	1	9,903.05	9,903	
	(5) Procurement of time series Satellite Images	LS	-	-	-	
	(6) Hiring of services for GIS survey, preparation of base spatial	LS	1	5,480	5,480	
	(7) Hiring of Services for Devepment of software application	LS	1	5,300	5,300	
	(8) ERP for office automation	LS	-	-	-	
	(9) Capacity building of PMU staff on MIS/GIS , Aerial Monitoring and ICT environment	LS	1	6,200	6,200	
	(10) Hiring of Resources Persons (additional)	LS	1	3,780	3,780	
4.1.8	Construction of Training Centres		5	20,000	**100,000**	SPMU and 4 DPMU level, RCC Building, 4 floors, 200m2 x 4
4.1.9	Procurement of Equipment and Tools to PMU				**231,000**	
	(1) Rented accommodation for office space for 2 DPMU		168	30	5,040	
	(2) Rented accommodation for office space for 10 BPMU		840	20	16,800	
	(3) Furniture & office-equipments, (NewPMUs)		7	1,000	7,000	
	(4) Replacement/ updation of Furniture		12	670	8,040	
	(5) Transport facilities at PMU Procurement of 3 vehicles (SPMU 3) and hiring of 24 No. MUV (SPMU 2,DPMU08,BPMU 14), 20 no Motor cycles,Scooties 20 No		1	115,860	115,860	3 new vehicle@25 lakhs=75 lakh, 20 M/Cycle @ 0.95 lakhs=19 lakh,Scooty @0.85 lakh=17 lakhs, 22 hired vehicle @.425 lakhs per month for 8 years=950.40 lakhs, 2 hired vehicle @ .45 lakhs per month for 9 years=97.20 lakh
	(6) Visual aids extension equipment		0	0	0	Shifted to ICT
	(7) Survey and design equipments at PMU		0	0	0	Shifted to ICT
	(8) Publicity events,public awareness materials,inaugural ceremonies of sub projects		L.S	L.S.	3,000	
	(9) Hiring of support services		192	60	11,520	
	(10) Agricultural machinery and equipmemt for demonstration activities		1	61,040	61,040	Refer to sheet "2_Att-2 Cost Breakdown for 2.2.5 Provision of Farm Machinery"
	(11) Project Operational expenses		L.S	L.S.	3,000	
4.2	**Strengthening of Extention Service Function**				**145,000**	
4.2.1	Preparation of Information, Education and Communication (IEC) Material for Dissemination				**28,000**	
	(1) Posters	1	500		0	
	(2) Wall writings & fixing of posters	306	2		612	
	(3) Street plays on present situation and improvement	306	6		1,836	
	(4)Publication of handouts and manuals	1	1,050		1,050	
	(5) Preparation of video programs	16	50		800	
	(6) Display of shows in project villages	306	5		1,530	
	(7) Farmers' fair in each Cluster	30	350		10,500	
	(8) Dissemination of technology through demonstration	1,184	10		11,840	
4.2.2	Capacity Development of Agriculture Extension Staff				**12,000**	
	(1) Farming practices on common and exotic vegetables with field exercises	24	125		3,000	
	(2) Protected cultivation with field exercises	24	125		3,000	
	(3) Integrated Pest Management	24	53		1,272	
	(4) Integrated Nutrition Management	24	53		1,272	
	(5) Soil analysis and soil health management	24	53		1,272	
	(6) Market-led extension	24	53		1,272	
	(10) Food diversification / Nutrition improvement/ Gender mainstreaming	24	53		1,272	
4.2.3	Capacity Development of Engineering Staff				**6,000**	
	(1) Application of the Guideline and Check list	24	53		1,272	
	(2) Data preparation and record keeping of pre-condition of each sub-projects.	24	53		1,272	
	(3) Design of Pumping machinery.	24	53		1,272	
	(4) Collaboration with extension officers for O&M activities / Gender mainstreaming	24	53		1,272	
	(5) Organization of design documents	24	53		1,272	
4.2.4	Strengthening of Research- Extension-Farmer Linkages and Joint Visits	25	200		**5,000**	
4.2.5	Internationl/national/state level workshop/seminars	25	200		**29,000**	
	(1) Organisation of Seminar /national workshops	4	2,500		10,000	
	(2) Organisation of Ineternational workshops	2	7,500		15,000	
	(3) State level workshop/seminars	16	250		4,000	
4.2.6	Overseas Training , Exposure/Study visits of Porject staff and other stakeholders	10	3500		**35,000**	
4.2.7	Upgrading of infrastructure of State Agriculture Management and Extension Training Institute (SAMETI)	1	30,000		**30,000**	Refer to DPR Vol.II(Appendices) Page 291
4.3	**Baseline Survey and Impact Assessment**				**8,000**	
4.3.1	Conduct baseline survey	1	2,000		**2,000**	
4.3.2	Conduct mid-line survey	1	2,000		**2,000**	
4.3.3	Conduct end-line survey	1	3,500		**3,500**	
Total - 4. Institutional Development Component					**1,500,000**	

Source: JICA Survey Team

1.1 Unit Price of Minor Irrigation Schemes

Sr. No.	Component	Unit	Bilaspur	Chamba	Hamirpur	Kangra	Kinnaur	Kullu	Lahaul & Spiti	Mandi	Shimla	Sirmour	Solan	Una	Total Quantity	Revised Unit Cost	Amount (In Mil)	Refer
	Subproject	No.	19	16	23	60	3	26	21	54	24	9	22	19		***as on 30.11.2020***		
	C.C.A	Ha.	293	296	307	2,289	20	643	634	1,381	476	272	579	243				
1	Water Harvesting Structure	No.	15	-	5	18	-	2	-	6	-	-	2	7	55	1,123,344	61.78	ISC-001
2	Percolation Well	No.	3	-	10	2	-	-	-	7	-	3	5	1	31	1,195,119	37.05	ISC-002
3	Pump House	No.	19	-	22	14	-	2	-	15	-	3	7	19	101	422,568	42.68	ISC-003
4	Protection Work/Spur	No.	43	-	46	157	-	-	-	2	-	5	4	-	257	169,771	43.63	ISC-004
5	Pumping Machinery	No.	19	-	22	19	-	2	-	15	-	3	7	19	106	397,842	42.17	ISC-005
6	Tube Well	No.	-	-	1	-	-	-	-	-	-	-	-	10	11	1,504,079	16.54	ISC-006
7	Rising Main	Rmt.	10,725	-	10580	11,200	-	1,500	-	9100	-	4900	7000	8275	63,280	2,518	159.34	ISC-007
8	Main Delivery Tank	No.	19	-	22	16	-	2	-	17	-	3	7	19	105	185,709	19.50	ISC-008
9	Distribution System (HDPE	Rmt.	80,900	19,290	81845	91,200	11,000	39,300	61,500	212490	13,690	22975	11050	70000	715,240	524	374.44	ISC-009
10	Outlet Chamber	No.	792	160	1062	1,399	10	279	281	3111	448.00	28	200	686	8,456	9,039	76.44	ISC-010
11	Sluice Valve Chamber	No.	-	-	191	229	-	-	-	-	-	-	2	-	422	9,424	3.98	ISC-011
12	Nallah(surface water) crossing/ Road crossing	No.	28	-	20	42	-	-	-	4	-	6	4	11	115	11,209	1.29	ISC-012
13	Retaining Wall	No.	45	206	34	241	-	157	83	192	390	29	744	33	2,154	121,012	260.66	ISC-013
14	Diversion Weir	No.	-	17	-	43	-	22	21	41	20.00	5	8	-	177	221,564	39.22	ISC-014
15	Intake Chamber	No.	11	16	-	37	2	61	39	41	24.00	9	49	-	289	5,197	1.50	ISC-015
16	Main Channel	Rmt.	-	11165	-	96,985	-	23,380	28300	80950	63,820	2200	20300	-	327,100	2,107	689.20	ISC-016
17	Pucca Field Channel	Rmt.	-	5700	-	59,850	600	31,850	14800	0	46,100	2900	5700	-	167,500	1,199	200.83	ISC-017
18	Storage Tank	No.	57	28	14	37	-	20	20	81	29.00	16	17	4	323	153,187	49.48	ISC-018
19	SOP (Supply of Power)	No.	19		22	15		2		15		3	7	19	102	500,000	51.00	As per DPR
	Total Cost																**2,170.73**	
	Others																	
1	Sump Well	No.	12	-	3	7	-	1	-	4	-	-	2	-	29	112,828	3.27	ISC-019
2	Dropping Structure	No.	-	8	-	451	1	16	21	164	2943	-	1	-	3605	5,464	19.70	ISC-020
3	Water Opening gates	No.	-	16	-	37	1	122	154	218	1985	-	24	-	2557	1,996	5.10	ISC-021
4	Water Measuring Device	No.	-	-	-	-	-	-	-	-	11	-	2	-	13	1,000	0.01	As Per DPR
5	GI Pipe	Rmt.	-	-	-	-	-	-	105	-	-	3200	62	-	3367	2,518	8.48	ISC-007
6	Feeder Channel	Rmt.	-	-	30	-	-	-	-	-	-	-	-	-	30	2,107	0.06	ISC-016
7	Dyke	No.	-	-	3	-	-	-	-	-	-	-	-	-	3	121,012	0.36	ISC-013
8	Fencing	Rmt.	1125	-	0	-	-	-	-	-	-	-	500	-	1625	416	0.68	As per DPR
9	Pattra Cutting	Rmt.	-	50	-	2952	-	-	-	-	3372	416	120	-	6910	215	1.49	As per schedule
	Total Cost																**39.15**	
	G. Total																**2210**	

Attachment 8.2.2 List of Unit Price of Infrastructure Component-2

Water Harvesting Structure (5.50 x3.20 x 5.0 mtr.) **ISC-001**

Sr. No	Particulars	As per DPR					As per HPSR	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1	Excavation in foundation & trenches etc. in earth work, lift upto 1.50 Metres stacking the eacavated soil not more than 3 metres clear from the edge of the excavation and then returning the stacked soil in 15 cm layers, when required in to plinths sides of foundations etc., consolidating each deposited layer by ramming and watering and then disposing of all surplus exacavated earth as directed with in a lead of 20 metres.							
a)	Pick work (100%)	30.85	Cum.	263.50	8128.98	361.88	HPSR 2009 - 07040000	11164.00
b)	Chiesslling/wedging out of rock(where blasting is prohibited)							
	Soft rock 50% : Hard rock 50%	21.25	Cum.	1317.00	27986.25	1675.96	HPSR 2009 - 07040500	35614.15
2	Cutting in earth work and disposal of excavated earth upto a lead of 20 meters:-							
	Chiesslling/wedging out of rock(where blasting is prohibited							
	Soft rock 70% : Hard rock 30%	25.00	Cum.	829.00	20725.00	1155.42	HPSR 2009 -07010501	28885.50
3	Providing and laying cement concrete 1:1.5:3 (1 cement : 1.5 sand :3 graded stone aggregate 20mm nominal size finishing with Curing complete excluding the cost of Form work) in foundation and plinth	52.14	Cum.	7932.24	413610.79	6376.30	HPSR 2020 - 4.1.2	332479.41
4	Providing and laying cement concrete 1:4:8 (1 cement : 4 sand : 8 graded stone aggregate 40 mm nominal size) and curing complete excluding the cost of form work in foundation and plinth.As per HPSR 2009 Item No. 09130100	104.50	Cum.	5310.00	554895.00	4955.20	HPSR 2020 - 4.1.8	517818.40
5	Providing the form work of ordinary timber planking/steel plates so as to give rough finish including centering,shuttering,strutting & propping etc							
	Mass Concrete ,Vertical surfaces such as walls etc.	212.86	Sqm.	268.40	57131.624	411.15	HPSR 2020 - 5.9.2	87517.39
6	Providing MS/Tor steel reinforcement for RCC work i/c bending ,binding and placing in position complete upto floor two level	969.13	Kg.	62.10	60183.25	75.40	HPSR 2020 - 5.22.1	73072.74
7	Providing and laying stones/boulders filling under floor including watering, ramming, consolidating & dressing etc. in all lifts & leads complete in all respect.	6.80	Cum.	1992.70	13550.36	1247.25	HPSR 2020 - 23.5	8481.30
8	Providing, laying, jointing and fixing GI Flanged Pipes (IS : 1239) of 150mm dia, & medium Class conforming to IS specification capable to withstand the required hydraulic test pressure as per IS code in random length of 6.00 mtrs. with Plain ends and jointed with flange table 5 conforming to IS-6392-1971 (latest with up to date amendments) i/c all fittings such as bends, tees & tail pieces etc. the welding of flanges to be done on both faces in double layer to make the joint leak proof according to relevant BIS standard and specification in all respect and to the entire satisfaction of the engineer in charge							
	For drain out the WHS water when not reqired	6.00	Rmt.	2295.9	13775.40	2665.63	HPSR 1993-37 (A)	15993.78
9	P/L cast iron sluce valve 150mm dia including all necessary fittings.	2.00	Nos.	14609.46	29218.92	6158.65	HPSR 2020 - 18.31	12317.30
			Total Rs.		**1199205.57**			**1123343.97**
			Or say Rs.		**1199206.00**			**1123344.00**

Water Harvesting Structure (4 m Dia & 10 m Depth) **ISC-002**

S.No.	Decription of item	As per DPR					As per HPSR	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1)	Excavation in foundations, trenches etc., in earth work, lift upto 1.50 Metres stacking the excavated soil not more than 3 metres clear from the edge of the excavation and then returning the stacked soil in 15cm. layers, when required in to plinths sides of foundations etc., consolidating each deposited layer by ramming and watering and then isposing of all surplus excavated earth within all leads and lifts in all kind of soils as per direction & entire satisfaction of Engineer incharge	40.84	Cum	281.40	11492.00	171.40	HPSR 2020 - 2.8	6999.98
2)	Wet well sinking in gravel inccluding all pumping, soring & bailing out water etc. complete in all respect as per direction & entire satisfaction of Engineer incharge.							
a)	From spring level to 3.00 mtr. depth	61.25	Cum	1957.45	119893.81	1957.45	As per DPR	119893.81
b)	From 3.00 mtr.to 6.0 mtr. depth	61.25	Cum	2339.00	143263.75	2339.00		143263.75
c)	From 6.0 mtr. to 9.0 mtr. depth	40.84	Cum	2607.65	106496.43	2607.65		106496.43
3)	Steel work in single section including cutting, hoisting, fixing in position and applying a priming coat of red lead paint iin R.S.Joists,channels and similar works complete in all respect.	760.51	Kg.	77.90	59244.00	77.55	HPSR 2020 - 10.1	58977.55
4)	Lowering of well curb complete in all respect as per direction & entire satisfaction of Engineer incharge	7.61	Qtl.	90.00	684.90	90.00	As per DPR	684.90
5)	Providing & Laying cement concrete 1:1.5:3 (1 cement : 1.5 sand : 3graded stone aggregate 20mm nominal size) and curing complete excluding cost of form work & reinforcement for reinforced concrete work in:-							
a)	Suspended floors roofs, landings and shelves and their supports, balconies, beams, girders, bressumers and cantilevers upto floor two level i/c vibrating compaction & mechanical mixing with in all leads and lifts complete in all respect as per direction & entire satisfaction of Engineer incharge	14.02	Cum	6729.69	94350.00	7835.75	HPSR 2020 - 5.3	109857.22
b)	Columns pillars, posts etc. i/c vibrating compaction & mechanical mixing with in all leads and lifts complete in all respect as per direction & entire satisfaction of Engineer incharge	10.64	Cum	7047.00	74980.00	7633.20	HPSR 2020 - 5.2	81217.25
6)	Providing and laying no fine concrete in 1:4 with 20mm nominal size i/c vibrating compaction & mechanical mixing with in all leads and lifts complete in all respect as per direction & entire satisfaction of Engineer incharge.	24.92	Cum	4467.40	111328.00	4467.40	As per DPR	111327.61
7)	Providing & fixing of IS marked Electric Resistance Welded M.S Slotted pipe 200 mm dia nominal size housing 7.1 mm thickness of slott size 3.0mm, as per IS 8110:2000 II revision, reaffermed 2006, having outside diameter of 219.10 mm housing, screwed and socketed confirming to IS 4270:2001 with up to date amendments, if any about 4 m to 7 m in length, welded without any circumfencial joints into bore hole in vertical position including cost of all scaffolding derricks, poles, clamps embedded in foundation etc. including cost of all cutting, threading and welding of pipes etc. within all leads and lifts, complete in all respects as per the direction of the Engineer-in-charge.	31.50	Rmt.	2322.00	73143.00	2124.20	HPSR 2020 - 23.11.3	66912.30
8)	Providing & fixing of 6mm M.S Slotted sheet of slot size 3.0mm, a including cost of all cutting, threading and welding etc. within all leads and lifts, complete in all respects as per the direction of the Engineer-in-charge	5.65	Sqm.	1890.00	10678.50	1890.00	As per DPR	10678.50
9)	Providing form work with steel plates 3.15mm.thick welded with angle iron in frame 30x30x5mm. so as to give a fair finish including centring, shuutering, strutting and propping etc. with wooden battens and ballies, height of propping and centring below supporting floor to ceiling not exceeding 4 Mtrs. and removal of the same for insitu-reinforced concrete &							

Attachment 8.2.2 List of Unit Price of Infrastructure Component-3

a)	Vertical surfaces such as walls (any thickness) partitions and the like i/c attached pillasters, buttresses, plinth and string courses and the like complete in all respect.	196.47	Sqmts.	225.00	44206.00	411.15	HPSR 2020 - 5.9.2	80778.64
b)	Flat surfaces such as soffits of suspended floor such as room, slab projection, front & back side etc.	14.36	Sqmts.	366.70	5266.00	468.30	HPSR 2020 - 5.9.3	6724.79
c)	Sides and sofits of beams.Beam haunchings,cantilevers girders,Bressumers and lintels upto 1 metre in depth.	65.60	Sqmts.	298.90	19608.00	387.15	HPSR 2020 - 5.9.5	25397.04
10)	Providing Mild Steel/Tor steel reinforcement for RCC work including bending binding and placing in position with in all leads and lifts complete in all respect for beam, lintels & slab etc	2000.60	Kg	54.50	109033.00	75.40	HPSR 2020 - 5.22.1	150845.24
11)	Coursed rubble masonry coursed with hard stone of approved quality in foundation and plinth including raking out joints in : Cement mortar 1:6 above NSL/GL with in all leads and lifts complete in all respec	6.28	Cum.	5511.47	34612.00	5360.00	HPSR 2020 - 7.7	33660.80
12)	20 mm cement plaster in single coat on rough side of brick/stone masonry for interior plastering up to floor two level including arrises, internal rounded angles, chamfers and/or rounded angles not exceeding 80mm in girth and finished even and smooth in Cement Mortar 1:4 (1 Cement: 4 Sand) with in all leads and lifts complete in all respect	29.59	Sqmts.	218.60	6468.00	255.80	HPSR 2020 - 13.6.1	7569.12
13)	Providing 200 mm wide CI rungs with chequered or ribbed non slip surface i/c fixing in structure with 200 x 200x 100 mm cement concrete 1:3:6 (1 cement: 3 sand :6 graded stone aggregate 20 mm nominal size) with in all leads and lifts complete in all respect as per direction & entire satisfaction of Engineer incharge.	35.00	Each	233.30	8166.00	233.30	As per DPR	8165.50
14)	Providing and laying stones/boulders filling under floor including watering, ramming, consolidating & dressing etc. in all lifts & leads complete in all respect.	6.69	Cum.	1674.90	11205.00	1247.25	HPSR 2020 - 23.5	8344.10
15)	Providing and laying cement concrete 1:3:6 (1 cement:3sand:6 graded stone aggregate 40 mm nominal size)and curing complete excluding cost of form work in foundation and plinth i/c vibrating compaction & mechanical mixing with in all leads and lifts complete in all respect as per direction & entire satisfaction of Engineer incharge	1.72	Cum.	4691.80	8070.00	5291.95	HPSR 2020 - 4.1.6	9102.15
16)	Providing and fixing of CI Man hole cover 500mm nominal dia of medium duty and the weight of cover and frame should not less than 116 kg with in all leads and lifts complete in all respect as per direction & entire satisfaction of Engineer incharge.	2.00	Nos.	6843.00	13686.00	6843.00	As per DPR	13686.00
17)	Supplying and packing of gravel around the outer side of percollation well to the entire depth of the well (2 to 5mm) with in all leads and lifts complete in all respect as per direction & entire satisfaction of Engineer incharge	27.69	Cum.	2024.70	56063.94	1247.25	HPSR 2020 - 23.5	34536.35
			Total		**1121938.33**			**1195119.03**
			Say Rs.		**1121938.00**			**1195119.00**

Pump House (Size = 3.00X3.00X3.00 m) **ISC-003**

Sr. No.	**Description of items**	**As per DPR**					**As per HPSR**	
		Qty.	**Unit**	**Rate**	**Amount**	**Rate**	**Code No.**	**Amount**
1	Cutting in earth work and disposal of excavated earth up to a lead of 20 meters to develop pump site. (PickWork: 100%)	12.00	Cum.	207.90	2494.80	210.42	HPSR 2009 -07010200	2525.04
2	Excavation in foundation trenches etc. in all kinds of soil such as pick work,jumper work,blasting hard or soft rock,by chieselling where the blasting work is water with in all heights stacking the excavated soil with in all leads clear from the edge of excavation and then returning the stacked soil in 15 cms. layers complete in all respect.(PickWork: 100%)	11.05	Cum.	351.70	3886.29	361.88	HPSR 2009 - 07040000	3998.77
3	Providing and laying cement concrete 1:4:8 (1 cement,4sand,8 graded stone aggregate 40 mm nominal size)and curing complete excluding cost of form work in foundation and plinth with in all leads and lifts complete in all respect.	2.64	Cum.	5310.00	14018.40	4955.2	HPSR 2020 - 4.1.8	13081.73
4	Random Rubble Masonry with hard stone of approved quality in foundation & plinth including levelling up with cement concrete 1:6:12 (1 cement: 6 coarse sand: 12 graded stone aggregate 20 mm nominal size) upto plinth level with Cement Mortar 1:6.	5.28	Cum.	5038.10	26601.17	5002.35	HPSR 2020 - 7.1.1	26412.41
5	Brick work using common burnt clay building bricks above plinth level to 2nd floor leve1 in cement mortar 1:6(1Cement, 6 Sand) of 2nd class bricks complete in all respect with in all leads and lifts.	7.48	Cum.	6644.20	49698.62	6317.9	HPSR 2020 - 6.26.2	47257.89
6	Providing form work with steel plates welded with angle iron in frame 30X30X5 mm thick so as to give a fair finish :-							
	a) Flat surfaces such as soffits of suspended floor such as room, slab projection, front & back sides	13.51	Sqm.	432.40	5841.72	468.3	HPSR 2020 - 5.9.3	6326.73
	b) Edges of Slab & Lintels	25.24	Rmt.	44.90	1133.28	131.5	HPSR 2020 - 5.9.16.1	3319.06
7	Providing and laying cement concrete (1:1.5:3) and curing complete excluding cost of form work and reinforcement in Suspended floor, roof, landing etc.	8.02	Cum.	7932.24	63616.56	6656.05	HPSR 2020 - 5.1.2	53381.52
8	Steel work in single sections including cutting, hoisting, fixing in position and applying a primary coat of Red lead paint. RS Joists to be embeded in platform beams ISMB 150	959.87	Kg.	82.20	78901.31	77.55	HPSR 2020 - 10.1	74437.92
9	P/L. Tor steel reinforcement for RCC work in slab:- 8mm dia @ 0.2m c/c both ways & cranks or bent up bar alternate from L/7 of pump house size 3.0x3.0x3.0 m.	341.41	Kg.	62.10	21201.56	75.40	HPSR 2020 - 5.22.1	25742.31
10	Providing and fixing MS BP sheet 3.15mm thick in eaves board/facia/ soffits/ceiling including cutting, fixing and welding to steel roof members and applying a coat of red lead the instruction of Engineer in charge.primer complete as per	30.33	Sqm.	2385.40	72349.18	3363.25	HPSR 2020 - 10.5.2	102007.37
11	Providing and fixing angle iron doors, window frames angle of 40x 40x6 mm including hinges jams etc.	67.20	Rmt.	77.37	5199.26	87.2	HPSR 2020 - 10.31	5859.84
12	Pdg & fixing 1.00 mm thick MS steel sheet garrage door,windows & ventilator with frame of 40X40X6 mm angle iron 3.00 mm M.S. gusset plates at the junction and corner, all necessery fittings complete incluiding applying a priming coat of red lead paint.	6.12	Sqm.	3165.20	19371.02	3511.1	HPSR 2020 - 10.5.1	21487.93
13	Providing 40X5 mm flat iron hold fast 40 cms long including fixing to frame with 10 mm diameter bolts nuts and wooden plugs and embedding in cement concrete block 30X10X15 cm. 1:3:6 (1 cement :3 sand :6 graded stone aggregate 20 mm nominal size complete in all respect with all leads and lifts.	14	Each	109.30	1530.20	139.7	HPSR 2020 - 9.53	1955.80
14	Providing and fixing MS round or square bars with MS flats at required spacing in frames of window and clerestory windows with in all leads and lifts complete in all respect.	35.57	Kg.	87.90	3126.60	129.2	HPSR 2020 - 9.48.1	4595.64

Attachment 8.2.2 List of Unit Price of Infrastructure Component-4

15	Providing and fixing M.S.Handles with necessary screws complete in all respect (125 mm)	6	Each	55.70	334.20	32.4	HPSR 2020 - 9.66.1	194.40
16	Providing and fixing M.S.Tower bolts (Barrel type) with necessary screws complete in all respect (250x10mm)	6	Each	82.50	495.00	70.05	HPSR 2020 - 9.63.1	420.30
17	Providing and fixing sliding door bolts,black enamelled with nuts and screws complete in all respect (250x16mm)	1	Each	255.60	255.60	159.8	HPSR 2020 - 9.62.2	159.80
18	6 mm thick cement plaster to ceiling in C.M.1:3 (1Cement,3 sand) with in all leads and lifts complete in all respect.	13.51	Sqm.	102.90	1390.18	142.35	HPSR 2020 - 13.16	1923.15
19	20 mm thick cement plaster in single coat on rough side of brick/stone/concrete walls for interior plastering up to floor -2 level including arrisses,internal rounded angles,chamfers and or rounded angles not exceeding 80 mm in girth and finished even and smooth with in all leads and lifts in C.M 1:4 (1 cement,4 sand)	71.23	Sqm.	210.30	14979.67	255.80	HPSR 2020 - 13.6.1	18220.63
20	Provinding and laying stones/boulders filling under floor etc. in all lifts & leads complete in all respect	1.35	Cum.	1992.70	2690.15	1247.25	HPSR 2020 - 23.5	1683.79
21	40 mm thick cement concrete flooring 1:2:4 (1cement,2 sand,4 graded stone aggregate 20 mm nominal Size) laid in one layer and finished with a floating coat of neat cement with in all leads and lifts complete in all respect.	9.00	Sqm.	369.50	3325.50	378.95	HPSR 2020 - 11.3.1	3410.55
22	Painting two coats (excluding priming coat)on new steel and other metal surface under coat with ready mixed paint brusing to give an even shade including cleaning the surface all dirt,dust and other foreign matter, with white readymixed paint, with readymixed paint other than white	13.77	Sqm.	76.20	1049.27	90.2	HPSR 2020 - 13.53	1242.05
23	White washing with lime on un-decorated wall surfaces (two coats) to give an even shade including throughly brooming the surface to remove all,dirt,dust,mortar and other foreign matters with in all leads and lifts complete in all respect.	43.39	Sqm.	15.40	668.21	17.45	HPSR 2020 - 13.37.1	757.16
24	Finishing wall with water proofing cement paint of approved brand and manufacture (two coat) brushing to give an even shade I/c cleaning of oil, dirt and other foreign matters, sand papering and knotting etc.	35.40	Sqm.	58.59	2074.09	61.2	HPSR 2020 - 13.44.1	2166.48
		Total in Rs.			**396231.84**			**422568.29**
		Or Say Rs.			**396232.00**			**422568.00**

Protection Work/Spur (10.00 mtr. Length) **ISC-004**

Sr. No.	Description of Item	As per DPR					As per HPSOR 2020	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1	Excavation in foundation, trenches etc. in earth work , lift up to 1.50 metres stacking the excavated soil not more than 3 metres clear from the edge of excavation and then returning the excavated soil in 15 cm. Layers, when required in to plinth , side of foundation etc. consolidating each deposited layer by ranmming and watering and then disposing of all surplus excavated earth as directed with in a lead of 20 metres. (Pick Work: 100%)	18.75	Cum	348.20	6529.00	361.88	HPSR 2009 - 07040000	6785.25
2	Wire crates of G.I wire filled with boulders with squarecut faces against the wire (wire crates to be measured and paid for separately)	46.88	Cum	1814.30	85045.00	1646.51	HPSR 2009-1131020000	77180.16
3	Wire crates of G.I wire filled with bolders with squarecut faces against the wire (Bolder filling to be measured and paid for separately) G.I wire 5mm thick corresponding to SWG-6.(15cm*15cm)mesh.	225.00	Sqm	313.89	70625.00	381.36	HPSR 2009-1131030202	85806.00
			Total		**162199.00**			**169771.41**
			Or say Rs.		**162199.00**			**169771.00**

Pumping Machinery **ISC-005**

Sr. No.	Description of items	As per DPR					As per HPSOR 2020	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1	Supply of **Submersible** water pumping set of KSB make with Model BPD 242/4 comprising to latest relevant BIS Code. The pump should be fittedwith Bronze Impeller of suitable alloys as per BIS:5659-1979 latest suitable for Raw water having greased packed bearings and shaft with wound stator on motor side and with shaft protection sleave on pump side ensuring better life for shaft confirming to BIS specification. The pump shall be directly coupled to a submersible squirrel cage electric induction motor of 5 HP, 2900 RPM of reputed make conforming to BIS 9283-1979 latest with upto date amendments. Totally dust and water proof for submersible duty isolated from the pump by intermed into casing with double mechanical seal in oil chamber and grease packed lubricated bearings and provided with stainless steel thrust bearing plate to with standing vertical loads with minimum wear and tear. It should also be fitted with a device to take up expansion of water with the heating of motor. The pump set should include all items containing item no. 2 & 3, water level guards, erection clamps , cable clips and depth gauge etc. and suitable for operation on data	2 X 12.5 HP	Job	10000 /HP	250000.00	10000.00		250000.00
A)	**SITE CONDITIONS:- .**							
a)	Location of site:-							
b)	The altitude of place in which the motor is intended to work in ordinary service.814.35 Meter							
c)	Humidity:- Humid during rainy season							
d)	Nature of atmosphere:- Normal							
e)	Detail of quality of water:- Clear water							
f)	Water free from sand or not:- Yes							
g)	Water corrosive or not:- Not corrosive							
h)	Turbidity:- Less than 50 PPm							
i)	Any other information if required							
B)	**OPERATING CONDITIONS**							
a)	Type of current:-AC. Three phase							
b)	Operating frequency:50 Hz.							
c)	Rated voltage:400(+/-)							
d)	System of earthing if any to be adopted: Double							
e)	Speed of revolution: **2900rpm**							
f)	Direction of rotation:							
g)	No. of working hours per day.20 Hour							
h)	The maximum temperature of cooling air and water in the place in which the pump set is intended to work in ordinary service Temperature of place to be specified 20 degree to 42 degree centigrade							
C)	**MOTOR**							
a)	Ref. to BIS code:BIS 9283-1979 with upto date amendments							
b)	Type of enclosure of motor.As per BIS-4691-1985 (Latest)							

Attachment 8.2.2 List of Unit Price of Infrastructure Component-5

c)	Type of duty :Continuous		
d)	Mechanical output in KW:Suitable for driving submersible pumps required for duties specified against pumps. To avoid overloading of motor a margin of about 15-20% may be kept in the rated output to prime Mover.		
e)	Class of insulation :Class –E		
f)	Max. permissible temp. rise of motor reqd. if different from that given in (viii) above.To be specified by the tenderer		
g)	Particulars of test reqd. & where they are to be conducted.As per terms and conditions attached.		
h)	Particulars as to whether voltage limiting device will be employed.Oil immersed star delta starter to be installed between bus bar and motor. Shunt capacitor is also proposed to be installed for improving the power factor at site.Note:- Star delta starter upto 37.5 KW.		
i)	Type of motor:As per BIS 9283-1979 or latest.		
j)	Details of shaft extension required		
k)	Break way torque in terms of rated load torque and the corresponding break-way starting current which may be taken from the supply with the starting apparatus in circuit. Breakway torque to be given by the tenderer but the starting current should not exceed 2.5 times of the full load current.		
l)	Nature of load and any information regarding the driven machine which has a bearing upon the torque reqd. during the accelerated period, the kinetic energy of the moving parts to be accelerated and No. of starts during a specified period. To work the pump offered		
m)	Where possible fault capacity of the system to which the motor is connected.The motor should be able to withstand initial current of 2.5 times the rated current for two minutes without suffering damages or permanent deformations.		
D)	**PUMPS**		
a)	No. of pump required.=2 No. pumps		
b)	Spare parts required. For two years normal maintenance as recommended by manufacturer.		
c)	Type of drive.Electric induction motor.		
d)	Optional fittings required		
E)	**Pump Operating conditions**		
a)	**Total Discharge: 25.00 lps**		
b)	Total head in meters: 34.70 meter		
c)	Length of rising main: 580 meter		
d)	Dia of rising main: 150 mm		
e)	Turbidity of water < than 50 PPm		
f)	Drive type Electric driven		
g)	Limits of total head in which the pump is required to operate.(-) 15% to (+) 10% of total head		
h)	Suction/Delivery size of pump: **To be specified by the tenderer**		
i)	Efficiency of pump: **To be specified by the tenderer**		
	i) Duty head		
	ii) (+) 10% head.		
	iii) (-) 15% head.		
j)	Material of construction To be specified by the tenderer (manufacturers certificate to be appended)		
2	Providing and installation of **DOL starter** of Havells/ L& T make conforming to BIS 8544-1979 latest with upto date amendments for squirrel cage induction motor (make to be specified by the tenderers) mounted on panel board with magnetic type over load release and gas-pots, time legs, under voltage release & initial oil filing as the case may be withsingle phase preventor as per IS 1248 (P-V)-1983 with up to date amendments within all leads and lifts complete in all respect as per entir	2	Nos.
3	Providing and installation of **MS. Angle iron steel** sheet 16 SWG fabricated floor mounting closed (Almirah type) switch board comprising and capable of mounting the following accessories and with all internal electric connections, duly painted within all leads and lifts complete in all respect as per entire satisfaction of Engineer incharge. The drawing of panel board shall be subject to approval of Engineer-in-Charge	1	No.
a)	Providing and installation of **Ammeter** AC supply, **100 mm** square type auto electric of AE/ L&T Rishab make of **suitable** capacity for above motor with selector switches conforming to BIS-1248-1983 latest with upto date amendments within all leads and lifts complete in all respect as per entire satisfaction of Engineer incharge	2	Nos.
b)	Providing and installation of **Voltmeter** AC supply, **100 mm** square type auto electric AE/ L&T/ Rishab make of **0-500 Volts** range for above motor with selector switches conforming to BIS-1248-1983 latest with upto date amendments within all leads and lifts complete in all respect as per entire satisfaction of Engineer incharge	1	No.
c)	Providing and installation of **ICTP switches** with HRC fuses of Havells/L&T/standard /cromption make for required motor of **suitable capacity** and conforming to BIS: 4064-1978 latest with upto date amendments within all leads and lifts complete in all respect as per entire satisfaction of Engineer incharge	2	Nos.
d)	Providing and installation of **MCB** of suitable capacity of Havells/standard/L&T make to feed motors offered by the tenderer conforming to BIS: 2516-1985 latest with upto date amendments with neutral linked under voltage release within all leads and lifts complete in all respect as per entire satisfaction of Engineer incharge	1	No.
e)	Providing and installation of **E.L.C.B.** of Havells/L&T make as per IS: 2516-1977 with upto date amendment which should have control box operating handle and trip/reset bush button on/off indicators, re-indicating off spring condition of the circuit breaker for over current protection. The circuit should be equipped with magnet thermal release with metallic tape etc. It should also be lifted with earth fault for tripping of breaker on occurrence of earth fault on off breaker load side end within all leads and lifts complete in all respect as per entire satisfaction of Engineer incharge	1	No.
f)	Providing & fixing of floor/wall mounted power factor shunt **capacitor** conforming to BIS: 2834-1986 latest with upto date amendments Bajaj/L&T/Asian/crompton make to raise the prevailing power factor at site to 0.95 for direct connection to induction motor individually of suitable rating each including cable of siemens/Gloster/ICC make form bus bar chamber to capacitor and also including L&T/LK/Kilburn make ICTP switches conforming to BIS –4064-1978 or latest with HRC fuses (range to be specified by the tendrerer) within all leads and lifts complete in all respect as per entire satisfaction of Engineer incharge	2	Nos.

Attachment 8.2.2 List of Unit Price of Infrastructure Component-6

g)	Providing and installation of **Hour run meter** of KC/Diplomat make of suitable capacity as per IS: 722 (Latest edition) within all leads and lifts complete in all respect as per entire satisfaction of Engineer incharge	2	Nos.					
h)	Providing and installation of Bus bar chamber having 3 copper bars of suitable rating for full length of 3 phases and one bar of half the rating of full length for neutral conforming to BIS: 8084 – 1976 and 11353-1985 read with 5578-1985 all latest with upto date amendmentsof suitable rating within all leads and lifts complete in all respect as per entire satisfaction of Engineer	1	Set					
i)	Providing and installation of 3 phase indicator lamps complete with toggle switches for individual motors conforming to BIS 3452 part I & II latest with up to date amendments of 15 watts within all leads and lifts complete in all respect as per entire satisfaction of Engineer incharge	1	Set					
4 (a)	Providing & fixing of **Kartar** make **cast iron (class PN. 1.0)** double flanged sluice valve having size **150 mm dia** (one dia. Higher than pump size to delivery of pump) and capable of with standing nominal seat pressure of **10.20** kg/cm^2 as per **IS :780-1984** (Part I) within all leads and lifts complete in all respect as per entire satisfaction of Engineer incharge	2	No.	14847.00	29694.00	14847.00		29694.00
(b)	Providing & fixing of **Kartar** make, **cast iron (class PN. 1.0)** double flanged (swing check type) reflux valve having bye pass arrangement and having size **150 mm dia** (one dia. Higher than pump size to delivery of pump and capable of withstanding nominal seat pressure of **10.20** kg/cm^2 as per **BIS-5312-1984.(Part-I)** within all leads and lifts complete in all respect as per entire satisfaction of Engineer incharge	2	No.	14240.00	28480.00	14240.00		28480.00
5	Providing and laying suitable size copper PVC insulated armoured power core cable **(3.5 mm square)** conforming to BIS 1554 (part-I) – 1988 of latest with upto date amendments siemen/closter/ICC/L&T make form meter of HPSEB- to MCB and form MCB to Bus bar switch and starter (one cable carrying all three phases) including all other electrical equipment/accessories such as thimbles, flexiblepipe solder, nuts and bolts, cable glands, etc. laid in pipes of trenches under floor within all leads and lifts complete in all respect as per entire satisfaction of Engineer incharge. The type, size and make will be subject to approval of HPSEB authorities. In case of non acceptance by HPSEB authorities it shall have to be replaced by the tenderer.	10	Rmt.	350.00	3500.00	350.00		3500.00
6	Supply of Leader /Kirloskar/Kartar make 150 mm dia. cast iron class PN. 1.0 double flanged reflux valve having bye pass arrangement and size equal to dia of rising i.e. 250 mm for withstanding nominal seat pressure of 16.32 Kg/Cm 2 as per BIS 5312-1984 (Part-I) (Head i/c water hammer effect = 148.82 Mtrs)	2	No.	14240.00	28480.00	14240.00		28480.00
7	Providing and layingof PVC joint less flat water proof cable **(4 mm Square)** as per BIS: 694-1990 latest with upto date amendments suitable for the pump sets offered from MCB to motor including all other electrical equipment/accessories such as thimbles, flexible pipes solder, nuts and bolts, cable glands etc laid in pipes of trenches under floor within all leads and lifts complete in all respect as per entire satisfaction of Engineer incharge. The type, size and make will be subject to approval of HPSEB authorities & in case of non acceptance by HPSEB authorities it shall have to be replaced by tenderer	15	Rmt.	500.00	7500.00	500.00		7500.00
8	Providing and laying double loop earthing with G.I. wire & G.I plate complete with material such as charcoal, common salt, GI. Pipes, thimbles, nuts and bolts, digging of pits, GI. Wiring and aluminum strips of required capacity conforming to BIS: 3043-1987 latest with upto date amendments for above motors and other electrical equipments within all leads and lifts complete in all respect as per entire satisfaction of Engineer incharge	2	Job	6000.00	12000.00	6000.00		12000.00
9	Providing and fixing of 100 mm dia. circular dial pressure gauge of Fiebig make complete with all accessories such as stop cock, copper tubing etc. as per IS: 3624-1987 with up to date amendments range 0-52 Kg/cm2 within all leads and lifts complete in all respect as per entire satisfaction of Engineer incharge.	2	Nos.	600.00	1200.00	600.00		1200.00
10	Providing and laying **GMS Tubes of 150mm dia (Medium Class) (IS:1239 - 1979)** jointed with MS flanges of **table-5** as per IS: 6392-1971 (upto a length of 20 mtrs) including rappers, flanges, rubber gaskets, nuts and bolts and specials upto 5 mtrs away from the outer wall of pump houses within all leads and lifts complete in all respect as per entire satisfaction of Engineer incharge and also as per layout drawings approved by Engineer-in-Charge	12	Rmt.	2030.60	24367.20	2665.63	HPSR 1993-37 (A)	31987.56
11	Installation charges on all equipment including cost of tees, bends, tapers and any other fittings required as per site conditions and as per direction of Engineer-in-charge.	1	Job	5000.00	5000.00	5000.00		5000.00
	Total In Rs.				**390221.20**			**397841.56**

Tube Well **MIS-006**

Sr. No	Particulars	As per DPR					As per HPSR	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1.0	Transportation of Rig along with allied accessories etc. complete including errection and levelling at site through all kinds of roads, approaches fields etc. in all leads and lifts completed in all respects as per the directions of Engineer-in-charge.	1.00	Job	########	35000.00	35000.00	As per DPR	35000.00
2.0	Earth work in foundation for digging tubewell in all kinds of soils including dewatering, shoring, struting from GL upto 5 mtrs. including disposing excavated soil in all leads and lifts complete in all respect as per the directions of Engineer-in-charge. Drilling with rotary rig 0-3 mtrs. of 600mm dia.	3.00	Mtr.	5500.00	16500.00	5500.00	As per DPR	16500.00
3.0	Drilling of 500 mm dia bore upto the depth of 125 m as per specifications laid down in IS 2800:1991 (Part-I) with upto date ammendments, if any, with Direct/Rotary Rig in all kinds of soils, boulders, rocks, collapsible strata, saturated soils, artesian conditions including the cost of all lubricants and other accessories etc. complete in all respect as per the directions consumable, stores, water, fuel of the Engineer-in-charge.							
3.01	Drilling 500 mm dia bore up to the depth of 3-30 m below ground level as per specification laid down in IS 2800:1991 (Part-I) with up to date amendments, if any of suitable sizes as mentioned above within all leads and lifts complete in all respect.	27.00	Mtr.	5500.00	148500.00	5500.00	As per DPR	148500.00
3.02	Drilling 500 mm dia bore up to the depth of 30-60 m below ground level as per specification laid down in IS 2800:1991 (Part-I) with up to date amendments, if any of suitable sizes as mentioned above within all leads and lifts complete in all respect.	30.00	Mtr.	6050.00	181500.00	6050.00	As per DPR	181500.00

Attachment 8.2.2 List of Unit Price of Infrastructure Component-7

3.03	Drilling 500 mm dia bore up to the depth of 60-90 m below ground level as per specification laid down in IS 2800:1991 (Part-I) with up to date amendments, if any of suitable sizes as mentioned above within all leads and lifts complete in all respect.	30.00	Mtr.	6600.00	198000.00	6600.00	As per DPR	198000.00
3.04	Drilling 500 mm dia bore up to the depth of 90-125 m below ground level as per specification laid down in IS 2800:1991 (Part-I) with up to date amendments, if any of suitable sizes as mentioned above within all leads and lifts complete in all respect.	35.00	Mtr.	7150.00	250250.00	7150.00	As per DPR	250250.00
4.0	Collection, Preservation and display of suitable size sample box with top lid and locking arrangement till handing over of the tubewell to the department complete in all respects as per direction of the Engineer- in-charge.	1.00	Each	1500.00	1500.00	1500.00	As per DPR	1500.00
5.0	Supplying, fixing & lowering of IS marked Electric Resistance Welded M.S Blind pipe 300 mm dia nominal size housing 8.00 mm thick having outside diameter 323.90 mm nominal size housing screwed and, socketed, confirming to IS 4270:2001 with up to date amendments, if any about 4 m to 7 m in length, welded without any circumfencial joints into bore hole in vertical position including cost of all scaffolding derricks, poles, clamps embedded in foundation etc. Including cost of all cutting, threading and welding of pipes etc. within all leads and lifts, complete in all respects as per the direction of the Engineer-in-charge.	40.00	Mtr.	4784.00	191360.00	4784.00	As per DPR	191360.00
5.01	Supplying, fixing & lowering of IS marked Electric Resistance Welded M.S Blind pipe 200 mm dia nominal size housing 6.40 mm thick having outside diameter 219.10 mm nominal size housing screwed and, socketed, confirming to IS 4270:2001 with up to date amendments, if any about 4 m to 7 m in length, welded without any circumfencial joints into bore hole in vertical position including cost of all scaffolding derricks, poles, clamps embedded in foundation etc. Including cost of all cutting, threading and welding of pipes etc. within all leads and lifts, complete in all respects as per the direction of the Engineer-in-charge.	60.6	Mtr.	2444.14	148114.88	2124.2	HPSR 2020- 23.11.3	128726.52
5.02	Supplying, fixing & lowering of IS marked Electric Resistance Welded M.S Slotted pipe 200 mm dia nominal size housing 6.4 mm thickness of slott size 1.6mm, as per IS 8110:2000 II revision, reaffermed 2006, having outside diameter of 219.10 mm housing, screwed and socketed confirming to IS 4270:2001 with up to date amendments, if any about 4 m to 7 m in length, welded without any circumfencial joints into bore hole in vertical position including cost of all scaffolding derricks, poles, clamps embedded in foundation etc. including cost of all cutting, threading and welding of pipes etc. within all leads and lifts, complete in all respects as per the direction of the Engineer-in-charge.	25.00	Mtr.	3177.14	79428.50	3177.14	As per DPR	79428.50
6.0	Electrical logging of the Pilot Bore Hole as drilled above with the following logs:	1.00	Job	#######	25000.00	25000.00	As per DPR	25000.00
6.01	Self Potential (SP)							
6.02	Short Normal Resistivity Logging (16" Normal)							
6.03	Long Normal Resistivity Logging (64" Normal)							
6.04	Bore Hole Logging Report including interpretation of logs describing Lithology and indicating different depth ranges of Fresh Water zones.							
7.0	Providing and fixing M.S centralized guides at suitable spacing for each Tubewell as per IS 226-1991 with upto date ammendments, if any, within all leads and lifts, 1x4 Nos. complete in all respects as per the direction of the Engineer-in-charge.	5.00	Each	320.00	1600.00	320.00	As per DPR	1600.00
8.0	Supplying, lowering and fixing in position IS marked M.S Bail plug of 200 mm/300mm diameters with "U" Hooks as per IS 2800-1991 with upto date ammendments, if any, within all leads and lifts complete in all respects as per the direction of the Engineer-in-charge.	1.00	Each	2000.00	2000.00	307.75	As per DPR	307.75
9.0	Providing and fixing in position threaded iron cap with locking arrangements of approved design to prevent foreign matter from getting into bore hole, as required within all leads and lifts complete in all respects as per the direction of the Engineer-in-charge.	1.00	Each	1500.00	1500.00	1500.00	As per DPR	1500.00
10.0	Supplying and packing of gravel, consisting of hard quartz or other suitable material with an average specific gravity of not less than 2.5, not containing more than 2% by weight of thin flat of elongated pieces, shall be of sub rounded to rounded grains with minimum angular features of size 2-3.35 mm, shall be free from impurities such asshale,mica,felspar,clay,sand,dirt loam,baematte and organic material as pe IS 4097-1967 with upto date amendments, if any, around intake of tubewell with minimum thickness of shroud around screen generally 100 mm to the entire depth of the bore as per 2800(Part-I) 1991 with upto date amendments, if any, with in all leads and lifts complete in all respects as per direction of the Engineer -in- Charge.	125.00	Mtr.	450.00	56250.00	1247.25	HPSR 2020- 23.5	155906.25
11.0	Development of tubewell by back washing method with air compressor of minimum 750 CFM capacity, pumping pipe of 200 mm size and the air line of minimum 65 mm size or with other suitable method, till the well is thoroughly developed as per the clause 4.2 of IS 11189:1985 with upto date ammendments, if any, within all leads and lifts complete in all respects as per the direction of the Engineer-in-charge.	30.00	Per Hour	1700.00	51000.00	1700.00	As per DPR	51000.00

Attachment 8.2.2 List of Unit Price of Infrastructure Component-8

12.0	Development of tubewell by continous over pumping method,with VT pump/submersible pumps of suitable capacity not less than double the discharge established by the compressor method/ design discharge, untill the well is sand free as per IS-11189-1985 up -to- date amendments, if any, complete in all respects as per directions of the Engineer -in- Charge .The draw down and discharge to be established by running the VT/ Submersible pump continuosuly for 8 hours in the presence of officer not less than the rank of Engineer-in-charge.	20.00	Per Hour	1400.00	28000.00	1400.00	As per DPR	28000.00
13.0	Dismentling of Rig or other allied accessories after completion of job within all leads and lifts complete in all respects as per the directions of the Engineer-in- charge.	1.00	Job	5000.00	5000.00	5000.00	As per DPR	5000.00
14.0	Construction of Barbed wire enclosure of minimum of size 2.5 x 2.5 m to safe guard the bore of Tube well with angle iron of size 40 x 40 x 6 mm 1.5 m in height, embedded in concrete block of 30 x 30 x 30 cm in all leads and lifts, complete in all respects as per the directions of the Engineer-in- charge.	1.00	Each	4000.00	4000.00	4000.00	As per DPR	4000.00
15.0	Handling over of the Tubewell in complete shape as per appendix "B" of clause 7 of IS 2800:1979 (Part-II) with up to date amendments if any, as appended with the tender documents, in laminated from in triplicate, complete in all respects as per the directions of the Engineer-in-charge.	1.00	Each	1000.00	1000.00	1000.00	As per DPR	1000.00
	Total in Figures				**1425503.38**			**1504079.02**
	Say Rs.				**1425503.00**			**1504079.00**

Rising Main **MIS-007**

Sr. No.	Description of items.	As per DPR					As per HPSR	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1	Excavation in foundation, trenches etc. in earth work , lift up to 1.50 metres stacking the excavated soil not more than 3 metres clear from the edge of excavation and then returning the excavated soil in 15 cm. Layers, when required in to plinth , side of foundation etc. consolidating each deposited layer by ramming and watering and then disposing of all surplus excavated earth as directed with in a lead of 20 metres	417.60	Cum.	351.70	146869.92	361.88	HPSR 2009 - 07040000	151121.09
2	Providing, laying, jointing and testing in trenches (to level or grade) GI Flanged Pipes (IS : 1239) of 125 mm dia, & medium Class conforming to IS specification capable to withstand the required hydraulic test pressure as per IS code in random length of 6.00 mtrs. with Plain ends and jointed with flange table 5 conforming to IS-6392-1971 (latest with up to date amendments) i/c all fittings such as bends, tees & tail pieces etc. the welding of flanges to be done on both faces in double layer to make the joint leak proof according to relevant BIS standard and specification. the pipe including nuts and bolts of required size, 3mm thick compressed asbestos fibre jointing gasket/synthatic rubber jointing gasket should be conforming to relevant BIS code. laying will include all operations such as cutting , welding, painting and jointing including flushing , cleaning and hydraulic testing of pipe complete in all respect and to the entire satisfaction of the	580.00	Rmt.	2295.90	1331622.00	2257.35	HPSR 1993-37 (A)	1309263.00
			Total		**1478491.92**			**1460384.09**
			Or say Rs.		**1478492.00**			**1460384.00**

Main Delivery Tank (25000 ltrs) **ISC-008**

Sr. No.	Description of items.	As per DPR					As per HPSOR 2020	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1	Excavation in foundation, trenches etc. in earth work , lift up to 1.50 metres stacking the excavated soil not more than 3 metres clear from the edge of excavation and then returning the excavated soil in 15 cm. Layers, when required in to plinth , side of foundation etc. consolidating each deposited layer by ranmming and watering and then disposing of all surplus excavated earth as directed with in a lead of 20 metres. (Pick Work 90% + Chieselling soft rock 10%)	23.63	Cum.	351.70	8310.67	485.28	HPSR 2009 -07040501	11467.17
2	Providing and laying cement concrete 1:2:4 (1cement :2 sand: 4 graded stone aggregate 20 mm nominal size) curing complete excluding cost of form work	2.00	Cum.	6577.00	13154.00	5954.35	HPSR 2020 -4.1.3	11908.70
3	Providing and laying cement concrete 1:1.5:3 (1cement : 1.5 sand : 3 graded stone aggregate 20 mm nominal size) curing complete excluding cost of form work .							
a)	Foundation and plinth	4.16	Cum.	8452.30	35161.57	6656.05	HPSR 2020 -5.1.2	27689.17
b)	Walls i/c attaached buttresses,pilasters and their caps and bases string courses etc. upto foor two level	5.07	Cum.	8511.60	43153.81	7633.2	HPSR 2020 -5.2.2	38700.32
4	Providing form work with steel plates 3.15mm. thick welded with angle iron in frame 30x30x5mm. so as to give a fair finish including centering, shuttering, strutting and propping etc.with wooden battens and ballies, height of propping and centring below supporting floor to ceiling not exceeding 4 Mtrs. and removal of the same for insitu-reinforced concrete and plain concrete work in : (Vertical surfaces such as walls (any thickness) partitions and the like i/c attached pillasters, buttresses, plinth and string	50.18	Sqm.	268.40	13468.31	411.15	HPSR 2020 -5.9.2	20631.51
a)	Suspended floors,roofs,landings.	13.66	Sqm.	432.40	5906.15	468.3	HPSR 2020 -5.9.3	6396.51
5	Providing Mild Steel/Tor Steel reinforcement for R.C.C.work i/c bending, binding and placing in position complete upto floor two leve	632.46	Kg.	62.10	39276.00	75.4	HPSR 2020 -5.22.1	47687.48
6	Steel work welded in built up sections, trusses and framed work i/c cutting, hoisting, fixing in position and applying a priming coat of red lead paint Gratting, framed guard, bars, ladders, and similar works	45.00	Kg.	96.71	4351.95	107.45	HPSR 2020 -10.25.2	4835.25
7	Febrication, providing & fixing of MS Screen for supply of clean water in distribution.							
	125 mm Dia	3	No.	613.80	1841.40	613.80	As per DPR	1841.40
8	P/f GI pipe Medium Grade 100mm Dia inlet, scour pipe and overflowpip	6.00	Rmt.	1513.60	9081.60	1722.68	HPSR 1993-37 (A)	10336.08
9	Providing & fixing CI sluice valve of 100 mm dia including all necessary fittings complete in all respect	1	No.	11341.58	11341.58	4214.95	HPSR 2020 -18.31.1.2	4214.95
				Total	**185047.04**			**185708.54**
				Or say Rs	**185047.00**			**185709.00**

Distribution System (HDPE pipeline) **ISC-009**

Sr. No	Particulars	As per DPR					As per HPSR	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount

Attachment 8.2.2 List of Unit Price of Infrastructure Component-9

1	Excavation in foundation, trenches etc. in earth work , lift up to 1.50 metres stacking the excavated soil not more than 3 metres clear from the edge of excavation and then returning the excavated soil in 15 cm. Layers, when required in to plinth , side of foundation etc. consolidating each deposited layer by ranmming and watering and then disposing of all surplus excavated earth as directed with in a lead of 20 metres	3550.84	Cum.	351.70	1248830.43	361.88	HPSR 2009 - 07040000	1284977.98
2	Providing & Laying in trenches HDPE pipesof following diameters & classes as per IS 4984 , PE-80 and jointing the pipes through push type compression joints by hydraulically operated machines upto 110 mm diameter and butt fussion (heat fusion process) above 110 mm diameter I/C necessary fittings,bends,tees & reducers fabricated in accoradance with IS 8360 & IS 8008 with latest ammendments & shall be provided as per site conditions.Flanging of the pipes shall be made as& where required confirming to code IS 8008 & IS 7634, stub ends will be welded on pipes & MS flange shall be provided with slip on covered by epoxy coating/plastic powder. The flange should be confirm to ANSI B 16.5 with necessary nuts & Bolts. Jointing shall be complete in all respects i/c testing at site upto entire satisfaction of engineer-in charge							
	HDPE Pipes , Class PN-4.0 PE-80							
	125 mm	1445.00	R/M	374.75	541513.75	345.12	Rates Approved by Controller of store HP	498698.40
	110 mm	1355.00	R/M	295.30	400135.57	276.88		375172.40
	90 mm	2430.00	R/M	194.87	473534.10	185.29		450254.70
	90 mm PN 6.0	615.00	R/M	316.18	194453.20	253.41		155847.15
	Restoration Work in HDPE pipes.	5845.00						
3	Providing and laying cement concrete 1:4:8 (1cement :4 sand: 8graded stone aggregate 40 mm nominal size) curing complete excluding cost of form work. Foundation and plinth.	48.75	Cum	5310.00	258862.50	4955.20	HPSR2020- 4.1.8	241566.00
4	Providing form work with steel plates 3.15mm. thick welded with angle iron in frame 30x30x5mm. so as to give a fair finish including centering, shuttering, strutting and propping etc.with wooden battens and ballies, height of propping and centring below supporting floor to ceiling not exceeding 4 Mtrs. and removal of the same for insitu-reinforced concrete and plain concrete work in : Vertical surfaces such as walls (any thickness) partitions and the like i/c attached pillasters, buttresses, plinth and string	130.00	Cum	268.40	34892.00	411.15	HPSR2020- 5.9.2	53449.50
	Restoration Work in HDPE pipes.							
1	Providing and laying cement concrete 1:4:8 (1cement :4 sand: 8graded stone aggregate 40 mm nominal size) curing complete excluding cost of form work. Foundation and plinth.	48.75	Cum	5310	258862.50			
2	Providing form work with steel plates 3.15mm. thick welded with angle iron in frame 30x30x5mm. so as to give a fair finish including centering, shuttering, strutting and propping etc.with wooden battens and ballies, height of propping and centring below supporting floor to ceiling not exceeding 4 Mtrs. and removal of the same for insitu-reinforced concrete and plain concrete work in : Vertical surfaces such as walls (any thickness) partitions and the like i/c attached pillasters, buttresses, plinth and string courses and the like	130.00	Sqm.	268.4	34892.00			
			Total Rs.		**3445976.05**			**3059966.13**
			Or say Rs.		**3445976.00**			**3059966.00**

Outlet Chamber (Size 0.50x0.50x0.45m) (87 Nos.) **ISC-010**

Sr. No	Particulars	As per DPR					As per HPSR	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1	Excavation in foundation, trenches etc. in earth work , lift up to 1.50 metres stacking the excavated soil not more than 3 metres clear from the edge of excavation and then returning the excavated soil in 15 cm. Layers, when required in to plinth , side of foundation etc. consolidating each deposited layer by ranmming and watering and then disposing of all surplus excavated earth as directed with in a lead of 20 metres.(Pick Work 90% + Chieselling soft rock 10%)	15.23	Cum	351.70	5356.39	485.28	HPSR 2009 -07040501	7390.81
2	Providing and laying cement concrete 1:4:8 (1cement :4 sand: 8graded stone aggregate 40 mm nominal size) curing complete excluding cost of form work. Foundation and plinth.	2.18	Cum	5310.00	11575.80	4955.20	HPSR 2020 - 4.1.8	10802.34
3	Provinding and laying stones/boulders filling under floor etc. in all lifts & leads complete in all respec	3.26	Cum	1992.70	6496.20	1247.25	HPSR 2020 - 23.5	4066.04
4	Providing and laying cement concrete 1:1.5:3 (1 cement : 1.5 sand :3 graded stone aggregate 20mm nominal size finishing with Curing complete excluding the cost of Form work) in foundation and plinth	24.01	Cum	7932.24	190468.95	6376.30	HPSR 2020 - 4.1.2	153107.72
5	Providing MS/Tor steel reinforcement for RCC work i/c bending ,binding and placing in position complete upto floor two level	941.60	Kg.	62.10	58473.42	75.40	HPSR 2020 - 5.22.1	70996.72
6	Steel work welded in built up sections ,trusses and framed work i/c cutting, hoisting ,fixing in position and applying a priming coat of red lead paint. Gratting, framedguard,bars,ladder,and similar work	759.50	Kg.	96.71	73451.25	107.45	HPSR 2020 - 10.25.2	81608.28
7	Providing form work with steel plates 3.15mm. thick welded with angle iron in frame 30x30x5mm. so as to give a fair finish including centering, shuttering, strutting and propping etc.with wooden battens and ballies, height of propping and centring below supporting floor to ceiling not exceeding 4 Mtrs. and removal of the same for insitu-reinforced concrete and plain concrete work in : Vertical surfaces such as walls (any thickness) partitions and the like i/c attached pillasters, buttresses, plinth and string courses and the like	480.24	Sqm.	268.40	128896.42	411.15	HPSR 2020 - 5.9.2	197450.68
8	Providing & fixing of 75 mm hydrant with submain line including GI Riser 75 mm(IS 1239:1990), GI Reducing Tee, GI Nipple with threaded end , Bend, Steel Clamp, 75 mm PP Ball Valve, , Plain Concrete Grouting complete in all respect (as per requirement of main & sub main line)	87.00	Each	2954.00	256998.00	3000.00	DOA Approved Rate	261000.00
				Total Rs.	**731716.42**			**786422.57**
				Or say Rs.	**731716.00**			**786423.00**

Sluice Valve Chamber (Size 0.50x0.50x0.80 m) (16 Nos.) **ISC-011**

Sr. No	Particulars	As per DPR					As per HPSR	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1	Excavation in foundation, trenches etc. in earth work , lift up to 1.50 metres stacking the excavated soil not more than 3 metres clear from the edge of excavation and then returning the excavated soil in 15 cm. Layers, when required in to plinth , side of foundation etc. consolidating each deposited layer by ranmming and watering and then disposing of all surplus excavated earth as directed with in a lead of 20 metres.(Pick Work 90% + Chieselling soft rock 10%)	11.80	Cum	351.70	4150.06	485.28	HPSR 2009 -07040501	5726.30

Attachment 8.2.2 List of Unit Price of Infrastructure Component-10

2	Providing and laying cement concrete 1:4:8 (1cement :4 sand: 8graded stone aggregate 40 mm nominal size) curing complete excluding cost of form work. Foundation and plinth.	1.47	Cum	5310.00	7805.70	4955.2	HPSR 2020- 4.1.8	7284.14
3	Brick work using common burnt clay building bricks in foundation & plinth Cement Mortar 1:6 (1 Cement : 6 Sand) Second Class Bricks	8.60	Cum	6467.70	55622.22	6317.9	HPSR 2020- 6.26.2	54333.94
4	20 mm cement plaster in single coat on rough side of brick/stone masonry for interior plastering up to floor two level including arrises, internal rounded angles, chamfers and/or rounded angles not exceeding 80mm in girth and finished even and smooth In cement mortar 1:4	42.49	Sqm	210.30	8935.65	255.80	HPSR 2020- 13.6.1	10868.94
5	Providing & fixing of C.I. sluice valve of following dia including all necessary fittimgs							
	125mm dia	7	Nos.	14179.26	99254.82	4947.80	HPSR 2020- 18.31.2.2	34634.60
	100 mm dia	9	Nos.	11341.58	102074.22	4214.95	HPSR 2020- 18.31.1.2	37934.55
			Total Rs.		**277842.67**			**150782.48**
			Or say Rs.		**277843.00**			**150782.00**

Nallah(surface water) crossing/ Road crossing (10 Nos.) **ISC-012**

Sr. No	Particulars	As per DPR					As per HPSOR 2020	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1	Excavation in earth work and disposal of all excavated earth upto a lead of 20 metres and lift upto 1.50 metres disposed earth to be levelled and neatly dressed.(Pick Work 100%)	9.00	Cum	278.21	2503.87	361.88	HPSR 2009 - 07040000	3256.92
2	Providing & Laying cement concrete 1 : 4 :8 (1 cement:4 Sand : 8 aggregates 40 mm nominal sizes) and curing complete excluding cost of form work in foundation and plinth	1.80	Cum	5688.36	10239.04	4955.20	HPSR 2020 - 4.1.8	8919.36
3	Providing form work with steel plates 3.15 mm thick welded with angle iron in frame 30x30x5m so as to give a fair finish including, centring, shuttering and propping etc. with wooden battens and ballies, height of propping and centring below supporting floor to ceilling upto any height and removal of the same for reinforced conc. & plain concrete working. Vertical surfaces such as walls (any thickness) partitions and the like including attached pillasters, buttressess, plinth and string courses and the like.	91.80	Sqm	235.56	21624.54	411.15	HPSR 2020 - 5.9.2	37743.57
4	Providing Mild /Tor stell re-inforcement for R.C.C. Work including bending, binding and placing in position complet	120.59	Kg.	73.48	8860.95	75.40	HPSR 2020 - 5.22.1	9092.49
5	Providing & Laying cement concrete 1:2:4 (1 cement: 2 Sand : 4 aggregates 20 mm nominal sizes) and curing complete excluding cost of form work in foundation and plinth.	6.80	Cum	6931.76	47135.95	6234.10	HPSR 2020 -5.1.3	42391.88
6	P/L cement concrete 1:1.5:3 (1 cement :1.5 sand:3 graded stone aggregate 20mm nominal size)excluding cost of formwork & reinforcement for rcc work in lintel,beams girders bressumer and cantilevers upto floor two level	1.40	Cum	8456.50	11839.10	7633.20	HPSR 2020 -5.2	10686.48
			Total Rs.		**102203.46**			**112090.70**
			Or say Rs.		**102203.00**			**112091.00**

Retaining Wall (8 mtr. length) **ISC-013**

Sr.No.	Description of items.	As per DPR					As per HPSR	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1	Protection Work / C/o Retaining Wall:-							
a)	Excavation in foundation trenches etc. in all kinds of soil such as pick work, jumper work,blasting hard or soft rock,by chieselling where the blasting work is water with in all heights stacking the excavated soil with in all leads clear from the edge of excavation and then returning the stacked soil in 15 cms. layers complete in all respect. Pick work (100%)	3.10	Cum.	261.40	810.34	361.88	HPSR 2009 - 07040000	1121.83
b)	Providing and laying cement concrete 1:4:8 (1 cement,4sand,8 graded stone aggregate 40 mm nominal size)and curing complete excluding cost of form work in foundation and plinth with in all leads and lifts complete in all	1.73	Cum.	4610.90	7976.86	4955.2	HPSR 2020 - 4.1.8	8572.50
c)	P/L cement concrete 1:5:10 (1cement: 5 sand: 10 graded stone aggragates 40mm nominal size & 15% boulders as plum) excluding the cost of centering & shuttering	21.63	Cum.	3698.70	80002.88	4348.1	HPSR 2020 - 4.1.11	94049.40
d)	Providing form work with steel plates welded with angle iron in frame 30x30x5 mm thick so as to give a fair finish :							
	Vertical surfaces such as walls (any thickness	42.00	Sqm.	198.20	8324.40	411.15	HPSR 2020 - 5.9.2	17268.30
			Total in Rs.		**97114.48**			**121012.03**
			Or Say in Lacs		**97100.00**			**121012.00**

Diversion Weir **ISC-014**

Sr. No	Particulars	As per DPR					As per HPSR	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1	Excavation in foundation & trenches etc., in earth work lift upto 1.50 Metres stacking the eacavated soil not more than 3 metres clear from the edge of the excavation and then returning the stacked soil in 15cm.layers,when required in to plinth side of foundation etc., consolidating each deposite layer by ramming and watering and then disposing of all surplus excavated earth as directed with in all lead Pick work (100%)	36.45	Cum	380.40	13865.58	361.88	HPSR 2009 - 07040000	13190.53
2	Providing & Laying cement concrete 1 :4 :8 (1 cement:4 Sand : 8 aggregates 40 mm nominal sizes) and curing complete excluding cost of form work in foundation and plinth	15.53	Cum	5688.36	88362.92	4955.20	HPSR 2009 -4.1.8	76974.08
3	Providing form work of steel plates so as to give a rough finish including centring , shuttering & strutting & propping etc, height of propping and centring below supporting floor not more than 4 mtrs. & removal of the same for insitu reinforced cement concrete & plain concrete work.Verticals surfaces such as walls of any thickness,partition & the like	88.87	Sqm	235.56	20933.17	216.45	HPSR 2009 -5.9.1	19234.83
4	Providing Mild /Tor stell re-inforcement for R.C.C. Work including bending, binding and placing in position complet	664.70	Kg.	73.48	48842.30	75.40	HPSR 2009 -5.22	50118.53
5	P/L cement concrete 1:1.5:3 (1cement:1.5 sand:3 graded stone aggregate 20 mm nominal size excluding cost of form work & reinforcement for rcc work in wall any thickness not less than .10 m thickness) attached , pilasters,buttresses, plinth and string courses etc. from top of foundation level upto floor two level	8.13	Cum	8456.50	68738.66	7633.20	HPSR 2009 -5.2	62046.47
			Total Rs.		**240742.64**			**221564.43**
			Or say Rs.		**240743.00**			**221564.00**

Intake Chamber **ISC-015**

Sr. No	Particulars	As per DPR					As per HPSR	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount

Attachment 8.2.2 List of Unit Price of Infrastructure Component-11

1	Excavation in foundation & trenches etc. in earth work, lift upto 1.50 Metres stacking the eacavated soil not more than 3 metres clear from the edge of the excavation and then returning the stacked soil in 15 cm layers, when required in to plinths sides of foundations etc., consolidating each deposited layer by ramming and watering and then disposing of all surplus exacavated earth as directed with in a lead of 20 metres. Pick work (100%)	0.12	Cum.	818.00	98.16	361.88	HPSR 2009 - 07040000	43.43
2	Providing and laying cement concrete 1:4:8 (1 cement : 4 sand : 8 graded stone aggregate 40 mm nominal size) and curing complete excluding the cost of form work in foundation and plinth.	0.12	Cum.	4343.60	521.23	4955.20	HPSR 2020 - 4.1.8	594.62
3	Providing and laying cement concrete 1:2:4 (1cement :2 sand: 4 graded stone aggregate 20 mm nominal size) curing complete excluding cost of	0.35	Cum.	5659.22	1981.00	5954.35	HPSR 2020 -4.1.3	2084.02
4	Providing the form work of ordinary timber planking/steel plates so as to give rough finish including centering,shuttering,strutting & propping etc.							
	In vertical surfaces such as walls etc.	2.16	Sqm.	222.90	481.464	411.15	HPSR 2020 - 5.9.2	888.08
5	15 mm thick cement plaster in single coat on rough side of brick/stone/concrete walls for interior plastering up to floor -2 level including arrisses,internal rounded angles,chamfers and or rounded angles not exceeding 80 mm in girth and finished even and smooth with in all leads and lifts in C.M 1:4 (1 cement,4 sand)	0.90	Sqm.	154.94	139.45	211.50	HPSR 2020 - 13.5.1	190.35
6	Steel work welded in built up sections, trusses and framed work i/c cutting, hoisting, fixing in position and applying a priming coat of red lead paint Gratting, framed guard, bars, ladders, and similar works	13.00	Kg.	93.82	1219.70	107.45	HPSR 2020 -10.25.2	1396.85
			Total Rs.		**4441.00**			**5197.36**
			Or say Rs.		**4440.00**			**5197.00**

Main Channel **ISC-016**

Sr. No	**Particulars**	**As per DPR**					**As per HPSR**	
		Qty.	**Unit**	**Rate**	**Amount**	**Rate**	**Code No.**	**Amount**
1	Excavation in drains & channels in earth work including dressing of sides and bed and earth up to a lead of 20 mtrs. and lift upto 1.5 mtrs. Disposed earth to be levelled neatly.	429.30	Cum	306.15	131428.05	499.90	HPSR 2009 -07050000	214607.07
2	Providing & Laying cement concrete 1 : 4 :8 (1 cement:4 Sand : 8 aggregates 40 mm nominal sizes) and curing complete excluding cost of form work in foundation and plinth	106.00	Cum	5688.36	602965.75	4955.20	HPSR 2020- 4.1.8	525251.20
3	Extra Allowance for formwork in concrete lining.							
	Side	95.40	Cum	165.20	15760.08	176.28	HPSR 1993- 8.38 (a)	16817.11
	Bed	84.80	Cum	150.95	12800.21	197.80	HPSR 1993- 8.38 (b)	16773.44
4	Providing & Laying cement concrete 1:2:4 (1 cement: 2 Sand : 4 aggregates 20 mm nominal sizes) and curing complete excluding cost of	222.00	Cum	6931.76	1538850.28	6578.00	HPSR 2020- 4.1.3	1460316.00
			Total Rs.		**2301804.36**			**2233764.82**
			Or say Rs.		**2301804.00**			**2233765.00**

Pucca Field Channel **ISC-017**

Sr. No	**Particulars**	**As per DPR**					**As per HPSR**	
		Qty.	**Unit**	**Rate**	**Amount**	**Rate**	**Code No.**	**Amount**
1	Excavation in drains & channels etc. in earth work including dressing of sides and bed and disposing of excavated earth Upto a lead of 20mtr and lift upto 1.5mtr disposed earth to be levelled neatly dressed.	154.44	Cum	306.15	47281.03	499.90	HPSR 2009 -07050000	77204.56
2	Providing & Laying cement concrete 1 : 4 :8 (1 cement:4 Sand : 8 aggregates 40 mm nominal sizes) and curing complete excluding cost of form work in foundation and plinth.	51.48	Cum	5688.36	292836.57	4955.20	HPSR 2020- 4.1.8	255093.70
3	Extra Allowance for formwork in concrete lining. Sides	51.48	Cum	165.20	8504.50	176.28	HPSR 1993- 8.38 (a)	9074.89
	Bed	51.48	Cum	150.95	7770.69	197.80	HPSR 1993- 8.38 (b)	10182.74
4	Providing & Laying cement concrete 1:2:4 (1 cement: 2 Sand : 4 aggregates 20 mm nominal sizes) and curing complete excluding cost of form work in and reinforcement for reinforced conc.	102.96	Cum	6931.76	713693.80	6578.00	HPSR 2020- 4.1.3	677270.88
			Total Rs.		**1070086.60**			**1028826.77**
			Or say Rs.		**1070087.00**			**1028827.00**

Storage Tank **ISC-018**

Sr. No.	**Description of items**	**As per DPR**					**As per HPSR**	
		Qty.	**Unit**	**Rate**	**Amount**	**Rate**	**Code No.**	**Amount**
1	Excavation in foundation, trenches etc. in earth work , lift up to 1.50 metres stacking the excavated soil not more than 3 metres clear from the edge of excavation and then returning the excavated soil in 15 cm. Layers, when required in to plinth , side of foundation etc. consolidating each deposited layer by ranmming and watering and then disposing of all surplus excavated earth as directed with in a lead of 20 metres. (Pick Work 90% + Chieselling soft rock 10%)	13.56	Cum.	351.70	4769.00	485.28	HPSR 2009 -07040501	6580.40
2	Providing and laying cement concrete 1:2:4 (1cement :2 sand: 4 graded stone aggregate 20 mm nominal size) curing complete excluding cost of	1.26	Cum.	6577.00	8287.00	5954.35	HPSR 2020 - 4.1.3	7502.48
3	Providing and laying cement concrete 1:1.5:3 (1cement : 1.5 sand : 3 graded stone aggregate 20 mm nominal size) curing complete excluding cost of form work .							
a)	Foundation and plinth	2.63	Cum.	8452.30	22229.55	6656.05	HPSR 2020 - 5.1.2	17505.41
b)	Walls i/c attaached buttresses,pilasters and their caps and bases string courses etc. upto foor two level	4.06	Cum.	8511.60	34557.10	7633.2	HPSR 2020 - 5.2.2	30990.79
c)	Suspended floors,roofs,landings	1.07	Cum.	7932.24	8487.50	7835.75	HPSR 2020 - 5.3	8384.25
4	Providing form work with steel plates 3.15mm. thick welded with angle iron in frame 30x30x5mm. so as to give a fair finish including centering, shuttering, strutting and propping etc.with wooden battens and ballies, height of propping and centring below supporting floor to ceiling not exceeding 4 Mtrs. and removal of the same for insitu-reinforced concrete and plain concrete work in : (Vertical surfaces such as walls (any thickness) partitions and the like i/c attached pillasters, buttresses, plinth and string	38.43	Sqm.	268.40	10314.61	411.15	HPSR 2020 - 5.9.2	15800.49
b)	Suspended floors,roofs,landings.	10.68	Sqm.	432.40	4616.30	468.3	HPSR 2020 - 5.9.3	4999.57
5	Providing Mild Steel/Tor Steel reinforcement for R.C.C.work i/c bending, binding and placing in position complete upto floor two leve	566.08	Kg.	62.10	35154.00	75.4	HPSR 2020 - 5.22.1	42682.43
6	Steel work welded in built up sections, trusses and framed work i/c cutting, hoisting, fixing in position and applying a priming coat of red lead paint Gratting, framed guard, bars, ladders, and similar works	39.00	Kg.	96.71	3771.69	107.45	HPSR 2020 - 10.25.2	4190.55
7	P/f GI pipe Medium Grade 100mm Dia inlet, scour pipe and overflowpipe	6.00	Rmt.	1513.60	9081.60	1722.68	HPSR 1993-37 (A)	10336.08

Attachment 8.2.2 List of Unit Price of Infrastructure Component-12

8	Providing & fixing CI sluice valve of 100 mm dia including all necessary fittings complete in all respect	1	No.	11341.58	11341.58	4214.95	HPSR 2020 - 18.31.1.2	4214.95
			Total Rs.		**152609.93**			**153187.41**
			Or say Rs.		**152610.00**			**153187.00**

Sump Well **ISC-019**

Sr. No	Particulars	As per DPR					As per HPSR	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1	Excavation in foundation, trenches etc. in earth work , lift up to 1.50 metres stacking the excavated soil not more than 3 metres clear from the edge of excavation and then returning the excavated soil in 15 cm. Layers, when required in to plinth , side of foundation etc. consolidating each deposited layer by ranmming and watering and then disposing of all surplus excavated earth as directed with in a lead of 20 metres. (Pick Work 90% + Chieselling soft rock 10%)	13.13	Cum.	351.70	4618.00	485.28	HPSR 2009 -07040501	6371.73
2	Providing and laying cement concrete 1:3:6 (1 cement : 3 sand : 6 graded stone aggregate 20 mm nominal size) curing complete excluding cost of form work Foundation and plinth .	2.80	Cum.	5720.00	16016.00	5291.95	HPSR 2020 - 4.1.6	14817.46
3	Providing and laying cement concrete 1:1.5:3 (1cement : 1.5 sand : 3 graded stone aggregate 20 mm nominal size) curing complete excluding cost of form work .							
(a)	Foundation and plinth	1.87	Cum.	8452.30	15806.00	6656.05	HPSR 2020 -5.1.2	12446.81
(b)	Walls i/c attaached buttresses,pilasters and their caps and bases string courses etc. upto foor two level	3.67	Cum.		0.00	7633.2	HPSR 2020 -5.2.2	28013.84
4	Providing form work with steel plates 3.15mm. thick welded with angle iron in frame 30x30x5mm. so as to give a fair finish including centering, shuttering, strutting and propping etc.with wooden battens and ballies, height of propping and centring below supporting floor to ceiling not exceeding 4 Mtrs. and removal of the same for insitu-reinforced concrete and plain concrete work in : Vertical surfaces such as walls (any thickness) partitions and the like i/c attached pillasters, buttresses, plinth and string	38.61	Sqm.	268.40	10363.00	411.15	HPSR 2020 -5.9.2	15874.50
5	Providing Mild Steel/Tor Steel reinforcement for R.C.C.work i/c bending, binding and placing in position complete upto floor two leve	214.46	Kg.	62.10	13318.00	75.4	HPSR 2020 -5.22.1	16170.28
6	Steel work welded in built up sections, trusses and framed work i/c cutting, hoisting, fixing in position and applying a priming coat of red lead paint . Gratting, framed guard, bars, ladders, and similar works	30.00	Kg.	96.71	2901.00	107.45	HPSR 2020 -10.25.2	3223.50
7	Febrication, providing & fixing of MS Screen including necessary fitting complete in all respect for supply of clean water in distribution							
	125 mm Dia	1	Each	613.80	614.00	613.80	As per DPR	613.80
	110 mm	2	Each	372.70	745.00	372.70	As per DPR	745.40
8	P/f GI pipe Medium Grade 100mm Dia inlet, scour pipe and over flowpipe including all necessary fittings complete in all respect.	6	Rmt.	1513.6	9082.00	1722.68	HPSR 1993-37 (A)	10336.08
9	Providing & fixing CI sluice valve of 100 mm dia including all necessary fittings complete in all respect	1	Each	11341.58	11342.00	4214.95	HPSR 2020 -18.31.1.2	4214.95
			Total Rs.		**84805.00**			**112828.36**
			Or say Rs.		**84805.00**			**112828.00**

Dropping Structure **ISC-020**

Sr. No	Particulars	As per DPR					As per HPSR	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1	Excavation in earth work and disposal of all excavated earth upto a lead of 20 metres and lift upto 1.50 metres disposed earth to be levelled and neatly dressed.	10.56	Cum	278.21	2937.87	361.88	HPSR 2009 - 07040000	3821.45
2	Providing & Laying cement concrete 1 : 4 :8 (1 cement:4 Sand : 8 aggregates 40 mm nominal sizes) and curing complete excluding cost of form work in foundation and plinth	0.88	Cum	5688.36	5005.75	4955.20	HPSR 2020- 4.1.8	4360.58
3	Providing form work of steel plates so as to give a rough finish including centring , shuttering & strutting & propping etc, height of propping and centring below supporting floor not more than 4 mtrs. & removal of the same for insitu reinforced cement concrete & plain concrete work.	45.82	Sqm	235.56	10792.25	411.15	HPSR 2020 - 5.9.2	18836.84
4	Providing Mild /Tor steel reinforcement for R.C.C Work including bending, binding and placing in position complete	167.12	Kg	73.48	12279.61	75.40	HPSR 2020 -5.22	12600.47
5	P/L cement concrete 1:1.5:3 (1cement:1.5 sand:3 graded stone aggregate 20 mm nominal size excluding cost of form work & reinforcement for rcc work in wall any thickness not less than .10 m thickness) attached , pilasters,buttresses, plinth and string courses etc. from top of foundation level upto floor two level .	2.68	Cum	8456.50	22697.25	7633.20	HPSR 2020 -5.2	20487.51
			Total Rs.		**53712.73**			**60106.85**
			Or say Rs.		**53713.00**			**60107.00**

Water Opening gates **ISC-021**

Sr. No	Particulars	As per DPR					As per HPSR	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1	Steel work welded in built up sections, trusses and framed work i/c cutting, hoisting, fixing in position and applying a priming coat of red lead paint in - Gratting, framed guard, bars, ladders, and similar works.							
		92.86	Kg	89.89	8346.82	107.45	HPSR 2020 - 10.25.2	9977.807
			Total Rs.		**8346.82**			**9977.81**
			Or say Rs.		**8347.00**			**9978.00**

1.2 Unit Price of Micro Irrigation System

Sr. No.	District	Area under Drip	Unit Cost	Area under Micro & Mini Sprinkler	Unit Cost	Storage Tanks of min. 9 cum. Capacity	Assistance for Storage Tank (50% of Rs. 42000)	Booster Pump	Assistance for Booster Pump	Total Cost
		(In Ha.)	(In Rs.)	(In Ha.)	(In Rs.)	(In No.)	(In Rs.)	(In No.)	(In Rs.)	(In Mil.)
1	Hamirpur	15	339417	30	196667	180	21000	180	10000	16.57
2	Una	12	339417	24	196667	144	21000	144	10000	13.26
3	Bilaspur	15	339417	30	196667	180	21000	180	10000	16.57
4	Mandi	69	339417	87	196667	624	21000	624	10000	59.87
5	Kangra	115	339417	136	196667	1004	21000	1004	10000	96.90
6	Kullu	33	339417	35	196667	272	21000	272	10000	26.52
7	Kinnaur	1	339417	1	196667	8	21000	8	10000	0.78
8	Shimla	24	339417	24	196667	192	21000	192	10000	18.82
9	Chamba	15	339417	15	196667	120	21000	120	10000	11.76
10	Sirmaur	13	339417	16	196667	116	21000	116	10000	11.16
11	Solan	28	339417	34	196667	248	21000	248	10000	23.88
12	Lahaul & Spiti	32	339417	32	196667	256	21000	256	10000	25.09
		372	**126263124**	**464**	**91253024**	**3344**	**70224000**	**3344**	**33440000**	**321.18**

Attachment 8.2.2 List of Unit Price of Infrastructure Component-14

1.3 Unit Price of Catchment Area Treatment

Sr. No.	District	Catchment Area Treatment				
		Wire Crate	Unit Cost	Silt retention Structure	Unit Cost	Total Cost
		(In No.)	(In Rs.)	(In No.)	(In Rs.)	(In Mill)
1	Hamirpur	15	169,771	22	463,429	12.74
2	Una	5	169,771	7	463,429	4.09
3	Bilaspur	12	169,771	16	463,429	9.45
4	Mandi	38	169,771	44	463,429	26.84
5	Kangra	38	169,771	50	463,429	29.62
6	Kullu	20	169,771	10	463,429	8.03
7	Kinnaur	2	169,771	1	463,429	0.80
8	Shimla	17	169,771	14	463,429	9.37
9	Chamba	13	169,771	10	463,429	6.84
10	Sirmaur	5	169,771	6	463,429	3.63
11	Solan	15	169,771	14	463,429	9.03
12	Lahaul & Spiti	9	169,771	10	463,429	6.16
						126.63

Note: * For unit cost of Wire crate, please refer to ISC-022
** For unit cost of Silt retention Structure, please refer to ISC-023

Attachment 8.2.2 List of Unit Price of Infrastructure Component-15

Wire Crates **ISC-022**

Sr. No.	Description of Item	As per DPR					As per HPSOR 2020	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1	Excavation in foundation, trenches etc. in earth work , lift up to 1.50 metres stacking the excavated soil not more than 3 metres clear from the edge of excavation and then returning the excavated soil in 15 cm. Layers, when required in to plinth , side of foundation etc. consolidating each deposited layer by ranmming and watering and then disposing of all surplus excavated earth as directed with in a lead of	18.75	Cum	348.20	6529.00	361.88	HPSR 2009 - 07040000	6785.25
2	Wire crates of G.I wire filled with boulders with squarecut faces against the wire (wire crates to be measured and paid for separately)	46.88	Cum	1814.30	85045.00	1646.51	HPSR 2009-1131020000	77180.16
3	Wire crates of G.I wire filled with bolders with squarecut faces against the wire (Bolder filling to be measured and paid for separately) G.I wire 5mm thick corresponding to SWG-6.(15cm*15cm)mesh.	225.00	Sqm	313.89	70625.00	381.36	HPSR 2009-1131030202	85806.00
			Total		**162199.00**			**169771.41**
			Or say Rs.		**162199.00**			**169771.00**

Silt Retention Structure **ISC-023**

Sr. No.	Description of Item	As per DPR					As per HPSOR 2020	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1	Excavation in foundation, trenches etc., in earth work, lift up to 1.50 m stacking the excavated soil not more than 3 m. clear from the edge of excavation and then returning the stacked soil in 15 cm layers, when required in to plinths sides of foundations etc., consolidating each deposited layer by ramming and watering and then disposing of all surplus excavated earth as directed with in a lead of 20m. in all kinds of soil including dewatering. (pick 30%, jumper work 30% & 20% chiseling work for hard and soft	60.69	348.20	Cum	21132.26	361.88	HPSR 2009 - 07040000	21962.50
2	Providing & Laying cement concrete 1 : 4: 8 (1 cement : 4 fine aggregates :8 coarse aggregates 40 mm nominal size) and curing complete excluding cost of form work in foundation and plinth.	5.78	######	Cum	29021.96	4955.20	HPSR 2020- 4.1.8	28641.06
3	Providing & Laying cement concrete 1 : 3 : 6 (1 cement : 3 fine aggregates : 6 coarse aggregates 20 mm nominal size) and curing complete excluding cost of form work in foundation and plinth i/c vibrator / mixture charges	72.00	######	Cum	393248.93	5424.85	HPSR 2020- 4.1.5	390562.08
4	Form Work with steel plates	54.15	246.20	Sqm	13331.73	411.15	HPSR 2020- 5.9.2	22263.77
			Total		**456734.88**			**463429.40**
			Or say Rs.		**456735.00**			**463429.00**

Attachment 8.2.2 List of Unit Price of Infrastructure Component-16

1.4 District wise cost estimation of Solar Pumps

Sr. No.	District	Solar Pump	Capacity @ 12.5 HP/ Sub Project	Unit Cost (per HP)	Total Cost	Remarks
		(No. of Subproject)	(In HP)	(In Rs.)	(In Mil)	
1	Hamirpur	16	200	84,700	16.94	For unit cost please refer to Sheet 1
2	Una	16	200	84,700	16.94	
3	Bilaspur	16	200	84,700	16.94	
4	Mandi	8	100	84,700	8.47	
5	Kangra	15	188	84,700	15.88	
6	Kullu	2	25	84,700	2.12	
7	Kinnaur	-	-	84,700	-	
8	Shimla	-	-	84,700	-	
9	Chamba	-	-	84,700	-	
10	Sirmaur	3	38	84,700	3.18	
11	Solan	7	88	84,700	7.41	
12	Lahaul & Spiti	-	-	84,700	-	
		83	**1037.5**		**87.88**	

1.5 District wise cost estimation of Farm Access Roads

Sr. No.	District	Farm Access Road	Unit Cost	Total Cost
		(km)	(In Rs.)	(In Mill)
1	Hamirpur	0.60	3,796,514	2.28
2	Una	0.90	3,796,514	3.42
3	Bilaspur	2.35	3,796,514	8.92
4	Mandi	4.75	3,796,514	18.03
5	Kangra	27.20	3,796,514	103.27
6	Kullu	3.00	3,796,514	11.39
7	Kinnaur	-	3,796,514	-
8	Shimla	10.00	3,796,514	37.97
9	Chamba	7.60	3,796,514	28.85
10	Sirmaur	1.00	3,796,514	3.80
11	Solan	5.00	3,796,514	18.98
12	Lahaul & Spiti	-	3,796,514	-
		62.40		**236.90**

Note: * For unit cost, please refer to ISC-024

Attachment 8.2.2 List of Unit Price of Infrastructure Component-18

1.5 Farm Access Road **ISC-024**

Sr. No	Particulars	As per DPR					As per HPSOR 2020	
		Qty.	Unit	Rate	Amount	Rate	Code No.	Amount
1	Excavation for road way in soil by manual means for cutting of cut earth to embankment site within all leads and lifts as per technical specification clause 302.0 complete in all respect as per the entire satisfaction of Engineer incharge.	1550.00	Cum.	171.44	265729.62	56.81	HPSR 2009- 302	88055.50
2	Construction of subgrade and earthen shoulders with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of Table 300.2 with lead upto 1000 m as per Technical Specification Clause 303.1. complete in all respect within all leads & lifts as per entire satisfaction of Engineer in charge.	357.50	Cum.	282.58	101024.07	144.61	HPSR 2009- 303.01	51698.08
3	Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with smooth wheel roller 80-100 kN static roller in stages to proper grade and camber, applying and brooming, stone screening/ binding materials to fill-up the interstices of coarse aggregate, watering and compacting to the required density WBM Grading 1 (90-45mm size) as per Technical Specification Clause 404 complete in all respect within all leads & lifts as per entire satisfaction of Engineer in charge.							
	WBM G-I 90 to 40mm size (soling)	357.50	Cum.	3,001.55	1073053.56	2332.25	HPSR 2020- 16.3.1	833779.38
4	Providing & laying Cement Concrete for plain/ reinforced cement concrete in open foundation complete as per drawing & technical specification clause 802, 803, 1202 & 1203 PCC grade M-10 (1:3:6) including cost of form work complete in all respect within all leads & lifts as per entire satisfaction of Engineer in charge.	335.50	Cum.	5,800.38	1946027.34	5424.85	HPSR 2020- 4.1.5	1820037.18
5	Providing & laying Cement Concrete for plain/ reinforced cement concrete in open foundation complete as per drawing & technical specification clause 802, 803, 1202 & 1203 PCC grade M-15 (1:2:4) including cost of form work complete in all respect within all leads & lifts as per entire satisfaction of Engineer in charge.	167.75	Cum.	6,264.29	1050834.868	5978.80	HPSR 2020- 6.42	1002943.70
		Total			**3120104.97**			**3796513.83**
		Say Rs.			**3120105.00**			**3796514.00**

1.6 District wise Projections of Fencing

Sr. No.	District	Solar electric powered fencing	Project Assistance (90% of Rs. 797)	Chain fencing				Composite fencing with welded mesh & Solar power	Project Assistance (70% of Rs. 950)	Barbed wire fencing				Total Cost
				With Angle iron	Project Assistance (50% of Rs. 640)	With RCC poles	Project Assistance (50% of Rs. 700)			With Angle iron	Project Assistance (50% of Rs. 416)	With iron poles	Project Assistance (50% of Rs. 530)	
		(In Rmt.)	(In Rs.)	(In Rmt.)	(In Rs.)	(In Rmt.)	(In Rs.)	(In Rmt.)	(In Rs.)	(In Rmt.)	(In Rs.)	(In Rmt.)	(In Rs.)	(In Mil.)
1	Hamirpur	4270	717.30	1225	320.0	1025	350	1305	665	4295	208	1025	265	5.85
2	Una	3300	717.30	980	320.0	625	350	1060	665	3400	208	820	265	4.53
3	Bilaspur	3840	717.30	1160	320.0	740	350	1030	665	4040	208	965	265	5.17
4	Mandi	19030	717.30	5480	320.0	3492	350	3865	665	18685	208	4490	265	24.27
5	Kangra	30960	717.30	9245	320.0	5778	350	5778	665	30855	208	7350	265	39.40
6	Kullu	6470	717.30	3960	320.0	3103	350	1720	665	8770	208	2140	265	10.53
7	Kinnaur	270	717.30	160	320.0	150	350	130	665	350	208	250	265	0.52
8	Shimla	6480	717.30	1915	320.0	1260	350	1265	665	6450	208	1845	265	8.37
9	Chamba	4875	717.30	0	320.0	0	350	0	665	0	208	0	265	3.50
10	Sirmaur	3575	717.30	1075	320.0	695	350	700	665	3750	208	1150	265	4.70
11	Solan	7950	717.30	2265	320.0	1510	350	1490	665	9400	208	2313	265	10.51
12	Lahaul & Spiti	8775	717.30	2515	320.0	1590	350	1605	665	8750	208	2435	265	11.19
		99795		**29980**		**19967**		**19948**		**98745**		**24783**		**128.54**

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-1

Farmer's support project Unit Price

No.		Sub component	Unit Price (INR)	Remarks
2.1		**Formation and Strengthening KVA**		
2.1.1		Awareness Camp involving Community	8,000	FSC-017
2.1.2		Formation and formalization of KVAs		
	(1)	Workshop of group to develop objectives and norms	4,000	FSC-018
	(2)	Training to MC members on role and responsibility	46,000	FSC-012
	(3)	Exposure visit of MC members to KVA in other area of HP	80,000	FSC-014
2.1.3		Capacity development of KVAs for O&M Management		
	(1)	Workshop to discuss principal and practices of irrigation and water management	4,000	FSC-018
	(2)	Training on techniques of water management	86,000	FSC-001
	(3)	Field training on basic engineering skills	6,000	FSC-002
2.2		**Vegetable Promotion**		
2.2.1		Incubation and capacity development of community motivators		
	(1)	Engagement of Community Motivators	108,000	1 Person :Rs. 3,000/month x 12 months x 3 years, Based on Phese-1 results
	(2)	Training on Institutional Development Processes	100,000	FSC-003
	(3)	Training on basics of irrigation management and enhancing agriculture production	100,000	FSC-003
	(4)	Training on promotion and strengthening of SHG (concept) including Training on facilitation for business promotion and market linkages of SHG	60,000	FSC-004
	(5)	Exposure Visits on Participatory Irrigation Management	200,000	FSC-015
	(6)	Peer Learning Interactions for Community Motivators	2,500	FSC-019
2.2.2		Farm Economy Management, Training on farm management by farm type (advanced, intermidiate and conservative)		
	(1)	Orientation & Need Assessment	3,000	FSC-020
	(2)	Training on farm management and Book Keeing including Workshop of Farmres Group on cropping pattern arrangement	3,000	FSC-020
	(3)	Workshop of farmers group on cropping pattern arrangement	40,000	FSC-009
2.2.3		Training cum method demostration on Cultivation Practice of vegetable crops		
	(1)	Sub-projects having CCA less than 25 ha (109 nos.)	3,000	FSC-021
	(2)	Sub-projects having CCA more than 25 ha (187 + 10 nos.)	3,000	FSC-021
	(3)	Water saving and soil moisture conservation techniques	77,000	FSC-005
	(4)	Promotion of Organic farming: Organic fertilizer application	34,000	FSC-006
	(5)	Promotion of Organic farming: Organizing Kisan Mera and vegetable shows	100,000	FSC-007
	(6)	Promotion of Organic farming: OPM and IPM: Training of farmers group	33,000	FSC-008
	(7)	Promotion of Organic farming: OPM and IPM: Exposure visit to model farm for IPM	30,000	FSC-016
	(8)	Promotion of Organic farming: Organic fertilzier preparation	34,000	FSC-006
	(9)	Promotion of Organic farming: ICS and third party certificate for 3 years in Phase-1 organic cluster	10,000	FSC-022
	(10)	Promotion of post-harvest processing & marketing: Training/demonstration on agro-processing / preservation	40,000	FSC-009
	(11)	Promotion of post-harvest processing & marketing: Training on market information, food safety, and quality grading	25,000	FSC-010
	(12)	Promotion of post-harvest processing & marketing: Buyer and seller meet at District level	100,000	FSC-011
2.2.4		Food Grain's Productivity Training & demonstration	3,000	FSC-021
2.2.5		Provision of Farm Machinery		
	(1)	Providing support to farmers on cost sharing basis (50:50) project share 50%	373,500,000	FSC-028

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-2

Farmer's support project Unit Price

No.		Sub component	Unit Price (INR)	Remarks
2.2.6		Provision of poly housese & poly tunnels		
	(1)	Training cum method demostration(low tunnels) for vegetable seedlings	5,000	DOA's proposal
	(2)	Installation of walk in tunnels(10mtsX4 mts=1 unit): 1 unit in the sub project having CCA <25 ha(109 nos.)	24,000	DOA's proposal
	(3)	Installation of walk in tunnels(10mtsX4 mts=1 unit): 1 unit in sub projects having CCA >25 ha (197 nos)	24,000	DOA's proposal
	(4)	Installation of poly houses including MIS	167,000	DOA's proposal
	(5)	Small poly houses in kitchen garden on cost sharing basis 85:15: 105 sqm poly house	150,150	DOA's proposal
	(6)	Small poly houses in kitchen garden on cost sharing basis 85:15: 252 sqm poly house	287,280	DOA's proposal
	(7)	Small poly houses in kitchen garden on cost sharing basis 85:15: 504 sqm poly house	498,960	DOA's proposal
2.2.7		Program for Next Generation		
	(1)	For School Students	14,973	FSC-029
	(2)	Young Farmers	14,853	FSC-030
2.3		**Other activities**		
2.3.1		R & D support	25,000,000	FSC-035
2.3.2		Assistence for soil testing kits	105,000	Based on Phase-1 results
2.3.3		Infrastructure development at SAU for vegetable seed production		
	(1)	Farm Dev Cost	73,625,000	FSC-032
	(2)	Non recurring cost	17,250,000	FSC-032
	(3)	Recurring cost	9,125,000	FSC-032
2.4		**Innovative activities**		
2.4.1		Establishment of centre of exellence for vegetable nursery production	6,800,000	FSC-034
2.4.2		Trial for soil less cultivation/Fan Pad GH with vertical system	10,000,000	DOA's proposal
2.4.3		Provision of tubular structure shade net houses	816	Based on Market Price
2.4.4		Provision of plastic mulching material	3.68	Based on Market Price
2.4.5		Provision of Anti- Hail nets in hail prone areas	35	Based on Market Price
2.5		**Livelihood support activities for on /off farm activities and service sector activities**		
2.5.1		Formation and formalization of SHGs		
	(1)	Workshop of group to develop objectives and norms	4,000	FSC-018
	(2)	Training to SHG members on role and responsibility	97,000	FSC-013
2.5.2		Mushroom cultivation on cost sharing basis 80:20	45,000	FSC-027
2.5.3		Raring of honey bees on cost sharing basis 80:20		
	(1)	10 colony apiary unit	40,000	FSC-031
2.5.4		Dairy Farming on cost sharing basis 80:20 (2 cows/ Buffalos per unit)	402,000	FSC-023
2.5.5		Back yard poultry on cost sharin basis 80:20 (50 birds Per unit)	80,000	DOA's proposal
2.5.6		Service Sector	38,400,000	DOA's proposal
2.5.7		Promotion of Shiitake Mushroom Cultivation	55,300,000	FSC-033
2.5.8		Promotion of on farm of fish culture		
	(1)	C/O Raceways of minimum of 50 cubic mtrs. 80:20 cost sharing basis.	300,000	FSC-024
	(2)	Input for Trout Rearing Unit on 80:20 cost sharing basis.	250,000	FSC-025
	(3)	C/O new grow out Fish ponds on 80:20 cost sharing basis.	700,000	FSC-026
2.6		**Nutrition Improvement Program**	8,000	FSC-017

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-3

Training (1) **FSC-001**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Equitable Water Distribution (3 persons form each site)					
Hiring of Venue	Hall	1	1,500	2	3,000
Boarding and lodging of Participants	Persons	20	1,000	2	40,000
Travel and Conveyance to Participants	Persons	20	100	1	2,000
Lunch and Tea	Persons	20	200	2	8,000
Per Diem to Resource Persons	Persons	2	2,000	2	8,000
Travel& Conveyance for Resource Persons	Persons	2	2,500	1	5,000
Professional fee to Resource Persons	MD	2	3,000	2	12,000
Folder, stationery and learning material	Nos.	20	200	1	4,000
Audio-Visual Aids	Set	1	500	2	1,000
Documentation and Reporting	Trainings	1	1,500	2	3,000
Total					86,000

Source: Based on Phase-1 results

Training (2) **FSC-002**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Training to be conducted in each site by JE, Overseer and Community Motivators)					
Food and snacks for participants	Persons	30	100	1	3,000
Learning material including paper, stationery	Persons	30	40	1	1,200
Transportation of equipments	LS	1	1,500	1	1,500
Total					5,700
					6,000

Source: Based on Phase-1 results

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-4

Training (3) **FSC-003**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Hiring of Venue	Hall	1	1,500	3	4,500
Boarding and lodging of Participants	Persons	20	600	3	36,000
Travel and Conveyance to Participants	Persons	20	300	1	6,000
Lunch and Tea	Persons	24	200	3	14,400
Per Diem to Resource Persons	Persons	2	1,250	3	7,500
Travel& Conveyance for Resource Persons	Persons	2	3,000	1	6,000
Professional fee to Resource Persons	MD	2	3,000	3	18,000
Folder and stationery	Nos.	24	200	1	4,800
Documentation and Reporting	Trainings	1	1,000	3	3,000
Total					100,200
					100,000

Source: Based on Phase-1 results

Training (4) **FSC-004**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Hiring of Venue	Hall	1	1,000	2	2,000
Boarding and lodging of Participants	Persons	20	500	2	20,000
Travel and Conveyance to Participants	Persons	20	300	1	6,000
Lunch and Tea	Persons	24	180	2	8,640
Per Diem to Resource Persons	Persons	2	1,250	2	5,000
Travel & Conveyance for Resource Persons	Persons	2	2,000	1	4,000
Professional fee to Resource Persons	MD	2	2,000	2	8,000
Folder, stationery and learning material	Nos.	24	200	1	4,800
Documentation and Reporting	Trainings	1	1,560	1	1,560
Total					60,000

Source: Based on Phase-1 results

Training (5) **FSC-005**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Lunch and Tea	Persons	35	100	1	3,500
Folder and stationery	Nos.	35	100	1	3,500
Materials (seeds & seedlings & Polysheet)	Persons	35	2,000	1	70,000
Total					77,000

Source: Based on Phase-1 results

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-5

Training (6) **FSC-006**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Lunch and Tea	Persons	35	100	2	7,000
Folder and stationery/Printed Matters	Nos.	35	200	1	7,000
Raw Materials	Training	1	20,000	1	20,000
Total					34,000

Source: Based on Phase-1 results

Training (7) **FSC-007**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Lunch and Tea	Persons	500	100	1	50,000
Hiring of Venue	Open space	1	20,000	1	20,000
Printed Matters	Nos.	500	20	1	10,000
Materials (seeds & seedlings)	Persons	1	20,000	1	20,000
Total:					100,000

Source: Based on Phase-1 results

Training (8) **FSC-008**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Rent for Land (One season)	0.3ha	1	1,000	1	1,000
Lunch and Tea	Persons	35	100	1	3,500
Printed Matter, folder and stationery	Nos.	35	100	1	3,500
Materials (Bio Pesticide)	Trainings	1	25,000	1	25,000
Total					33,000

Source: Based on Phase-1 results

Training (9) **FSC-009**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Lunch and Tea	Nos.	30	100	1	3,000
Per Diem to Resource Person	Nos.	1	2,000	1	2,000
Travel / mobility to Resouce persons	Nos.	1	2,500	1	2,500
Professional Fess for Resource person	Nos.	1	3,000	1	3,000
Folder and Stationery and leaflets	Nos.	30	200		6,000
Other logistics (AV, documentation/report etc.)	LS				5,000
Raw Materials					18,500
Total					40,000

Source: Based on Phase-1 results

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-6

Training (10) **FSC-010**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Hiring of Venue	Hall	1	1,500	1	1,500
Lunch and Tea	Nos.	30	100	1	3,000
Per Diem to Resource Person	Nos.	1	2,000	1	2,000
Travel / Mobility to Resouce persons	Nos.	1	2,500	1	2,500
Professional Fess for Resource person	Nos.	1	3,000	1	3,000
Folder and Stationery and leaflets	Nos.	30	200		6,000
Field visit to nearby model farmer/APMC/sub yard	Nos.	1	LS		4,000
Other logistics (AV, documentation/report etc.)	LS				3,000
Total					25,000

Source: Based on Phase-1 results

Training (11) **FSC-011**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Lunch and Tea	Persons	150	100	1	15,000
Hiring of Venue and other logistics	Open space	1	15,000	1	15,000
Folder and Stationery and leaflets	Nos.	150	20	1	3,000
Display of exihibits			17,000	1	17,000
Travel and conveyence for participants	Vehicle RT	10	5,000	1	50,000
Total					100,000

Source: Based on Phase-1 results

Training (12) **FSC-012**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Hiring of Venue	Hall	1	1,500	1	1,500
Boarding and lodging of Participants	Persons	30	500	1	15,000
Travel and Conveyance to Participants	Persons	30	300	1	9,000
Lunch and Tea	Persons	30	200	1	6,000
Per Diem to Resource Persons	Persons	1	2,000	1	2,000
Travel & Conveyance for Resource Persons	Persons	1	2,500	1	2,500
Professional fee to Resource Persons	MD	1	3,000	1	2,000
Folder and stationery	Nos.	30	200	1	6,000
Audio-visuals	Set	1	500	1	500
Documentation, Reporting & Misc.	Trainings	1	1,500	2	1,500
Total					46,000

Source: Based on Phase-1 results

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-7

Training (13) **FSC-013**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Hiring of Venue	Hall	0	0	0	0
Boarding and lodging of Participants	Persons	30	1,000	2	60,000
Travel and Conveyance to Participants	Persons	30	100	1	3,000
Tea & lunch	Persons	32	200	2	12,800
Per Diem to Resource Persons	Persons	2	0	2	0
Travel& Conveyance for Resource Persons	Persons	2	2,500	1	5,000
Professional fee to Resource Persons	MD	2	3,000	2	12,000
Folder, stationery and learning material	Nos.	30	50	1	1,500
Audio-Visual Aids	Set	1	500	2	1,000
Documentation and Reporting	Trainings	1	750	2	1,500
Total					96,800
					97,000

Source: Based on Phase-1 results

Exposure visit (1) **FSC-014**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Travel and Conveyance for Participants	Persons	14	2,500	1	35,000
(12 MC members (2 members/site) + 2 Escorts					
Boarding and lodging for participants	Persons	14	1,000	3	42,000
Misc.					3,000
Total					80,000

Source: Based on Phase-1 results

Exposure visit (2) **FSC-015**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Travel and Conveyance for Participants**	Persons	14	8,250	1	115,500
** 12 Motivators and 2 Escorts					
Boarding and lodging for participants	Persons	14	1,200	5	84,000
Total					199,500
					200,000

Source: Based on Phase-1 results

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-8

Exposure visit (3) **FSC-016**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Travel expenses	Persons	5	5,000	1	25,000
Boarding and Lodging	Persons	5	1,000	1	5,000
Total					30,000

Source: Based on Phase-1 results

Awareness Camp **FSC-017**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Venue & Meeting arrangement (100 persons)	Venue	1	3,000	1	3,000
Transportation of Personnel and Materials	LS	0	0	0	0
Public Address System and Audio-Visuals	LS	0	0	0	0
Refreshment - Tea and Snacks	Persons	100	40	1	4,000
Photographs , Documentation & Misc.	LS	1	1,000	1	1,000
Total					8,000

Source: Based on Phase-1 results

Workshop **FSC-018**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Hiring of Venue	Hall	0	0	0	0
Lunch and Tea	Persons	35	40	1	1,400
Learning material and stationery	Nos.	35	30	1	1,050
Documentation , Reporting & Misc.	Event	1	1,800	1	1,800
Total					4,250
					4,000

Source: Based on Phase-1 results

Learning **FSC-019**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Travel and Conveyance to Participants	Persons	5	200	1	1,000
Lunch, and Tea	Persons	5	200	1	1,000
Stationery, folder and learning material	Nos.	5	100	1	500
Total					2,500

Source: Based on Phase-1 results

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-9

Orientation **FSC-020**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Tea and Refreshments	Persons	35	40	1	1,400
Folder and Stationery	Nos.	35	20	1	700
Logistic for vanue (Chairs,Banner etc.,photography etc.)	LS				900
Total					3,000

Source: Based on Phase-1 results

Planting Material **FSC-021**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Printed material/leaflets	Nos.	35	30	1	1,050
Seed and other Planting Material	Nos.	1	1,950	1	1,950
Total					3,000

Source: Based on Phase-1 results

ICS **FSC-022**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
ICS and third party Certiifcation per Ha for Three Years	Per ha	500	10,000	LS	5,000,000

Source: Based on Phase-1 results

Dairy Cost **FSC-023**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Non-Recurring Cost					
Renovation of existing shed, Manger construction		1	50,000		50,000
Purchase of animals: Cattle		2	50,000		100,000
Miscellaneous expediture (Milk cans, milking buckets, Chaff cutter etc.)		11	10,000		110,000
Sub-Total (1)					260,000
Recurring					
Dry fodder (kg)		1	100	360	36,000
Green fodder (Kg)		1	120	360	43,200
Concentrate (kg)		1	160	360	57,600
Minerals mixture (Kg)		1	8	360	2,880
Preventive health care		1	2,000		2,000
Sub-Total (2)					141,680
					401,680
Total					402,000

Source: Based on Phase-1 results

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-10

Farm of Fish Culture (1) **FSC-024**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Government al Assistance					
General		1			120,000
SC/ST/Women		1			180,000
Total					300,000

Source: Based on Phase-1 results

Farm of Fish Culture (2) **FSC-025**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Government al Assistance					
General		1			100,000
SC/ST/Women		1			150,000
Total					250,000

Source: Based on Phase-1 results

Farm of Fish Culture (3) **FSC-026**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Government al Assistance					
General		1			280,000
SC/ST/Women		1			420,000
Total					700,000

Source: Based on Phase-1 results

Mushroom Cultivation **FSC-027**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Cost of bags, spawn and casing soil:	Bag	200	190		38,000
Transportation if any					2,500
Running cost (Electricity & Water etc.)	Month	3	1,500		4,500
Total					45,000

Source: Based on Phase-1 results

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-11

Cost Breakdown for Provision of Farm Machinery **FSC-028**

(Unit: Rs. in Lakh)

No.	Type of Agriculture Machinery	Unit Cost	No.	Amount (Rs.)	Remarks
1	**Tractors**				
	(i) Tractor (08-15 PTO HP) , (ii) Tractor (15-20 PTO HP)	4.5	306	1377	1no/sub-project
2	**Power Tillers**				
	(i) Power Tiller (Below 8 BHP)	1.3	306	398	1no/sub-project
3	**C. Inter Cultivation Equipment**				
	(i) Power Weeder (engine operated below 2 BHP)	0.5	612	306	2no/sub-project
	(ii) Power Weeder (Above 2 BHP)	1.2	306	367	1no/sub-project
	Tractor/Power Tiller (Below 20 BHP) driven equipment				
4	**A. Land Development, Tillage and seed bed preparation equipment:**				
	(i) MB Plow, (ii) Disc Plow, (iii) Cultivator, (iv) Harrow and (v) Leveler Blade, etc.	0.4	306	122	1no/sub-project
5	**D.Harvesting & Threshing Equipments (Operated by Engine/Electric motor below 3 HP and by Power Tiller, and tractor of below 20 BHP Tractor)**				
	(i) Thresher,(ii) Multi Crop Threshers, (iii) Paddy Thresher, (iv) Brush Cutter, (iv) Winnowing Fan, (vi) Maize Sheller, (vii) Reaper, (viii) Mower	0.6	306	184	1no/sub-project
6	**E. Chaff Cutter (Operated by Engine/Electic Motor below 3 HP Power Tiller, and Tractor of below 20 BHP Tractor)**	0.4	918	367	3no/sub-project
7	**C. Inter Cultivation Equipments:**				
	(i) Grass Weed Slasher	0.7	306	214	1no /sub-project
	All Manual/Animal Drwan Equipment/Implements/Tools				
8	**A. Land Development, Tillage and seed bed Preparation equipments:**				
	(i) MB Plow (ii) Disc Plow (iii) Cultivator (iv) Harrow (v) Leveler Blade (vi) Furrow Opener (Vii) Ridger (viii) Puddler	0.2	306	61	1no /sub-project
9	**B. Sowing and Planting Equipments:**				
	(i) Paddy Planter (ii) Seed Cum Fertilizer Drill (iii) Raised Bed Planter (iv) Planter (v) Equipments for Raising Paddy Nursery (vi) Seed Treating Drum	0.2	306	61	1no /sub-project
10	**C. Harvesting & Threshing Equipments**				
	(i) Thresher (ii)Winnowing Fan (iii) Maize Sheller (iv) Feed Block Machine	0.2	306	61	1no /sub-project
11	**Specialised self Propelled Machinery**				
	Post Hole Digger/Augur	1.5	306	77	1 no/sub-project
12	**All types of Agricultural Equipments**				
	(a) Manual Sprayer (i) Knapsack/Foot Operated Sprayer	0.015	612	9	2no/sub-project
	(b) Powered Knapsack Sprayer/Power Operated Taiwan Sprayer (Capacity 8-12 lts)	0.062	612	38	2no/sub-project
	(c) Powered Knapsack Sprayer/Power Operated Taiwan Sprayer (Capacity 12-16 lts)	0.076	612	47	2no/sub-project
	(d) Powered Knapsack Sprayer/Power Operated Taiwan Sprayer (Capacity above 16 lts)	0.1	306	31	1no/sub-project
	(e) Eco Friendly Light Trap	0.03	306		
	Sub project having CCA <25 ha(109 nos.)	0.03	109	3	1no/sub-project
	Sub projects having CCA >25 ha (197 nos)	0.03	394	12	2no/sub-project
	Total (Rs. In Lakh)			3,735	

Source: Based on Operational Guidelines by DoA, June. 2020

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-12

Programme for Next Generation

A. School Students **FSC-029**

S.N	ACTIVITY	Unit Cost (INR)	No. of Units	Cost (INR)	Remarks
1	Lessons and questionnaires: 25-30 pages compendium on lessons on agriculture and allied fields	70	4,200	294,000	70 SchoolsX30 students x 2
2	TOOL FOR NURSERY RAISING*				
	· NET/POLYSHEET@ INR1000/-	1000	140	140,000	70 ScholsX1 No. x 2
	· PLUG TRAYS (22 NO.)@ INR 50/-	50	3,100	155,000	SchoolsX22 Treys per School x 2
	· WATERING CAN-SMALL (5 NO.)@INR260/-	260	700	182,000	70 ScholsX1 No. x 10
	· VERMICULITES AND PERLITES PACKS (L/S)	900	140	126,000	70 ScholsX1 No. x 2
	· SEEDS (L/S)	2500	140	350,000	70 ScholsX1 No. x 2
	· TOOLKIT (1 NO)@INR 3000/-	3000	140	420,000	70 ScholsX1 No. x 2
	· SOLAR LIGHT@ 15500	15500	140	2,170,000	70 ScholsX1 No. x 2
	· UNFORESEEN EXPENSES (L/S)	1000	140	140,000	70 ScholsX1 No. x 2
	Orientation workshops with targeted schools (Tea and Snacks)	1500	140	210,000	70 ScholsX1 No. x 2
	MOTIVATION CUM ORGANIC FARMING TRAINING	900	4,200	3,780,000	70 SchoolX30 Students x 2
	WRITTEN QUIZ AND NURSERY ASSESSMENT	5000	140	700,000	70 ScholsX1 No. x 2
	Quiz at BPMU Level	25000	28	700,000	14 BPMUsX1 No. x 2
	YLTP AT SPMU LEVEL	5000	140	700,000	14 BPMuX 5 Students x 2
	Study cum Exposure visit to SAU/IHBT Palampur/sub-Project area of HPCDP-JICA-ODA	7500	140	1,050,000	14 BPMuX 5 Students x 2
	Quiz cum Model assessment	2500	140	350,000	14 BPMuX 5 Students x 2
Persons	Concluding Function (students+school heads/coordinators + BPMS and staff = 200 participants	200000	2	400,000	SPMU Level
Persons	Contingency at SPMU Level for araanging documentation of the Block Level and SPMU level activitities	800000	2	1,600,000	SPMU Level
Persons	Prize money				
MD	First Prize	200000	2	400,000	1 no. x 2
Nos.	Second Prize	150000	2	300,000	1 no. x 2
Set	Third Prize	100000	2	200,000	1 no. x 2
Trainings	Consolation Prizes	25000	22	550,000	8 No. x 2
	Total			14,973,000	

Source: Based on Phase-1 results

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-13

B. Young Farmers **FSC-030**

S.N	ACTIVITY	Unit Cost (INR)	No. of Units	Cost (INR)	Remarks
1	Orientation Meetings Of Eos at DPMU Level	5000	12	60,000	1 No. X 4 DPMU X 3
2	Skilled and motivated youth as Agri Entrepreneurs.				
2.1	Selection of youth from Selected KVAs, 5 youth from 2 KVAs per BPMU: 140 Youth	1500	42	63,000	No.x14 BPMUs X 2 KVAs.) X 3
2.2	Orientation and Awareness on basics of modern farming techniques, resource pooling, supply chain, FPC (AT DPMU LEVEL)followed by Identification and grouping for next level: 30 to 40 youth selected by the BPMUs, 2 day duration	45000	12	540,000	1 No. X 4 DPMU X 3
2.3	Happiness/Motivational program DPMU Level: 5 day course for 30 to 40 youth	50000	12	600,000	1 No. X 4 DPMU X 3
2.4	Advanced awareness program on crops/enterprises:	25000	6	150,000	1 No.X 2 times X 3
2.5	Trainings and exposures to innovative farm technologies 50 youth at a time SPMU Level	250000	3	750,000	1 No. X 3
2.6	Conducting of demonstrations in line with the Marketing Opportunities including FPC	27000	84	2,268,000	BPMUs X 2 KVAsX 2 Seasons x 3
2.7	Assessment through field days And Follow-up Workshop DPMU Level	10000	12	120,000	1 No. X 4 DPMU X 3
2.8	Identification of enterprises/crops for the advanced program (AT DPMU LEVEL):	10000	6	60,000	1 No.X 2 times X 3
3	Business planning, Linkages with Banks and FPC.				
3.1	Preparation of Business plan at BPMU/DPMU Level for the participating groups/individuals: atleast 4 Business plans to be prepared for each DPMU	25000	12	300,000	1 No.X 4 times X 3
3.2	Advanced Farming Workshops on the Key Issues of business plan 2 days at DPMU Level	50000	12	600,000	1 No. X 4 DPMU X 3
3.3	Exposures/Trainings: Selected interventions/activities 5 to 10 participants	250000	6	1,500,000	2 No. X 3
3.3	Assistance in Business Plan Execution And Linkages With The FPC And Market:	500000	12	6,000,000	1 No. X 4 DPMU X 3
4	Exhibition of the successful business plans for further dissemination.	100000	12	1,200,000	1 No. X 4 DPMU X 3
5	Contingency			642,000	
	Total			14,853,000	

Source: Based on Phase-1 results

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-14

Cost Breakdown fot Rearing of honey bees

Investment on Tools and Equipment for an Apiary (size of 50 and 10 colonies) **FSC-031**

Sr.No	Items	Rate per unit (Rs.)	Beekeeping			
			Stationary		Migratory	
			Qty.	Amount (Rs.)	Qty.	Amount (Rs.)
1	Langstroth beehive boxes (single)	1,125	50	56,250	50	56,250
2	Hive stand	100	50	5,000	50	5,000
3	Hive tool	20	1	20	2	40
4	Nuclues bee colonies with 5 frames	300/frame	50	75,000	50	75,000
5	Bee veil	50	2	100	2	100
6	Bee gloves	67/pair	2	134	2 pair	134
7	Smoker	160	1	160	2	320
8	Swarm catcher	100	1	100	1	100
9	Uncapping knife	35	1	35	2	70
10	Honey uncapping trays	676	2	1,352	3	2,028
11	Honey extractor with 4 frames (hand operated)	2,000	1	2,000	1	2,000
12	Wax melting tank	300	1	300	1	300
13	Honey containers with 50 kg capacity	550	6	3,300	12	6,600
14	Stove	500	1	500	1	500
15	G.I. tub	500	1	500	1	500
16	Bucket	200	1	200	1	200
17	Ant protecting bowls	10	200	2,000	200	2,000
18	Apiary net	500	1	500	1	500
19	Comb foundation mill for wax sheet making	20,000	-	-	-	20,000
20	Miscellaneous (empty beehive boxes for addition of colonies, aari, hammer and unforeseen items	-	-	5,000	-	15,000
21	Total fixed capital	-	-	152,451	-	186,642
22	Fixed capital/colony	-	-	3,049	-	3,733
23	Fixed capital/ 10 colony	-	-	30,490	-	37,330
	Rounded					40,000

Source: Checking with PMU

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-15

Cost Breakdown for Seed Farm in SAU **FSC-032**

Sr no	Description of Items	Qty.		Rate	Unit	Cost (Rs in lak)				Remarks
						Farm Dev.	Non-recurring	Recurring	Total	
1	C/O Brick masonry boundary wall barbed wire fencing at the top	4,635	Rmt	5,000	Per Rmts	231.75			231.75	
2	Jungle/Bush Clearance	730,000	Sqm	5.44	Per Sqmt	40			40	Qty calculated as per the Revenue record attached =73 Hectare apox.
3	Leveling of the area including formation of fields terraces with the JCB and tractors etc.	450,000		35	Per Sqmts	157.5			157.5	Cubical contents calculation = 600000 m²x 0.75 mts average cutting of soil profile to form terraces for crop cultivation.
4	Farm Road with bearing Coat	Lump sum amount				20			20	Approximate 3.00 Km of 2.40 mtr width
5	Irrigation Rising main and Distribution System	Lump sum amount				140			140	Approximate 10000 Rmt 3" dia G.I. pipes including fittings etc complete.
6	R.C.C. Irrigation water storage tanks Rising main and Distribution System									
	i). RCC main storage tanks	500,000	liters	8.4	Per liter		42		42	
	ii) RCC Distributing tanks 5x 50000 lits=3.50 lac litrs	250,000	liters	8.4	Per liter		21		21	
7	Augmentation and up-gradation of pumping machinery installed in well no III including Electric Trans former & pump house .	Lump sum amount					20		20	
8	FYM @ 10 ton/Ha X75 ha	750	ton	2,000	Per ton		15		15	
9	Farm Machinery :-									
	Tractor (John Deare) alongwith farm implements	2	no	1,200,000	Each		24		24	
10	Farm infrastructure									
	Seed godown, Covered threshing floors etc.	Lump sum amount				100			100	
11	Seed Processing Machinery	Lump sum amount					48.5		48.5	
12	Sprinkler system for irrigation	70	ha	70,000	per ha	49			49	
	Total:-					738.25	170.5		908.75	
	Operational cost @10%							91.25	91.25	
	Grand Total					**738.25**	**170.5**	**91.25**	1,000	

Source: Based on Estimation by University in Palampur

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-16

Cost Breakdown for Promotion of Shiitake Mushroom Cultivation (Management Cost for SCTC) **FSC-033**

(Unit: Rs.)

No.	Particulars	Operation Year									
		1st	2nd	3rd	4th	5th	6th	7yh	8th	9th	Total
I. Initial Fixed Cost of SCTC		710,000									
II. Operational Costs/Expenses(Farm/Factory)											
1	Salary of staff except Office attendant and Night Watchman	1,488,000	1,488,000	1,488,000	1,488,000	1,488,000	1,488,000	1,488,000	1,488,000	1,488,000	13,392,000
2	Material	804,050	1,055,316	1,396,183	1,396,183	1,700,551	1,785,579	1,874,858	2,263,891	2,377,086	14,653,697
3	Electricity	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	10,800,000
4	Contingencies	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	1,350,000
	Total (II)	3,642,050	3,893,316	4,234,183	4,234,183	4,538,551	4,623,579	4,712,858	5,101,891	5,215,086	40,195,697
III. Operational Costs/Expenses(Other)											
5	Salary of Office attendant and Night Watchman	360,000	360,000	360,000	360,000	360,000	360,000	360,000	360,000	360,000	3,240,000
6	Telephone	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	630,000
7	Motor vehicle	50,000	50,000	60,000	60,000	70,000	70,000	70,000	80,000	80,000	590,000
	Total (III)	480,000	480,000	490,000	490,000	500,000	500,000	500,000	510,000	510,000	4,460,000
	Total (II and III)	4,122,050	4,373,316	4,724,183	4,724,183	5,038,551	5,123,579	5,212,858	5,611,891	5,725,086	44,655,697
IV. Miscellaneous											
8	Maintenance of Building	na	na	na	50,000	50,000	50,000	50,000	50,000	50,000	300,000
9	Repair and Maintenance of Machinery	na	na	na	400,000	450,000	500,000	600,000	650,000	700,000	3,300,000
	Total (IV)	0	0	0	450,000	500,000	550,000	650,000	700,000	750,000	3,600,000
	Total (I+II+III+IV)	4,832,050	4,373,316	4,724,183	5,174,183	5,538,551	5,673,579	5,862,858	6,311,891	6,475,086	48,965,697
V. Training											0
1	Hands on training on Shiitake cultivation (Rs.105,000/time x 5 times/year)	525,000	525,000	525,000	525,000	525,000	525,000	525,000	525,000	525,000	4,725,000
2	Training on Shiitake processing (Rs. 35,000/times x 5 times/year)	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	175,000	1,575,000
	Total (V)	700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000	6,300,000
	G. Total	5,532,050	5,073,316	5,424,183	5,874,183	6,238,551	6,373,579	6,562,858	7,011,891	7,175,086	55,265,697
										Rounded	**55,300,000**

Source: Based on Estimation by PMU

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-17

Establishment of centre of exellence for vegetable nursery production **FSC-034**

S.N	Particular	Area	Rate Unit (Rs.)	Amount (Rs.)
	1. Cost of Creation of infrastructure			
1	Hi-tech Green House farmed Hot Dipped galvanized ISI Marked G.I. Pipe "A" Class Structure, Foundation, Fan & Pad System with all items from Sr. No.1-15 for covered area of 560 sqm.	560	3,425,500	3,425,500
2	Shade Net House of area 250 sqm. With all items from Sr. No.1-8	250	476,945	476,945
3	Germination Chamber (4m x3m size), construction wall and roof with puff panel, 60 mm MS Channel/Angle Frame Structure, Flooring Mosaic Tiles,Door, Window with heating system, 1.5 tone AC, Benches, Foggers, Panels, cables with trolley in and out.	(4m x 3m size),	295,000	295,000
4	Working area outside close to polyhouse Construction of wall with puff panel 60mm, MS Channel/MS angle frame structure, Flooring mosaic tiles, door, window pack house of GI sheet (4.50m x6.00 m), plate form of 3m X1.5m)	4.5m x 6.00 m),plate form of 3m x 1.5	375,740	375,740
5	Store Room of sixe 4.50m x 3.60m, construction of wall with puff panel 60mm, MS Channel/Angle Frame Structure Flooring Mosaic Tiles, Door, Window	4.50m x3.60m	295,500	295,500
6	Generator Set (35kw) with DG Room of sixe 3.60m x3.60m, Windows, construction of wall with Puff panel 60mm Door, Windows GI Sheet Roof with concrete with floor foundation with all access including installation.	(25kw) with DG Room of sixe 3.60m x3.60m	545,000	545,000
7	Misc. Expenditure i.e. Battery operated/power sprayer, pheromone trap/sticky trap, air curtain, wash basin, hand gloves, apron, mask, aps, gum boots, corrugated boxes for transportation of planting material.	-	95,000	95,000
	Total		5,508,685	5,508,685
8	Fencing Work: Fencing MS Angle 50 x 50 x 5 mm, 2.45 m above ground and 0.60 m below ground grouted in CC ratio 1:2:4 of size 0.45 X 0.45 x0.75m, spacing 3m barbed wire at spacing 20cm in height MS Gate 1.80 x 3.00 m duly coats of oil paints per running mtr.	As per covered area	119,000	119,000
9	Drainage Construction of drainage gutter of size 0.23m x0.30 m with both side 23cm thick wall and base made of PC 1:3:64" 10cm thick per running mtr.	As per actual covered area	130,000	130,000
10	RCC Water Tank Capacity 20,000 ltrs. Size 4m x 3m x 1.8m.	20 cum.	290,000	290,000
11	Any Other Cost	0	0	0
	Total		539,000	539,000

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-18

12	TOR	nil	0	0
	G.TOTAL		6,047,685	6,047,685
	2. Provision of solar PV pump (2.HP)		340,000	340,000
	3. Provision of S T W		445,000	445,000
	TOTAL(1 + 2 + 3)		6,832,685	6,832,685
	Rounded		6,800,000	6,800,000

Source: Based on Phase-1 results

Attachment 8.2.3 List of Unit Cost for Farmers' Support Component-19

Establishment of R & D support **FSC-035**

Sr. No.	Researchable issue Identified	R&D Institution	Duration	Project Cost (Rs.)	Output
1	Multi-location testing of CMS based hybrids of cauliflower in Himachal Pradesh	Deptt of Vegetable Science& Floriculture, CSKHPKV Palampur	3 years	2,406,000	New hybrids of cauliflower shall be made available for cultivation in the state
2	Multi-location testing of GMS based bacterial wilt resistant hybrids of chilli in Himachal Pradesh	Deptt of Vegetable Science& Floriculture, CSKHPKV Palampur	3 years	2,406,000	New hybrids of chilli shall be made available for cultivation in the state
3	Generation of double haploid through induced androgenesis in head cabbage (Brassica oleracea var. capitata l.)	Deptt of Vegetable Science& Floriculture, CSKHPKV Palampur	3 years	1,760,000	Development of potential double haploids
4	Multilocational testing and validation of newly developed bacterial wilt resistant and high yielding bell pepper lines/hybrids in H.P	Deptt of Vegetable Science& Floriculture, CSKHPKV Palampur	2 years	960,000	Identification of elite bacterial wilt resistant bell pepper lines/hybrids for different agroclimatic zones of H.P.
5	Multilocational testing and validation of newly developed yellow vein mosaic virus resistant and high yielding okra lines/hybrids in H.P	Deptt of Vegetable Science& Floriculture, CSKHPKV Palampur	2 years	960,000	Identification of elite yellow vein mosaic virus resistant okra lines/hybrids for different agro climatic zones of H.P.
6	Development and promotion of management technology against insect-pests of brinjal	Deptt of Entomology, CSKHPKV Palampur	2 years	1,759,000	Development of pest management module on eco friendly approaches
7	Management of root-knot nematode, Meloidogyne incognita in cucumber under protected cultivation	Deptt of Entomology, CSKHPKV Palampur	2 years	1,759,000	Development of effective management tactics under polyhouse conditions for the management of root knot nematode
8	Assessment, validation and refinement of disease management technology for vegetable crops	Deptt of Plant Pathology, CSKHPKV Palampur	3 years	3,029,000	Refinement and development of integrated disease management technology in vegetables.
9	Enhancing rice production in high-altitude areas of Himachal Pradesh by development and popularization of high yielding, cold tolerant japonica rice varieties through farmers' participatory approach.	Deptt of Plant Breeding, CSKHPKV Palampur	3 years	4,406,000	Development and popularization of high yielding japonica varieties of rice
10	Genetic amelioration of Kala zeera (Bunium persicum Boiss) using tissue culture/micropropagation approach	Deptt of Plant Breeding, CSKHPKV Palampur	3 years	3,364,000	Development of efficient micro propagation technology to shorten the seed to seed cycle and enhancement of seed germination with techonological interventions.
11	Popularization of potential A B C crops of North Western Himalayas as vegetable and seed under organic and natural farming conditions through participatory plant breeding. (A B C= Amaranthus, Buckwheat and Chenopodium.)	Deptt of Plant Breeding, CSKHPKV Palampur	3 years	2,877,000	Availability of quality planting material Increase in income of farmers
		Total		25,686,000	
		Rounded		25,000,000	

Source: Based on estimates from universities

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-1

4. Institutional Development Component Unit Price

No.		Sub component	Unit Price(INR) ('000)	Remarks
4.1		**Strengthening of DOA**		
4.1.1		Recruitment of PMU Staff (Out-Source)		
	(1)	State PMU	-	IST-026, IST-027
	(2)	District PMU	-	IST-026, IST-028
	(3)	Block PMU	-	IST-026, IST-029
4.1.2		Capacity Development of Project Staff on PDCA Cycle		
	(1)	Orientation Workshop of PMU Staff	103	IST-001
	(2)	Training of District & Block Project Managers on PIM, PRA and CDP	155	IST-008
	(3)	Conceptual Training for PMU Staff on PDCA Cycle	161	IST-009
	(4)	Workshops to establish PDCA cycle	103	IST-001
	(5)	Exposure Visits of PMU Staff (Other States)	204	IST-019
	(6)	Peer Learning Workshop	10	IST-012
	(7)	Organising periodical review meetings, workshops etc.	35	IST-013
	(8)	HRD training on Team building , leadership, Motivation/inspiration and Stress management .	60	IST-010
	(9)	Agriculuture Extension Training	515	Result of discussion with DOA
	(10)	Engineering Training	265	Result of discussion with DOA
4.1.3		Review of overall project implementation plan	1,000	Result of discussion with DOA
4.1.4		Preparation, monitoring & update of Supply Chain	1,000	Result of discussion with DOA
4.1.5		Preparation , monitoring & update of CDP for each sub-project	1,000	Result of discussion with DOA
4.1.6		Establishment of MIS &GIS and Monitoring System	1,000	Result of discussion with DOA
4.1.7		Procurment of ICT related equipment		
	(1)	Procurement of general use IT equipment	72,738	IST-030
	(2)	Procurement of Engineering survey equipment	20,047	IST-031
	(3)	Establishment of New GIS-MIS centres at new PMUs	2,434	IST-032
	(4)	Strengthening of existing Centres at existing PMUs	9,903	IST-033
	(5)	Procurement of time series Satellite Images	-	IST-034
	(6)	Hiring of services for GIS survey	5,480	IST-035
	(7)	Hiring of services for development and deployment of SW (Software)	5,300	IST-036
	(8)	Development and deployment of ERP	-	IST-037
	(9)	Capacity building of PMU staff on MIS-GIS, Arial Monitoring and ICT environment	6,200	IST-038
	(10)	Hiring of resource persons (additional)	3,780	IST-039
4.1.8		Construction of Training Centres	20,000	IST-040
4.1.9		Procurement of Equipment and Tools to PMU		
	(1)	Rented accommodation for office space for 2 DPMU	30	Per month (New Construction / Hiring Charges), Based on Phese-1 results
	(2)	Rented accommodation for office space for 10 BPMU	20	Per month (New Construction / Hiring Charges), Based on Phese-1 results
	(3)	Furniture & office-equipments, (NewPMUs)	1,000	IST-023
	(4)	Replacement/ updation of Furniture	670	IST-024
	(5)	Transport facilities at PMU	115,860	IST-025
	(6)	Publicity events, public awareness materials, inaugural ceremonies of sub projects	-	Based on Phase 1 results
	(7)	Hiring of support services	60	Monthly remuneration per / Person
	(8)	Agricultural machinery and equipmemt for demonstration activities	61,040	IST-041
	(9)	Project Operational expenses	-	Based on Phase 1 results

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-2

4. Institutional Development Component Unit Price

No.		Sub component	Unit Price(INR) ('000)	Remarks
4.2		**Strengthening of Extention Service Function**		
4.2.1		Preparation of Information, Education and Communication (IEC) Material for Dissemination		
	(1)	Preparation of Design & Contents for Wall Writing & Posters, and Printing	500	IST-014
	(2)	Wall writings & fixing of posters	2	IST-015
	(3)	Street plays on present situation and improvement	6	IST-020
	(4)	Publication of handouts and manuals	1,050	IST-015
	(5)	Preparation of video programs	50	IST-017
	(6)	Display of shows in project villages	5	IST-018
	(7)	Farmers' fair in each Cluster	350	IST-021
	(8)	Dissemination of technology through demonstration	10	IST-022
4.2.2		Capacity Development of Agriculture Extension Staff		
	(1)	Farming practices on common and exotic vegetables with field exercises	125	IST-002
	(2)	Protected cultivation with field exercises	125	IST-002
	(3)	Integrated Pest Management	53	IST-003
	(4)	Integrated Nutrition Management	53	IST-003
	(5)	Soil analysis and soil health management	53	IST-003
	(6)	Market-led extension	53	IST-003
	(7)	**Food diversification / nutrition improvement**	53	IST-003
4.2.3		Capacity Development of Engineering Staff		
	(1)	Application of the Guideline and Check list	53	IST-003
	(2)	Data preparation and record keeping of pre-condition of each sub-projects.	53	IST-003
	(3)	Design of Pumping machinery.	53	IST-003
	(4)	Collaboration with extension officers for O&M activities	53	IST-003
	(5)	Organization of design documents	53	IST-003
4.2.4		Strengthening of Research- Extension-Farmer Linkages and Joint Visits	200	IST-004
4.2.5		Internationl/national/state level workshop/seminars		
	(1)	Organisation of Seminar /national workshops	2,500	IST-005
	(2)	Organisation of Ineternational workshops	7,500	IST-006
	(3)	State level workshop/seminars	250	IST-007
4.2.6		Overseas Training , Exposure/Study visits of Porject staff and other stakeholders	3,500	IST-011
4.2.7		Upgrading of infrastructure of State Agriculture Management and Extension Training Institute (SAMETI)	30,000	IST-042
4.3		**Baseline Survey and Impact Assessment**		
4.3.1		Conduct baseline survey	2000	Based on Phase 1 results
4.3.2		Conduct mid-line survey	2000	Based on Phase 1 results
4.3.3		Conduct end-line survey	3500	Based on Phase 1 results

Workshop (1) **IST-001**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Role Clarification					
Hiring of Venue	Hall	1	2,000	2	4,000
Boarding and lodging of Participans	Persons	25	1,000	2	50,000
Travel and Conveyance to Participants	Persons	25	1,000	1	25,000
Lunch and Tea	Persons	30	200	2	12,000
Folder and Stationery	Nos.	30	300	1	9,000
Documentation and Reporting	Event	1	3,000	1	3,000
Total					103,000

Source: Based on Phase-1 results

Workshop (2) **IST-002**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Hiring of Venue	Hall	1	2,000	0	0
Boarding and lodging of Participans	Persons	25	1,000	1	25,000
Travel and Conveyance to Participants	Persons	25	1,000	1	25,000
Per Diem to Resource Persons	Persons	2	2,000	2	8,000
Travel - Conveyance for Resource Persons	Persons	2	10,000	1	20,000
Professional fee to Resource Persons	MD	2	6,000	2	24,000
Lunch and Tea	Persons	25	200	2	10,000
Folder and Stationery	Nos.	25	300	1	7,500
Documentation and Reporting	Event	1	3,000	1	3,000
Total:					122,500
					123,000

Source: Based on Phase-1 results

Workshop (3) **IST-003**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Capacity Development of Engineering Staff					
Hiring of Venue	Hall	1	2,000	0	0
Boarding and lodging of Participants	Persons	25	1,000	0	0
Travel and Conveyance to Participants	Persons	25	100	1	2,500
Lunch and Tea	Persons	25	200	1	5,000
Per Diem to Resource Persons	Persons	2	2,000	1	4,000
Travel - Conveyance for Resource Persons	Persons	2	10,000	1	20,000
Professional fee to Resource Persons	MD	2	6,000	1	12,000
Folder and stationery	Nos.	25	300	1	7,500
Documentation and Reporting	Trainings	1	2,000	1	2,000
Total:					53,000

Source: Based on Phase-1 results

Workshop (4) **IST-004**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Hiring of Venue	Hall	1	3,000	2	6,000
Lodging arrangement for Participants	Persons	50	500	2	50,000
Travel and Conveyance to Participants	Persons	50	800	1	40,000
Lunch, Dinner and Tea	Persons	55	400	2	44,000
Stationery, folder and learning material	Nos.	50	350	1	17,500
Documentation and Reporting	Event	1	3,000	2	6,000
Audio-visual aids	Set	1	250	2	500
Honorarium to resource persons	MD	3	3,000	2	18,000
Travel and Conveyance to Resorce Persons	Persons	3	3,000	1	9,000
L odging for resource persons	Persons	3	1,500	2	9,000
Total:					200,000

Source: Based on Phase-1 results

Workshop (5) **IST-005**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Hiring of Venue & other logistics	Hall	1	75,000	2	150,000
Boarding/lodging of participants and Hiring of vehcle	Person	150	4,000	3	1,350,000
Lunch & Tea	Person	150	1,000	3	450,000
Folder & Stationery		150	1,000	1	150,000
Professional Fee to Resource Person		6	10,000	2	120,000
Travel & conveyence to Resource person		6	15,000	1	90,000
Display of exhibition					150,000
Documentation & reporting					40,000
Total					2,500,000

Source: Based on Phase-1 results

Workshop (6) **IST-006**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Hiring of Venue & other logistics	Hall	1	180,000	3	540,000
Boarding/lodging of participants and Hiring of vehcle	Person	150	9,000	4	4,500,000
Lunch & Tea	Person	150	3,000	3	1,350,000
Folder & Stationery		150	2,000	1	300,000
Professional Fee to Resource Person		6	15,000	3	270,000
Travel & conveyence to Resource person		6	15,000	1	90,000
Display of exhibition					350,000
Documentation & reporting					100,000
Total					7,500,000

Source: Based on Phase-1 results

Workshop (7) **IST-007**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Arrangement of venue and display	seminar/ Workshop	1	100,000		100,000
Lunch, and Tea	Persons	100	600	1	60,000
Travel and Conveyance to Participants	Persons	100	400	1	40,000
Cultural program	Fair	1	10,000		10,000
Prize distribution and felicitation	Fair	1	15,000		15,000
Professional fee,travelling charges to Resource Persons	Nos.	5	5,000		25,000
Total					250,000

Source: Based on Phase-1 results

Training (1) **IST-008**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Hiring of Venue	Hall	1	2,000	2	4,000
Boarding and lodging of Participans	Persons	25	1,000	2	50,000
Travel and Conveyance to Participants	Persons	25	1,000	1	25,000
Per Diem to Resource Persons	Persons	2	2,000	2	8,000
Travel - Conveyance for Resource Persons	Persons	2	10,000	1	20,000
Professional fee to Resource Persons	MD	2	6,000	2	24,000
Lunch and Tea	Persons	30	200	2	12,000
Folder and Stationery	Nos.	30	300	1	9,000
Documentation and Reporting	Event	1	3,000	1	3,000
Total					155,000

Source: Based on Phase-1 results

Training (2) **IST-009**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Hiring of Venue	Hall	1	2,000	3	6,000
Boarding and lodging of Participants	Persons	20	1,000	3	60,000
Travel and Conveyance to Participants	Persons	20	100	1	2,000
Lunch and Tea	Persons	25	200	3	15,000
Per Diem to Resource Persons	Persons	2	2,000	3	12,000
Travel - Conveyance for Resource Persons	Persons	2	10,000	1	20,000
Professional fee to Resource Persons	MD	2	6,000	3	36,000
Folder and stationery	Nos.	25	300	1	7,500
Documentation and Reporting	Trainings	1	2,000	1	2,000
Total					160,500

Source: Based on Phase-1 results

Training (3) **IST-010**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Per Diem to Resource Persons	Persons	2	2,000	2	8,000
Travel - Conveyance for Resource Persons	Persons	2	7,500	1	15,000
Professional fee to Resource Persons	MD	2	6,000	2	24,000
Tea & refreshment	Persons	25	100	1	2,500
Other logistics.		1	5,250	2	10,500
Total					60,000

Source: Based on Phase-1 results

Training (4) **IST-011**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Transportation charges , Boartding and Lodging	Persons	5	700,000	1	3,500,000
Total					3,500,000

Source: Based on Phase-1 results

Meeting (1) **IST-012**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Lunch and Tea	Persons	25	300	1	7,500
Folder, Stationery and learning material	Nos.	25	100	1	2,500
Total					10,000

Source: Based on Phase-1 results

Meeting (2) **IST-013**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Lunch and Tea	Persons	20	1,000	1	20,000
Folder, Stationery and learning material	Nos.	20	750	1	15,000
Total					35,000

Source: Based on Phase-1 results

Material (1) **IST-014**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Design and contents of posters by outsorcing	Design	15	6,000		90,000
Printing of posters	Posters	8,200	50		410,000
Total					500,000

Source: Based on Phase-1 results

Material (2) **IST-015**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Labor & material charges for writing on wall (30 sq. ft)	Wall	4	400		1,600
Fixing of posters in project village	posters	15	30		450
Total					2,050
					2,000

Source: Based on Phase-1 results

Material (3) **IST-016**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Publication of Handouts and Manuals (10 in a year, 3 years)	prints	30	35,000		1,050,000
Total:					1,050,000

Source: Based on Phase-1 results

Material (4) **IST-017**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Preparation of video film/ documentary (8 outputs each for 2 years)	videos	16	50		800
Total:					800

Source: Based on Phase-1 results

Material (5) **IST-018**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Arrangement for video show, 2 times/year x 3 years	times	6	850		5,100
Total:					5,100
					5,000

Source: Based on Phase-1 results

Exposure visit **IST-019**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Travel expenses	Persons	6	20,000	1	120,000
Boarding and Lodging	Persons	6	2,000	7	84,000
Total:					204,000

Source: Based on Phase-1 results

Street Play **IST-020**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Professional charges to team of artists for street play	sites	1	6,000		6,000
Total:					6,000

Source: Based on Phase-1 results

Fair **IST-021**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Arrangement of venue and display	Fair	1	200,000		200,000
Cultural program	Fair	1	40,000		40,000
Prize distribution and felicitation	Fair	1	40,000		40,000
Inauguration, Refreshment and Ceremonials	Fair	1	70,000		70,000
Total:					350,000

Source: Based on Phase-1 results

Demonstration **IST-022**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Snack and Tea	Persons	100	100	1	10,000
Total:					10,000

Source: Based on Phase-1 results

Furniture & office-equipments **IST-023**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Executive chairs		15	15,000		225,000
Official table		15	20,000		300,000
Visiting chairs		30	7,000		210,000
Mini sofa		1	70,000		70,000
Conference table		1	150,000		150,000
Other Items		1	45,000		45,000
Total:					1,000,000

Source: Based on Phase-1 results

Replacement/ updation of Furniture **IST-024**

Particular	Unit	No	Rate (Rs.)	Days	Amount (Rs.)
Executive chairs		10	15,000		150,000
Official table		10	20,000		200,000
Visiting chairs		15	7,000		105,000
Conference table		1	150,000		150,000
Other Items		1	65,000		65,000
Total:					670,000

Source: Based on Phase-1 results

Transport facilities at PMU **IST-025**

Particular	Unit	No	Rate (Rs.)	Month	Amount (Rs.)
New Vehicle		3	2,500,000		7,500,000
M/Cycle		20	95,000		1,900,000
Scooty		20	85,000		1,700,000
Hired Vehicle (1)		22	42,500	102	95,040,000
Hired Vehicle (2)		2	45,000	108	9,720,000
Total:					115,860,000

Source: Based on Phase-1 results

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-11

IST-026

Tentative Salary Estimate of External Source staff (Eigible) With 2% (Two precent) annual increase every year

Sr no.	Name of PMU	Total Units	Total Staff	Years	Total Salary
1	SPMU	1	27	9	86,644,320
2	DPMU	4	64	8	143,010,000
3	BPMU	14	294	8	631,730,400
	Total	**19**	**385**		**861,384,720**

Source: Based on Phase-1 results

Unit cost of Strengthening of SPMU **IST-027**

Recruitment of PMU Staff (Out Source)															
				Annual Salay with 2% (Two Precent) annual increase every year											
Sr.No.	Name of Post	Monthly Basic Salary	Per Unit Posts	First Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	Total Amount for 9 year	Total Units	Total Person	Grand Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Chief Project Advisor	125,000	1	1,500,000	1,530,000	1,560,600	1,591,800	1,623,720	1,656,240	1,689,360	1,723,200	1,757,760	14,632,680	1	1	14,632,680
2	Finance Officer	55,000	1	660,000	673,200	686,760	700,560	714,600	728,880	743,520	758,400	773,640	6,439,560	1	1	6,439,560
3	Planning Officer	40,000	1	480,000	489,600	499,440	509,400	519,600	530,040	540,720	551,640	562,680	4,683,120	1	1	4,683,120
4	Office Manager	32,000	1	384,000	391,680	399,600	407,640	415,800	424,200	432,720	441,480	450,360	3,747,480	1	1	3,747,480
5	Manager (HRD)	32,000	1	384,000	391,680	399,600	407,640	415,800	424,200	432,720	441,480	450,360	3,747,480	1	1	3,747,480
6	Accountant	26,000	1	312,000	318,240	324,600	331,080	337,680	344,520	351,480	358,560	365,760	3,043,920	1	1	3,043,920
7	Computer Assistant	15,000	2	180,000	183,600	187,320	191,100	194,940	198,840	202,800	206,880	211,020	1,756,500	1	2	3,513,000
8	Office Assistant	15,000	1	180,000	183,600	187,320	191,100	194,940	198,840	202,800	206,880	211,020	1,756,500	1	1	1,756,500
9	Private Secretary	23,000	1	276,000	281,520	287,160	292,920	298,800	304,800	310,920	317,160	323,520	2,692,800	1	1	2,692,800
10	Drivers	15,000	2	180,000	183,600	187,320	191,100	194,940	198,840	202,800	206,880	211,020	1,756,500	1	2	3,511,800
11	Office Attendent	10,000	4	120,000	122,400	124,860	127,380	129,960	132,600	135,300	138,060	140,880	1,171,440	1	4	4,685,760
12	Office upkeep	10,000	1	120,000	122,400	124,860	127,380	129,960	132,600	135,300	138,060	140,880	1,171,440	1	1	1,171,440
13	Night Watch Man	10,000	1	120,000	122,400	124,860	127,380	129,960	132,600	135,300	138,060	140,880	1,171,440	1	1	1,171,440
14	Design Engineer	38,000	1	456,000	465,120	474,420	483,900	493,620	503,520	513,600	523,920	534,420	4,448,520	1	1	4,448,520
15	H.D.M.	30,000	1	360,000	367,200	374,580	382,080	389,760	397,560	405,900	414,060	422,340	3,513,480	1	1	3,513,480
16	Junior Engineer	22,000	1	264,000	269,280	274,680	280,200	285,840	291,600	297,480	303,480	309,540	2,576,100	1	1	2,576,100
17	J.D.M	20,000	1	240,000	244,800	249,720	254,760	259,860	265,080	270,420	275,820	281,340	2,341,800	1	1	2,341,800
18	GIS/MIS Operator	32,000	1	384,000	391,680	399,600	407,640	415,800	424,200	432,720	441,480	450,360	3,747,480	1	1	3,747,480
19	ILT Experts	35,000	2	420,000	428,400	436,980	445,740	454,680	463,800	473,100	482,580	492,240	4,097,520	1	2	8,195,040
20	Senior Marketing Officer	40,000	1	480,000	489,600	499,440	509,400	519,600	530,040	540,720	551,640	562,680	4,683,120	1	1	4,683,120
21	AEO	20,000	1	240,000	244,800	249,720	254,760	259,860	265,080	270,420	275,820	281,340	2,341,800	1	1	2,341,800
		Grand Tot	**27**	**7,740,000**	**7,894,800**	**8,053,440**	**8,214,960**	**8,379,720**	**8,548,080**	**8,720,100**	**8,895,540**	**9,074,040**	**75,520,680**	**1**	**27**	**86,644,320**

Source: Based on Phase-1 results

Unit cost of Strengthening of DPMUs **IST-028**

Recruitment of DPMUsStaff (Out Source)															
				Annual Salay with 2% (Two Precent) annual increase every year											
Sr.No.	Name of Post	Monthly Basic Salary	Per Unit Posts	First Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	Total Amount for 8 year	Total Units	Total Person	Grand Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Agri Expert	36,000	1	432,000	440,640	449,460	458,460	467,640	477,000	486,540	496,260	3,708,000	4	4	14,832,000
2	Agri. Officer	30,000	1	360,000	367,200	374,580	382,080	389,760	397,560	405,900	414,060	3,091,140	4	4	12,364,560
3	Office Manger cum Accountant	32,000	1	384,000	391,680	399,600	407,640	415,800	424,200	432,720	441,480	3,297,120	4	4	13,188,480
4	Office Assistant	15,000	1	180,000	183,600	187,320	191,100	194,940	198,840	202,800	206,880	1,545,480	4	4	6,181,920
5	Computer Assistant	15,000	2	180,000	183,600	187,320	191,100	194,940	198,840	202,800	206,880	1,545,480	4	8	12,363,840
6	GIS/MIS Operator	32,000	1	384,000	391,680	399,600	407,640	415,800	424,200	432,720	441,480	3,297,120	4	4	13,188,480
7	Office Attendent	10,000	2	120,000	122,400	124,860	127,380	129,960	132,600	135,300	138,060	1,030,560	4	8	8,244,480
8	Night Watchman	10,000	1	120,000	122,400	124,860	127,380	129,960	132,600	135,300	138,060	1,030,560	4	4	4,122,240
9	office up Keep	10,000	1	120,000	122,400	124,860	127,380	129,960	132,600	135,300	138,060	1,030,560	4	4	4,122,240
10	Design Engineer	30,000	1	360,000	367,200	374,580	382,080	389,760	397,560	405,900	414,060	3,091,140	4	4	12,364,560
11	Construction Engineer	30,000	1	360,000	367,200	374,580	382,080	389,760	397,560	405,900	414,060	3,091,140	4	4	12,364,560
12	Droughtman	22,000	1	264,000	269,280	274,680	280,200	285,840	291,600	297,480	303,480	2,266,560	4	4	9,066,240
13	J.D.M.	20,000	1	240,000	244,800	249,720	254,760	259,860	265,080	270,420	275,820	2,060,460	4	4	8,241,840
14	Marketing Officer	30,000	1	360,000	367,200	374,580	382,080	389,760	397,560	405,900	414,060	3,091,140	4	4	12,364,560
		Grand Tota	**16**	**3,864,000**	**3,941,280**	**4,020,600**	**4,101,360**	**4,183,740**	**4,267,800**	**4,354,980**	**4,442,700**	**33,176,460**		**64**	**143,010,000**

Source: Based on Phase-1 results

Unit cost of Strengthening of BPMUs **IST-029**

Recruitment of BPMUs Staff (Out Source)															
				Annual Salay with 2% (Two Precent) annual increase every year											
Sr.No.	Name of Post	Monthly Basic Salary	Per Unit Posts	First Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	Total Amount for 8 year	Total Units	Total Person	Grand Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Agri Expert	36,000	2	432,000	440,640	449,460	458,460	467,640	477,000	486,540	496,260	3,708,000	14	28	103,824,000
2	Agri. Officer	30,000	1	360,000	367,200	374,580	382,080	389,760	397,560	405,900	414,060	3,091,140	14	14	43,275,960
3	AEO	20,000	2	240,000	244,800	249,720	254,760	259,860	265,080	270,420	275,820	2,060,460	14	28	57,692,880
4	JE	22,000	2	264,000	269,280	274,680	280,200	285,840	291,600	297,480	303,480	2,266,560	14	28	63,463,680
5	Construction Engineer	30,000	1	360,000	367,200	374,580	382,080	389,760	397,560	405,900	414,060	3,091,140	14	14	43,275,960
6	JDM	20,000	1	240,000	244,800	249,720	254,760	259,860	265,080	270,420	275,820	2,060,460	14	14	28,846,440
7	Surveyor	20,000	2	240,000	244,800	249,720	254,760	259,860	265,080	270,420	275,820	2,060,460	14	28	57,692,880
8	Supervisor	16,000	2	192,000	195,840	199,800	203,820	207,900	212,040	216,300	219,900	1,647,600	14	28	46,132,800
9	Teh. Assistant (Surveryor)	20,000	1	240,000	244,800	249,720	254,760	259,860	265,080	270,420	275,820	2,060,460	14	14	28,846,440
10	Teh. Assistant (Drawing & Estimates)	20,000	1	240,000	244,800	249,720	254,760	259,860	265,080	270,420	275,820	2,060,460	14	14	28,846,440
11	Office Manger cum Accountant	30,000	1	360,000	367,200	374,580	382,080	389,760	397,560	405,900	414,060	3,091,140	14	14	43,275,960
12	Computer Assistant	15,000	1	180,000	183,600	187,320	191,100	194,940	198,840	202,800	206,880	1,545,480	14	14	21,636,720
13	Office Assistant	15,000	1	180,000	183,600	187,320	191,100	194,940	198,840	202,800	206,880	1,545,480	14	14	21,636,720
14	office Attended	10,000	1	120,000	122,400	124,860	127,380	129,960	132,600	135,300	138,060	1,030,560	14	14	14,427,840
15	Night watchman	10,000	1	120,000	122,400	124,860	127,380	129,960	132,600	135,300	138,060	1,030,560	14	14	14,427,840
16	office up keep	10,000	1	120,000	122,400	124,860	127,380	129,960	132,600	135,300	138,060	1,030,560	14	14	14,427,840
		Grand Tot	**21**	**3,888,000**	**3,965,760**	**4,045,500**	**4,126,860**	**4,209,720**	**4,294,200**	**4,381,620**	**4,468,860**	**33,380,520**			**631,730,400**

Source: Based on Phase-1 results

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-12

Strengthening of ICT environment **IST-030**

SN	Items/Activities	Unit	Quantity	Rate (Rs.)	Amount (Rs.)	Description	Remarks
3.1	**Procurment of general use I.T equipments**						
1	PC (Laptop/Desktop)	Nos.	492	60,000	29,520,000	All staffs	1 PC per user for office work
2	Printer	Nos.	67	18,000	1,206,000	Only for Officers	To be attached with PCs
3	Multi Function Printer (MFP) Centrised print station	Nos.	38	250,000	9,500,000	2 per Office	Common use Print, Scan, Copy
4	UPS	Nos.	124	4,000	496,000	To be attached with Desktop PCs	
5	Camera	Nos.	20	50,000	1,000,000	1 per DPMU & BPMU, 2 for SPMU	for documentation of Events/ meetings
6	Projector	Nos.	20	75,000	1,500,000	1 per DPMU & BPMU, 2 for SPMU	for presentation in meetings/workshops
7	Projector Screen	Nos.	20	68,000	1,360,000	1 per DPMU & BPMU, 2 for SPMU	for presentation in meetings/workshops
8	Audio System	Nos.	20	65,000	1,300,000	1 per DPMU & BPMU, 2 for SPMU	for meetings/events/workshops
9	Video Wall	Nos.	1	770,000	770,000	SPMU	For conference hall
10	Digital Signage Board	Nos.	2	110,000	220,000	SPMU	For highliting the information and field activities
11	Tablet (Smart devices)	Nos.	180	22,000	3,960,000	1 per KVA, 1 per frontline staff	for live reporting & online data collection
12	Data Storage Device (external hard discs)	Nos.	20	5,000	100,000	1 per DPMU & BPMU, 2 for SPMU	Extrenal hard disks for data storage and transfer
13	Internet (Wide Area Network)	LS	40	150,000	6,000,000	for SPMU & DPMUs	Leased line/optical fiver line for SPMU & DPMUs
14	Internet (Wide Area Network-	LS	336	6,000	2,016,000	For BPMUs	Dongles/breadband for BPMUs
15	Eathernet (Local Area Network)	LS	19	100,000	1,900,000	1 per office	for local connnectivity and document sharing
16	PDF Software - Adobe Acrobat	Nos.	45	13,070	588,150	2 per DPMU & BPMU, 9 for SPMU	creating and editing PDF documents
17	Documentation Software (Office)	Nos.	492	18,500	9,102,000	1 per PC (word, excel, powerpoint)	for document creation
18	Digital Weather System	Nos.	40	25,000	1,000,000	to be placed at selective location	for weather data collection
19	Power Backup 5 KVA	Nos.	4	300,000	1,200,000	for DPMUs	power supply backup
	Total				**72,738,150**		

Source: Based on Phase-1 results

Porcurement of Engineering Survey Equipements **IST-031**

SN	Items/Activities	Unit	Quantity	Rate (Rs.)	Amount (Rs.)	Description	Remarks
1	GPS (Hand held)	Nos.	57	35,000	1,995,000	3 per office	for field survey, data colletion
2	DGPS Set	Nos.	8	1,350,000	10,800,000	BPMU	Field Survey
3	Total Station	Nos.	8	600,000	4,800,000	BPMU	Field Survey
4	Auto level	Nos.	16	22,000	352,000	BPMU, DPMU	Field Survey
5	CAD Application	Nos.	14	150,000	2,100,000	1 per office	Survey data processing, designing of drawinings
	Total				**20,047,000**		

Source: Based on Phase-1 results

Establishment of GIS/MIS Cell (New) **IST-032**

SN	Items/Activities	Unit	Quantity	Rate (Rs.)	Amount (Rs.)	Description	Remarks
1	Workstation	Nos.	1	150,000	150,000	DPMU	Processing of spatial data
2	Printer	Nos.	1	22,000	22,000	to be attached with WS	printing of documents
3	Plotter (A0 size)	Nos.	1	650,000	650,000	Large format printer	printing of engineering drawings, Maps
4	Scanner (A0 size)	Nos.	1	385,000	385,000	Large format scanner	Scanning of large size drawing and Maps
5	UPS	Nos.	1	11,844	11,844	1 KVA for PC	power backup
6	Drone with lidar sensor	Nos.		429,153	-	DPMU	for field survey, progress monitoring
7	Operating System	Nos.	1	9,500	9,500	DPMU	base application for PC/WS
8	Document Processing Software	Nos.	1	25,499	25,499	1 per PC (word, excel, powerpoint)	for document creation
9	GIS Software	Nos.	1	1,157,165	1,157,165	1 per PC	Processing of Spatial data
10	Image Processing Software	Nos.	-	947,542	-	1 per PC	Processing of Sattelite image
11	PDF Software - Adobe Acrobat	Nos.	1	13,070	13,070	1 per PC	creating and editing PDF documents
12	Data Storage Device (external hard discs)	Nos.	1	10,000	10,000	DPMU	Extrenal hard disks for data storage and transfer
	Total				**2,434,078**		

Source: Based on Phase-1 results

Strengthening of GIS/MIS Cell (Existing) **IST-033**

SN	Items/Activities	Unit	Quantity	Rate (Rs.)	Amount (Rs.)	Description	Remarks
1	Workstation	Nos.	7	150,000	1,050,000	1 per DPMU, 4 for SPMU	Processing of spatial data
2	Mobile Workstation	Nos.	2	230,000	460,000	SPMU	processing of high volume data & presentations
3	Printer Desk top	Nos.	5	22,000	110,000	to be attached with PCs	printing of documents
4	Plotter (A0 Size)	Nos.	3	650,000	1,950,000	Large format printer	printing of engineering drawings, Maps
5	Scanner (A0 Size)	Nos.	3	385,000	1,155,000	Large format scanner	Scanning of large size drawing and Maps
6	UPS	Nos.	7	11,844	82,908	1 KVA for PC	power backup
7	Drone with Lider Sensor	Nos.		429,153	-	1 per DPMU/SPMU	for field survey, progress monitoring
8	Operating System for workstation	Nos.	9	9,500	85,500	1 per PC	base application for PC/WS
9	Document Processing Software	Nos.	9	25,499	229,491	1 per PC (word, excel, powerpoint)	for document creation
10	GIS Software	Nos.	4	1,157,165	4,628,660	1 per DPMU/SPMU	Processing of Spatial data
11	PDF Software - Adobe Acrobat	Nos.	7	13,070	91,490	1 per PC	creating and editing PDF documents
12	Image Processing Software	Nos.	-	497,542	-	1 per PC	Processing of Sattelite image
13	Data Storage Device (external hard discs)	Nos.	5	12,000	60,000	1 per DPMU/SPMU	Extrenal hard disks for data storage and transfer
	Total				**9,903,049**		

Source: Based on Phase-1 results

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-13

Porcurement of Time series Sattelite Image **IST-034**

SN	Items/Activities	Unit	Quantity	Rate (Rs.)	Amount (Rs.)	Description	Remarks
3.5	**Porcurement of Time series Sattelite Image**				-		
1	High Resolution Satellite Image (PAN)	2	-	1,000,000	-	time series satellite image	Source of spatial information for progress and change monitoring
2	High Resolution Satellite Image (Mx)	3	-	1,200,000	-	time series satellite image	Source of spatial information for progress and change monitoring
	Total				**0**		

Source: Based on Phase-1 results

Hiring of services for GIS survey, preparation of base spatial **IST-035**

SN	Items/Activities	Unit	Quantity	Rate (Rs.)	Amount (Rs.)	Description	Remarks
1	Preparation of spatial database layers (pre intervention)	LS	Project Area	4,000,000	4,000,000	Base spatial data base of landuse, evlevation, slope, transport, drainage, agro-ecological zones, mandis etc.,	to be prepared by outside agency
2	Geo Referencing of revenue maps	LS	296	5,000	1,480,000	control point survey, georeferencing of revenue maps, linking of revenue records	to be prepared by outside agency
	Total				**5,480,000**		

Source: Based on Phase-1 results

Hiring of Services for Devepment of software application **IST-036**

SN	Items/Activities	Unit	Quantity	Rate (Rs.)	Amount (Rs.)	Description	Remarks
3.7	**Hiring of Services for Devepment of software application**						
1	MIS application Development	Nos.	-	4,000,000	-	Designing, Development, Customization	To be outsourced /Inhouse
2	MIS application deployment & Maintenance	LS	-	2,500,000	-	Troubleshooting & Maintenance	To be outsourced /Inhouse
3	SMS gateway for Sending Bulk SMS	Nos.	-	2,000,000	-	To be inbuilt in MIS and other application for messaging	To be procured from venders/outside agency
4	SMS allert system of Assets	LS	-	1,000,000	-		
5	Development of Agro Information system	LS	1	2,000,000	2,000,000	Designing, Development, Customization & Maintenance	To be outsourced /Inhouse
6	Developement of App for value chain and marketing of FPOs	Nos.	1	1,500,000	1,500,000	Designing, Development, Customization & Maintenance	To be outsourced /Inhouse
7	Website	Nos.	1	1,000,000	1,000,000	Digital presence, dissemination of information	To be outsourced /Inhouse
8	Coustomised application for Tablets	Nos.	1	800,000	800,000	Customization of web app and troubleshooting	For data collection, live reporting, communication
					5,300,000		

Source: Based on Phase-1 results

Hiring of Services for Devepment of software application **IST-037**

SN	Items/Activities	Unit	Quantity	Rate (Rs.)	Amount (Rs.)	Description	Remarks
3.8	**ERP for office automation**						
1	Deployment of ERP module for office automation	LS	-	10,000,000	-	Designing, Development, Customization & Maintenance of virtual work environment	To be outsourced /Inhouse
	Total				**0**		

Source: Based on Phase-1 results

Capacity building of PMU staff on MIS/GIS , Aerial Monitoring and ICT environment **IST-038**

SN	Items/Activities	Unit	Quantity	Rate (Rs.)	Amount (Rs.)	Description	Remarks
1	Bussiness process (Document creation and processing)Training	LS	2	300,000	600,000	Basic IT training to project staff	In house on -Job Training regarding Document creation, management
2	Primery Data Collection Training	LS	2	600,000	1,200,000	Training for frontline staff (motivators, Extension officer) to collect primary data	For frontline staff by Professional resource person (Class/field)
3	*Capacity Buliding on Survey, Mapping and Monitoring*				-		
4	Field Survey using GPS/DGPS/TS/AL	LS	2	300,000	600,000	Twice in project period for 5 batches of 30 eng. Participants	For Engineering personnell (Practical training in Batches)
5	GIS Training-basic	LS	2	300,000	600,000	For Engineering staff and MIS/GIS operators	Institutional training
6	GIS Training-Advance (related to agriculture application)	LS	4	300,000	1,200,000	Two weeks for MIS/GIS operators and DOA staff	On site Outreach Programme by Professional agency
7	Remote sensing training-basic	LS	2	300,000	600,000	For Engineering staff and MIS/GIS operators	Institutional training
8	Remote sensing training-digital image processing	LS	2	300,000	600,000	Two weeks for MIS/GIS operators and DOA staff	Institutional training
9	Refresher Training	LS	2	400,000	800,000	For Operators and DOA staff	Institutional training
10	Drone operation and data processing	LS		400,000	-	Drone operators	Institutional training
11	Monitoring using Drone/Satellite image training	LS		500,000	-	Two weeks for MIS/GIS operators and DOA staff	On site Outreach Programme by Porfessional agency
	Total				**6,200,000**		

Source: Based on Phase-1 results

Hiring of Resources Persons (additional) **IST-039**

SN	Items/Activities	Unit	Quantity	Rate (Rs.)	Amount (Rs.)	Description	Remarks
1	Hiring of specilsed Key Expert (ICT)		-	10,800,000	-	SPMU	Rs 0ne lakh per Month
2	Drone Pilot & Data Analyst	Nos.	-	3,780,000	-	SPMU,DPMU	Rs 35 thousand per Month
3	MIS & GIS Technians	Nos.	1	3,780,000	3,780,000	SPMU	Rs 35 thousand per Month
				64,735,116	**3,780,000**		

Source: Based on Phase-1 results

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-14

Cost Breakdown for Construction of Training Centres **IST-040**

Sr. No	Particulars	As per DPR		As per HPSR		
		Qty.	Unit	Rate (Rs.)	Code No.	Amount (Rs.)
1	Cutting in earth work and disposal of excavated earth upto a lead of 20 metres: Pick and jumper work.	186.76	Cum	210.42	HPSR 2009 -07010200	39,298
2	Excavation in foundation, trenches etc. in earth work in all kinds of soil including blasting work/chiseling work in dry or saturated conditions up to any depth including stacking the serviceable and unserviceable materials separately and then returning the stacked soil in 15 cm (fifteen centimetres) Layers, when required in to plinths, sides of foundation etcetra and stacking the serviceable materials and disposing of surplus excavated earth as directed by the Engineer-in-charge in all leads and lifts, disposed materials to be neatly leveled.	142.85	Cum	361.88	HPSR 2009 - 07040000	51,695
3	Fillings in plinths with sand under floors including watering ramming consolidating and dressing complete including entire carriage of materials up to all leads, lifts and heights.	25.87	Cum	1880.15	HPSR 2020 - 2.27	48,639
4	Providing formwork with steel plates 3.15 mm thick welded with angle iron in frame 30X30X5 mm (thirty into thirty into five millimeters) so as to give a fair finish i/c centering, shuttering, strutting and propping etc. with wooden battens and ballies upto all heights of propping and centering below supporting floor to ceiling and removal of the same for in-situ reinforced concrete and plain concrete work including entire carriage of materials in all leads and lifts:					
i	Foundation, footing bases of columns etc. and mass concrete including plinth beams and columns up to plinth level.	90.73	Sqm	216.45	HPSR 2020 - 5.9.1	19,639
ii	flat surfaces (all thicknesses) such as Soffits of suspended floors, roofs, landings, shelves and the like	738.37	Sqm	468.3	HPSR 2020 - 5.9.3	345,779
iii	Columns, pillars, posts and struts, square, rectangular or polygonal in plan	553.09	Sqm	514.75	HPSR 2020 - 5.9.6	284,703
iv	Beams, cantilevers, girders and lintels. Sides and Soffits of beams, beam haunches, cantilievers girders, bressumers and lintels in all depths and heights.	674.38	Sqm	387.15	HPSR 2020 - 5.9.5	261,086
vi	Stair cases with sloping or stepped Soffits excluding	58.27	Sqm	444.4	HPSR 2020 - 5.9.7	25,895
vii	Edge of slab and breaks in floor and walls upto any thickness	206.52	Rmt	131.5	HPSR 2020 - 5.9.16.1	27,157
5	Providing and laying cement concrete 1:4:8 (one cement: fOUR sand : eight graded crushed stone aggregate 40mm (Forty millimeters) nominal size) mixed mechanically and curing complete excluding the cost of form work but including entire carriage of materials up to all leads and lifts.	38.14	Cum	4955.20	HPSR 2020 - 4.1.8	188,991
6	Providing and laying cement concrete 1:1.5:3 (1cement :1.5 sand :3 graded stone aggregate 20mm. nominal size) and curing complete excluding cost of form work and reinforcement for feinforced concrete work in:					
i	Foundation footings bases of columns and the like and mass concrete.	48.67	Cum	6656.05	HPSR 2020 - 5.1.2	323,950
ii	Suspended floors roofs, landings and shelves and their supports, balconies, beams, girders, bressumers and cantilevers upto floor two level.	165.60	Cum	7835.75	HPSR 2020 - 5.3	1,297,600
iii	Columns pillars, posts and struts up to all heights.	41.85	Cum	7633.2	HPSR 2020 - 5.2.2	319,449
iv	Stair cases (except spiral stair case) excluding landing but including preparing of the surface and finishing of nosing upto floor two level.	6.89	Cum	7374.75	HPSR 2020 - 5.4	50,812
7	Providing tor steel reinforcement for reinforced cement concrete work including straighening bending, binding and placing in position complete up to all heights of super structure including cost of binding wire and including entire carriage of materials up to all leads and lifts.	23785.00	Kg	75.4	HPSR 2020 - 5.22.1	1,793,389

Cost Breakdown for Construction of Training Centres **IST-040**

Sr. No	Particulars	As per DPR		As per HPSR		
		Qty.	Unit	Rate (Rs.)	Code No.	Amount (Rs.)
8	Providing in RCC work smooth finishing of the exposed surface with cement mortar 1:3 including entire carriage of materials upto all leads, lifts and heights.	58.27	Sqm	142.35	HPSR 2020 - 5.23	8,295
9	Brick work using 2nd class common burnt clay building bricks in cement mortar 1:6 (one cement : six sand) including entire carriage of materials in all leads, lifts and heights.					
i	In superstructure including square and rectangualre pillars upto all heights.	106.04	Cum	6317.9	HPSR 2020 - 6.26.2	669,950
10	Half Brick masonry using 2nd class common burnt clay building bricks in super structure including chamfering of bricks for circular openings above plinth level upto all heights in cement mortar 1:3 (one cement : three sand) with hoop iron including entire carriage of materials upto all leads and lifts.	351.04	Sqm	655.90	HPSR 2020 - 6.12.2	230,247
11	Providing and fixing anodised aluminium work for door, window, ventilators and partitions with extruded built up standard tubular and other sections of approved make conforming to IS 733 and IS 1285 anodised transparent or dyed to required shade according to IS 1868. (Minimum anodic coating of grade AC 15) fixed with rawlplugs and screws or with fixing clips, or with expansion hold fastners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt etc. Aluminium sections shall be smooth, rustfree, straight, mitred and jointed mechanically where ever required including cleast angle, aluminium, snap beading for glazinge/panelling C.P. brass/stainless steel screws. All complete as per architectural drawings and the directions of Engineer-In-Charge. For doors windows and ventilatiors and glazed partitions frames	1703.94	Kg.	461.2	As per Dpr	785,857
12	For shutters of doors windows & ventilators including providing and fixing hinges/ pivots and making provisions for fixing of fittings where ever required including the cost of PVC/neoprene gaskets as required (fittings and glazing/panelling shall be paid for separately)	1527.88	Kg.	588.39	As per Dpr	898,989
13	Extra for providing and fixing galvanised M.S. wire gauge of I.S. gauge designation No. 140 g to doors, window and clerestory windows with wire of dia 0.71 mm instead of I.S. gauge designation no. 85 g with wire of dia 0.56 mm	10.08	Sqm	785.25	As per Dpr	7,915
14	Providing and fixing glazing in aluminium door, window, ventilator shutters and partition etc with PVC/neoprens gasket etc. complete B28 as per the architectural drawings and the directions of Engineer-In_charge (cost of aluminium snap beading shall be paid in basic item.) Glazing with glass panes of 5.50mm thickness (weight not less than 13.75 kg/ sqm	113.64	Sqm	855.76	As per Dpr	97,249
15	P/F5mm thick Bakalite tile/ sheet of approved shade and colour in Alumimium shutter with aluminium beeding and rubber/ gasket compleet:-	72.77	Sqm	1264.9	As per Dpr	92,047
16	Providing and fixing anodized aluminium sliding door bolt anodized colour and shade with bolts and nuts screws etc. complete.					

Cost Breakdown for Construction of Training Centres **IST-040**

Sr. No	Particulars	As per DPR		As per HPSR		
		Qty.	Unit	Rate (Rs.)	Code No.	Amount (Rs.)
i	300X16mm (three hundred into sixteen millimeters) size	39	Each	239.6	HPSR 2020 - 9.96.1	9,344
17	Providing and fixing aluminium tower bolts (berrel type) anodized trans parent or dyed to required shade and colour with screws etc. complete.					
a	300X10 mm (Two hundred into ten millimeters)	39	Each	112.45	HPSR 2020 - 9.97.1	4,386
b	200X10 mm (Two hundred into ten millimeters)	39	each	85.6	HPSR 2020 - 9.97.3	3,338
c	150X10 mm (one hundred fifty into ten millimeters)	106	each	72.2	HPSR 2020 - 9.97.4	7,653
18	Providing and fixing aluminium handles anodized transparent or dyed to required colour & shade with necessary screws etc. complete					
i	100 mm (one hundred millimeters)	39	each	50.75	HPSR 2020 - 9.100.2	1,979
ii	75mm	66	each	43.8	HPSR 2020 - 9.100.3	2,891
19	Bright finished M.S. hydraulic door closer	24	each	962.75	HPSR 2020 - 9.83	23,106
20	Providing and fixing 10mm thick anti skid water proof stain and impect resistent heavy duty vetrified tiles Nitco or equivalant 600x600mmx10mm manufactured of approved shade and colour in flooring, treads of steps and landings laid over 12mm thick cement mortar 1:3 (1 cement : 3 sand) jointed withcement slurry mixed with pigment to match the shade of tiles as required complete.	412	Sqm	2002.6	As per Dpr	825,752
21	Providing and laying Duro stone vetrified tiles (600x600mmx8mm) in grey/coloured of required shade in skirting risers of steps and dados on 12mm thick cement mortar 1:3 (1 cement : 3 sand) laid over and jointed with neat cement slurry finished with flush pointing in white cement mixed with pigment of required shade to match the shade of tiles complete.	52.09	Sqm	1412.9	HPSR 2020 - 11.49.2	73,598
22	Extra for providing and fixing glass strips in joints of terrazzo floors. 40 mm wide and 4 mm thick.	81.00	Rmt	57.05	HPSR 2020 - 11.13	4,621
23	Cement concrete flooring 1:2:4 (1 cement : 2 sand:4 graded stone aggregate 20 mm nominal size) laid in one layer finished with a floating coat of neat Cement 40 mm thick	93	Sqm	378.95	HPSR 2020 - 11.3.1	35,220
24	Cement plaster skirting (upto 30cm height) with cement morter 1:3 (1 cement:3 sand) finished with a floating coat of neat cement including rounding of junction with floor. 20 mm thick.	23	Sqm	357.35	HPSR 2020 - 11.6	8,308
25	P/L 300x300mm pattern finish ceramic (non slippary) tiles in flooring, treads of steps, n all colours shade design and prints as specified by the Engineer-in-charge laid on 20mm thick cement mortor 1:4 including grouting the joints with white ement and matching pigment etc.	69.91	Sqm	1546.4	As per Dpr	108,109
26	P/F glazed tiles pattern finish 200X300mm size n skirting, risers of steps and dado on 12 mm (twelve millimeters) thick cement morter 1:3 (one cement: three sand) and jointed with cement slurry and joints grouted with white cement slurry mixed with matching pigment complete .	304.81	Sqm	1266.03	As per Dpr	385,899
27	Providing and laying granite stone in flooring 20mm(average)thickness base of cement mortar 1:3(1cement: 3 sand) laid over and jointed with grey cement slurry mixed with pigment to match the shade of granite stone i/c rubbing and polishing complete. 20mm.thick	116.43	Sqm	3620.7	HPSR 2020 - 8.2.2.1	421,558
28	6mm Cement plaster to ceiling In Cement mortar 1:3(1 Cement:3 Sand)	772.76	Sqm	142.35	HPSR 2020 - 13.16	110,002

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-17

Cost Breakdown for Construction of Training Centres **IST-040**

Sr. No	Particulars	As per DPR		As per HPSR		
		Qty.	Unit	Rate (Rs.)	Code No.	Amount (Rs.)
29	20mm Cement plaster in single coat on rough side of brick/stone masonry for interior plastering upto floor two level including arrises,internal rounded angles,chamfers and/or rounded angles not exceeding 80mm in girth and finished even and smooth.1:6 (one cement: six sand)	1036.49	sqm	255.80	HPSR 2020 - 13.6.1	265,134
30	15mm lime plaster 1:2 (1 lime:2 sand)in single coat on fair side of brick/concrete/stone wall for interior plastering upto floor two level i/c arrises,internal rounded angles,chamfers and/or rounded angles not excceding 80mm in girth and finished even and smooth.	742.40	Sqm	196.45	HPSR 2020 - 13.5.2	145,844
31	Providing and fixing on wall face PVC (D-Plast) rain water pipes of working pressure not less than 4.5 kg/sqm including filling the joints with approved adhesive complete. 100mm dia pipes	82.20	Rmt	260.55	HPSR 2020 - 12.41	21,417
32	P/F Anti-Crrosive Light Grade SS pipe railing any make having blasuter of minimum size 40 mm AISI 316 grade squre/ round SS Steel with a clear height of 900mm fixed of 1.05m c/c AISI 316 grade square/round SS top horizontal rail 50mm (wall thickness2mm)i/c p/f of 600mm wide 10mm thick toughened glass (i/c itching work) with baluster and point of fixers of ozoneand beam 25mm base 25mm (anti skid) laminated glass steps with glass hplding accessories complete in all respect as per architectural drawing and direction of Engineer-in- charge of material in allead lifts &height.	26.40	Rmt	1250	As per Dpr	33,000
33	Distempering two coats with oil bound washable distemper of required shade and approved brand and manufacturer on undecorated wall surfaces/ ceiling or slopy roofs in all heights to give an even shade over and including priming coat of distemper primer after thoroughly brushing the surface free from mortar droppings and other foreing matter and also including preparing the surface even and sand papered smooth.	1809.25	sqm	96.85	HPSR 2020 - 13.41.1	175,226
34	Finishing wall with water proofing cement paint of approved brand and manufacture and of required shade on undecorated wall surfaces(two coats)to give an even shade after thoroughly brushing the surface to remove all dirt and remains of loose powderedm material	742.40	Sqm	61.2	HPSR 2020 - 13.44.1	45,435
35	Providing under layer for plinth protection of 75mm thick (unconsolidated) bed dry brick/stone aggregated 40mm nominal size with rammed and consolidated and grouted with fine sand including preparation of ground.	34.80	Sqm	637.65	HPSR 2020 - 11.5	22,190
36	Providing plinth protection 50mm thick in cement concrete 1:3:6 (1 Cement : 3 Sand : 6 Graded stone aggregated 20mm nominal size)	34.80	Sqm	478.85	HPSR 2020 - 4.17	16,664
37	Providing and laying heavy duty precast cement conrete inter locking paver blocks vibro compacted upto M- 50 grade i/c border or kurb block grey or coloured over sub-base of concrete with 25mm thick average thickness of cement mortar 1:4 (1 cement : 4 sand) laid over and jointed with neat cement slurry mixed with pigment to match the shade of	205.41	Sqm	1466.59	As per Dpr	301,252
38	Providing and laying R.C.C Retaining Wall & Site development	1	Job		LS	1,500,000
39	Providing & Installation of Lift	1	Job		LS	2,500,000
					Total Rs.	14,920,560
	Add 10% cost index for sanitary				Rs.	1,492,056
	Add 10% cost index for electrification				Rs.	1,492,056
	Add for furnishing and furniture				Rs.	2,000,000
					Grand Total Rs.	19,904,672
					Rounded Rs.	**20,000,000**

Source: Based on Estimation by PMU

Cost Breakdown for Provision of Farm Machinery **IST-041**

(Unit: Rs. in Lakh)

No.	Type of Agriculture Machinery	Unit Cost	No.	Amount (Rs.)	Remarks
1	**Self Propelled Machinery**				
1.1	(i) Reaper/Reaper cum Binder (3 Wheel)	3	28	84	as demonstraation purpose
1.2	(ii) Repaper cum Binder	5	28	140	as demonstraation purpose
2	**Post Harvest Equipment for Food Grains, Oil Seeds and Horticultural Equipment**				
2.1	(i) Mini Rice Mill	4	14	56	as demonstraation purpose
2.2	(ii) Mini Dal Mill	2.5	14	35	as demonstraation purpose
2.3	(iii) Packing Machines (for all types of Horticulture/Food Grain/Oilseed Crop)	2.5	28	70	as demonstraation purpose
2.4	(iv) All types of power driven Dehuskar/ Sheller/ Threshers/ Harvesters/ De-spiking/ Deconing Machine/ Peeler/ Spliter/ Stripper (for all types of Horticulture/Food Grain/Oilseed Crop)	1.5	28	42	as demonstraation purpose
2.5	(v) All types of Boiler/ Streamer/ Dryer Solar (for all types of Horticulture/ Food Grain/ Oilseed Crop)	2	28	56	as demonstraation purpose
2.6	(vi) All types of Washing Machines (for all types of Horticulture/Food Grain/Oilseed Crop) (xiii) All types of Grinder/Pupveriser/Polisher (for all types of Horticulture/Food Grain/Oilseed Crop)	1.2	28	33.6	as demonstraation purpose
2.7	(vii) All types of Cleaner cum Grader/Gradient Separator/Specific Gravity Separator (for all types of Horticulture/Food Grain/Oilseed Crop)	2	28	56	as demonstraation purpose
3	**All types of Agricultural Equipments**				
3.1	(f) Bird Scarer	1.5	14	21	as demonstraation purpose
4	**Specialized Agriculture Machiner**				
4.1	(a) Solar Operated/Electric Operated Animal Deterrent Bioacoustics Equipment (with Solar Panel)	0.7	14	9.8	as demonstraation purpose
4.2	(b) Solar Operated/Electric Operated Animal Deterrent Bioacoustics Equipment (without Solar Panel)	0.5	14	7	as demonstraation purpose
	Total			610.4	

Source: Based on Operational Guidelines by DoA, June. 2020

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-19

Upgrading of infrastructure of State Agriculture Management and Extension Training Institute (SAMETI)

IST-042

S.No	Descreption of Items	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
1	Excavation in foundations, trenches etc., in earth work, lift upto 1.50 Metres stacking the eacavated soil not more than 3 metres clear from the edge of the excavation and then returning the stacked soil in 15cm. layers, when required in to plinths sides of foundations etc., consolidating each deposited layer by ramming and watering and then disposing of all surplus excavated earth as	176.16	Cum	422.30	74,392
2	Providing and laying C;c 1:6:12 (1 cement :6 sand ;12 graded stone aggregate 40 mm nominal size and curing complete excluding the cost of form work in foundation and plinths	40.92	Cum	7358.80	301,122
3	Brick work using common burnt clay building bricks in foundation and plinth in In Cement mortar 1:6 (1cement:6 sand) 2nd class Bricks	23.21	Cum	10448.80	242,517
4	Providing and laying D.P.C. 38 mm thick with cement concrete 1:2:4 (1Cement:2Sand:4stone aggregate 12.5 mm nominal size) and curing complete	32.07	Sqm	435.90	13,979
5	Providing form work with steel plates 3.15 mm thick welded with angle iron in frames 30x30x5mm so as to give a fair finish including centring shuttering strutting and ptoping etc with wooden battens and ballies height of proping and centering below supporting floor to ceiling not exceeding 4Mtr and removal of the same for insitu reinforced				
	(A) Foundation ,footingsbasis of columns etc and mass concrete	47.52	Sqm	279.00	13,258
	(B) Beams,cantilevers, girders and lintels.sides and soffits of beams beams haunchings cantilevers bressumers and lintels not exceeding 1Mtr in depth in all heights	236.69	Sqm	392.00	92,782
	(C) Columns pillars posts and struts posts and struts square rectengular or polygonal in plan	54.7	Sqm	409.30	22,389
	(D) flat surfaces such as soffits of suspended floors roofs landings and the like floors upto 200 mm thickness	178.8	Sqm	463.30	82,838
	(E) Stair cases with sloping or stepped soffits excludind landing	8.66	Sqm	337.40	2,922
6	Providing and laying cement concrete work 1:1:2 (1Cement :1sand:2 graded stone aggrete 20 mm nominal size and curing complete excluding the cost of form work and reinforcement for reinforced concrete work in				
	(A) Foundation ,footingsbasis of columns etc and mass concrete	69.23	Cum	10878.50	753,119
	(B) Beams,cantilevers, girders and lintels.sides and soffits of beams beams haunchings cantilevers bressumers and lintels not exceeding 1Mtr in depth in all heights	4.11	Cum	11103.60	45,636
	(C) Columns pillars posts and struts posts and struts square rectengular or polygonal in plan	7.95	Cum	11833.40	94,076
	(D) flat surfaces such as soffits of suspended floors roofs landings and the like floors upto 200 mm thickness	30.99	Cum	11103.60	344,101
	(E) Stair cases (except spiral stair cases) excluding landing but including preparing of surface and finishing of nosing upto floor two	1.91	Cum	11098.70	21,199

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-20

Upgrading of infrastructure of State Agriculture Management and Extension Training Institute (SAMETI)

IST-042

S.No	Descreption of Items	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
7	Providing mild steel/tor steel reinforcement for R:C:C work including bending binding and placing in position complete upto floor two	12560	Kg	78.90	990,984
8	Brick work using common burnt clay building bricks in superstructure above plinth level upto floor two level in cement mortar 1:6	61.35	Cum	10236.20	627,991
9	Half brick masonary in superstructure above plinth level and upto floor two level in CM 1:4 (1cement:4 Sand) using Ist class bricks	66.75	Sqm	1289.27	86,059
10	Providing wood work in frames of doors windows clerstory windows and other frames wrought framed and fixed in positionTeak	2.24	Cum	146531.65	328,231
11	Providing 40x3 mm flat iron hold fast 40cm long including fixing to frames with 10mm dia bolts & nuts and wooden plugs and embeding in cement concrete block 30x30x15 cm 1:3:6 (1cement :3 sand :6 stone aggregate 20mm	78	Each	133.20	10,390
12	kota stone slab flooring 20 mm (Average) thick base of cement mortar 1:4 (1cement ;4 sand) laid over and joined withb grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete 40 mm thick	40.81	Sqm	1959	79,947
13	Providing and laying marble work (table rubbed and polished) in flooring 20mm. thick base in cement mortar 1:3(1cement:3sand) including jointing with cement mortar 1:2(1 white cement:2 marble dust) with an admixure of pigmeent to match the shade of the marble.20 mm.thick Pink makrana marble.	15.97	Sqm	3781	60,383
14	Providing and laying grenite stone in flooring 20 mm (average0 thickness base of cement mortar 1:3 (1cement:3 sand) laid over and jointed with grey cement slurry mixed with pigment to match the shade of granite stone i/c rubbing and polishing complete 20 mm	99.62	Sqm	5859	583,674
15	38 mm thick parquet (wood block) flooring of 1st class indian teak wood laid over 25 mm thick levelling layer of cement concreate1:2:4 (1 cement : 2 sand :4 stone aggregate 10 mm nominal size)(to be paid separately) coated with thin layer of hot bitumen (blown-type) @ 2.45 kg. per sq m. including fixing blocks in position after dipping in hot bitumen (blown type) upto half depth, planed, levelled smooth	53.20	Sqm	7781.30	413,965
16	Providing and laying Duro stone vetrified tiles (300x300mmx10mm) in grey/coloured or of approved shade in flooring, treads of steps and landing laid on a bed of 12mm thick cement mortar 1:3 (1 cement : 3 sand) laid over and jointed with neat cement slurry finished with flush pointing in white cement mixed with pigment of required shade to match the shade of tiles complete.	60.05	Sqm	1541.00	92,537
17	40 mm thick cement concrete flooring 1:2:4 (1 cement : 2 sand:4 graded stone aggregate 20 mm nominal size) laid in one layer finished with a floating coat of neat Cement.	49.39	Sqm	493.10	24,354
18	Kota stone slab 25 mm thick in risers of steps,skirting dado and pillars laid on 12 mm (average) thick cement mortor 1:3 (1 cement :3 sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs including rubbing and polishing complete.	25.66	Sqm	1959	50,268
19	Providing marble tile skirting 20mm thick average complete in all respect.	1.43	Sqm	3781	5,407
20	Providing Granite marble tile skirting 20mm thick average complete in all respect.	5.49	Sqm	5859	32,166

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-21

Upgrading of infrastructure of State Agriculture Management and Extension Training Institute (SAMETI)

IST-042

S.No	Descreption of Items	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
21	Wooden skirting (upto 30cmheight) with .	2.58	Sqm	7781.30	20,076
22	Granite marble skirting (upto 30cmheight) with cement morter 1:3 (1 cement:3 sand) finished with a floating coat of neat cement including rounding of junction with floor.15 mm thick.	3.42	Sqm	1541.00	5,273
23	Cement plaster skirting (upto 30cmheight) with cement morter 1:3 (1 cement:3 sand) finished with a floating coat of neat cement including rounding of junction with floor.15 mm thick.	10.47	Sqm	253.00	2,649
24	White glazed tiles 6 mm thick in flooring, treads of steps and landing laid on a bed of 12 mm thick cement mortar 1:3(1 cement :3 sand) finished with flush pointing in white cement.	153.69	Sqm	1336.00	205,330
25	15mm Cement plaster in single coat on the rough side of brick/concrete / stone walls for interior plastering upto floor two level including arrises , internal rounded angles ,chamfers and/or rounded angles not exceeding 80mm in girth and finished even and smooth.Cement Mortar 1:6 (1Cement:6 Sand).	573.89	Sqm	201.60	115,696
26	6mm Cement plaster to ceiling In Cement Mortar 1:4(1 Cement:4 Sand)	178.80	Sqm	131.80	23,566
27	Providing and fixing flush door shutters decorative type core of block board construction with frames of first classhard wood and well matched first class indian teak plyveneering with vertical grains or cross bends and face venecring on both faces of shutters 40mm thick including black enamelled M.S. butt hinges.	145.15	Sqm	3718.50	539,740
28	Providing and fixing wire gauge shutters using galvanised M.S. wire gauge of I.S. gauge designation 85g. With wire of dia 0.56mm for doors, windows and clerestorey windows including bright finished black enamelled iron hinges with necessary screws.40mm thick 1st class india teak wood.	34.62	Sqm	4432.20	153,443
29	Providing and fixing bright finished brass 100mm. Mortice latch and lock and a pair of levers, handles with necessary screws etc. complete (indian make of approved quality)	7.00	Each	2673	18,711
30	Providing fixing bright finished brass tower bolts (barrel type) with screws etc. complete.				
	Brass tower bolts (Barrel type) 250x10 mm	14.00	Each	437.40	6,124
	Brass tower bolts (Barrel type) 150x10 mm	16.00	Each	346.30	5,541
31	Providing and fixing bright finished brass handles with screws etc. complete.				
	Brass Handle 150 mm	14.00	Each	282.90	3,961
	Brass Handle100 mm	54.00	Each	191.90	10,363
32	Providing and fixing 25mm thick water proof commercial board in shelves/box for cup board with butt joints & fixing with nails & screws	14.94	P/Sqm.	2079.60	31,069
33	Providing and fixing 12mm thick 150mm wide pelmet with 25mm diametre wooden curtain rods and brackets including fixining 25x3mm M.S. flat 10 cm. long and plugs etc. complete.1st class indian teak wood	12.20	P/Rmt.	800.50	9,766
34	Providing and fixing M.S. grills of require pattern in wooden frames of windows etc. with M.S. Flats, square or round bars with round headed bolts and nuts or by screws.Plain Grill.	865.50	P/Kg.	115.40	99,879
35	Applying two coats of raw linseed oil on new wood and wood based surface to give an even surface including cleaning the surface of all dirt,dust and sand papered so as to produce a smooth,dry and matt surface	331.05	Sqm (MR)	63.45	21,005

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-22

Upgrading of infrastructure of State Agriculture Management and Extension Training Institute (SAMETI)

IST-042

S.No	Descreption of Items	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
36	Polishing two coats with french polish on new wood and wood based surfaces to give an even surface including cleaning the surface of all dirt,dust,and sand papered smooth and including a coat of wood filler.	331.05	P/Sqm.	152.15	50,369
37	Providing and fixing bright finished hard drawn hooks and eyes.	54.00	Each.	65.70	3,548
38	Providing and fixing 100mm bright finished brass floor door stopper with rubber cushion screws etc. to suit shutter thickness complete	58.00	Each.	274.70	15,933
39	Providing 10mm thick plaster of paris (Gypsum unhydrous) ceiling upto a height of 5 metres above floor level over first class kail wood stripes 25mmx6mm with 10 mm gap in between and reinforced with rebbit wire mesh fixed to wooden frame (frame work to be measured and paid for separatly).	178.80	Sqm (MR)	2500.00	447,000
40	Applying Birla white wall care putty over plaster surface after thoroughly brushing the surface free from mortar drops, dust, loose materials and other foreign matters sand papered smooth to give final matt finish to the surface complete.	573.89	Sqm (MR)	75.00	43,042
41	Wall painting (two coats) with acrylic emulsion paint of approved brand and manufacture for interior grade on undecorated concrete/stone/plastered wall surfaces to give an even shade including thoroughly brushing the surface free from mortar dropping and other foreign matter and sand papered smooth including applying of putty a required for metling the	573.89	Sqm	114.85	65,911
42	Providing and fixing 75 mm x 60mm rounded hand rails in straight length complete in.1st class Indian Teak wood	4.38	P/Rmt.	655.4	2,871
	FIRST FLOOR				
43	Providing and laying C;c 1:6:12 (1 cement :6 sand ;12 graded stone aggregate 40 mm nominal size and curing complete excluding the cost of form work in foundation and plinths	40.92	Cum	7432.39	304,133
44	Providing form work with steel plates 3.15 mm thick welded with angle iron in frames 30x30x5mm so as to give a fair finish including centring shuttering strutting and ptoping etc with wooden battens and ballies height of proping and centering below supporting floor to ceiling not exceeding 4Mtr and removal of the same for insitu reinforced				
	(B) Beams,cantilevers, girders and lintels.sides and soffits of beams beams haunchings cantilevers bressumers and lintels not exceeding 1Mtr in depth in all heights	133.22	Sqm	431.20	57,444
	(C) Columns pillars posts and struts posts and struts square rectengular or polygonal in plan	89.04	Sqm	450.23	40,088
	(D) flat surfaces such as soffits of suspended floors roofs landings and the like floors upto 200 mm thickness	186.43	Sqm	509.30	94,949
	(E) Stair cases with sloping or stepped soffits excludind landing	8.66	Sqm	370.30	3,207

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-23

Upgrading of infrastructure of State Agriculture Management and Extension Training Institute (SAMETI)

IST-042

S.No	Descreption of Items	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
45	Providing and laying cement concrete work 1:1:2 (1Cement :1sand:2 graded stone aggrete 20 mm nominal size and curing complete excluding the cost of form work and reinforcement for reinforced concrete work in				
	(B) Beams,cantilevers, girders and lintels.sides and soffits of beams beams haunchings cantilevers bressumers and lintels not exceeding 1Mtr in depth in all heights	8.92	Cum	11214.60	100,034
	(C) Columns pillars posts and struts posts and struts square rectengular or polygonal in plan	5.8	Cum	11951.40	69,318
	(D) flat surfaces such as soffits of suspended floors roofs landings and the like floors upto 200 mm thickness	30.99	Cum	11214.60	347,540
	(E) Stair cases (except spiral stair cases) excluding landing but including preparing of surface and finishing of nosing upto floor two	2.19	Cum	11951.40	26,174
46	Providing mild steel/tor steel reinforcement for R:C:C work including bending binding and placing in position complete upto floor two level **Tor Steel**	5269	Kg	86.79	457,297
47	Brick work using common burnt clay building bricks in superstructure above plinth level upto floor two level in cement mortar 1:6	45.61	Cum	10338.56	471,542
48	Half brick masonary in superstructure above plinth level and upto floor two level in CM 1:4 (1cement:4 Sand) using Ist class bricks	85.91	Sqm	1302.16	111,869
49	Providing wood work in frames of doors windows clerstory windows and other frames wrought framed and fixed in positionTeak	2.31	Cum	147996.96	341,873
50	Providing 40x3 mm flat iron hold fast 40cm long including fixing to frames with 10mm dia bolts & nuts and wooden plugs and embeding in cement concrete block 30x30x15 cm 1:3:6 (1cement :3 sand :6 stone aggregate 20mm	92	Each	134.53	12,377
51	Providing and laying marble work (table rubbed and polished) in flooring 20mm. thick base in cement mortar 1:3(1cement:3sand) including jointing with cement mortar 1:2(1 white cement:2 marble dust) with an admixure of pigmeent to match the shade of the marble.20 mm.thick Pink makrana marble.	18.74	Sqm	3818.81	71,564

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-24

Upgrading of infrastructure of State Agriculture Management and Extension Training Institute (SAMETI)

IST-042

S.No	Descreption of Items	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
52	Providing and laying grenite stone in flooring 20 mm (average0 thickness base of cement mortar 1:3 (1cement:3 sand) laid over and jointed with grey cement slurry mixed with pigment to match the shade of granite stone i/c rubbing and polishing complete 20 mm	39.12	Sqm	5917.59	231,496
53	38 mm thick parquet (wood block) flooring of 1st class indian teak wood laid over 25 mm thick levelling layer of cement concreate1:2:4 (1 cement : 2 sand :4 stone aggregate 10 mm nominal size)(to be paid separately) coated with thin layer of hot bitumen (blown-type) @ 2.45 kg. per sq m. including fixing blocks in position after dipping in hot bitumen (blown type) upto half depth, planed, levelled smooth	72.00	Sqm	7859.10	565,855
54	Providing and laying Duro stone vetrified tiles (300x300mmx10mm) in grey/coloured or of approved shade in flooring, treads of steps and landing laid on a bed of 12mm thick cement mortar 1:3 (1 cement : 3 sand) laid over and jointed with neat cement slurry finished with flush pointing in white cement mixed with pigment of required shade to match the shade of tiles complete.	47.75	Sqm	1556.40	74,318
55	Providing marble tile skirting 20mm thick average complete in all respect.	2.24	Sqm	3818.81	8,554
56	Wooden skirting (upto 30cmheight) with .	10.32	Sqm	7859.10	81,106
57	Granite marble skirting (upto 30cmheight) with cement morter 1:3 (1 cement:3 sand) finished with a floating coat of neat cement including rounding of junction with floor.15 mm thick.	6.84	Sqm	1556.40	10,646
58	White glazed tiles 6 mm thick in flooring, treads of steps and landing laid on a bed of 12 mm thick cement mortar 1:3(1 cement :3 sand) finished with flush pointing in white cement.	129.65	Sqm	1349.00	174,898
59	15mm Cement plaster in single coat on the rough side of brick/concrete / stone walls for interior plastering upto floor two level including arrises , internal rounded angles ,chamfers and/or rounded angles not exceeding 80mm in girth and finished even and smooth.Cement Mortar 1:6 (1Cement:6 Sand).	940.64	Sqm	203.60	191,514
60	6mm Cement plaster to ceiling In Cement Mortar 1:4(1 Cement:4 Sand)	186.43	Sqm	133.50	24,888
61	Providing and fixing flush door shutters decorative type core of block board construction with frames of first classhard wood and well matched first class indian teak plyveneering with vertical grains or cross bends and face venecring on both faces of shutters 40mm thick including black enamelled M.S. butt hinges.	44.76	Sqm	3755.68	168,104
62	Providing and fixing wire gauge shutters using galvanised M.S. wire gauge of I.S. gauge designation 85g. With wire of dia 0.56mm for doors, windows and clerestorey windows including bright finished black enamelled iron hinges with necessary screws.40mm thick 1st class india teak wood.	34.62	Sqm	4476.52	154,977
63	Providing and fixing bright finished brass 100mm. Mortice latch and lock and a pair of levers, handles with necessary screws etc. complete (indian make of approved quality)	7.00	Each	2700	18,898

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-25

Upgrading of infrastructure of State Agriculture Management and Extension Training Institute (SAMETI)

IST-042

S.No	Descreption of Items	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
64	Providing fixing bright finished brass tower bolts (barrel type) with screws etc. complete.				
	Brass tower bolts (Barrel type) 250x10 mm	14.00	Each	437.40	6,124
	Brass tower bolts (Barrel type) 150x10 mm	16.00	Each	346.30	5,541
65	Providing and fixing bright finished brass handles with screws etc. complete.				
	Brass Handle 150 mm	14.00	Each	282.90	3,961
	Brass Handle100 mm	54.00	Each	191.90	10,363
66	Providing and fixing 25mm thick water proof commercial board in shelves/box for cup board with butt joints & fixing with nails & screws	14.94	P/Sqm.	2079.60	31,069
67	Providing and fixing 12mm thick 150mm wide pelmet with 25mm diametre wooden curtain rods and brackets including fixining 25x3mm M.S. flat 10 cm. long and plugs etc. complete.1st class indian teak wood	36.35	P/Rmt.	800.50	29,098
68	Providing and fixing M.S. grills of require pattern in wooden frames of windows etc. with M.S. Flats, square or round bars with round headed bolts and nuts or by screws.Plain Grill.	865.50	P/Kg.	115.40	99,879
69	Applying two coats of raw linseed oil on new wood and wood based surface to give an even surface including cleaning the surface of all dirt,dust and sand papered so as to produce a smooth,dry and matt surface	209.49	Sqm (MR)	63.45	13,292
70	Polishing two coats with french polish on new wood and wood based surfaces to give an even surface including cleaning the surface of all dirt,dust,and sand papered smooth and including a coat of wood filler.	331.05	P/Sqm.	152.15	50,369
71	Providing and fixing bright finished hard drawn hooks and eyes.	54.00	Each.	65.70	3,548
72	Providing and fixing 100mm bright finished brass floor door stopper with rubber cushion screws etc. to suit shutter thickness complete	58.00	Each.	274.70	15,933
73	Providing 10mm thick plaster of paris (Gypsum unhydrous) ceiling upto a height of 5 metres above floor level over first class kail wood stripes 25mmx6mm with 10 mm gap in between and reinforced with rebbit wire mesh fixed to wooden frame (frame work to be measured and paid for separatly).	186.43	Sqm (MR)	2500.00	466,075
74	Applying Birla white wall care putty over plaster surface after thoroughly brushing the surface free from mortar drops, dust, loose materials and other foreign matters sand papered smooth to give final matt finish to the surface complete.	940.64	Sqm (MR)	75.00	70,548
75	Wall painting (two coats) with acrylic emulsion paint of approved brand and manufacture for interior grade on undecorated concrete/stone/plastered wall surfaces to give an even shade including thoroughly brushing the surface free from mortar dropping and other foreign matter and sand papered smooth including applying of putty a required for metling the	940.64	Sqm	114.85	108,033
76	Providing and fixing 75 mm x 60mm rounded hand rails in straight length complete in.1st class Indian Teak wood	32.74	P/Rmt. (mr	20000	654,800

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-26

Upgrading of infrastructure of State Agriculture Management and Extension Training Institute (SAMETI)

IST-042

S.No	Descreption of Items	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
	SECOND FLOOR				
77	Providing and laying C;c 1:6:12 (1 cement :6 sand ;12 graded stone aggregate 40 mm nominal size and curing complete excluding the cost of form work in foundation and plinths	40.92	Cum	7432.39	304,133
78	Providing form work with steel plates 3.15 mm thick welded with angle iron in frames 30x30x5mm so as to give a fair finish including centring shuttering strutting and ptoping etc with wooden battens and ballies height of proping and centering below supporting floor to ceiling not exceeding 4Mtr and removal of the same for insitu reinforced				
	(B) Beams,cantilevers, girders and lintels.sides and soffits of beams beams haunchings cantilevers bressumers and lintels not exceeding 1Mtr in depth in all heights	133.22	Sqm	431.20	57,444
	(C) Columns pillars posts and struts posts and struts square rectengular or polygonal in plan	89.04	Sqm	450.23	40,088
	(D) flat surfaces such as soffits of suspended floors roofs landings and the like floors upto 200 mm thickness	186.43	Sqm	509.30	94,949
	(E) Stair cases with sloping or stepped soffits excludind landing	8.66	Sqm	370.30	3,207
79	Providing and laying cement concrete work 1:1:2 (1Cement :1sand:2 graded stone aggrete 20 mm nominal size and curing complete excluding the cost of form work and reinforcement for reinforced concrete work in				
	(B) Beams,cantilevers, girders and lintels.sides and soffits of beams beams haunchings cantilevers bressumers and lintels not exceeding 1Mtr in depth in all heights	8.92	Cum	11214.60	100,034
	(C) Columns pillars posts and struts posts and struts square rectengular or polygonal in plan	5.80	Cum	11951.40	69,318
	(D) flat surfaces such as soffits of suspended floors roofs landings and the like floors upto 200 mm thickness	30.99	Cum	11214.60	347,540
	(E) Stair cases (except spiral stair cases) excluding landing but including preparing of surface and finishing of nosing upto floor two	2.19	Cum	11951.40	26,174
81	Providing mild steel/tor steel reinforcement for R:C:C work including bending binding and placing in position complete upto floor two level **Tor Steel**	5269	Kg	86.79	457,297
82	Brick work using common burnt clay building bricks in superstructure above plinth level upto floor two level in cement mortar 1:6	45.61	Cum	10338.56	471,542
83	Half brick masonary in superstructure above plinth level and upto floor two level in CM 1:4 (1cement:4 Sand) using Ist class bricks	85.91	Sqm	1302.16	111,869
84	Providing wood work in frames of doors windows clerstory windows and other frames wrought framed and fixed in positionTeak	2.31	Cum	147996.96	341,873
85	Providing 40x3 mm flat iron hold fast 40cm long including fixing to frames with 10mm dia bolts & nuts and wooden plugs and embeding in cement concrete block 30x30x15 cm 1:3:6 (1cement :3 sand :6 stone aggregate 20mm	92	Each	134.53	12,377

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-27

Upgrading of infrastructure of State Agriculture Management and Extension Training Institute (SAMETI)

IST-042

S.No	Descreption of Items	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
86	Providing and laying marble work (table rubbed and polished) in flooring 20mm. thick base in cement mortar 1:3(1cement:3sand) including jointing with cement mortar 1:2(1 white cement:2 marble dust) with an admixure of pigmeent to match the shade of the marble.20 mm.thick Pink makrana marble.	18.74	Sqm	3818.81	71,564
87	Providing and laying grenite stone in flooring 20 mm (average0 thickness base of cement mortar 1:3 (1cement:3 sand) laid over and jointed with grey cement slurry mixed with pigment to match the shade of granite stone i/c rubbing and polishing complete 20 mm	39.12	Sqm	5917.59	231,496
88	38 mm thick parquet (wood block) flooring of 1st class indian teak wood laid over 25 mm thick levelling layer of cement concreate1:2:4 (1 cement : 2 sand :4 stone aggregate 10 mm nominal size)(to be paid separately) coated with thin layer of hot bitumen (blown-type) @ 2.45 kg. per sq m. including fixing blocks in position after dipping in hot bitumen (blown type) upto half depth, planed, levelled smooth	72.00	Sqm	7859.10	565,855
89	Providing and laying Duro stone vetrified tiles (300x300mmx10mm) in grey/coloured or of approved shade in flooring, treads of steps and landing laid on a bed of 12mm thick cement mortar 1:3 (1 cement : 3 sand) laid over and jointed with neat cement slurry finished with flush pointing in white cement mixed with pigment of required shade to match the shade of tiles complete.	47.75	Sqm	1556.40	74,318
90	Providing marble tile skirting 20mm thick average complete in all respect.	2.24	Sqm	3818.81	8,554
91	Wooden skirting (upto 30cmheight) with .	10.32	Sqm	7859.10	81,106
92	Granite marble skirting (upto 30cmheight) with cement morter 1:3 (1 cement:3 sand) finished with a floating coat of neat cement including rounding of junction with floor.15 mm thick.	6.84	Sqm	1556.40	10,646
93	White glazed tiles 6 mm thick in flooring, treads of steps and landing laid on a bed of 12 mm thick cement mortar 1:3(1 cement :3 sand) finished with flush pointing in white cement.	129.65	Sqm	1349.00	174,898
94	15mm Cement plaster in single coat on the rough side of brick/concrete / stone walls for interior plastering upto floor two level including arrises , internal rounded angles ,chamfers and/or rounded angles not exceeding 80mm in girth and finished even and smooth.Cement Mortar 1:6 (1Cement:6 Sand).	940.64	Sqm	203.60	191,514

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-28

Upgrading of infrastructure of State Agriculture Management and Extension Training Institute (SAMETI)

IST-042

S.No	Descreption of Items	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
95	6mm Cement plaster to ceiling In Cement Mortar 1:4(1 Cement:4 Sand)	186.43	Sqm	133.50	24,888
96	Providing and fixing flush door shutters decorative type core of block board construction with frames of first classhard wood and well matched first class indian teak plyveneering with vertical grains or cross bends and face venecring on both faces of shutters 40mm thick including black enamelled M.S. butt hinges.	44.76	Sqm	3755.68	168,104
97	Providing and fixing wire gauge shutters using galvanised M.S. wire gauge of I.S. gauge designation 85g. With wire of dia 0.56mm for doors, windows and clerestorey windows including bright finished black enamelled iron hinges with necessary screws.40mm thick 1st class india teak wood.	34.62	Sqm	4476.52	154,977
98	Providing and fixing bright finished brass 100mm. Mortice latch and lock and a pair of levers, handles with necessary screws etc. complete (indian make of approved quality)	7.00	Each	2700	18,898
99	Providing fixing bright finished brass tower bolts (barrel type) with screws etc. complete.				
	Brass tower bolts (Barrel type) 250x10 mm	14.00	Each	437.40	6,124
	Brass tower bolts (Barrel type) 150x10 mm	16.00	Each	346.30	5,541
100	Providing and fixing bright finished brass handles with screws etc. complete.				
	Brass Handle 150 mm	14.00	Each	282.90	3,961
	Brass Handle100 mm	54.00	Each	191.90	10,363
101	Providing and fixing 25mm thick water proof commercial board in shelves/box for cup board with butt joints & fixing with nails & screws	14.94	P/Sqm.	2079.60	31,069
102	Providing and fixing 12mm thick 150mm wide pelmet with 25mm diametre wooden curtain rods and brackets including fixining 25x3mm M.S. flat 10 cm. long and plugs etc. complete.1st class indian teak wood	36.35	P/Rmt.	800.50	29,098
103	Providing and fixing M.S. grills of require pattern in wooden frames of windows etc. with M.S. Flats, square or round bars with round headed bolts and nuts or by screws.Plain Grill.	865.50	P/Kg.	115.40	99,879
104	Applying two coats of raw linseed oil on new wood and wood based surface to give an even surface including cleaning the surface of all dirt,dust and sand papered so as to produce a smooth,dry and matt surface	209.49	Sqm (MR)	63.45	13,292
105	Polishing two coats with french polish on new wood and wood based surfaces to give an even surface including cleaning the surface of all dirt,dust,and sand papered smooth and including a coat of wood filler.	331.05	P/Sqm.	152.15	50,369
106	Providing and fixing bright finished hard drawn hooks and eyes.	54.00	Each.	65.70	3,548
107	Providing and fixing 100mm bright finished brass floor door stopper with rubber cushion screws etc. to suit shutter thickness complete	58.00	Each.	274.70	15,933
108	Providing 10mm thick plaster of paris (Gypsum unhydrous) ceiling upto a height of 5 metres above floor level over first class kail wood stripes 25mmx6mm with 10 mm gap in between and reinforced with rebbit wire mesh fixed to wooden frame (frame work to be measured and paid for separatly).	186.43	Sqm (MR)	2500.00	466,075

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-29

Upgrading of infrastructure of State Agriculture Management and Extension Training Institute (SAMETI)

IST-042

S.No	Descreption of Items	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
109	Applying Birla white wall care putty over plaster surface after thoroughly brushing the surface free from mortar drops, dust, loose materials and other foreign matters sand papered smooth to give final matt finish to the surface complete.	940.64	Sqm (MR)	75.00	70,548
110	Wall painting (two coats) with acrylic emulsion paint of approved brand and manufacture for interior grade on undecorated concrete/stone/plastered wall surfaces to give an even shade including thoroughly brushing the surface free from mortar dropping and other foreign matter and sand papered smooth including applying of putty a required for metling the	940.64	Sqm	114.85	108,033
111	Providing and fixing 75 mm x 60mm rounded hand rails in straight length complete in.1st class Indian Teak wood	32.74	P/Rmt. (mr	20000	654,800
112	Providing and laying R.C.C Retaining Wall	97.00	cum.	45000	4,365,000
				Total Rs.	23,323,137
	Add 10% cost index for sanitary			Rs.	2,332,314
	Add 10% cost index for electrification			Rs.	2,300,000
	Add for furnishing and furniture			Rs.	2,000,000
				Grand Total Rs.	29,955,450
				Rounded to Rs.	30,000,000

Source: Based on Phase-1 results

Attachment for Chapter 9

Project Evaluation

Attachment 9.3.1 Economic Evaluation

Economic Farm Gate Price Estimation (Traded Commodities)

1) Maize

Item	Export Parity Price	
	Unit	Financial Price
1. f.o.b. Price Munbai international port 1/	INR / ton	17,782
2. Port charge, handling and warehousing 2/	INR / ton	2,667
3. Wholesale price at Munbai international port	INR / ton	15,000
4. Transportation cost 3/	INR / ton	3,800
5. Wholesale price in Shimla	INR / ton	11,000
6. Marketing cost (includes assembly, cost of bags and intermediary margins) 4/	INR / ton	550
7. Local transportation cost	INR / ton	200
8. Handling cost 5/	INR / ton	110
9. Farm gate price	INR / kg	10,000

2) Wheat

Item	Export Parity Price	
	Unit	Financial Price
1. f.o.b. Price Munbai international port 1/	INR / ton	19,037
2. Port charge, handling and warehousing 2/	INR / ton	2,856
3. Wholesale price at Munbai international port	INR / ton	16,000
4. Transportation cost 3/	INR / ton	3,800
5. Wholesale price in Shimla	INR / ton	12,000
6. Marketing cost (includes assembly, cost of bags and intermediary margins) 4/	INR / ton	600
7. Local transportation cost	INR / ton	200
8. Handling cost 5/	INR / ton	120
9. Farm gate price	INR / kg	11,000

3) Paddy

Item	Export Parity Price	
	Unit	Financial Price
1. f.o.b. Price Munbai international port 1/	INR / ton	24,594
2. Port charge, handling and warehousing 2/	INR / ton	3,689
3. Wholesale price at Munbai international port	INR / ton	20,000
4. Transportation cost 3/	INR / ton	3,800
5. Wholesale price in Shimla	INR / ton	16,000
6. Local transportation cost	INR / ton	200
7. Milling cost and margin 6/	INR / ton	3,000
8. By-products through processing 7/	INR / ton	8,792
9. Cost from farm gate to mill gate	INR / ton	200
10. Handling cost 5/	INR / ton	160
11. Farm gate price	INR / ton	8,000

Source: 1/ Trade statistics from Export Import Data Bank, Department of Commerce, 3 year average from 2017-18 to 2018-19

2/ 15% of commodity price, Tariff Authority for Major Ports, New Delhi, September 2019

3/ Rs. 38,000/3BHK= 10ton, Transportation companies information between Mumbai and Shimla

4/ 5% of wholesale price, 5/ 1% of wholesale price, 6/ Rs. 3.0/kg, 7/ Milling rate 64%, 10% of Paddy as Bran which price is INR 6000/ton , Data from Sample survey, DOA, APMC and public market information

Crop Budget

1. Financial Price

Crop: Paddy

	Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)
I	GROSS RETURN (= Production value x unit yield)	ton	8,000	1.8	14,400	2.9	23,200
II	PRODUCTION COST	Rupees			5,589		13,794
	A Material						
	1 Seed / Seedlings	kg	30	20	600	20	600
	2 Manure	ton	1500	0.5	750	0.5	750
	3 Fertilizers	kg	25	0	0	15	375
	4 Pesticides / Chemicals	litter	300	0	0	1	300
	Sub-Total (A)				1,350		2,025
	B Labor						
	1 Family labor	Person-day	330	3	990	18	5,940
	2 Hired labor	Person-day	330	0	0	4	1,320
	3 Bullock labor	Animal-day	660	4	2,640	5	3,300
	Sub-Total (B)				3,630		10,560
	C Others						
	1 Transport for harvests	L.S.	200	1.8	360	2.9	580
	2 Others	5%			249		629
	Sub-Total (C)				609		1,209
III	NET RETURN (= Gross return - production cost)	Rupees			8,811		9,406

Crop: Maize

	Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)
I	GROSS RETURN (= Production value x unit yield)	ton	10,000	1.9	19,000	2.7	27,000
II	PRODUCTION COST	Rupees			12,991		22,511
	A Material						
	1 Seed / Seedlings	kg	160	20	3,200	20	3,200
	2 Manure	ton	1500	1	1,500	1	1,500
	3 Fertilizers	kg	25	30	750	45	1,125
	4 Pesticides / Chemicals	litter	300	0	0	1	300
	Sub-Total (A)				5,450		6,125
	B Labor						
	1 Family labor	Person-day	330	10	3,300	30	9,900
	2 Hired labor	Person-day	330	2	660	5	1,650
	3 Bullock labor	Animal-day	650	4	2,600	5	3,250
	Sub-Total (B)				6,560		14,800
	C Others						
	1 Transport for harvests	L.S.	200	1.9	380	2.7	540
	2 Others	5%			601		1,046
	Sub-Total (C)				981		1,586
III	NET RETURN (= Gross return - production cost)	Rupees			6,010		4,489

Crop: Wheat

	Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)
I	GROSS RETURN (= Production value x unit yield)	ton	11,000	1.8	19,800	2.9	31,900
II	PRODUCTION COST	Rupees			8,561		16,425
	A Material						
	1 Seed / Seedlings	kg	30	90	2,700	90	2,700
	2 Manure	ton	1500	0.5	750	0.5	750
	3 Fertilizers	kg	6	70	420	80	480
	4 Pesticides / Chemicals	litter	300	0	0	1	300
	Sub-Total (A)				3,870		4,230
	B Labor						
	1 Family labor	Person-day	330	7	2,310	24	7,920
	2 Hired labor	Person-day	330	1	330	3	990
	3 Bullock labor	Animal-day	650	2	1,300	3	1,950
	Sub-Total (B)				3,940		10,860
	C Others						
	1 Transport for harvests	L.S.	200	1.8	360	2.9	580
	2 Others	5%			391		755
	Sub-Total (C)				751		1,335
III	NET RETURN (= Gross return - production cost)	Rupees			11,240		15,476

2. Economic Price

Crop: Paddy

	Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)	Applied CFs
I	GROSS RETURN (= Production value x unit yield)	ton	7,760	1.8	13,968	2.9	22,504	1/ 0.97
II	PRODUCTION COST	Rupees			5,536		14,306	
	A Material							
	1 Seed / Seedlings	kg	29	20	582	20	582	1/ 0.97
	2 Manure	ton	1,455	1	728	1	728	1/ 0.97
	3 Fertilizers	kg	48	0	0	15	713	3/ 1.90
	4 Pesticides / Chemicals	litter	507	0	0	1	507	4/ 1.69
	Sub-Total (A)				1,310		2,529	
	B Labor							
	1 Family labor	Person-day	330	3	990	18	5,940	2/ 1.00
	2 Hired labor	Person-day	330	0	0	4	1,320	2/ 1.00
	3 Bullock labor	Animal-day	660	4	2,640	5	3,300	2/ 1.00
	Sub-Total (B)				3,630		10,560	
	C Others							
	1 Transport for harvests	L.S.	194	1.8	349	2.9	563	1/ 0.97
	2 Others	5%			247		654	
	Sub-Total (C)				596		1,217	
III	NET RETURN (= Gross return - production cost)	Rupees			8,432		8,198	

Crop: Maize

	Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)	Applied CFs
I	GROSS RETURN (= Production value x unit yield)	ton	9,700	1.9	18,430	2.7	26,190	1/ 0.97
II	PRODUCTION COST	Rupees			13,540		23,627	
	A Material							
	1 Seed / Seedlings	kg	155	20	3,104	20	3,104	1/ 0.97
	2 Manure	ton	1,455	1	1,455	1	1,455	1/ 0.97
	3 Fertilizers	kg	48	30	1,425	45	2,138	3/ 1.90
	4 Pesticides / Chemicals	litter	507	0	0	1	507	4/ 1.69
	Sub-Total (A)				5,984		7,204	
	B Labor							
	1 Family labor	Person-day	330	10	3,300	30	9,900	2/ 1.00
	2 Hired labor	Person-day	330	2	660	5	1,650	2/ 1.00
	3 Bullock labor	Animal-day	650	4	2,600	5	3,250	2/ 1.00
	Sub-Total (B)				6,560		14,800	
	C Others							
	1 Transport for harvests	L.S.	194	1.9	369	2.7	524	1/ 0.97
	2 Others	5%			627		1,100	
	Sub-Total (C)				996		1,624	
III	NET RETURN (= Gross return - production cost)	Rupees			4,890		2,563	

Crop: Wheat

	Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)	Applied CFs
I	GROSS RETURN (= Production value x unit yield)	ton	10,670	1.8	19,206	2.9	30,943	1/ 0.97
II	PRODUCTION COST	Rupees			8,838		16,969	
	A Material							
	1 Seed / Seedlings	kg	29	90	2,619	90	2,619	1/ 0.97
	2 Manure	ton	1,455	1	728	1	728	1/ 0.97
	3 Fertilizers	kg	11	70	798	80	912	3/ 1.90
	4 Pesticides / Chemicals	litter	507	0	0	1	507	4/ 1.69
	Sub-Total (A)				4,145		4,766	
	B Labor							
	1 Family labor	Person-day	330	7	2,310	24	7,920	2/ 1.00
	2 Hired labor	Person-day	330	1	330	3	990	2/ 1.00
	3 Bullock labor	Animal-day	650	2	1,300	3	1,950	2/ 1.00
	Sub-Total (B)				3,940		10,860	
	C Others							
	1 Transport for harvests	L.S.	194	1.8	349	2.9	563	1/ 0.97
	2 Others	5%			404		781	
	Sub-Total (C)				753		1,344	
III	NET RETURN (= Gross return - production cost)	Rupees			10,368		13,974	

Crop: Tomato

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)
I GROSS RETURN (= Production value x unit yield)	ton	17,000	16.0	272,000	40.0	680,000
II PRODUCTION COST	Rupees			118,763		217,160
A Material						
1 Seed / Seedlings	gr	38	300	11,400	300	11,400
2 Manure	ton	1500	1	1,500	4	6,000
3 Fertilizers	kg	8	320	2,560	350	2,800
4 Pesticides / Chemicals	litter	300	1	300	3	900
Sub-Total (A)				15,760		21,100
B Labor						
1 Family labor	Person-day	330	150	49,500	300	99,000
2 Hired labor	Person-day	330	120	39,600	220	72,600
3 Bullock labor	Animal-day	650	8	5,200	10	6,500
Sub-Total (B)				94,300		178,100
C Others						
1 Transport for harvests	L.S.	200	16.0	3,200	40.0	8,000
2 Others	5%			5,503		9,960
Sub-Total (C)				8,703		17,960
III NET RETURN (= Gross return - production cost)	Rupees			153,237		462,840

Crop: Tomato

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)	Applied CFs
I GROSS RETURN (= Production value x unit yield)	ton	16,490	16.0	263,840	40.0	659,600	1/ 0.97
II PRODUCTION COST	Rupees			120,897		219,670	
A Material							
1 Seed / Seedlings	gr	37	300	11,058	300	11,058	1/ 0.97
2 Manure	ton	1,455	1	1,455	4	5,820	1/ 0.97
3 Fertilizers	kg	15	320	4,864	350	5,320	3/ 1.90
4 Pesticides / Chemicals	litter	507	1	507	3	1,521	4/ 1.69
Sub-Total (A)				17,884		23,719	
B Labor							
1 Family labor	Person-day	330	150	49,500	300	99,000	2/ 1.00
2 Hired labor	Person-day	330	120	39,600	220	72,600	2/ 1.00
3 Bullock labor	Animal-day	650	8	5,200	10	6,500	2/ 1.00
Sub-Total (B)				94,300		178,100	
C Others							
1 Transport for harvests	L.S.	194	16.0	3,104	40.0	7,760	1/ 0.97
2 Others	5%			5,609		10,091	
Sub-Total (C)				8,713		17,851	
III NET RETURN (= Gross return - production cost)	Rupees			142,943		439,930	

Crop: Cauliflower

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)
I GROSS RETURN (= Production value x unit yield)	ton	11,000	9.3	102,300	23.5	258,500
II PRODUCTION COST	Rupees			59,600		98,780
A Material						
1 Seed / Seedlings	gr	39	200	7,800	200	7,800
2 Manure	ton	1500	1	1,500	4	6,000
3 Fertilizers	kg	8	280	2,240	300	2,400
4 Pesticides / Chemicals	litter	300	1	300	3	900
Sub-Total (A)				11,840		17,100
B Labor						
1 Family labor	Person-day	330	100	33,000	180	59,400
2 Hired labor	Person-day	330	15	4,950	20	6,600
3 Bullock labor	Animal-day	650	8	5,200	10	6,500
Sub-Total (B)				43,150		72,500
C Others						
1 Transport for harvests	L.S.	200	9.3	1,860	23.5	4,700
2 Others	5%			2,750		4,480
Sub-Total (C)				4,610		9,180
III NET RETURN (= Gross return - production cost)	Rupees			42,701		159,720

Crop: Cauliflower

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)	Applied CFs
I GROSS RETURN (= Production value x unit yield)	ton	10,670	9.3	99,231	23.5	250,745	1/ 0.97
II PRODUCTION COST	Rupees			61,585		101,124	
A Material							
1 Seed / Seedlings	gr	38	200	7,566	200	7,566	1/ 0.97
2 Manure	ton	1,455	1	1,455	4	5,820	1/ 0.97
3 Fertilizers	kg	15	280	4,256	300	4,560	3/ 1.90
4 Pesticides / Chemicals	litter	507	1	507	3	1,521	4/ 1.69
Sub-Total (A)				13,784		19,467	
B Labor							
1 Family labor	Person-day	330	100	33,000	180	59,400	2/ 1.00
2 Hired labor	Person-day	330	15	4,950	20	6,600	2/ 1.00
3 Bullock labor	Animal-day	650	8	5,200	10	6,500	2/ 1.00
Sub-Total (B)				43,150		72,500	
C Others							
1 Transport for harvests	L.S.	194	9.3	1,804	23.5	4,559	1/ 0.97
2 Others	5%			2,847		4,598	
Sub-Total (C)				4,651		9,157	
III NET RETURN (= Gross return - production cost)	Rupees			37,646		149,621	

Crop: Pea

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)
I GROSS RETURN (= Production value x unit yield)	ton	18,000	5.6	100,800	12.6	226,800
II PRODUCTION COST	Rupees			66,493		117,747
A Material						
1 Seed / Seedlings	kg	240	40	9,600	40	9,600
2 Manure	ton	1500	1	1,500	4	6,000
3 Fertilizers	kg	8	180	1,440	200	1,600
4 Pesticides / Chemicals	litter	300	1	300	3	900
Sub-Total (A)				12,840		18,100
B Labor						
1 Family labor	Person-day	330	120	39,600	240	79,200
2 Hired labor	Person-day	330	14	4,620	18	5,940
3 Bullock labor	Animal-day	650	8	5,200	10	6,500
Sub-Total (B)				49,420		91,640
C Others						
1 Transport for harvests	L.S.	200	5.6	1,120	12.6	2,520
2 Others	5%			3,113		5,487
Sub-Total (C)				4,233		8,007
III NET RETURN (= Gross return - production cost)	Rupees			34,307		109,053

Crop: Pea

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)	Applied CFs
I GROSS RETURN (= Production value x unit yield)	ton	17,460	5.6	97,776	12.6	219,996	1/ 0.97
II PRODUCTION COST	Rupees			67,688		119,344	
A Material							
1 Seed / Seedlings	kg	233	40	9,312	40	9,312	1/ 0.97
2 Manure	ton	1,455	1	1,455	4	5,820	1/ 0.97
3 Fertilizers	kg	15	180	2,736	200	3,040	3/ 1.90
4 Pesticides / Chemicals	litter	507	1	507	3	1,521	4/ 1.69
Sub-Total (A)				14,010		19,693	
B Labor							
1 Family labor	Person-day	330	120	39,600	240	79,200	2/ 1.00
2 Hired labor	Person-day	330	14	4,620	18	5,940	2/ 1.00
3 Bullock labor	Animal-day	650	8	5,200	10	6,500	2/ 1.00
Sub-Total (B)				49,420		91,640	
C Others							
1 Transport for harvests	L.S.	194	5.6	1,086	12.6	2,444	1/ 0.97
2 Others	5%			3,172		5,567	
Sub-Total (C)				4,258		8,011	
III NET RETURN (= Gross return - production cost)	Rupees			30,088		100,652	

Crop: Potato

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)
I GROSS RETURN (= Production value x unit yield)	ton	9,200	6.6	60,720	20.0	184,000
II PRODUCTION COST	Rupees			57,705		113,641
A Material						
1 Seed / Seedlings	gr	40	1,100	44,000	2,000	80,000
2 Manure	ton	1500	1	1,500	4	6,000
3 Fertilizers	kg	25	80	2,000	160	4,000
4 Pesticides / Chemicals	litter	300	1	300	2	600
Sub-Total (A)				47,800		90,600
B Labor						
1 Family labor	Person-day	330	8	2,640	30	9,900
2 Hired labor	Person-day	330	2	660	4	1,320
3 Bullock labor	Animal-day	650	4	2,600	4	2,600
Sub-Total (B)				5,900		13,820
C Others						
1 Transport for harvests	L.S.	200	6.6	1,320	20.0	4,000
2 Others	5%			2,685		5,221
Sub-Total (C)				4,005		9,221
III NET RETURN (= Gross return - production cost)	Rupees			3,015		70,359

Crop: Potato

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)	Applied CFs
I GROSS RETURN (= Production value x unit yield)	ton	8,924	6.6	58,898	20.0	178,480	1/ 0.97
II PRODUCTION COST	Rupees			58,340		115,027	
A Material							
1 Seed / Seedlings	gr	39	1,100	42,680	2,000	77,600	1/ 0.97
2 Manure	ton	1,455	1	1,455	4	5,820	1/ 0.97
3 Fertilizers	kg	48	80	3,800	160	7,600	3/ 1.90
4 Pesticides / Chemicals	litter	507	1	507	2	1,014	4/ 1.69
Sub-Total (A)				48,442		92,034	
B Labor							
1 Family labor	Person-day	330	8	2,640	30	9,900	2/ 1.00
2 Hired labor	Person-day	330	2	660	4	1,320	2/ 1.00
3 Bullock labor	Animal-day	650	4	2,600	4	2,600	2/ 1.00
Sub-Total (B)				5,900		13,820	
C Others							
1 Transport for harvests	L.S.	194	6.6	1,280	20.0	3,880	1/ 0.97
2 Others	5%			2,717		5,293	
Sub-Total (C)				3,998		9,173	
III NET RETURN (= Gross return - production cost)	Rupees			559		63,453	

Crop: Capsicum

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)
I GROSS RETURN (= Production value x unit yield)	ton	19,000	9.0	171,000	14.0	266,000
II PRODUCTION COST	Rupees			81,170		119,371
A Material						
1 Seed / Seedlings	gr	60	300	18,000	350	21,000
2 Manure	ton	1500	1	1,500	2	3,000
3 Fertilizers	kg	8	80	640	200	1,600
4 Pesticides / Chemicals	litter	300	1	300	3	900
Sub-Total (A)				20,440		26,500
B Labor						
1 Family labor	Person-day	330	100	33,000	180	59,400
2 Hired labor	Person-day	330	10	3,300	19	6,270
3 Bullock labor	Animal-day	650	29	18,850	29	18,850
Sub-Total (B)				55,150		84,520
C Others						
1 Transport for harvests	L.S.	200	9.0	1,800	14.0	2,800
2 Others	5%			3,780		5,551
Sub-Total (C)				5,580		8,351
III NET RETURN (= Gross return - production cost)	Rupees			89,831		146,629

Crop: Capsicum

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)	Applied CFs
I GROSS RETURN (= Production value x unit yield)	ton	18,430	9.0	165,870	14.0	258,020	1/ 0.97
II PRODUCTION COST	Rupees			81,323		120,695	
A Material							
1 Seed / Seedlings	gr	58	300	17,460	350	20,370	1/ 0.97
2 Manure	ton	1,455	1	1,455	2	2,910	1/ 0.97
3 Fertilizers	kg	15	80	1,216	200	3,040	3/ 1.90
4 Pesticides / Chemicals	litter	507	1	507	3	1,521	4/ 1.69
Sub-Total (A)				20,638		27,841	
B Labor							
1 Family labor	Person-day	330	100	33,000	180	59,400	2/ 1.00
2 Hired labor	Person-day	330	10	3,300	19	6,270	2/ 1.00
3 Bullock labor	Animal-day	650	29	18,850	29	18,850	2/ 1.00
Sub-Total (B)				55,150		84,520	
C Others							
1 Transport for harvests	L.S.	194	9.0	1,746	14.0	2,716	1/ 0.97
2 Others	5%			3,789		5,618	
Sub-Total (C)				5,535		8,334	
III NET RETURN (= Gross return - production cost)	Rupees			84,547		137,325	

Source: JICA Survey Team based on DPR and survey of HPCDP I, statistic data of DoA Directorate of Marketing & Inspection, Ministry of Agriculture and Farmers Welfareand , interview with DoA and HPCDP I
Remark: Irrigation cost is covered in O&M cost.

Conversion Factors (CFs):

1/Standard CF =	*0.97*
2/Shadow Wage Rate =	*1.00*
3/CF (fertilizer) =	*1.90*
4/CF (pesticide) =	*1.69*

Economic Benefit **Att.9.3.1-5**

Project Benefit (Agricultural Production) -Annual

1) Zone-1

		Cropping Pattern		(A) Gross Income			(B) Production Cost				Net Income	Net Benefit
		Area (%)	Area (ha)	1) Unit Price (INR/ton)	2) Unit Yield (ton/ha)	Total Gross Income (INR/ha)	1) Labour (INR/ha)	2) Material (INR/ha)	3) Others (INR/ha)	Total Cost (INR/ha)	(INR/ha)	(INR million)
Without Project Condition												
Rabi	Wheat	90%	2,937.60	10,670	1.8	19,206	3,940	4,145	753	8,838	10,368	30.46
	Cauliflower	3%	97.92	10,670	9.3	99,231	43,150	13,784	4,651	61,585	37,646	3.69
	Potato	2%	65.28	8,924	6.6	58,898	5,900	48,442	3,998	58,340	559	0.04
	Fallow	5%	163.20			0				0	0	0.00
Kharif	Maize	80%	2,611.20	9,700	1.9	18,430	6,560	5,984	996	13,540	4,890	12.77
	Paddy	10%	326.40	7,760	1.8	13,968	3,630	1,310	596	5,536	8,432	2.75
	Tomato	2%	65.28	16,490	16.0	263,840	94,300	17,884	8,713	120,897	142,943	9.33
	Capsicum	3%	97.92	18,430	9.0	165,870	55,150	20,638	5,535	81,323	84,547	8.28
	Fallow	5%	163.20			0				0	0	0.00
TOTAL		200%	6,528.00									67
With Project Condition												
Rabi	Wheat	61%	1,991.04	10,670	2.9	30,943	10,860	4,766	1,344	16,969	13,974	27.82
	Cauliflower	39%	1,272.96	10,670	23.5	250,745	72,500	19,467	9,157	101,124	149,621	190.46
Kharif	Maize	54%	1,762.56	9,700	2.7	26,190	14,800	7,204	1,624	23,627	2,563	4.52
	Paddy	7%	228.48	7,760	2.9	22,504	10,560	2,529	1,217	14,306	8,198	1.87
	Tomato	39%	1,272.96	16,490	40.0	659,600	178,100	23,719	17,851	219,670	439,930	560.01
TOTAL		200%	6,528.00									785
Increment of Net Benefit												**717**
Irrigated Area	3,264											

2) Zone-2

		Cropping Pattern		(A) Gross Income			(B) Production Cost				Net Income	Net Benefit
		Area (%)	Area (ha)	1) Unit Price (INR/ton)	2) Unit Yield (ton/ha)	Total Gross Income (INR/ha)	1) Labour (INR/ha)	2) Material (INR/ha)	3) Others (INR/ha)	Total Cost (INR/ha)	(INR/ha)	(INR million)
Without Project Condition												
Rabi	Wheat	80%	1,488.00	10,670	1.8	19,206	3,940	4,145	753	8,838	10,368	15.43
	Cauliflower	10%	186.00	10,670	9.3	99,231	43,150	13,784	4,651	61,585	37,646	7.00
	Pea	5%	93.00	17,460	5.6	97,776	49,420	14,010	4,258	67,688	30,088	2.80
	Fallow	5%	93.00			0				0	0	0.00
Kharif	Maize	85%	1,581.00	9,700	1.9	18,430	6,560	5,984	996	13,540	4,890	7.73
	Tomato	10%	186.00	16,490	16.0	263,840	94,300	17,884	8,713	120,897	142,943	26.59
	Capsicum	5%	93.00	18,430	9.0	165,870	55,150	20,638	5,535	81,323	84,547	7.86
TOTAL		200%	3,720.00									67
With Project Condition												
Rabi	Wheat	54%	1,004.40	10,670	2.9	30,943	10,860	4,766	1,344	16,969	13,974	14.04
	Pea	46%	855.60	17,460	12.6	219,996	91,640	19,693	8,011	119,344	100,652	86.12
Kharif	Maize	58%	1,078.80	9,700	2.7	26,190	14,800	7,204	1,624	23,627	2,563	2.76
	Tomato	42%	781.20	16,490	40.0	659,600	178,100	23,719	17,851	219,670	439,930	343.67
TOTAL		200%	3,720.00									447
Increment of Net Benefit												**379**
Irrigated Area	1,860											

3) Zone-3

		Cropping Pattern		(A) Gross Income			(B) Production Cost				Net Income	Net Benefit
		Area (%)	Area (ha)	1) Unit Price (INR/ton)	2) Unit Yield (ton/ha)	Total Gross Income (INR/ha)	1) Labour (INR/ha)	2) Material (INR/ha)	3) Others (INR/ha)	Total Cost (INR/ha)	(INR/ha)	(INR million)
Without Project Condition												
Rabi	Wheat	70%	1,738.10	10,670	1.8	19,206	3,940	4,145	753	8,838	10,368	18.02
	Cauliflower	15%	372.45	10,670	9.3	99,231	43,150	13,784	4,651	61,585	37,646	14.02
	Pea	10%	248.30	17,460	5.6	97,776	49,420	14,010	4,258	67,688	30,088	7.47
	Fallow	5%	124.15			0				0	0	0.00
Kharif	Maize	65%	1,613.95	9,700	1.9	18,430	6,560	5,984	996	13,540	4,890	7.89
	Tomato	15%	372.45	16,490	16.0	263,840	94,300	17,884	8,713	120,897	142,943	53.24
	Cauliflower	15%	372.45	10,670	9.3	99,231	43,150	13,784	4,651	61,585	37,646	14.02
	Fallow	5%	124.15			0				0	0	0.00
TOTAL		200%	4,966.00									115
With Project Condition												
Rabi	Wheat	50%	1,241.50	10,670	2.9	30,943	10,860	4,766	1,344	16,969	13,974	17.35
	Pea	50%	1,241.50	17,460	12.6	219,996	91,640	19,693	8,011	119,344	100,652	124.96
Kharif	Maize	50%	1,241.50	9,700	2.7	26,190	14,800	7,204	1,624	23,627	2,563	3.18
	Tomato	50%	1,241.50	16,490	40.0	659,600	178,100	23,719	17,851	219,670	439,930	546.17
TOTAL		200%	4,966.00									692
Increment of Net Benefit												**577**
Irrigated Area	2,483											

4) Zone-4

		Cropping Pattern		(A) Gross Income			(B) Production Cost				Net Income	Net Benefit
		Area (%)	Area (ha)	1) Unit Price (INR/ton)	2) Unit Yield (ton/ha)	Total Gross Income (INR/ha)	1) Labour (INR/ha)	2) Material (INR/ha)	3) Others (INR/ha)	Total Cost (INR/ha)	(INR/ha)	(INR million)
Without Project Condition												
Rabi	Fallow	100%	327.00			0				0	0	0.00
Kharif	Wheat	15%	49.05	10,670	1.8	19,206	3,940	4,145	753	8,838	10,368	0.51
	Pea	28%	91.56	17,460	5.6	97,776	49,420	14,010	4,258	67,688	30,088	2.75
	Potato	28%	91.56	8,924	6.6	58,898	5,900	48,442	3,998	58,340	559	0.05
	Cauliflower	29%	94.83	10,670	9.3	99,231	43,150	13,784	4,651	61,585	37,646	3.57
TOTAL		200%	654.00									7
With Project Condition												
Rabi	Fallow	100%	327.00			0				0	0	0.00
Kharif	Wheat	15%	49.05	10,670	2.9	30,943	10,860	4,766	1,344	16,969	13,974	0.69
	Pea	30%	98.10	17,460	12.6	219,996	91,640	19,693	8,011	119,344	100,652	9.87
	Potato	25%	81.75	8,924	20.0	178,480	13,820	92,034	9,173	115,027	63,453	5.19
	Cauliflower	30%	98.10	10,670	23.5	250,745	72,500	19,467	9,157	101,124	149,621	14.68
TOTAL		200%	654.00									30
Increment of Net Benefit												**24**
Irrigated Area	327											

Source: JICA Survey Team

Annual Benefit	(INR million)
	1,697

1. O&M Cost

Annual necessary cost for O&M

No.	Items	unit	Qty.	Unit price (INR)	Amount (INR)
1	Electricity (with solar panel)	no.	87	5,000	435,000
2	Electricity (without solar panel)	no.	23	6,000	138,000
3	Operation cost (pump)	no.	110	30,000	3,300,000
4	Maintenance of solar panel	no.	87	35,000	3,045,000
5	Miscellaneous (10% of 1-4)	L.S.	1	691,800	691,800
				TOTAL	7,609,800
				Economic Price	**7,381,506**

Souce: JICA Survey Team

Note: Standard Conversion Factor = 0.97

Remark: Information was given by PMU and service providers based on the result of Phase-1.

2. Replacement Cost

1) Replacement in every 10 years

No.	Items	unit	Qty.	Unit price (INR)	Amount (INR)
1	Rising main	L.S.	1	88,526,768	88,526,768
2	Main delivery tank	L.S.	1	9,561,203	9,561,203
3	Distribution system (HDPE pipe)	L.S.	1	178,364,788	178,364,788
4	Retaining wall	L.S.	1	247,553,541	247,553,541
5	Main channel	L.S.	1	600,724,321	600,724,321
6	Storage tank	L.S.	1	23,218,598	23,218,598
7	Access farm roads	L.S.	1	50,588,055	50,588,055
8	Solar/electric fencing	L.S.	1	27,428,545	27,428,545
				Total	1,225,965,819
				Economic Price	**1,189,186,844**

Souce: JICA Survey Team

Note: Standard Conversion Factor = 0.97

Remark: Amount cost is 20% of each cost of infra. development. Scheduled based on economic life of infrastructure and machinery.

2) Replacement or Repair in every 15 years

No.	Items	unit	Qty.	Unit price (INR)	Amount (INR)
1	Pumping Machinery	no.	105	400,000	44,824,859
				Total	44,824,859
				Economic Price	**43,480,113**

Souce: JICA Survey Team

Note: Standard Conversion Fact 0.97

3) Replacement Schedule

(a) Schedule for replacement in every 10 years

Year	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Implemented rate* in project period	8.3%	14.1%	16.9%	19.5%	17.1%	12.1%	8.5%	3.6%		
Financial Price	101,158,716	172,358,889	207,375,367	238,501,126	209,709,799	148,625,498	104,660,363	43,576,062	0	0
Economic Price	98,123,954	167,188,122	201,154,106	231,346,092	203,418,505	144,166,733	101,520,553	42,268,780	0	0
Economic Price (million)	98	167	201	231	203	144	102	42	0	0
Year	2042	2043	2044	2045	2046	2047	2048	2049	2050	
Implemented rate in project period	8.3%	14.1%	16.9%	19.5%	17.1%	12.1%	8.5%	3.6%		
Financial Price	101,158,716	172,358,889	207,375,367	238,501,126	209,709,799	148,625,498	104,660,363	43,576,062	0	
Economic Price	98,123,954	167,188,122	201,154,106	231,346,092	203,418,505	144,166,733	101,520,553	42,268,780	0	
Economic Price (million)	98	167	201	231	203	144	102	42	0	

**Implemented rate is based on disbursement schedule of infrastructure development except 1st year of the project for only DPR preparation.*

(b) Schedule for replacement in every 15 years

Year	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Implemented rate in project period						8.3%	14.1%	16.9%	19.5%	17.1%
Financial Price	0	0	0	0	0	3,698,655	6,301,940	7,582,244	8,720,291	7,667,597
Economic Price	0	0	0	0	0	3,587,696	6,112,882	7,354,776	8,458,683	7,437,569
Economic Price (million)	0	0	0	0	0	4	6	7	8	7
Year	2042	2043	2044	2045	2046	2047	2048	2049	2050	
Implemented rate in project period	12.1%	8.5%	3.6%							
Financial Price	5,434,178	3,826,686	1,593,267	0	0	0	0	0	0	
Economic Price	5,271,153	3,711,885	1,545,469	0	0	0	0	0	0	
Economic Price (million)	5	4	2	0	0	0	0	0	0	

(c) Economic Price of (a) and (b) (unit: million)

Year	(a)	(b)	Total cost
2032	98	0	**98**
2033	167	0	**167**
2034	201	0	**201**
2035	231	0	**231**
2036	203	0	**203**
2037	144	4	**148**
2038	102	6	**108**
2039	42	7	**49**
2040	0	8	**8**
2041	0	7	**7**
2042	98	5	**103**
2043	167	4	**171**
2044	201	2	**203**
2045	231	0	**231**
2046	203	0	**203**
2047	144	0	**144**
2048	102	0	**102**
2049	42	0	**42**
2050	0	0	**0**
Total	**2,376**	**43**	**2,419**

Cash Flow Table and Calculation of EIRR, NPV and B/C

Annual Benefit (Production) (Unit: INR Million)	Annual O&M Cost (Unit: INR Million)	Discount Rate
1,697	7	i = 6.0%

Cash Flow (Economic price) (Unit: INR Million)

	Year	Cost						Benefit		
		Procurement / Construction	Consultant	Adm	O&M	Replacement	Total Cost	Production	Total Benefit	Net Benefit
1	2021	1,275	0	65	0	0	1,340	0	0	**-1,340**
2	2022	574	171	39	1	0	785	14	14	**-771**
3	2023	795	155	50	2	0	1,002	52	52	**-950**
4	2024	814	111	50	3	0	978	132	132	**-845**
5	2025	882	131	56	4	0	1,073	284	284	**-789**
6	2026	795	111	51	5	0	962	517	517	**-445**
7	2027	601	81	39	6	0	727	790	790	**63**
8	2028	463	66	31	7	0	567	1,069	1,069	**502**
9	2029	232	53	17	7	0	309	1,316	1,316	**1,007**
10	2030	0	0	0	7	0	7	1,500	1,500	**1,493**
11	2031	0	0	0	7	0	7	1,617	1,617	**1,610**
12	2032	0	0	0	7	98	105	1,679	1,679	**1,574**
13	2033	0	0	0	7	167	174	1,697	1,697	**1,523**
14	2034	0	0	0	7	201	208	1,697	1,697	**1,489**
15	2035	0	0	0	7	231	238	1,697	1,697	**1,459**
16	2036	0	0	0	7	203	210	1,697	1,697	**1,487**
17	2037	0	0	0	7	148	155	1,697	1,697	**1,542**
18	2038	0	0	0	7	108	115	1,697	1,697	**1,582**
19	2039	0	0	0	7	49	56	1,697	1,697	**1,641**
20	2040	0	0	0	7	8	15	1,697	1,697	**1,682**
21	2041	0	0	0	7	7	14	1,697	1,697	**1,683**
22	2042	0	0	0	7	103	110	1,697	1,697	**1,587**
23	2043	0	0	0	7	171	178	1,697	1,697	**1,519**
24	2044	0	0	0	7	203	210	1,697	1,697	**1,487**
25	2045	0	0	0	7	231	238	1,697	1,697	**1,459**
26	2046	0	0	0	7	203	210	1,697	1,697	**1,487**
27	2047	0	0	0	7	144	151	1,697	1,697	**1,546**
28	2048	0	0	0	7	102	109	1,697	1,697	**1,588**
29	2049	0	0	0	7	42	49	1,697	1,697	**1,648**
30	2050	0	0	0	7	0	7	1,697	1,697	**1,690**
	Total	6,431	879	398	181	2,419	10,308	39,519	39,519	29,210

Present Value (Unit: INR Million)

Total Cost	Total Benefit	Net Benefit
1,264	0	-1,264
698	12	-686
841	44	-797
774	105	-670
802	212	-590
678	364	-314
484	526	42
356	670	315
183	779	596
4	838	834
4	852	848
52	834	782
82	796	714
92	751	659
99	708	609
83	668	585
58	630	573
40	595	554
19	561	542
5	529	524
4	499	495
31	471	440
47	444	398
52	419	367
55	395	340
46	373	327
31	352	321
21	332	311
9	313	304
1	295	294
6,914	**14,369**	**7,455**

Economic Value Indicators (Unit for NPV: INR Million)

Net Present Value (NPV)	**7,455**
Benefit / Cost Ratio (B/C)	**2.08**
Economic Internal Rate of Return (EIRR)	**14.4%**

Sensitivity Analysis (EIRR)

Benefit \ Cost	Base	10%	20%
Base	**14.4%**	**13.2%**	**12.1%**
-10%	**13.1%**	**11.9%**	**10.9%**
-20%	**11.6%**	**10.5%**	**9.5%**

Attachment 9.5.1 Crop Budget

Crop Budget

1. Financial Price

Crop: Paddy

	Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)
I	GROSS RETURN (= Production value x unit yield)	ton	8,000	1.8	14,400	2.9	23,200
II	PRODUCTION COST	Rupees			5,589		13,794
	A Material						
	1 Seed / Seedlings	kg	30	20	600	20	600
	2 Manure	ton	1500	0.5	750	0.5	750
	3 Fertilizers	kg	25	0	0	15	375
	4 Pesticides / Chemicals	litter	300	0	0	1	300
	Sub-Total (A)				1,350		2,025
	B Labor						
	1 Family labor	Person-day	330	3	990	18	5,940
	2 Hired labor	Person-day	330	0	0	4	1,320
	3 Bullock labor	Animal-day	660	4	2,640	5	3,300
	Sub-Total (B)				3,630		10,560
	C Others						
	1 Transport for harvests	L.S.	200	1.8	360	2.9	580
	2 Others	5%			249		629
	Sub-Total (C)				609		1,209
III	NET RETURN (= Gross return - production cost)	Rupees			8,811		9,406

Crop: Maize

	Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)
I	GROSS RETURN (= Production value x unit yield)	ton	10,000	1.9	19,000	2.7	27,000
II	PRODUCTION COST	Rupees			12,991		22,511
	A Material						
	1 Seed / Seedlings	kg	160	20	3,200	20	3,200
	2 Manure	ton	1500	1	1,500	1	1,500
	3 Fertilizers	kg	25	30	750	45	1,125
	4 Pesticides / Chemicals	litter	300	0	0	1	300
	Sub-Total (A)				5,450		6,125
	B Labor						
	1 Family labor	Person-day	330	10	3,300	30	9,900
	2 Hired labor	Person-day	330	2	660	5	1,650
	3 Bullock labor	Animal-day	650	4	2,600	5	3,250
	Sub-Total (B)				6,560		14,800
	C Others						
	1 Transport for harvests	L.S.	200	1.9	380	2.7	540
	2 Others	5%			601		1,046
	Sub-Total (C)				981		1,586
III	NET RETURN (= Gross return - production cost)	Rupees			6,010		4,489

Crop: Wheat

	Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)
I	GROSS RETURN (= Production value x unit yield)	ton	11,000	1.8	19,800	2.9	31,900
II	PRODUCTION COST	Rupees			8,561		16,425
	A Material						
	1 Seed / Seedlings	kg	30	90	2,700	90	2,700
	2 Manure	ton	1500	0.5	750	0.5	750
	3 Fertilizers	kg	6	70	420	80	480
	4 Pesticides / Chemicals	litter	300	0	0	1	300
	Sub-Total (A)				3,870		4,230
	B Labor						
	1 Family labor	Person-day	330	7	2,310	24	7,920
	2 Hired labor	Person-day	330	1	330	3	990
	3 Bullock labor	Animal-day	650	2	1,300	3	1,950
	Sub-Total (B)				3,940		10,860
	C Others						
	1 Transport for harvests	L.S.	200	1.8	360	2.9	580
	2 Others	5%			391		755
	Sub-Total (C)				751		1,335
III	NET RETURN (= Gross return - production cost)	Rupees			11,240		15,476

2. Economic Price

Crop: Paddy

	Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)	Applied CFs
I	GROSS RETURN (= Production value x unit yield)	ton	7,760	1.8	13,968	2.9	22,504	1/ 0.97
II	PRODUCTION COST	Rupees			5,536		14,306	
	A Material							
	1 Seed / Seedlings	kg	29	20	582	20	582	1/ 0.97
	2 Manure	ton	1,455	1	728	1	728	1/ 0.97
	3 Fertilizers	kg	48	0	0	15	713	3/ 1.90
	4 Pesticides / Chemicals	litter	507	0	0	1	507	4/ 1.69
	Sub-Total (A)				1,310		2,529	
	B Labor							
	1 Family labor	Person-day	330	3	990	18	5,940	2/ 1.00
	2 Hired labor	Person-day	330	0	0	4	1,320	2/ 1.00
	3 Bullock labor	Animal-day	660	4	2,640	5	3,300	2/ 1.00
	Sub-Total (B)				3,630		10,560	
	C Others							
	1 Transport for harvests	L.S.	194	1.8	349	2.9	563	1/ 0.97
	2 Others	5%			247		654	
	Sub-Total (C)				596		1,217	
III	NET RETURN (= Gross return - production cost)	Rupees			8,432		8,198	

Crop: Maize

	Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)	Applied CFs
I	GROSS RETURN (= Production value x unit yield)	ton	9,700	1.9	18,430	2.7	26,190	1/ 0.97
II	PRODUCTION COST	Rupees			13,540		23,627	
	A Material							
	1 Seed / Seedlings	kg	155	20	3,104	20	3,104	1/ 0.97
	2 Manure	ton	1,455	1	1,455	1	1,455	1/ 0.97
	3 Fertilizers	kg	48	30	1,425	45	2,138	3/ 1.90
	4 Pesticides / Chemicals	litter	507	0	0	1	507	4/ 1.69
	Sub-Total (A)				5,984		7,204	
	B Labor							
	1 Family labor	Person-day	330	10	3,300	30	9,900	2/ 1.00
	2 Hired labor	Person-day	330	2	660	5	1,650	2/ 1.00
	3 Bullock labor	Animal-day	650	4	2,600	5	3,250	2/ 1.00
	Sub-Total (B)				6,560		14,800	
	C Others							
	1 Transport for harvests	L.S.	194	1.9	369	2.7	524	1/ 0.97
	2 Others	5%			627		1,100	
	Sub-Total (C)				996		1,624	
III	NET RETURN (= Gross return - production cost)	Rupees			4,890		2,563	

Crop: Wheat

	Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)	Applied CFs
I	GROSS RETURN (= Production value x unit yield)	ton	10,670	1.8	19,206	2.9	30,943	1/ 0.97
II	PRODUCTION COST	Rupees			8,838		16,969	
	A Material							
	1 Seed / Seedlings	kg	29	90	2,619	90	2,619	1/ 0.97
	2 Manure	ton	1,455	1	728	1	728	1/ 0.97
	3 Fertilizers	kg	11	70	798	80	912	3/ 1.90
	4 Pesticides / Chemicals	litter	507	0	0	1	507	4/ 1.69
	Sub-Total (A)				4,145		4,766	
	B Labor							
	1 Family labor	Person-day	330	7	2,310	24	7,920	2/ 1.00
	2 Hired labor	Person-day	330	1	330	3	990	2/ 1.00
	3 Bullock labor	Animal-day	650	2	1,300	3	1,950	2/ 1.00
	Sub-Total (B)				3,940		10,860	
	C Others							
	1 Transport for harvests	L.S.	194	1.8	349	2.9	563	1/ 0.97
	2 Others	5%			404		781	
	Sub-Total (C)				753		1,344	
III	NET RETURN (= Gross return - production cost)	Rupees			10,368		13,974	

Attachment 9.5.1 Crop Budget

Crop: Tomato

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)
I GROSS RETURN (= Production value x unit yield)	ton	17,000	16.0	272,000	40.0	680,000
II PRODUCTION COST	Rupees			118,763		217,160
A Material						
1 Seed / Seedlings	gr	38	300	11,400	300	11,400
2 Manure	ton	1500	1	1,500	4	6,000
3 Fertilizers	kg	8	320	2,560	350	2,800
4 Pesticides / Chemicals	litter	300	1	300	3	900
Sub-Total (A)				15,760		21,100
B Labor						
1 Family labor	Person-day	330	150	49,500	300	99,000
2 Hired labor	Person-day	330	120	39,600	220	72,600
3 Bullock labor	Animal-day	650	8	5,200	10	6,500
Sub-Total (B)				94,300		178,100
C Others						
1 Transport for harvests	L.S.	200	16.0	3,200	40.0	8,000
2 Others	5%			5,503		9,960
Sub-Total (C)				8,703		17,960
III NET RETURN (= Gross return - production cost)	Rupees			153,237		462,840

Crop: Tomato

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)	Applied CFs
I GROSS RETURN (= Production value x unit yield)	ton	16,490	16.0	263,840	40.0	659,600	1/ 0.97
II PRODUCTION COST	Rupees			120,897		219,670	
A Material							
1 Seed / Seedlings	gr	37	300	11,058	300	11,058	1/ 0.97
2 Manure	ton	1,455	1	1,455	4	5,820	1/ 0.97
3 Fertilizers	kg	15	320	4,864	350	5,320	3/ 1.90
4 Pesticides / Chemicals	litter	507	1	507	3	1,521	4/ 1.69
Sub-Total (A)				17,884		23,719	
B Labor							
1 Family labor	Person-day	330	150	49,500	300	99,000	2/ 1.00
2 Hired labor	Person-day	330	120	39,600	220	72,600	2/ 1.00
3 Bullock labor	Animal-day	650	8	5,200	10	6,500	2/ 1.00
Sub-Total (B)				94,300		178,100	
C Others							
1 Transport for harvests	L.S.	194	16.0	3,104	40.0	7,760	1/ 0.97
2 Others	5%			5,609		10,091	
Sub-Total (C)				8,713		17,851	
III NET RETURN (= Gross return - production cost)	Rupees			142,943		439,930	

Crop: Cauliflower

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)
I GROSS RETURN (= Production value x unit yield)	ton	11,000	9.3	102,300	23.5	258,500
II PRODUCTION COST	Rupees			59,600		98,780
A Material						
1 Seed / Seedlings	gr	39	200	7,800	200	7,800
2 Manure	ton	1500	1	1,500	4	6,000
3 Fertilizers	kg	8	280	2,240	300	2,400
4 Pesticides / Chemicals	litter	300	1	300	3	900
Sub-Total (A)				11,840		17,100
B Labor						
1 Family labor	Person-day	330	100	33,000	180	59,400
2 Hired labor	Person-day	330	15	4,950	20	6,600
3 Bullock labor	Animal-day	650	8	5,200	10	6,500
Sub-Total (B)				43,150		72,500
C Others						
1 Transport for harvests	L.S.	200	9.3	1,860	23.5	4,700
2 Others	5%			2,750		4,480
Sub-Total (C)				4,610		9,180
III NET RETURN (= Gross return - production cost)	Rupees			42,701		159,720

Crop: Cauliflower

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)	Applied CFs
I GROSS RETURN (= Production value x unit yield)	ton	10,670	9.3	99,231	23.5	250,745	1/ 0.97
II PRODUCTION COST	Rupees			61,585		101,124	
A Material							
1 Seed / Seedlings	gr	38	200	7,566	200	7,566	1/ 0.97
2 Manure	ton	1,455	1	1,455	4	5,820	1/ 0.97
3 Fertilizers	kg	15	280	4,256	300	4,560	3/ 1.90
4 Pesticides / Chemicals	litter	507	1	507	3	1,521	4/ 1.69
Sub-Total (A)				13,784		19,467	
B Labor							
1 Family labor	Person-day	330	100	33,000	180	59,400	2/ 1.00
2 Hired labor	Person-day	330	15	4,950	20	6,600	2/ 1.00
3 Bullock labor	Animal-day	650	8	5,200	10	6,500	2/ 1.00
Sub-Total (B)				43,150		72,500	
C Others							
1 Transport for harvests	L.S.	194	9.3	1,804	23.5	4,559	1/ 0.97
2 Others	5%			2,847		4,598	
Sub-Total (C)				4,651		9,157	
III NET RETURN (= Gross return - production cost)	Rupees			37,646		149,621	

Crop: Pea

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)
I GROSS RETURN (= Production value x unit yield)	ton	18,000	5.6	100,800	12.6	226,800
II PRODUCTION COST	Rupees			66,493		117,747
A Material						
1 Seed / Seedlings	kg	240	40	9,600	40	9,600
2 Manure	ton	1500	1	1,500	4	6,000
3 Fertilizers	kg	8	180	1,440	200	1,600
4 Pesticides / Chemicals	litter	300	1	300	3	900
Sub-Total (A)				12,840		18,100
B Labor						
1 Family labor	Person-day	330	120	39,600	240	79,200
2 Hired labor	Person-day	330	14	4,620	18	5,940
3 Bullock labor	Animal-day	650	8	5,200	10	6,500
Sub-Total (B)				49,420		91,640
C Others						
1 Transport for harvests	L.S.	200	5.6	1,120	12.6	2,520
2 Others	5%			3,113		5,487
Sub-Total (C)				4,233		8,007
III NET RETURN (= Gross return - production cost)	Rupees			34,307		109,053

Crop: Pea

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)	Applied CFs
I GROSS RETURN (= Production value x unit yield)	ton	17,460	5.6	97,776	12.6	219,996	1/ 0.97
II PRODUCTION COST	Rupees			67,688		119,344	
A Material							
1 Seed / Seedlings	kg	233	40	9,312	40	9,312	1/ 0.97
2 Manure	ton	1,455	1	1,455	4	5,820	1/ 0.97
3 Fertilizers	kg	15	180	2,736	200	3,040	3/ 1.90
4 Pesticides / Chemicals	litter	507	1	507	3	1,521	4/ 1.69
Sub-Total (A)				14,010		19,693	
B Labor							
1 Family labor	Person-day	330	120	39,600	240	79,200	2/ 1.00
2 Hired labor	Person-day	330	14	4,620	18	5,940	2/ 1.00
3 Bullock labor	Animal-day	650	8	5,200	10	6,500	2/ 1.00
Sub-Total (B)				49,420		91,640	
C Others							
1 Transport for harvests	L.S.	194	5.6	1,086	12.6	2,444	1/ 0.97
2 Others	5%			3,172		5,567	
Sub-Total (C)				4,258		8,011	
III NET RETURN (= Gross return - production cost)	Rupees			30,088		100,652	

Attachment 9.5.1 Crop Budget

Crop: Potato

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)
I GROSS RETURN (= Production value x unit yield)	ton	9,200	6.6	60,720	20.0	184,000
II PRODUCTION COST	Rupees			57,705		113,641
A Material						
1 Seed / Seedlings	gr	40	1,100	44,000	2,000	80,000
2 Manure	ton	1500	1	1,500	4	6,000
3 Fertilizers	kg	25	80	2,000	160	4,000
4 Pesticides / Chemicals	litter	300	1	300	2	600
Sub-Total (A)				47,800		90,600
B Labor						
1 Family labor	Person-day	330	8	2,640	30	9,900
2 Hired labor	Person-day	330	2	660	4	1,320
3 Bullock labor	Animal-day	650	4	2,600	4	2,600
Sub-Total (B)				5,900		13,820
C Others						
1 Transport for harvests	L.S.	200	6.6	1,320	20.0	4,000
2 Others	5%			2,685		5,221
Sub-Total (C)				4,005		9,221
III NET RETURN (= Gross return - production cost)	Rupees			3,015		70,359

Crop: Potato

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)	Applied CFs
I GROSS RETURN (= Production value x unit yield)	ton	8,924	6.6	58,898	20.0	178,480	1/ 0.97
II PRODUCTION COST	Rupees			58,340		115,027	
A Material							
1 Seed / Seedlings	gr	39	1,100	42,680	2,000	77,600	1/ 0.97
2 Manure	ton	1,455	1	1,455	4	5,820	1/ 0.97
3 Fertilizers	kg	48	80	3,800	160	7,600	3/ 1.90
4 Pesticides / Chemicals	litter	507	1	507	2	1,014	4/ 1.69
Sub-Total (A)				48,442		92,034	
B Labor							
1 Family labor	Person-day	330	8	2,640	30	9,900	2/ 1.00
2 Hired labor	Person-day	330	2	660	4	1,320	2/ 1.00
3 Bullock labor	Animal-day	650	4	2,600	4	2,600	2/ 1.00
Sub-Total (B)				5,900		13,820	
C Others							
1 Transport for harvests	L.S.	194	6.6	1,280	20.0	3,880	1/ 0.97
2 Others	5%			2,717		5,293	
Sub-Total (C)				3,998		9,173	
III NET RETURN (= Gross return - production cost)	Rupees			559		63,453	

Crop: Capsicum

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)
I GROSS RETURN (= Production value x unit yield)	ton	19,000	9.0	171,000	14.0	266,000
II PRODUCTION COST	Rupees			81,170		119,371
A Material						
1 Seed / Seedlings	gr	60	300	18,000	350	21,000
2 Manure	ton	1500	1	1,500	2	3,000
3 Fertilizers	kg	8	80	640	200	1,600
4 Pesticides / Chemicals	litter	300	1	300	3	900
Sub-Total (A)				20,440		26,500
B Labor						
1 Family labor	Person-day	330	100	33,000	180	59,400
2 Hired labor	Person-day	330	10	3,300	19	6,270
3 Bullock labor	Animal-day	650	29	18,850	29	18,850
Sub-Total (B)				55,150		84,520
C Others						
1 Transport for harvests	L.S.	200	9.0	1,800	14.0	2,800
2 Others	5%			3,780		5,551
Sub-Total (C)				5,580		8,351
III NET RETURN (= Gross return - production cost)	Rupees			89,831		146,629

Crop: Capsicum

Component	Unit	Unit Price	Without Project Rainfed Vol. (unit/ha)	Without Project Rainfed Amount (Rs. / ha)	With Project Irrigated Vol. (unit/ha)	With Project Irrigated Amount (Rs. / ha)	Applied CFs
I GROSS RETURN (= Production value x unit yield)	ton	18,430	9.0	165,870	14.0	258,020	1/ 0.97
II PRODUCTION COST	Rupees			81,323		120,695	
A Material							
1 Seed / Seedlings	gr	58	300	17,460	350	20,370	1/ 0.97
2 Manure	ton	1,455	1	1,455	2	2,910	1/ 0.97
3 Fertilizers	kg	15	80	1,216	200	3,040	3/ 1.90
4 Pesticides / Chemicals	litter	507	1	507	3	1,521	4/ 1.69
Sub-Total (A)				20,638		27,841	
B Labor							
1 Family labor	Person-day	330	100	33,000	180	59,400	2/ 1.00
2 Hired labor	Person-day	330	10	3,300	19	6,270	2/ 1.00
3 Bullock labor	Animal-day	650	29	18,850	29	18,850	2/ 1.00
Sub-Total (B)				55,150		84,520	
C Others							
1 Transport for harvests	L.S.	194	9.0	1,746	14.0	2,716	1/ 0.97
2 Others	5%			3,789		5,618	
Sub-Total (C)				5,535		8,334	
III NET RETURN (= Gross return - production cost)	Rupees			84,547		137,325	

Source: JICA Survey Team based on DPR and survey of HPCDP I, statistic data of DoA Directorate of Marketing & Inspection, Ministry of Agriculture and Farmers Welfareand , interview with DoA and HPCDP I
Remark: Irrigation cost is covered in O&M cost.

Conversion Factors (CFs):
1/Standard CF = 0.97
2/Shadow Wage Rate = 1.00
3/CF (fertilizer) = 1.90
4/CF (pesticide) = 1.69

Attachment 9.5.2 Economic Benefit

Project Benefit (Agricultural Production) -Annual

1) Zone-1

		Cropping Pattern		(A) Gross Income			(B) Production Cost				Net Income	Net Benefit
		Area (%)	Area (ha)	1) Unit Price (INR/ton)	2) Unit Yield (ton/ha)	Total Gross Income (INR/ha)	1) Labour (INR/ha)	2) Material (INR/ha)	3) Others (INR/ha)	Total Cost (INR/ha)	(INR/ha)	(INR million)
Without Project Condition												
Rabi	Wheat	90%	2,937.60	10,670	1.8	19,206	3,940	4,145	753	8,838	10,368	30.46
	Cauliflower	3%	97.92	10,670	9.3	99,231	43,150	13,784	4,651	61,585	37,646	3.69
	Potato	2%	65.28	8,924	6.6	58,898	5,900	48,442	3,998	58,340	559	0.04
	Fallow	5%	163.20			0				0	0	0.00
Kharif	Maize	80%	2,611.20	9,700	1.9	18,430	6,560	5,984	996	13,540	4,890	12.77
	Paddy	10%	326.40	7,760	1.8	13,968	3,630	1,310	596	5,536	8,432	2.75
	Tomato	2%	65.28	16,490	16.0	263,840	94,300	17,884	8,713	120,897	142,943	9.33
	Capsicum	3%	97.92	18,430	9.0	165,870	55,150	20,638	5,535	81,323	84,547	8.28
	Fallow	5%	163.20			0				0	0	0.00
TOTAL		200%	6,528.00									67
With Project Condition												
Rabi	Wheat	61%	1,991.04	10,670	2.9	30,943	10,860	4,766	1,344	16,969	13,974	27.82
	Cauliflower	39%	1,272.96	10,670	23.5	250,745	72,500	19,467	9,157	101,124	149,621	190.46
Kharif	Maize	54%	1,762.56	9,700	2.7	26,190	14,800	7,204	1,624	23,627	2,563	4.52
	Paddy	7%	228.48	7,760	2.9	22,504	10,560	2,529	1,217	14,306	8,198	1.87
	Tomato	39%	1,272.96	16,490	40.0	659,600	178,100	23,719	17,851	219,670	439,930	560.01
TOTAL		200%	6,528.00									785
Increment of Net Benefit												**717**
Irrigated Area	3,264											

2) Zone-2

		Cropping Pattern		(A) Gross Income			(B) Production Cost				Net Income	Net Benefit
		Area (%)	Area (ha)	1) Unit Price (INR/ton)	2) Unit Yield (ton/ha)	Total Gross Income (INR/ha)	1) Labour (INR/ha)	2) Material (INR/ha)	3) Others (INR/ha)	Total Cost (INR/ha)	(INR/ha)	(INR million)
Without Project Condition												
Rabi	Wheat	80%	1,488.00	10,670	1.8	19,206	3,940	4,145	753	8,838	10,368	15.43
	Cauliflower	10%	186.00	10,670	9.3	99,231	43,150	13,784	4,651	61,585	37,646	7.00
	Pea	5%	93.00	17,460	5.6	97,776	49,420	14,010	4,258	67,688	30,088	2.80
	Fallow	5%	93.00			0				0	0	0.00
Kharif	Maize	85%	1,581.00	9,700	1.9	18,430	6,560	5,984	996	13,540	4,890	7.73
	Tomato	10%	186.00	16,490	16.0	263,840	94,300	17,884	8,713	120,897	142,943	26.59
	Capsicum	5%	93.00	18,430	9.0	165,870	55,150	20,638	5,535	81,323	84,547	7.86
TOTAL		200%	3,720.00									67
With Project Condition												
Rabi	Wheat	54%	1,004.40	10,670	2.9	30,943	10,860	4,766	1,344	16,969	13,974	14.04
	Pea	46%	855.60	17,460	12.6	219,996	91,640	19,693	8,011	119,344	100,652	86.12
Kharif	Maize	58%	1,078.80	9,700	2.7	26,190	14,800	7,204	1,624	23,627	2,563	2.76
	Tomato	42%	781.20	16,490	40.0	659,600	178,100	23,719	17,851	219,670	439,930	343.67
TOTAL		200%	3,720.00									447
Increment of Net Benefit												**379**
Irrigated Area	1,860											

3) Zone-3

		Cropping Pattern		(A) Gross Income			(B) Production Cost				Net Income	Net Benefit
		Area (%)	Area (ha)	1) Unit Price (INR/ton)	2) Unit Yield (ton/ha)	Total Gross Income (INR/ha)	1) Labour (INR/ha)	2) Material (INR/ha)	3) Others (INR/ha)	Total Cost (INR/ha)	(INR/ha)	(INR million)
Without Project Condition												
Rabi	Wheat	70%	1,738.10	10,670	1.8	19,206	3,940	4,145	753	8,838	10,368	18.02
	Cauliflower	15%	372.45	10,670	9.3	99,231	43,150	13,784	4,651	61,585	37,646	14.02
	Pea	10%	248.30	17,460	5.6	97,776	49,420	14,010	4,258	67,688	30,088	7.47
	Fallow	5%	124.15			0				0	0	0.00
Kharif	Maize	65%	1,613.95	9,700	1.9	18,430	6,560	5,984	996	13,540	4,890	7.89
	Tomato	15%	372.45	16,490	16.0	263,840	94,300	17,884	8,713	120,897	142,943	53.24
	Cauliflower	15%	372.45	10,670	9.3	99,231	43,150	13,784	4,651	61,585	37,646	14.02
	Fallow	5%	124.15			0				0	0	0.00
TOTAL		200%	4,966.00									115
With Project Condition												
Rabi	Wheat	50%	1,241.50	10,670	2.9	30,943	10,860	4,766	1,344	16,969	13,974	17.35
	Pea	50%	1,241.50	17,460	12.6	219,996	91,640	19,693	8,011	119,344	100,652	124.96
Kharif	Maize	50%	1,241.50	9,700	2.7	26,190	14,800	7,204	1,624	23,627	2,563	3.18
	Tomato	50%	1,241.50	16,490	40.0	659,600	178,100	23,719	17,851	219,670	439,930	546.17
TOTAL		200%	4,966.00									692
Increment of Net Benefit												**577**
Irrigated Area	2,483											

4) Zone-4

		Cropping Pattern		(A) Gross Income			(B) Production Cost				Net Income	Net Benefit
		Area (%)	Area (ha)	1) Unit Price (INR/ton)	2) Unit Yield (ton/ha)	Total Gross Income (INR/ha)	1) Labour (INR/ha)	2) Material (INR/ha)	3) Others (INR/ha)	Total Cost (INR/ha)	(INR/ha)	(INR million)
Without Project Condition												
Rabi	Fallow	100%	327.00			0				0	0	0.00
Kharif	Wheat	15%	49.05	10,670	1.8	19,206	3,940	4,145	753	8,838	10,368	0.51
	Pea	28%	91.56	17,460	5.6	97,776	49,420	14,010	4,258	67,688	30,088	2.75
	Potato	28%	91.56	8,924	6.6	58,898	5,900	48,442	3,998	58,340	559	0.05
	Cauliflower	29%	94.83	10,670	9.3	99,231	43,150	13,784	4,651	61,585	37,646	3.57
TOTAL		200%	654.00									7
With Project Condition												
Rabi	Fallow	100%	327.00			0				0	0	0.00
Kharif	Wheat	15%	49.05	10,670	2.9	30,943	10,860	4,766	1,344	16,969	13,974	0.69
	Pea	30%	98.10	17,460	12.6	219,996	91,640	19,693	8,011	119,344	100,652	9.87
	Potato	25%	81.75	8,924	20.0	178,480	13,820	92,034	9,173	115,027	63,453	5.19
	Cauliflower	30%	98.10	10,670	23.5	250,745	72,500	19,467	9,157	101,124	149,621	14.68
TOTAL		200%	654.00									30
Increment of Net Benefit												**24**
Irrigated Area	327											

Source: JICA Survey Team

Annual Benefit	(INR million)
	1,697

Attachment 9.6.1 Cash Flow and Calculation of EIRR and B/C

Cash Flow Table and Calculation of EIRR, NPV and B/C

Annual Benefit (Production) (Unit: INR Million)	Annual O&M Cost (Unit: INR Million)	Discount Rate
1,697	**7**	i = **6.0%**

Cash Flow (Economic price) (Unit: INR Million)

	Year	Cost						Benefit		
		Procurement / Construction	Consultant	Adm	O&M	Replacement	**Total Cost**	Production	**Total Benefit**	**Net Benefit**
1	2021	1,275	0	65	0	0	1,340	0	0	**-1,340**
2	2022	574	171	39	1	0	785	14	14	**-771**
3	2023	795	155	50	2	0	1,002	52	52	**-950**
4	2024	814	111	50	3	0	978	132	132	**-845**
5	2025	882	131	56	4	0	1,073	284	284	**-789**
6	2026	795	111	51	5	0	962	517	517	**-445**
7	2027	601	81	39	6	0	727	790	790	**63**
8	2028	463	66	31	7	0	567	1,069	1,069	**502**
9	2029	232	53	17	7	0	309	1,316	1,316	**1,007**
10	2030	0	0	0	7	0	7	1,500	1,500	**1,493**
11	2031	0	0	0	7	0	7	1,617	1,617	**1,610**
12	2032	0	0	0	7	98	105	1,679	1,679	**1,574**
13	2033	0	0	0	7	167	174	1,697	1,697	**1,523**
14	2034	0	0	0	7	201	208	1,697	1,697	**1,489**
15	2035	0	0	0	7	231	238	1,697	1,697	**1,459**
16	2036	0	0	0	7	203	210	1,697	1,697	**1,487**
17	2037	0	0	0	7	148	155	1,697	1,697	**1,542**
18	2038	0	0	0	7	108	115	1,697	1,697	**1,582**
19	2039	0	0	0	7	49	56	1,697	1,697	**1,641**
20	2040	0	0	0	7	8	15	1,697	1,697	**1,682**
21	2041	0	0	0	7	7	14	1,697	1,697	**1,683**
22	2042	0	0	0	7	103	110	1,697	1,697	**1,587**
23	2043	0	0	0	7	171	178	1,697	1,697	**1,519**
24	2044	0	0	0	7	203	210	1,697	1,697	**1,487**
25	2045	0	0	0	7	231	238	1,697	1,697	**1,459**
26	2046	0	0	0	7	203	210	1,697	1,697	**1,487**
27	2047	0	0	0	7	144	151	1,697	1,697	**1,546**
28	2048	0	0	0	7	102	109	1,697	1,697	**1,588**
29	2049	0	0	0	7	42	49	1,697	1,697	**1,648**
30	2050	0	0	0	7	0	7	1,697	1,697	**1,690**
	Total	6,431	879	398	181	2,419	10,308	39,519	39,519	29,210

Present Value (Unit: INR Million)

Total Cost	**Total Benefit**	**Net Benefit**
1,264	0	-1,264
698	12	-686
841	44	-797
774	105	-670
802	212	-590
678	364	-314
484	526	42
356	670	315
183	779	596
4	838	834
4	852	848
52	834	782
82	796	714
92	751	659
99	708	609
83	668	585
58	630	573
40	595	554
19	561	542
5	529	524
4	499	495
31	471	440
47	444	398
52	419	367
55	395	340
46	373	327
31	352	321
21	332	311
9	313	304
1	295	294
6,914	**14,369**	**7,455**

Economic Value Indicators (Unit for NPV: INR Million)

Net Present Value (NPV)	**7,455**
Benefit / Cost Ratio (B/C)	**2.08**
Economic Internal Rate of Return (EIRR)	**14.4%**

Sensitivity Analysis (EIRR)

Benefit \ Cost	Base	10%	20%
Base	**14.4%**	**13.2%**	**12.1%**
-10%	**13.1%**	**11.9%**	**10.9%**
-20%	**11.6%**	**10.5%**	**9.5%**

Attachment 9.7.1 Farm Economic Analysis

Project Benefit (Agricultural Production) -Farm Household Analysis

1) Zone-1

		Cropping Pattern		(A) Gross Income			(B) Production Cost				Net Income	Net Benefit
		Area (%)	Area (ha)	1) Unit Price (INR/ton)	2) Unit Yield (ton/ha)	Total Gross Income (INR/ha)	1) Labour (INR/ha)	2) Material (INR/ha)	3) Others (INR/ha)	Total Cost (INR/ha)	(INR/ha)	(INR)
Without Project Condition												
Rabi	Wheat	90%	0.270	10,670	1.8	19,206	3,940	4,145	753	8,838	10,368	2,799.00
	Cauliflower	3%	0.009	10,670	9.3	99,231	43,150	13,784	4,651	61,585	37,646	339.00
	Potato	2%	0.006	8,924	6.6	58,898	5,900	48,442	3,998	58,340	559	3.00
	Fallow	5%	0.015			0				0	0	0.00
Kharif	Maize	80%	0.240	9,700	1.9	18,430	6,560	5,984	996	13,540	4,890	1,174.00
	Paddy	10%	0.030	7,760	1.8	13,968	3,630	1,310	596	5,536	8,432	253.00
	Tomato	2%	0.006	16,490	16.0	263,840	94,300	17,884	8,713	120,897	142,943	858.00
	Capsicum	3%	0.009	18,430	9.0	165,870	55,150	20,638	5,535	81,323	84,547	761.00
	Fallow	5%	0.015			0				0	0	0.00
TOTAL		200%	0.600									6,187
With Project Condition												
Rabi	Wheat	61%	0.183	10,670	2.9	30,943	10,860	4,766	1,344	16,969	13,974	2,557.00
	Cauliflower	39%	0.117	10,670	23.5	250,745	72,500	19,467	9,157	101,124	149,621	17,506.00
Kharif	Maize	54%	0.162	9,700	2.7	26,190	14,800	7,204	1,624	23,627	2,563	415.00
	Paddy	7%	0.021	7,760	2.9	22,504	10,560	2,529	1,217	14,306	8,198	172.00
	Tomato	39%	0.117	16,490	40.0	659,600	178,100	23,719	17,851	219,670	439,930	51,472.00
TOTAL		200%	0.600									72,122
Increment of Net Benefit												**65,935**

Irrigated Area = 0.30 ha

2) Zone-2

		Cropping Pattern		(A) Gross Income			(B) Production Cost				Net Income	Net Benefit
		Area (%)	Area (ha)	1) Unit Price (INR/ton)	2) Unit Yield (ton/ha)	Total Gross Income (INR/ha)	1) Labour (INR/ha)	2) Material (INR/ha)	3) Others (INR/ha)	Total Cost (INR/ha)	(INR/ha)	(INR million)
Without Project Condition												
Rabi	Wheat	80%	0.240	10,670	1.8	19,206	3,940	4,145	753	8,838	10,368	2,488.00
	Cauliflower	10%	0.030	10,670	9.3	99,231	43,150	13,784	4,651	61,585	37,646	1,129.00
	Pea	5%	0.015	17,460	5.6	97,776	49,420	14,010	4,258	67,688	30,088	451.00
	Fallow	5%	0.015			0				0	0	0.00
Kharif	Maize	85%	0.255	9,700	1.9	18,430	6,560	5,984	996	13,540	4,890	1,247.00
	Tomato	10%	0.030	16,490	16.0	263,840	94,300	17,884	8,713	120,897	142,943	4,288.00
	Capsicum	5%	0.015	18,430	9.0	165,870	55,150	20,638	5,535	81,323	84,547	1,268.00
TOTAL		200%	0.600									10,871
With Project Condition												
Rabi	Wheat	54%	0.162	10,670	2.9	30,943	10,860	4,766	1,344	16,969	13,974	2,264.00
	Pea	46%	0.138	17,460	12.6	219,996	91,640	19,693	8,011	119,344	100,652	13,890.00
Kharif	Maize	58%	0.174	9,700	2.7	26,190	14,800	7,204	1,624	23,627	2,563	446.00
	Tomato	42%	0.126	16,490	40.0	659,600	178,100	23,719	17,851	219,670	439,930	55,431.00
TOTAL		200%	0.600									72,031
Increment of Net Benefit												**61,160**

Irrigated Area = 0.30 ha

3) Zone-3

		Cropping Pattern		(A) Gross Income			(B) Production Cost				Net Income	Net Benefit
		Area (%)	Area (ha)	1) Unit Price (INR/ton)	2) Unit Yield (ton/ha)	Total Gross Income (INR/ha)	1) Labour (INR/ha)	2) Material (INR/ha)	3) Others (INR/ha)	Total Cost (INR/ha)	(INR/ha)	(INR million)
Without Project Condition												
Rabi	Wheat	70%	0.210	10,670	1.8	19,206	3,940	4,145	753	8,838	10,368	2,177.00
	Cauliflower	15%	0.045	10,670	9.3	99,231	43,150	13,784	4,651	61,585	37,646	1,694.00
	Pea	10%	0.030	17,460	5.6	97,776	49,420	14,010	4,258	67,688	30,088	903.00
	Fallow	5%	0.015			0				0	0	0.00
Kharif	Maize	65%	0.195	9,700	1.9	18,430	6,560	5,984	996	13,540	4,890	954.00
	Tomato	15%	0.045	16,490	16.0	263,840	94,300	17,884	8,713	120,897	142,943	6,432.00
	Cauliflower	15%	0.045	10,670	9.3	99,231	43,150	13,784	4,651	61,585	37,646	1,694.00
	Fallow	5%	0.015			0				0	0	0.00
TOTAL		200%	0.600									13,854
With Project Condition												
Rabi	Wheat	50%	0.150	10,670	2.9	30,943	10,860	4,766	1,344	16,969	13,974	2,096.00
	Pea	50%	0.150	17,460	12.6	219,996	91,640	19,693	8,011	119,344	100,652	15,098.00
Kharif	Maize	50%	0.150	9,700	2.7	26,190	14,800	7,204	1,624	23,627	2,563	384.00
	Tomato	50%	0.150	16,490	40.0	659,600	178,100	23,719	17,851	219,670	439,930	65,990.00
TOTAL		200%	0.600									83,568
Increment of Net Benefit												**69,714**

Irrigated Area = 0.30 ha

4) Zone-4

		Cropping Pattern		(A) Gross Income			(B) Production Cost				Net Income	Net Benefit
		Area (%)	Area (ha)	1) Unit Price (INR/ton)	2) Unit Yield (ton/ha)	Total Gross Income (INR/ha)	1) Labour (INR/ha)	2) Material (INR/ha)	3) Others (INR/ha)	Total Cost (INR/ha)	(INR/ha)	(INR million)
Without Project Condition												
Rabi	Fallow	100%	0.300			0				0	0	0.00
Kharif	Wheat	15%	0.045	10,670	1.8	19,206	3,940	4,145	753	8,838	10,368	467.00
	Pea	28%	0.084	17,460	5.6	97,776	49,420	14,010	4,258	67,688	30,088	2,527.00
	Potato	28%	0.084	8,924	6.6	58,898	5,900	48,442	3,998	58,340	559	47.00
	Cauliflower	29%	0.087	10,670	9.3	99,231	43,150	13,784	4,651	61,585	37,646	3,275.00
TOTAL		200%	0.600									6,316
With Project Condition												
Rabi	Fallow	100%	0.300			0				0	0	0.00
Kharif	Wheat	15%	0.045	10,670	2.9	30,943	10,860	4,766	1,344	16,969	13,974	629.00
	Pea	30%	0.090	17,460	12.6	219,996	91,640	19,693	8,011	119,344	100,652	9,059.00
	Potato	25%	0.075	8,924	20.0	178,480	13,820	92,034	9,173	115,027	63,453	4,759.00
	Cauliflower	30%	0.090	10,670	23.5	250,745	72,500	19,467	9,157	101,124	149,621	13,466.00
TOTAL		200%	0.600									27,913
Increment of Net Benefit												**21,597**

Irrigated Area = 0.30 ha

Source: JICA Survey Team

Attachment 9.10.1 Risk Management Framework **Att.9.10.1-1**

付属書9.1 リスクマネジメントフレームワーク

Project Name: Himachal Pradesh Crop Diversification Promotion Project Phase-II (HPCDP II)
Country: India
Sector: Irrigation & Agriculture

Officers in charge:
- Operational staff: To be appointed
- Engineering staff: To be appointed
- Country office staff: To be appointed

Potential project risks	Assessment
1. Stakeholder Risk	Probability: M
(Description of risk) Risk of the project cancellation or suspension resulting from the low commitment of the state of Himachal Pradesh Appraisal stage / Implementation stage	Impact: H
	Analysis of probability and impact: The Project is the succeeding project of Crop Diversification Promotion Project Phase-I (HPCDP I) launched in 2011 to increase farmer's income by crop diversification. In parallel, the government of the state of Himachal Pradesh has taken charge of the technical cooperation project Phase-I and Phase-II as well. Farmer's interest and motivation is upgrading in accordance with outputs of those projects. Hence, the sate government has the strong intention and commitment to promote crop diversification to improve farmer's income, which concept has matched with the central government policy of National Institution for Transforming India (NITI) Aayog "Doubling Farmers' Income (2017).
	Mitigation measures: 1) To hold regular high-level policy meeting, Executive Committee to review and approve annual plan of operation and budgetary allocations at the timing of the next fiscal year's budget request. 2) To hold regular financial sanction meeting, Finance Committee to monitor and guide all the financial matters. 3) To monitor the policy trends of the central government of India and the position of the Project in the annual plan of the state of Himachal Pradesh.
	Action during the implementation: 1) To hold regular high-level policy meeting, Executive Committee to review and approve annual plan of operation and budgetary allocations at the timing of the next fiscal year's budget request. 2) To hold regular financial sanction meeting, Finance Committee to monitor and guide all the financial matters. 3) To monitor the policy trends of the central government of India and the position of the Project in the annual plan of the state of Himachal Pradesh.
	Contingency plan (if applicable): N/A
2. Executing Agency Risk	
2.1. Capacity Risk	
(Description of risk) 1) Risk of decrease of benefit, increase of cost, unachieved development target and delay of the project resulting from the lack of technical capacity of DOA or delay in procurement of quality PMC to support PMU Implementation stage	Probability: M
	Impact: M
	Analysis of probability and impact: DoA has the experience in implementing HPCDP I of Japanese ODA loan project. Therefore, DoA has basic knowledge and know-how on the implementation of the Japanese ODA loan project. PMU staff will be dispatched from DoA and out sousing agency, which is the same matter with HPCDP I. On the other hand, new component, value chain and market development component will be conducted in the Project. DoA doesn't have the function of marketing promotion and FPO incubation, and PMU of HPCDP I doesn't have the experience to conduce the kind of work. If the risk occurs, it may lead to certain impact of the unachieved development target and delay of the Project.
	Mitigation measures: 1) To support PMU by PMC experts for implementation of value chain and market development component. 2) To plan appropriate implementation structure for all of the components. Especially for value chain and market development component, proper executers such as service provider or local experts will be required in consideration of the lack of technical skill of PMU. 3) To give additional tasks to on-going Technical Cooperation Project funded by JICA to support PMU at the initial stage to fill the technical gap.
	Action during the implementation: 1) To support PMU by PMC experts for implementation of value chain and market development component. 2) To plan appropriate implementation structure for all of the components. Especially for value chain and market development component, proper executers such as service provider or local experts will be required in consideration of the lack of technical skill of PMU.
	Contingency plan (if applicable): N/A

Attachment 9.10.1: Risk Management Framework

付属書9.1 リスクマネジメントフレームワーク

Project Name: Himachal Pradesh Crop Diversification Promotion Project Phase-II (HPCDP II)
Country: India
Sector: Irrigation & Agriculture

Officers in charge:
- Operational staff: To be appointed
- Engineering staff: To be appointed
- Country office staff: To be appointed

(Description of risk) 2) Risk of decrease of benefit, increase of cost, unachieved development target and delay of the project resulting from low project managemet capacity of DOA Implementation stage	Probability: L Impact: M Analysis of probability and impact: DoA has enough experience in implementing HPCDP I of Japanese ODA loan project. Therefore, DoA has basic knowledge and know-how on financial management and procurement required in the implementation of the Japanese ODA loan project. In addition, Executive Committee will be organized periodically for monitoring, evaluation and approval for those kinds of matters. Mitigation measures: 1) To hold Finance Committee regularly to monitor, evaluate and approve financial management and procurement. 2) To support PMU by PMC for application of the guideline and manuals on financial management and procurement. Action during the implementation: 1) To hold Finance Committee regularly to monitor, evaluate and approve financial management and procurement. 2) To support PMU by PMC for application of the guideline and manuals on financial management and procurement. Contingency plan (if applicable): N/A
(Description of risk) 3) Risk of decrease of benefit, increase of cost, unachieved development target and delay of the project resulting from low finacial capacity of DOA Implementation stage	Probability: L Impact: M Analysis of probability and impact: From the result of HPCDP I, financial capability of HP state is reliable sufficiently. In addition, it is considered acceptable according to the analysis result on budget allocation and financial capacity of HP state about the comparison of annual expenditures and the project budget. Mitigation measures: 1) To hold Finance Committee regularly to monitor, evaluate and approve financial management and procurement. 2) To support PMU by PMC for financial management Action during the implementation: 1) To hold Finance Committee regularly to monitor, evaluate and approve financial management and procurement. 2) To support PMU by PMC for financial management Contingency plan (if applicable): N/A
(Description of risk) 4) Risk of decrease of benefit, increase of cost, unachieved development target and delay of the project resulting from delay of payment to contractor Implementation stage	Probability: L Impact: M Analysis of probability and impact: From the result of HPCDP I, it is reliable for PMU to pay to contractor on time. Mitigation measures: 1) To support PMU by PMC for monitoring the construction and payment progress 2) To hold Finance Committee regularly to monitor payment work progress. Action during the implementation: 1) To support PMU by PMC for monitoring the construction and payment progress 2) To hold Finance Committee regularly to monitor payment work progress. Contingency plan (if applicable): N/A
2.2. Governance Risk (Description of risk) 1) Risk of delay of the project resulting from the improper communication of related organizations and the implementation structure. Implementation stage.	Probability: L Impact: M Analysis of probability and impact: The implementation structure for the Project will be complicated due to a lot of related organizations for the project components. The role, responsibility and relation of each organization shall be made clear at the planning stage. JICA survey team has explained and discussed with DoA and HPCDP I, and they have understood the structure and the importance of communication between related organizations. On the other hand, DoA will be not show high presence in the project structure, so DoA is planned to be involved to institutional development component for the sustainability of project output.

Attachment 9.10.1: Risk Management Framework **Att.9.10.1-3**

付属書9.1 リスクマネジメントフレームワーク

Project Name: Himachal Pradesh Crop Diversification Promotion Project Phase-II (HPCDP II)
Country: India
Sector: Irrigation & Agriculture

Officers in charge:
- Operational staff: To be appointed
- Engineering staff: To be appointed
- Country office staff: To be appointed

	Mitigation measures: 1) To clarify role, responsibility and relationship of each organization before starting the Project. 2) To hold Executive Committee regularly to share and discuss on the progress of the project activities with related organizations. 3) To implement institutional development component for DoA staff with support of PMC.
	Action during the implementation: 1) To hold Executive Committee regularly to share and discuss on the progress of the project activities with related organizations. 2) To implement institutional development component for DoA staff with support of PMC.
	Contingency plan (if applicable): N/A
(Description of risk) 2) Risk of delay of the project implementation schedule from delay of procedure of E/N and L/A by the government Appraisal stage	Probability: L
	Impact: M
	Analysis of probability and impact: HP state has clear schedule of E/N and L/A procedure, and has planned the administration cost to be covered by themselves for the Project, which can show that HP state has motivation to carry out the procedure properly and on time.
	Mitigation measures: 1) To support HP state by JICA to arrange meetings and documents to achieve necessary procedure and approval punctually before project implementation.
	Action during the implementation: -
	Contingency plan (if applicable): N/A
2.3. Fraud & Corruption Risk	
(Description of risk) Risk of increase of cost and unachieved development target, delay of the project resulting from fraud of procurement of the Project. Implementation stage.	Probability: L
	Impact: M
	Analysis of probability and impact: The procurement implemented by HPCDP I has been arranged properly in accordance with operation manuals prepared by HPCDP I based on Indian financial and account system. For monitoring of procurement work, Finance Committee will be held periodically and the potential issues will be discussed before the risk occurs.
	Mitigation measures: 1) To adopt procurement system prepared by HPCDP I with addition of necessary revision. 2) To monitor proper procurement work through Finance Committee.
	Action during the implementation: 1) To adopt procurement system prepared by HPCDP I with addition of necessary revision. 2) To monitor proper procurement work through Finance Committee.
	Contingency plan (if applicable): N/A
3. Project Risk	
3.1. Design Risk	
(Description of risk) 1) Risk of delay in the implementation of the Project from the design with too advanced techniques. Implementation stage	Probability: M
	Impact: M
	Analysis of probability and impact: JICA survey Team reviewed draft DPR, and it was confirmed that the designs and techniques were basically reasonable for PMU and relevant oraganizations. As for value chain and market development component related to FPOs and business matching with private sector, it doesn't rewuire too much advanced techniques, but it will be the first experience for DoA and HPSAMB. Therefore, PMC shall assist PMU to conduct the activities and provide technical advice.
	Mitigation measures: 1) To appoint PMC to support PMU to conduct project components especially for value chain and market development component.
	Action during the implementation: 1) To appoint PMC to support PMU to conduct project components especially for value chain and market development component.
	N/A

Attachment 9.10.1: Risk Management Framework

付属書9.1 リスクマネジメントフレームワーク

Project Name: Himachal Pradesh Crop Diversification Promotion Project Phase-II (HPCDP II)
Country: India
Sector: Irrigation & Agriculture

Officers in charge:
- Operational staff: To be appointed
- Engineering staff: To be appointed
- Country office staff: To be appointed

(Description of risk) 2) Risk of unachieved development component in the project implementation from improper project scope and project monitoring system. Appraisal stage / Implementation stage	Probability: L
	Impact: M
	Analysis of probability and impact:
	Project components are proposed to be planned to cover the whole activities for achievement of the project objective. The implementation structure of each component is organized with various actors based on three-layer plans namely (1) overall implementation plan, (2) supply chain and marketing plan, and (3) crop diversification plan. According to the three layers, PMU will manage and monitor the activities efficiently from SPMU, DPMU and BPMU offices which is the same manner with HPCDP I.
	Mitigation measures:
	1) To plan proper project components before the Project 2) To hold monthly progress meeting by SPMU, DPMU and BPMU to monitor and share the progress of activities based on three-layer plans 3) To hold Executive Committee to monitor the progress of project components.
	Action during the implementation:
	1) To plan proper project components before the Project 2) To hold monthly progress meeting by SPMU, DPMU and BPMU to monitor and share the progress of activities based on three-layer plans 3) To hold Executive Committee to monitor the progress of project components.
	N/A
(Description of risk) 3) Risk of delay of the project implementation schedule from too many number of packages Appraisal stage	Probability: L
	Impact: M
	Analysis of probability and impact:
	Project packages are planned based on success results of HPCDP I reviewed by JICA Survey Team. No. of packages are concluded appropriate for the Project.
	Mitigation measures:
	1) To review the DPR based on the results of HPCDP I before the Project. 2) To confirm local situation about constructor's capacity and the quality control before the Project.
	Action during the implementation:
	-
	N/A
(Description of risk) 4) Risk of cancellation or suspension of the project implementation from increase of project cost Implementation stage	Probability: L
	Impact: M
	Analysis of probability and impact:
	Price increase rate is relatively stable in India, as there was no cost overruns in HPCDP I. It is not expected that the risk occurs during the project period, but the contingency shall be prepared in the project cost to be ready for the risk just in case.
	Mitigation measures:
	1) To consider the project cost based on economic situation of country and target area before the Project.
	Action during the implementation:
	-
	N/A
(Description of risk) 5) Risk of decrease of benefit of the project implementation from sudden decrease of market demand of vegetables due to external factors. Implementation stage	Probability: L
	Impact: L
	Analysis of probability and impact:
	Vegetables market demand is expected to continue to increase due to economic and population growth in India, and annual demand of vegetables to be expected in Delhi is much larger than annual supply of vegetables in HP state. Therefore, it is difficult to consider the sudden occurrence of decrease of vegetables demand during the project period. In addition, sensitivity analysis described in Chapter 9 has shown EIRR could be remained at more than 10% even in the condition of 20% decrease of project benefit. It can say that the project is economically feasible.
	Mitigation measures:
	1) To conduct the project economic analysis and confirm the resiliency against demand (benefit) decrease before the Project.
	Action during the implementation:
	-
	N/A

Attachment 9.10.1: Risk Management Framework

付属書9.1 リスクマネジメントフレームワーク

Project Name: Himachal Pradesh Crop Diversification Promotion Project Phase-II (HPCDP II)
Country: India
Sector: Irrigation & Agriculture

Officers in charge:
- Operational staff: To be appointed
- Engineering staff: To be appointed
- Country office staff: To be appointed

3.2. Program & Donor Risk	
(Description of risk) Risk of decrease of benefit and delay of the project resulting from delay of the other schemes, other donors' projects or departments conducted in HP state. Implementation stage	Probability: L Impact: L Analysis of probability and impact: Beneficiaries of the Project will be supported by the Project for the purpose of income improvement coming from crop diversification. Since the Project is not planned to lean on other schemes or projects, it is difficult to say the risk will occur in the Project. However, information sharing between relevant departments in HP state is helpful to know each other. Mitigation measures: 1) To hold information exchange meeting and project coordination meeting with relevant organizations periodically by PMU supported by PMC Action during the implementation: 1) To hold information exchange meeting and project coordination meeting with relevant organizations periodically by PMU supported by PMC Contingency plan (if applicable): N/A
3.3. Delivery Quality Risk	
(Description of risk) 1) Risk of impossibility to monitor and measure development effect due to lack of the way of data collection. Implementation stage	Probability: L Impact: L Analysis of probability and impact: It is possible to collect data related to operational and effect indicators through extension officers' daily monitoring and MIS &GIS facilities to be installed newly. PMC will provide techinical assistance to PMU for the new systems. Mitigation measures: 1) To support PMU by PMC to collect data properly. 2) To establish MIS & GIS facilities and provide technical support including O&M to PMU with support of PMC Action during the implementation: 1) To support extension officers by PMC to collect data properly. 2) To establish MIS & GIS facilities and provide technical support including O&M to PMU with support of PMC Contingency plan (if applicable): N/A
(Description of risk) 2) Risk of unsecured sustainability for O&M of project resulting Implementation stage	Probability: M Impact: M Analysis of probability and impact: The plan and responsibility of O&M for facilities have been planned in HPCDP I. JICA Survey Team reviewed O&M plan of HPCDP I and proposed O&M for HPCDP II. In order to operate O&M plan after the Project effectively, selection criteria of farmers for KVA is considered with responsibility of O&M, and O&M training will be planned as the important subject. Mitigation measures: 1) To support PMU by PMC to establish KVA in accordance with the criteria including the importance of responsibility. 2) To conduct O&M training to KVA with support of PMC. Action during the implementation: 1) To support PMU by PMC to establish KVA in accordance with the criteria including the importance of responsibility. 2) To conduct O&M training to KVA with support of PMC. Contingency plan (if applicable): N/A
(Description of risk) 3) Risk of decrease of benefit, increase of cost, unachieved development target and delay of the project resulting from natural disaster Implementation stage	Probability: M Impact: L Analysis of probability and impact: Project target area is located in hilly area in HP state, so road collapse might occur due to heavy rain in the rain season, Kharif season. For the achievement of project output, work schedule has to be considered based on climate condition, and construction work shall be conducted in the dry season, Rabi season. Mitigation measures: 1) To plan construction work schedule to be conducted in Rabi season. 2) To plan and conduct project components in consideration of climate condition with support of PMC.

Attachment 9.10.1: Risk Management Framework

付属書9.1 リスクマネジメントフレームワーク

Project Name: Himachal Pradesh Crop Diversification Promotion Project Phase-II (HPCDP II)
Country: India
Sector: Irrigation & Agriculture

Officers in charge:
- Operational staff: To be appointed
- Engineering staff: To be appointed
- Country office staff: To be appointed

	Action during the implementation: 1) To plan construction work schedule to be conducted in Rabi season. 2) To plan and conduct project components in consideration of climate condition with support of PMC.
	Contingency plan (if applicable): N/A
(Description of risk) 4) Risk of unfair benefit expression of the project resulting for the limited beneficiaries Implementation stage	Probability: L
	Impact: L
	Analysis of probability and impact: In order to catch beneficiaries in project target area fairly, livelihood improvement activity is planned for empowerment of women's group, Self Help Group (SHG) in farmers support component. The activities for SHG can contribute to creation of basic income for farmer household and improvement of women's status in household.
	Mitigation measures: 1) To support PMU by PMC to formulate SHG properly. 2) To conduct livelihood improvement activities for SHG with support of PMC/ local expert/ relevant departments.
	Action during the implementation: 1) To support PMU by PMC to formulate SHG properly. 2) To conduct livelihood improvement activities for SHG with support of PMC/ local expert/ relevant departments.
	Contingency plan (if applicable): N/A

Attachment for Chapter 10

Environmental and Social Considerations

Attachment 10.1.1 National/State Level Legal Framework for Environmental and Social Considerations

Law/ Policy	Description/ Outline	Responsible Ministry/ Agency
A. Environment Protection and EIA		
Environment Policy Guidelines	The policy guidelines cover and array of important areas such as Land, Water, Air, Mineral Resources, Health, Biodiversity, Agriculture, Horticulture, Energy and Tourism etc. The intension of these guidelines is to develop approaches that are compatible with the mountain eco-systems and its unique characteristics vis-à-vis fragility, inaccessibility, marginality, diversity, climatic peculiarities, etc. The state government of HP expresses its resolve to conserve and enhance the environment and follow a policy of sustainable development; it calls upon people, Panchyati Raj and local bodies, institutions, and the organs of the state for extending their full co-operation in this effort.	Department of Environment, Science and Technology (DEST)
Environmental Regulations	The HP state has adopted, the following Union level regulations and laws pertaining to environment protection and control of pollution: - The Water (Prevention & Control of Pollution) Act, 1974 and Rules framed there under. - The Air (Prevention & Control of Pollution) Act 1981 and Rules framed there under. - The Water (Prevention & Control of Pollution) Cess Act, 1977, as amended by Amendment Act, 1991, 2003 and Rules framed there under - Environment (Protection) Act, 1986 and the following Rules/Notifications framed there under: ✦ Environmental Protection Rules, 1986. ✦ Environmental Impact Assessment Notification, 1994, 1997, 2002, 2004, 2006, 2020 as amended. ✦ Hazardous Waste (Management, Handling, and Trans-boundary Movement) Rules, 2008. ✦ Manufacture, Storage and Import of Hazardous Chemical Rules, 1989; ✦ Plastics Manufacture, Sale and Usage Rules, 1999 and 2003; ✦ Bio-Medical Waste (Management & Handling) Rules, 1998 and Amendment Rules 2000 and 2003; ✦ The Noise Pollution (Regulation & Control) Rules, 2000; ✦ Municipal Solid Wastes (Management & Handling) Rules, 2000; ✦ Ozone Depleting Substances (Regulation) Rules, 2000; ✦ Batteries (Management and Handling) Rules, 2001; ✦ Rules for the Manufacture, Use, Import, Export and Storage of Hazardous Micro Organisms, Genetically Engineered Organisms or Cells Rules, 1989. ✦ Chemical Accident (Emergency Planning, Preparedness and Response) Rules, 1996. The following Rules, which have bearing on the environment and health of the society, are also in existence. Under these Rules, the HP State Pollution Control Board is not the only agency responsible for the implementation of these Rules but nevertheless these Rules and enactments are of great significance. They are as under: - Public Liability Insurance Act, 1991. - H.P. Non-Biodegradable Garbage (Control) Act, 1995. - Motor Vehicle Act, 1988.	DEST, HPSPCB

Law/ Policy	Description/ Outline	Responsible Ministry/ Agency
HP State Water Policy, 2013	State water policy was mainly formulated for optimal utilisation of the scarce resource for sustaining all life forms and conservation and maintenance of water quality. The policy defines water quality parameters for different uses such as drinking, other domestic uses, livestock, irrigation, industries etc. shall be specified/notified by the competent authority and reviewed for improvement in water quality. The quality of both surface and ground water shall be regularly monitored.	Department of Irrigation & Public Health (IPH), Ministry of water
Hazardous Waste (Management, Handling, and Trans-Boundary Movement) Rules, 2008.	These Rules impose restrictions and prescribe procedures for management, handling, disposal and trans-boundary movement of hazardous wastes; These rules apply to the management of hazardous and other wastes as specified in the Schedules appended to the Rules, and shall not apply to (a) waste-water and exhaust gases; (b) wastes arising out of the operation form ships beyond five km; (c) radio-active wastes; (d) bio-medical wastes; and (e) municipal solid wastes	DEST, HPSPCB
Manufacture, Storage and Import of Hazardous Chemical Rules, 1989	These Rules apply to an industry that manufactures, stores and imports chemicals that are toxic, flammable and explosive. The Rules recommend isolated storage of hazardous chemicals; identification of major accident hazards; prevent such major accidents; prevent their consequences to persons and environment; provide site personnel with information, training and equipment necessary to ensure their safety.	DEST, HPSPCB
Plastics Manufacture, Sale and Usage Rules, 1999 and 2003;	The central government had notified the "Recycled Plastics Manufacture and Usage Rules, 1999 (as amended in 2003)" under the Environment (Protection) Act, 1986 to regulate the manufacture, sale and use and recycling of plastic bags. These rules, inter alia, provided that plastic carry bags should have a minimum thickness of 20 microns; carry bags or containers made of recycled plastic shall not be used for packaging of food stuffs and recycling of plastic waste in accordance with BIS specifications. Powers have been delegated to the State Pollution Control Boards / Pollution Control Committees for taking action for violation of Rules promulgated under the Environment (Protection) Act, 1986	DEST, HPSPCB
Bio-Medical Waste (Management & Handling) Rules, 1998 and Amendment Rules 2000 and 2003;	These rules apply to all persons/ agencies/ institutions that generate, collect, receive, store, transport, treat, dispose, or handle bio-medical waste in any form. Institution generating bio-medical waste which includes a hospital, nursing home, clinic, dispensary, veterinary institution, animal house, pathological laboratory, blood bank by whatever name called to take all steps to ensure that such waste is handled without any adverse effect to human health and the environment. Bio-medical waste shall be treated and disposed of in accordance with Schedule I, and in compliance with the standards prescribed in Schedule V. Persons/ agencies/ institutions shall set up requisite bio-medical waste treatment facilities like incinerator, autoclave, microwave system for the treatment of waste, or ensure requisite treatment of waste at a common waste treatment facility or any other waste treatment facility.	DEST, HPSPCB
Municipal Solid Wastes (Management & Handling) Rules, 2000;	These rules shall apply to every municipal authority responsible for collection, segregation, storage, transportation, processing and disposal of municipal solid wastes. In these rules, unless the context otherwise requires, Municipal Solid Wastes (Management and Handling) Rules, 2000 are being implemented by the municipal authorities as these authorities are responsible for management of municipal solid waste (MSW). The Rules are in force from September 2000. Local bodies are required to ensure that solid waste generated in city/town is managed in accordance with the provisions of the Rule relating to collection, segregation, storage, transportation, processing and disposal. Central Pollution Control Board (CPCB) during the reporting year interacted with State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) in union territories and provided feed-back on various aspects of the Rule. SPCBs/PCCs persuaded local bodies to seek authorisations and formulate action plan for management of solid waste.	DEST, HPSPCB

Law/ Policy	Description/ Outline	Responsible Ministry/ Agency
Ozone Depleting Substances (Regulation) Rules, 2000;	These Rules provide regulations on production and consumption of ozone depleting substances. The rules provide that no person shall produce or cause to produce any ozone depleting substance after the date specified in column (5) of Schedule V unless he is registered with the authority specified in column (4) of that Schedule. Further, no person shall import or cause to import from or export or cause to export to any country any ozone depleting substance after the commencement of these rules.	DEST, HPSPCB
Batteries (Management and Handling) Rules, 2001.	These Rules provide the responsibility of a manufacturer, importer, assembler and re-conditioner to: (i) ensure that the used batteries are collected back as per the schedule against new batteries sold excluding those sold to original equipment manufacturer and bulk consumer(s); (ii) ensure that used batteries collected back are of similar type and specifications as that of the new batteries sold; (iii) file a half-yearly return of their sales and buy-back to the State Board in Form- I latest by 30 June and 30 December of every year; (iv) set up collection centres either individually or jointly -at various places for collection of used batteries from consumers or dealers; (v) ensure that used batteries collected are sent only to the registered recyclers, (vi) ensure that necessary arrangements are made with dealers for safe transportation from collection centres to the premises of registered recyclers; (vii) ensure that no damage to the environment occurs during transportation; (viii) create public awareness through advertisements, publications, posters or by other means with regard to the following (a) hazards of lead; (b) responsibility of consumers to return their used batteries only to the dealers or deliver at designated collection centres; and (c) addresses of dealers and designated collection centres. (ix) use the international recycling sign on the batteries; (x) buy recycled lead only from registered recyclers; and (xi) bring to the notice of the State Board or MoEF&CC any violation by the dealers.	DEST, HPSPCB
Rules for the Manufacture, Use, Import, Export and Storage of Hazardous Micro Organisms, Genetically Engineered Organisms or Cells Rules, 1989.	These rules shall be applicable in the following specific cases: (a) sale, offers for sale, storage for the purpose of sale, offers and any kind of handling over with or without a consideration; (b) exportation and importation of genetically engineered cells or organisms; (c) production, manufacturing, processing, storage, import, drawing off, packaging and repacking of the genetically engineered products; (d) production, manufacture etc. of drugs and pharmaceuticals and food stuffs distilleries and tanneries, etc. which make use of micro-organisms genetically engineered micro-organisms one way or the other.	DEST, HPSPCB
Chemical Accident (Emergency Planning, Preparedness and Response) Rules, 1996.	These rules shall be applicable in the following specific cases; (a) sale, offers for sale, storage for the purpose of sale, offers and any kind of handling over with or without a consideration; (b) exportation and importation of genetically engineered cells or organisms; (c) production, manufacturing, processing, storage, import, drawing off, packaging and repacking of the genetically engineered products; and (d) production, manufacture etc. of drugs and pharmaceuticals and food stuffs distilleries and tanneries, etc. which make use of micro-organisms genetically engineered micro-organisms one way or the other.	DEST, HPSPCB
Public Liability Insurance Act, 1991.	An Act to provide for public liability -insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling any hazardous substance and for matters connected therewith or incidental thereto.	DEST, HPSPCB, Insurance Company

Law/ Policy	Description/ Outline	Responsible Ministry/ Agency
HP Non-Biodegradable Garbage (Control) Act, 1995.	An Act to prevent throwing or depositing non-biodegradable garbage in public drains, roads and places open to public view to regulate the use of non-biodegradable material in HP state.	DEST, HPSPCB
Motor Vehicle Act, 1988 (Amended in 2020)	The legislation has been prepared to provide for – (a) modification and amplification of certain definitions of new type of vehicles ; (b) simplification of procedure for grant of driving licenses; (c) putting restrictions on the alteration of vehicles; (d) certain exemptions for vehicles running on non-polluting fuels; (e) ceilings on individuals or company holdings removed to curb "benami" holdings; (f) states authorised to appoint one or more State Transport Appellate Tribunals; (g) punitive checks on the use of such components that do not conform to the prescribed standards by manufactures, and also stocking / sale by the traders; (h) increase in the amount of compensation of the victims of hit and run cases; (i) removal of time limit for filling of application by road accident victims for compensation; (j) punishment in case of certain offences is made stringent; (k) a new pre-determined formula for payment of compensation to road accident victims on the basis of age / income, which is more liberal and rational	DEST, HPSPCB, Ministry of Surface Transport Police Department Judiciary Insurance Companies
Insecticide Act 1968 (Act no. 46 of 1968); The pesticide Management Bill, 2020	The Insecticides Act, 1968 (the Act) was enacted to regulate the import, manufacture, sale, transport, distribution and use of insecticides with a view to prevent risk to human beings or animals. In the said Act, there is a lack of sufficient deterrence against violations and there is no stricter penalty to safeguard the farmer's interest. There is also no mechanism to regulate pricing and disposal in an environmentally sound manner. Thus, it is proposed to replace the Insecticides Act of 1968 by a new legislation, namely the Pesticide Management Bill, 2020. The proposed bill, apart from other provisions, also include - (i) provision for encouraging indigenous manufacturing; (ii) provision for promoting pesticides that are biological and based on traditional knowledge; (iii) while registering a pesticide, the Registration Committee apart from evaluating its safety and efficacy, would also be guided by factors like necessity, end use, risk involved and availability of safer alternatives; (iv) fixation of maximum residue limits for pesticides have been made mandatory;	Ministry of Agriculture and Farmers Welfare
B. Prevention and Control of Pollution		
Himachal Pradesh State Water Policy 2013	The objective of the state water policy is to understand the current situation, to recommend contexts to put-together arrangement of laws and institutions and for a plan of action with a unified national perspective. Certain basic principles are required to govern public policies on water resources, so that there is some commonality in approaches in dealing with planning, development and management of water resources. It also emphasises the need to evolve a State Water Framework Law as an umbrella statement of general principles governing the exercise of legislative and/or executive powers by the States and the local governing bodies. The policy recommends optimal utilisation of water, with the appreciation that water is a scarce resource and needs to be fostered. A scientific assessment and periodic review of the availability of water resources and its use by various sectors in various basin and states in the country is recommended in the policy. The policy emphasises pricing of water, which should ensure its efficient use and reward conservation. It also says that the conservation of rivers, river corridors, water bodies and infrastructure should be undertaken in a scientifically planned manner through community participation.	HPSPCB
Water (Prevention and Control of Pollution) Act 1981	The National Water Act is adapted in HP state and no separate rules have been prepared specifically for HP.	HPSPCB

Law/ Policy	Description/ Outline	Responsible Ministry/ Agency
Air (Prevention and Control of Pollution) Act 1981	The National Air Act is adapted in HP state and no separate air rules have been prepared specifically for HP.	HPSPCB
C. Land Acquisition/ Involuntarily Resettlement		
Himachal Pradesh Right to Fair Compensation and Transparency in Land Acquisition. Rehabilitation and Resettlement Rules 2015	The rule provides procedures to be applied in the state for land acquisition as well as providing rehabilitation and resettlement benefits to the affected/ displaced persons in accordance with the "Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013" (30 of 2013) which is the applicable law at the union level.	Government of HP - District Collector(s)
Himachal Pradesh Panchayati Raj Act, 1994	An Act to consolidate, amend and replace the law relating to Panchayats with a view to ensure effective involvement of the Panchayati Raj Institutions in the local administration and developmental activities.	Government of HP
HP Water supply Act, 1968 and HP Water supply Rules, 1989	The Water supply Act of 1968 and the 1989 Rules defines the manner to regulate and initiate drinking water supply scheme. The Rules mentions a pre-condition that the inhabitants to be benefitted are to give an undertaking in writing to allow the laying of pipes and construction of storage tank/tanks under and over their land without any compensation.	Department of Irrigation & Public Health (IPH)

Source: Compiled by JICA Study Team (2020) based on information indicated below:
http://xgn.hp.nic.in/home.aspx
http://hpforest.nic.in/pages/display/NjVzZDRiNHNkZmE=-actsrules
http://desthp.nic.in/notifications.html
http://hppcb.gov.in/
http://himachal.nic.in/index1.php?lang=1&dpt_id=13&level=0&linkid=418&lid=750
http://hpiph.org/State%20Water%20Supply.htm

Attachment 10.2.1 List of Project requiring prior Environment Clearance or Prior Environment Permission

Project		Category with threshold limit			Remark
		A	**B1**	**B2**	
1	(a) Mining of Minor Minerals	>100 hectare of mining lease area	> 5 hectares and ≤ 100 hectares of mining lease area	< 5 hectares of mining lease area	Note: (1) Mining of minor mineral projects with mine lease area more than 2 hectare and up to 5 ha shall be referred to Distract Level Expert Appraisal Committee (2) Mining lease area includes cluster situation
	(b) Mining of Major Minerals including Coal	>100 hectare of mining lease area	≤ 100 hectares of mining lease area	Dump mining (excavation or handling of dump or overburden or waste material)	
2	Offshore and Onshore Oil & Gas including CBM and Shale Gas				
	a) Exploration	-	-	All projects	
	b) Development and Production (including infrastructure facilities e.g. Gas Collecting or Gathering Station, Early production Systems, pipelines, etc.).	All projects	-	-	
3	River Valley	> 75 megawatts hydroelectric power generation;	≤ 75 megawatts>25 megawatts hydroelectric power generation;	Up to 25 megawatts hydroelectric power generation	Note: Category 'B1' river valley projects falling in more than one State or Union Territory shall be appraised at the Central Government Level.
4	Irrigation	≥ 50,000 hectares of culturable command area	>10,000 hectares and	> 2000 hectare and < 10,000 hectares of culturable command area.	
5	Thermal Power	≥ 500 megawatts (coal/lignite/naphtha & gas based); ≥100 megawatts (all other fuels).	> 5 megawatts and < 500 megawatts (coal / lignite / naphtha & gas based); ≥ 5 megawatts and <100 megawatts (all other fuels except biomass and municipal solid non-hazardous waste); >15 megawatts		

			and <100 megawatts (using municipal solid non-hazardous waste / biomass as fuel).	≥ 5 megawatts and ≤ 15 megawatts, based on biomass or non-hazardous municipal solid waste using auxiliary fuel such as coal, lignite / petroleum products up to 15%.	
6	Nuclear Power or processing of nuclear fuel	All projects	-	-	
7	Coal washeries	≥ 1 million ton per annum throughput of coal	<1million ton per annum throughput of coal	-	Note: If Coal washery is located within mining lease area, the proposal shall be appraised together with the mining proposal.
8	(a) Mineral Beneficiation involving physical process and physicochemical processes	-	All projects	Small and Medium enterprises	Note: If Mineral Beneficiation plant located within mining lease area the proposal shall be appraised together with the mining proposal.
	(b) Chemical processing of ores/ concentrate	≥1.0 million ton per annum throughput	<1.0 million ton per annum throughput		
9	Pellet plants or agglomeration plants	-	All Projects	Small and Medium enterprises	
10	Metallurgical industries (ferrous &non ferrous)				
	(a) Integrated Steel Plants	> 1 million ton per annum of crude steel	≤ 1 million ton per annum of crude steel		
	(b) Sponge Iron Plants	>0.5million ton per annum	≤ 0.5million ton per annum		
	(c) Non-ferrous smelting and refining	All projects	-	-	
	(d) Ferro Alloy Plants	>1.5 Lakh ton per annum	≤1.5 Lakh ton per annum	-	
	(e) Secondary metallurgical industry (Toxic metals)	≥20,000 ton per annum	<20,000 ton per annum	-	

	(f) Secondary metallurgical industry (Nontoxic metals)	-	(i) Foundries involving furnaces such as Induction Furnace or Electric Arc Furnace or submerged arc furnace or other gas-based furnaces with capacity more than 1,50,000 ton per annum (ii) Foundries involving furnaces such as cupola and other furnaces with capacity more than 1,00,000 ton per annum	(i) Foundries involving furnaces such as Induction Furnace or Electric Arc Furnace or Submerged arc furnace or other gas-based furnaces, with capacity more than 1,00,000 ton per annum to 1,50,000 ton per annum (ii) Foundries involving furnaces such as cupola or other furnaces using coal with capacity more than 60, 000 ton per annum to 1,00,000 ton per annum (iii) Standalone rerolling mills involving pickling with a capacity more than 1, 00, 000 ton per annum. (iv) Standalone rerolling mills not involving pickling with a capacity more than 2, 00, 000 ton per annum. (v) Medium enterprises	
11	(a) Cement Plants	≥ 1.0 million ton per annum production capacity except plants with vertical shaft kiln.	(i) <1.0 million ton per annum production capacity (ii) All cement plants with vertical shaft kiln.	Small and Medium enterprises.	Note: Fuel for cement industry may be coal, petcoke, mixture of coal and petcoke and coprocessing of waste provided it meets the emission standards
	(b) Standalone clinker grinding units		≥ 1.0 million ton per annum production capacity	(i) Stand-alone grinding units up to 1 million ton per annum (ii) All standalone grinding units in	

				case of transportation of clinker and finished product proposed through rail / sea mode. (iii) Small and Medium enterprises.	
12	Lead acid battery manufacturing (excluding assembling and charging of lead acid battery)	-	All projects	-	
13	Petroleum refining industry	All projects	-	-	
14	(a) Coke oven plants	≥ 0.8 million ton per annum	< 0.8 million ton per annum	-	
	(b) Coal Tar processing units or Calcination plants	-	All projects	-	
15	Asbestos milling and asbestos based products	All projects	-	-	
16	Chlor-alkali industry or Production of Halogens	≥300 ton per day production capacity if a unit located outside the notified industrial estates.	(i) ≥300 ton per day production capacity if a unit located within the notified industrial estates. (ii)	<300 ton per day production capacity if a unit located within the notified industrial estates.	Note: No new Mercury Cell based plants will be permitted and existing units converting to membrane cell technology are exempted from the Notification if provided there is no increase in the production capacity.
17	Soda ash Industry	All projects	-	-	
18	Skin/hide processing including tanning industry	All projects located outside the notified industrial estates.	All projects located within notified industrial estates.	All projects of leather production without tanning and located within the notified industrial estates.	
19	Chemical fertilizers and standalone ammonia plants.	(i) All projects except Single Super Phosphate including Sulphuric acid. (ii) Standalone ammonia plants	Single Super Phosphate including sulphuric acid production.	-	
20	Manufacturing of Acids	Stand-alone phosphoric acid or ammonia.	Stand-alone sulphuric acid	All other acids	

21	Pesticides including insecticides; herbicides; weedicides; pestcontrol; etc., and their specific intermediates (excluding formulations)	All projects located outside the notified industrial estates.	All projects located within the notified industrial estates.	-	
22	Petro-chemical complexes (industries based on processing of petroleum fractions, natural gas, production of carbon black)	All projects	-	-	
23	Manmade fibers manufacturing	Viscose Staple Fiber (VSF); Viscose Filament Yarn (VFY); and Rayon.	Nylon and Others	-	
24	Petroleum products and petrochemical based processing including production of carbon black and electrode grade graphite(processes other than cracking & reformation and not covered under the complexes)	All projects located outside the notified industrial estates.	All projects located within the notified industrial estates.	Medium enterprises	
25	Synthetic Organic Chemicals				
	a) Dyes & dye intermediates	-	All projects except column (5)	(i) Projects proposed with zero liquid discharge and located within the notified industrial estates. (ii) All micro, small and medium enterprises.	
	b) Bulk drugs and intermediates excluding drug formulations	-	All projects except column (5)	(i) Projects proposed with zero liquid discharge and located within the notified industrial estates. (ii) All micro, small and medium enterprises.	
	c) Synthetic rubbers	All projects located outside the notified industrial estates.	All projects located within the	All micro, small and medium enterprises.	

			notified industrial estates.		
	d) Basic organic chemicals, other synthetic organic chemicals, chemical intermediates, synthetic resins and synthetic adhesives	All projects located outside the notified industrial estates.	All projects located within the notified industrial estates.	(i) All small and medium enterprises. (ii) Manufacturing of synthetic resins / adhesives up to 1000 ton per annum.	
26	Distilleries and molasses-based manufacturing units (e.g. Yeast)	(i) Molasses based distilleries ≥ 100 kilo liter per day; (ii) Molasses based manufacturing units (e.g. Yeast) ≥ 100 ton per day; (iii) Non-molasses based distilleries ≥ 200 kilo liter per day.	(i) Molasses based distilleries <100 kilo liter per day. (ii) Molasses based Yeast manufacturing units <100 ton per day (iii) Nonmolasses based distilleries < 200 kilo liter per day	(i) Country Liquor (e.g. based on Mahuwa flower, Cashew, etc.) units more than capacity of 10 kilo liter per day. (ii) Expansion of distilleries within the premises, having earlier Prior Environment Clearance and for production of ethanol to be used as fuel for blending only.	
27	Manufacturing of paints, varnishes, pigments, intermediates (excluding blending / mixing)	All projects located outside the notified industrial estates.	All projects located within the notified industrial estates.	Medium enterprises	
28	Pulp & Paper Industry	Pulp manufacturing and Pulp & Paper manufacturing industry except from waste paper	-	Paper manufacturing from waste paper or ready pulp involving deinking or bleaching or decoloring.	
29	Sugar Industry	-	≥ 5000 ton of cane per day crushing capacity	-	
30	Manufacturing of explosives, detonators, fuses including management and handling activities		All projects		
31	Pipelines				
	(a) Oil & gas transportation pipe line (crude and refinery or petrochemical products), passing through national	All Projects	-	-	

	parks or sanctuaries or coral reefs or Ecologically Sensitive Areas.				
	(b) Slurry pipelines (coal, lignite and other ores) passing through national parks or sanctuaries or coral reefs, Ecologically Sensitive Areas.	All Projects	-	-	
32	Air Ports and Heliports including terrestrial and water ports	All projects including terrestrial airstrips, which are for commercial use.	-	(i) Water - aerodromes which are for commercial use. (ii) Heliports which are for commercial use.	
33	All ship breaking yards including ship breaking units	All projects	-	-	
34	Industrial Estate including parks; complexes; areas; export processing Zones (EPZs); Special Economic Zones (SEZs); Biotech Parks; Leather Complexes; Coastal Economic Zones (CEZs); Special Investment Region (SIR); National Investment and Manufacturing Zones (NIMZs); Industrial Cluster; Petroleum, Chemicals and Petrochemicals Investment Regions (PCPIRs)	(i) If the area of proposed project is more than 500 hectares and houses at least one Category 'A' or Category 'B1' project listed in the schedule. (ii) If area of the proposed project is less than 500 hectares and houses at least one category 'A' project listed in the schedule.	If the area of the project is less than 500 hectares and houses at least one category 'B1' project listed in the schedule.	(i) If the area of the proposed project is more than 500 hectares and does not house category 'A' or 'B1' project listed in the schedule. (ii) Irrespective of the area of the proposed project and houses at least one Category 'B2' project listed in the schedule	
35	Common hazardous waste, Treatment, Storage and Disposal Facilities (TSDFs)	All integrated facilities having incineration & landfill or incineration alone.	All facilities having land fill only.		
36	Common BioMedical Waste Treatment Facilities	-	All projects		
37	Ports, harbors, breakwaters and capital dredging (inside and outside the ports or harbors and channels)	≥ 5 million ton per annum of cargo handling capacity (excluding fishing harbors).	(i) < 5 million ton per annum of cargo handling capacity (excluding fishing harbors). (ii) ≥ 30000 ton per annum of fish	All projects in respect of Inland water ways	

			handling capacity.		
38	Highways or Expressways or Multi-modal corridors or Ring Roads	i) New National Highways or Expressways or Multi-modal corridors or Ring Roads ii) Expansion or widening of existing National Highways or Expressways or Multi-modal corridors or Ring Roads by length more than 100 km involving widening or right of way more than 70 m on existing alignments or re-alignments or by-passes.	(i) All new State Highway projects (ii) State Highway expansion projects in hilly terrain (above 1,000 meter above mean sea level).	(i) Expansion or widening of existing National Highways or Expressways or Multi-modal corridors or Ring Roads by length between 25 km and 100 km involving widening or right of way more than 70 m on existing alignments or realignments or bypasses. (ii) Expansion or widening of existing State Highways (500 m to 1000 m above mean sea level)	Note: Width at toll plaza and junction improvement at intersection of other roads excluded from right of way.
39	Aerial ropeways	-	-		
40	Common Effluent Treatment Plants (CETP)	-	All projects	-	
41	Common Municipal Solid Waste Management Facility (CMSWMF) involving land filling and / or incineration	-	All projects	-	
42	Building Construction and Area Development projects	-	>1,50,000 sq. mtrs. of built-up area and or total land area of > 50 hectare	(i) >20,000 sq. mtrs. and 50,000 sq. mtrs. Of built-up area (ii) > 50,000 sq. mtrs. and < 1,50,000 sq. mtrs. of built-up area projects having provisional 'certificate of green building' or relating to industrial sheds, educational institutions, hospitals and hostels for educational institutions	Note 1. Projects under (i) and (ii) of Column (5) shall not be referred to Appraisal Committee. 2. Any change in the intended use, priorpermission from the Regulatory Authority for amendment in the priorEP shall be obtained. All such cases shall be referred to Appraisal Committee.
				> 50,000 sq. mtrs. and < 1,	Note: Projects under Column (5) shall be

				50,000 sq. mtrs. of built-up area	referred to Appraisal Committee
43	Elevated roads or standalone flyovers or bridges	-	-	>1,50,000 sq. mtrs. of built-up area	

Note:

1. General Conditions shall not apply for:-
   i. Items 9, 10(f), 11(b), 25, 38, 40, 41, 42, and 43
   ii. River bed mining projects on account of inter-state boundary; and
   iii. All Category 'B2' projects.
2. Category 'B2' projects shall not be placed before Appraisal Committee except for those projects mentioned against the item

Source: Based on Draft EIA Notification (No. S.O.750(E) dated 17th Feb, 2020) of MoEF&CC, modified by the JICA Study Team (2020)

Attachment 10.2.2 Stages and procedures for EC as per the draft EIA Notification 2020 Description

Stages	
Scoping	(1) All projects listed under Category "B2" of the Schedule shall not require Scoping. (2) To facilitate due diligence by the Project Proponent including collection of primary or secondary data, as the case may be, even before filing of application for grant of ToR or prior-EC or prior-EP, sector wise Standard ToR developed by the Ministry, from time to time, shall be displayed on the website of the Ministry. (3) The Standard ToR shall be issued to the following projects through online mode, on acceptance of application within 7 working days, without referring to Appraisal Committee by the Regulatory Authority: (a) All Highway projects in Border Areas covered under entry (i) and (ii) of columns (3) and (4) against item 38 of the Schedule; (b) All projects, proposed to be located in notified industrial estates and which are not disallowed in such notification; (c) All expansion proposals of existing projects having earlier Prior Environment Clearance; (d) All Building construction and Area development projects covered under entries of column (4) against item 42 and 43 of the Schedule. (4) All new projects other than specified in sub-paragraph (3) above, shall be referred to the Appraisal Committee by the Regulatory Authority within 30 days from the date of application, for recommending the specific ToR in addition to the Standard ToR, if deemed necessary. In case, the Regulatory Authority does not refer the matter to the Appraisal Committee within 30 days of date of application in Form-I, sector specific Standard ToR shall be issued, online, on 30th day, by the Regulatory Authority. (5) Applications for ToR may be rejected by the Regulatory Authority concerned on the recommendation of the Appraisal Committee. In case of such rejection, the decision together with reasons for such rejection, shall be communicated to the Project Proponent in writing after due personal hearing within sixty days of the receipt of the application. (6) The project proponent shall prepare the EIA report based on the sector specific Standard ToR as well as specific ToR, if any, stipulated by the Appraisal Committee. (7) The Terms of Reference for the projects except for River valley projects, issued by the regulatory authority concerned, shall have the validity of four years from the date of issue. In case of the River valley projects, the validity will be for five years. (8) In case of any change in the scope of the project, for which the ToR was prescribed by the Regulatory Authority, an application shall be made by the project proponent, online, in Form-3, for amendment in ToR within the validity of the ToR and before public consultation. All such proposals may be referred to the Appraisal Committee, if required, within 30 days from the date of application. However, the validity of the amended ToR will be counted from the date of issue of earlier ToR. (9) In case, more than one proposal is received for the same land or having land overlapping with the other project(s), in part or full for which, ToR or prior-EC or prior-EP, have already been granted to some other project, all such cases will be kept on hold. The Regulatory Authority will make written communication to the Chief Secretary of the Concerned State or Union Territory and the decision will be taken based on the advice of the State Government or Union Territory administration.
Environment Impact Assessment Report	(1) Baseline data shall be collected as per the protocols specified in the sector specific EIA Guidance manuals issued by the Ministry or prescribed by CPCB from time to time. (2) Baseline data shall be collected for one season other than monsoon for EIA Report in respect of all projects other than River Valley projects. However, the baseline data of monsoon season shall also be required to be collected, in case of such requirement being prescribed by the Appraisal Committee while granting the ToR. (3) Baseline data shall be collected for one year including monsoon for EIA Report in respect of River Valley projects. (4) The collection and analysis of baseline data shall be carried through an environment laboratory duly notified under Environment (Protection) Act, 1986. (5) The secondary data available shall also be considered as baseline for the projects proposed beyond 12 Nautical Miles. (6) Baseline data, referred in sub-clause (1) to (5) above, can be collected at any stage, irrespective of the application for the scoping. However, such baseline data shall not be older than three years at the time of submission of draft EIA Report to the SPCB or UTPCC for Public Consultation. (7) The post-project monitoring data collected through an environment laboratory duly notified under Environment (Protection) Act, 1986 shall also considered for expansion or modernization of the projects. (8) The EIA Report shall be prepared as per the generic structure given at Appendix-X, by the project proponent through an ACO, which are accredited for a particular sector and the category of project for that sector. (9) Draft EIA report shall be prepared for the purpose of public consultation and Final EIA Report for the purpose of appraisal.

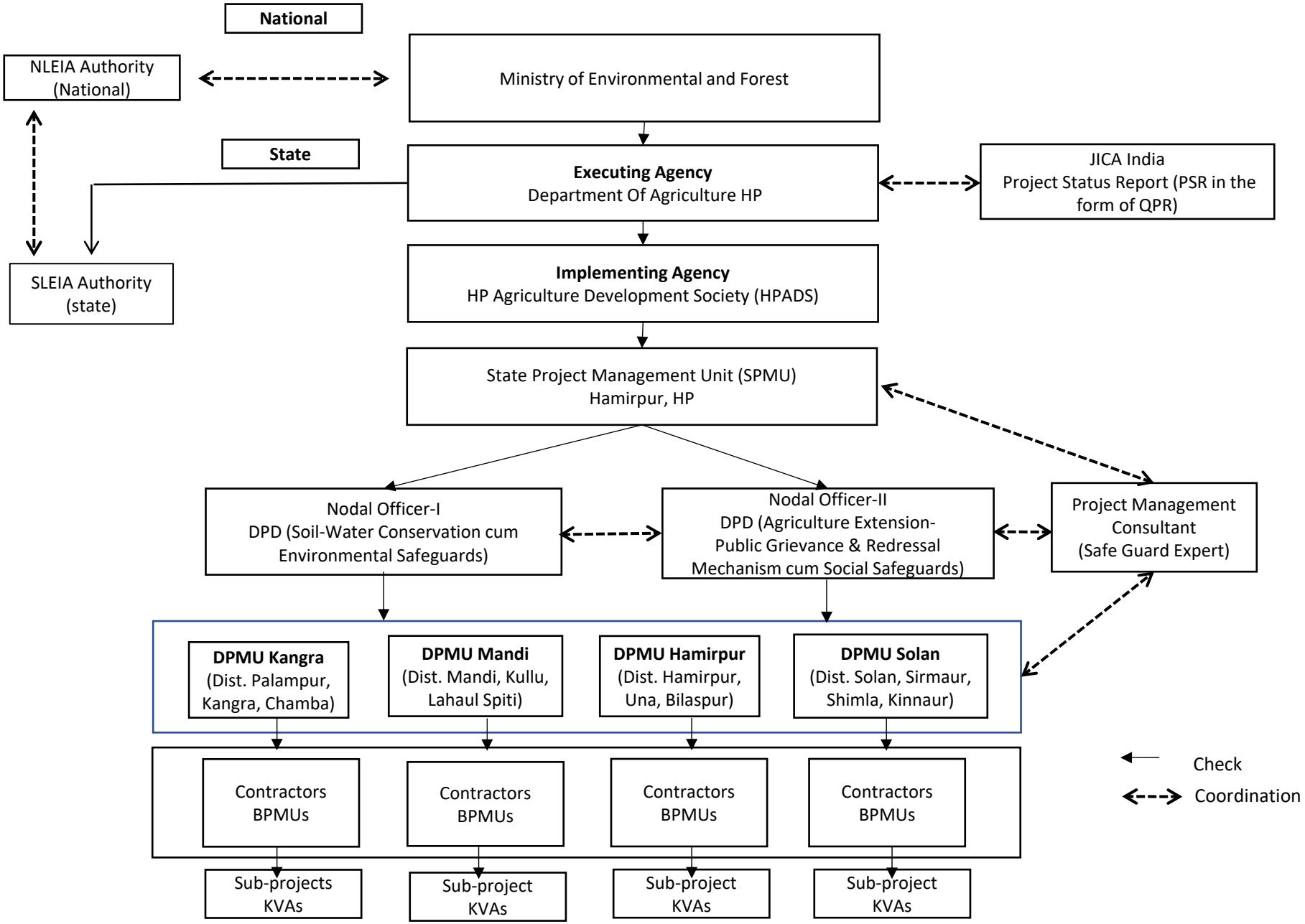
	(10) Disclosure of the accredited EIA Consultant Organization along with the EIA Coordinator and Functional Area Expert(s) involved in the environment impact assessment shall be included in the EIA Report in the format specified at AppendixXIII and they are accountable for the contents or data provided therein in addition to the project proponent. (11) No EIA Report shall be required for the projects listed under Category 'B2'. However, EMP Report as per the generic structure given at Appendix-XI shall be prepared through ACO and submitted along with the application.
Public Consultation	(1) The public consultation shall ordinarily have two components comprising of: a. A public hearing at the site or in its close proximity, district wise in case of the project area located in more than one district, to be carried out in the manner prescribed in the notification, for ascertaining concerns of local affected persons; b. Inviting responses in writing from other concerned persons having a plausible stake in the environmental aspects of the project; c. In addition, if required, based on the nature of project, public consultation through any other appropriate mode may be recommended by the Appraisal Committee, or the Regulatory Authority, on case to case basis; However, the Regulatory Authority may decide on the feasibility and requirement of Public Hearing and/or consultation in the case of defence projects being considered under sub-clause (7) of clause 5 of this notification. (2) All Category 'A' and Category "B1" projects of new or expansion proposals or modernization with capacity increase more than 50 percent shall undertake Public Consultation. Provided, the public consultation is exempted for the following:- a. modernization of irrigation projects falling under the item 4 of the Schedule; b. all projects falling under items 10(f), 16, 17, 19, 20, 21, 23, 24, 25, 27, 36, 40 of the schedule located within Notified Industrial Estates; c. all projects falling under item 42 and 43 of the schedule; d. all Category 'B2' projects and activities; e. all projects concerning national defence and security or involving other strategic considerations as determined by the Central Government; f. all linear projects under item 31 and 38, in Border Areas. g. All the off-shore projects located beyond the 12 Nautical Miles Provided further, that in all the projects under item 31 of the schedule, the public consultation shall be limited to the district (s), where the National Park or Sanctuary or Coral Reef or Ecological Sensitive Area is located. (3) Where a public consultation through public hearing is required, the project proponent shall submit a request letter in the specified format as given at Appendix-I to the concerned Member Secretary of SPCB or UTPCC, as the case may be, in whose jurisdiction the project is located, along with at least 10 hard copies and a soft (electronic) copy of the Draft EIA Report prepared in English; and at least 10 hard copies of summary of EIA Report in English and in the official language of the State or Union Territory or Regional language. (4) In case the project site is covering more than one District or State or Union Territory, the project proponent shall make separate requests to each concerned SPCB or UTPCC for holding the public hearing as per the procedure. (5) The public hearing including submission of proceedings of public hearing to the concerned Regulatory Authority, shall be completed by the SPCB or UTPCC concerned within a period of forty working days from date of receipt of the request letter from the project proponent. (6) In case the SPCB or UTPCC concerned does not undertake and complete the public hearing within the specified period, as above, the Regulatory Authority shall engage another public agency or authority which is not subordinate to the Regulatory Authority, to complete the process within a further period of forty working days, as per procedure laid down in this Notification. (7) If the public agency or authority nominated under the sub-clause (7) above reports to the Regulatory Authority concerned that owing to the local situation, it is not possible to conduct the public hearing in a manner which will enable the views of the concerned local persons to be freely expressed, it shall report the facts in detail to the concerned Regulatory Authority, which may, after due consideration of the report and other reliable information that it may have, decide that the public consultation in the case need not include the public hearing. (8) For obtaining responses in writing from other concerned persons having a plausible stake in the environment aspects of the project, the concerned SPCB or UTPCC shall invite responses from such concerned persons by placing the Summary EIA report prepared by the applicant along with a copy of the application in the prescribed form, on their website, within ten days of the receipt of a written request for arranging the public hearing. Confidential information including non-disclosable or legally privileged information involving Intellectual Property Right, source specified in the application shall not be placed on the web site. The Regulatory Authority concerned may also use other appropriate media for ensuring

	wide publicity about the project. The Regulatory Authority shall, however, make available on a written request from any concerned person the Draft EIA report for inspection at a notified place during normal office hours till the date of the public hearing. All the responses received as part of this public consultation process shall be forwarded to the project proponent through the quickest available means. (9) After completion of the public consultation, a copy of proceedings of public hearing will also be provided to the project proponent. The project proponent shall address all the material environment concerns expressed during this process, and make appropriate changes including mitigation plan in the draft EIA Report and the EMP. The final EIA report, so prepared, shall be submitted by the project proponent to the concerned Regulatory Authority for appraisal.
Appraisal	(1) The application, submitted by the project proponent, shall be scrutinized within fifteen working days from the date of its receipt, strictly with reference to the ToR prescribed for the project by the concerned Regulatory Authority. The inadequacies in the application shall be communicated online, or completed application shall be accepted online. (2) Every application, except for the matters falling under Category 'B2' unless specifically mentioned against the item in the schedule, accepted by the Regulatory Authority, shall be placed before the Appraisal Committee and its appraisal shall be completed within forty-five working days of the acceptance of the application. The recommendations of the Appraisal Committee, through the minutes of meeting, shall be displayed on the website of the concerned Regulatory Authority. (3) Every application for the matters falling under Category 'B2' unless specifically mentioned against the item in the schedule, on acceptance of application by the Regulatory Authority, shall be issued prior-EP through online system appending standard conditions applicable to those projects within fifteen working days from the date of application. In case of rejection of the application shall inform reasons for the same. (4) The appraisal in respect of cases, as per the sub-clause (2) of clause 15 of this notification, shall be made by Appraisal Committee in a transparent manner in a proceeding to which the project proponent shall be invited for furnishing necessary clarifications in person or through an authorized representative (not below the level of officer in Board of Directors) or through video conference. The project proponent may take assistance of the EIA Coordinator and Functional Area Expert(s) involved in the preparation of EIA report during appraisal, before the committee. On conclusion of this proceeding, the Appraisal Committee shall make categorical recommendations to the Regulatory Authority concerned either for grant of prior-EC on stipulated terms and conditions, or rejection of the application for prior-EC, together with reasons for the same. (5) In case the project is recommended for grant of prior-EC, then the minutes shall clearly list out the specific environment safeguards and conditions. In case the recommendations are for rejection, the reasons for the same shall also be explicitly stated. (6) The project proponent shall be informed at least ten days prior to the scheduled date of meeting of the Appraisal Committee, through online system regarding consideration of the proposal and agenda of the meeting. (7) No fresh studies shall be sought by the Appraisal Committee at the time of appraisal, unless new facts come to the notice of the Appraisal Committee and it becomes inevitable to seek additional studies from the project proponent and same shall be clearly reflected in the minutes of the meeting. (8) In case of the projects under column (4) of Item 42 of the Schedule having provisional certificate of Green Building, the proposals shall be considered on priority. (9) Ministry shall issue guidelines for the Corporate Environment Responsibility from time to time, envisaging slabs for new projects; expansion projects; modernization projects, proposed to be located in Critically Polluted Areas, Severely Polluted Areas, Other Areas, etc. (10) The proposal shall be placed before the Competent Authority within fifteen working days from the date of display of minute of the meeting of the Appraisal Committee for final decision. (11) The Competent Authority within another fifteen working days shall take final decision.
Monitoring	(1) The project proponent shall prominently advertise, at his own cost in at least two local newspapers, the fact that the project has been accorded prior-EC or prior-EP, as the case may be, along with the details of website of Regulatory Authority, where the copy of prior-EC or prior-EP, as the case may be, shall be displayed. Copy of the prior-EC or prior-EP, as the case may be, shall also be displayed permanently on the website of the company and relevant project. (2) The Regulatory Authority shall place the prior-EC or prior-EP, as the case may be, in the public domain on its designated portal. (3) The copies of the prior-EC shall be submitted by the project proponents to the following authorities within thirty days of grant of clearance, who in turn have to display the same for thirty days from the date of receipt: (a) District Magistrate / District Collector / Deputy Commissioner/s; (b) Zila Parishad or Municipal Corporation or Panchayats Union; (c) District Industries Office; (d) Urban Local Bodies (ULBs) / Panchayati Raj Institutions concerned / Development authorities; (e) Concerned Regional Office of the Ministry; and (f) Concerned Regional office of SPCB or UTPCC. (4) It shall be mandatory for the project proponent to submit compliance reports in respect of conditions stipulated in prior-EC or prior-EP, as the case may be, pertaining to previous financial year by 30th June,

	online through the designated portal. The yearly compliance report shall be submitted, each year, from the date of grant of prior-EC, till the project life, to the Regulatory Authority concerned. However, Regulatory Authority can seek such compliance reports at more frequent intervals, if deemed necessary. (5) In case of failure to submit yearly compliance reports in respect of the conditions stipulated in prior-EC or prior-EP, as the case may be, pertaining to previous financial year by 30th June, of the relevant financial year, a late fee of Rs. 500/- per day in case of Category 'B2' projects; Rs. 1000/- per day in case of Category 'B1' projects; and Rs. 2,500/- per day in case of Category 'A' projects shall be levied. If such non-submission of the compliance reports in respect of the stipulated conditions in priorEC or prior-EP, as the case may be, conditions continue for a period of consecutive three years, the prior-EC or prior-EP, as the case may be, shall be deemed to have been revoked without any notice in this regard. (6) All the compliance reports submitted by the project proponent shall be available on the website of the concerned Regulatory Authority. (7) The latest compliance report shall also be displayed on the web site of the project proponent. (8) The compliance monitoring of conditions prescribed in respect of prior-EC, for Category 'A' projects shall be carried out by the Regional office of the Ministry or Regional Directorate of CPCB. The monitoring report shall be uploaded on the designated web portal within fifteen days from the date of inspection. (9) The compliance monitoring of conditions prescribed in respect of prior-EC, for Category 'B1' and prior-EP for Category 'B2' projects, shall be carried out by the SPCB or UTPCC. The monitoring report shall be uploaded on the designated web portal within fifteen days from the date of inspection. (10) Notwithstanding above provisions, to supplement the efforts of the Ministry for monitoring through Regional office of the Ministry, Regional Directorate of CPCB, SPCB or UTPCC, the Ministry may empanel government institutions of national repute for carrying out compliance monitoring of conditions of prior-EC or prior-EP, as the case may be, of projects in a random manner. (11) The compliance monitoring shall be done inter-alia against the baseline information available in the EIA Report as appraised by Appraisal Committee, terms and conditions of the prior-EC or prior-EP, as well as other provisions, as may be specified by the Ministry, from time to time.

Source: Based on Draft EIA Notification (No. S.O.750(E) dated 17th Feb, 2020) of MoEF&CC, modified by the JICA Study Team (2020)

Attachment-10.4.1 Safeguard Flow



Attachment 10.4.2 Draft ESMS Checklist

No.	Questions (English)	Answer	Improvement Plan
1. Policy (Environmental and Social Policy)			
(1)	Does the executing agency have any formal environmental policy or procedures? If yes, please describe their outlines and provide appropriate documentation. If no, does the executing agency have any plan to set such policy or procedures?	The Executing Agency (EA), HPDOA does not have formal environmental policies or procedures to avoid negative impact on the natural and social environment. However, all activities undertaken by EA must be implemented in accordance with the relevant environmental laws, policies and procedures of GoI (defined by MoEF and others) and the state government of HP.	Social & Environmental Management Framework (ESMF) to be set out in Phase-II shall be implemented. The existing Indian and HP state legal/policy framework is sufficient for eliminating and mitigating serious adverse environmental and social impacts. The Project may involve certain sub-projects which may have minor environmental impacts (e.g. small-scale infrastructure development and constructions). Such activities would not require environmental clearance as per the legislations. ESAF is to be prepared which are the principal documents to define measures to avoid adverse environmental and social impacts.
(2)	Are there any types of subprojects in which the executing agency will not take part due to the environmental and social risks under the Project? (e.g., projects involving handling of hazardous wastes or removal of endangered plants or animals).	The Project and its activities and sub-projects are not anticipated to have any such environmental risks (e.g., handling of hazardous wastes or endangered plants or animals). Moreover, sub-projects within 5 km radius of sensitive areas and that required land acquisition have not been selected.	
2. Procedures (screening, category classification and review procedures)			
(3)	Does the financial intermediary / executing agency have any environmental procedures such as screening, categorization and environmental review? If yes, please describe what procedures will be taken, in detail under the Project.	The Indian legislation system provides clear guidelines and procedures for environmental safeguard. The EA is not directly responsible for implementation of environmental procedures such as screening, categorisation and environmental review as per prevalent laws and regulations as the nodal agency is DoE..	ESAF shall be the principal document, which will clarify the basis for detail procedures for screening, categorisation and environmental review of the Project and its activities. Additional supplemental documents to be prepared during the preparatory stage of the Project.
(4)	Please describe how you ensure that subprojects are implemented in compliance with the national	The Executing Agency will implement the Project through its Departmental Structure in the	ESMF shall be further reviewed in accordance with latest JICA requirements.

No.	Questions (English)	Answer	Improvement Plan
	laws and regulations and applicable JICA's requirements, during their planning, construction and operation stages.	Field (District and Block) for project implementation. Contractors will be hired through competitive bidding. The EA has a very elaborated legally binding contract document to be executed between the EA and Contractor. Stringent terms and conditions are already included in the Contract for violation of laws and rules of the land (Minimum wages, proper work place facilities, adoption of safety standards, use of quality materials, control of water, air and noise pollution, soil excavation, waste disposal etc.). Violations of conditions in the contract shall attract penalty for the Contractors. Stringent monitoring systems will be in place to ensure that there is no non-compliances with the laws and rules.	
(5)			
(6)			
3. Organization and Staff (institutional framework and staff allocation)			
(7)	Please provide us with the organization chart of the executing agency's Environmental and Social Management System (ESMS).	The organization chart in is shown in Appendix 1.	Organisational structure for ESAF implementation in the Project will be clarified at the initial stage of the Project.
(8)	Who is responsible for environmental and social management within the financial intermediary/executing agency? (name/role and title)	HP Agriculture Development Society is responsible to ensure implementation and monitoring and compliance or ESAF.	
(9)	Are there any staff with training for environmental and social considerations in the executing agency? If so, describe them.	There is no staff with training for environmental and social considerations in EA. Thus, in phase 2 it is proposed to have 2 SMS (DPDs) for environment and social safeguards, who will take care of all training aspects on env and	This will ensure institutionalization of environmental and social considerations within the organization as well as ensure post project continuity.

No.	Questions (English)	Answer	Improvement Plan
		social considerations.	
(10)	Are there any technical staff with an engineering/ industry background responsible for technical analysis for the Project?	Design Engineer and Construction Engineer within Project Implementing Agency and Supporting Engineer and Divisional Engineer in executing agency, DOA	
(11)	What experience, if any, does the executing agency have of hiring or dealing with environmental consultants?	It hired intermittent environmental PMC expert for 2 years in total during Phase 1.	
(12)	What was the budget allocated to the ESMS and its implementation during a year? Please provide budget details including staff costs and training as well as any actual costs. What was the budget allocated to the ESMS?	All costs associated with matters related to environmental and social safeguard will be covered by addressing relevant issues in the Project's approach or technical methodologies, thus, it normally does not incur as separate budget allocations. However, some budget allocation towards environmental and social considerations under the Project, mainly in the form of capacity building costs and cost for hiring agency/experts in the field of environment and social consideration may be additionally provided.	
4. Monitoring and Reporting			
(13)	Does the executing agency prepare environmental and social monitoring reports for the subprojects?	. The construction work under sub-projects would be implemented through contractors having detailed ToR with inherent mechanism for adherence to environmental and social considerations. Moreover, environmental and social monitoring of sub-project activities will also be conducted as part of the regular project monitoring.	
(14)	Please describe how the executing agency monitors the subprojects' social and environmental performance.	The Project's framework for M&E system will serve as the basis for carrying out environmental and social monitoring/ evaluation of sub-project activities.	

No.	Questions (English)	Answer	Improvement Plan
(15)	Is there an internal process to report on social and environmental issues to senior management?	There is no systematic monitoring and reporting process for environmental and social issues. However, issues arising from field-based programmes are reported to senior management as and when required. Particular issues may be highlighted when necessary and dealt with accordingly.	
(16)	Do you prepare any social and environmental reports? - For other multilateral agencies or other stakeholders - E&S reporting in the Annual Report	Environmental and social reports have not been prepared systematically by EA. Only impacts assessments on donor funded projects have been prepared by external consultants.	EA will prepare and submit monitoring reports to JICA on a regular basis. These reports shall contain designated sections on environmental and social aspects. The Project will include independent evaluations which will also assess the Project's implementation of the ESAF and environmental and social issues related to the Project.
5. Experience (results of the environmental and social management)			
(17)	Has the executing agency signed any national or international agreements or declarations concerning environmental issues?	International agreements or declarations on environmental issues have been signed by the Government of India and are thus applicable to the Project. The EA has not signed any such agreement/ declarations.	
(18)	Has the executing agency ever received any criticism of its environmental record? If so, what was the criticism?	EA has not received any such criticism so far.	
(19)	Does the executing agency carry out environmental audits of its properties to analyze health and safety issues, waste disposal, etc.?	The EA itself is not responsible for environmental audit.	
(20)	Please state any difficulties and/or constrains related to the implementation of the ESMS.	The EA still lacks experience in managing and monitoring environmental and social risks in a systematic way and it will be the principal challenge.	Through implementing the Project, establishing the proposed safeguards frameworks and measures assisted by relevant expert/specialist(s), and through specific trainings, EA will build their capacity and

No.	Questions (English)	Answer	Improvement Plan
			experience for managing and monitoring environmental and social risks
6. Need of Capacity Development and Improvement Plan			
Yes, the indicative capacity development programs are proposed in the ESAF.			

Attachment 10.5.1 Draft Environmental and Social Assessment Framework (ESAF)

Table of Contents

Draft Environmental and Social Assessment Framework (ESAF)

1 Objectives and Scope of ESAF

In the course of the design and implementation of the Project, two vulnerabilities within the society require to be carefully considered, that is, Environmental and Social vulnerabilities. Environmental vulnerability is a condition when the integrity of ecosystem is threatened by human activities or interference and/or natural causes, which could occur over spatial or temporal scales. Vulnerability could possibly increase with the intensity and frequency of human interventions and/or natural hazards. Social vulnerability is the helplessness or defencelessness of an individual or group of people who are typically socially excluded, underprivileged, often discriminated against and restricted to access benefits of development or opportunities offered through socio-economic enhancement schemes. Their social characteristics such as identity and social status, culture, economic status and practices, and social institutions, often results in their discrimination and segregation from the main stream.

The Environmental and Social Assessment Framework (ESAF) for the "Himachal Pradesh Crop Diversification Project Phase II (HPCDPPII)" has been prepared to act as the primary reference document that outlines the Environmental and Social Considerations (ESC) that will be dealt with the above vulnerabilities in project design and implementation.

1.1 Objectives of ESAF

The HPCDPPII in the selected project area aren't expected to have significant negative environmental impacts. Further, the Project is anticipated to bring social benefits for locals including vulnerable groups such as small scale and marginal farmers, landless/landed poor, Scheduled Tribes (ST), Scheduled Castes (SCs), Other Backward Classes (OBC), etc. in the project area. However, the Project could possibly lead to slight negative environmental and social impacts as well. In this regard, ESAF is prepared to assess the negative impacts and ensure that such impacts are safeguarded against in accordance with JICA's policies on environmental and social considerations in development projects, as well as relevant policies, laws and regulations of the country and the state.

Unlike a typical infrastructure development project, this Project is anticipated to have multi-sectoral interventions and activities, being implemented at several sites with many activities and many of these activities are yet to be defined in detail (site location, size/scope of the activity). In these circumstances, it would be inappropriate at this stage of project preparation to assess the environmental and social impacts and propose detailed management and mitigation measures. However, the Survey Team assessed the broad types of activities proposed and outlined procedures to manage and mitigate potential risks associated with the activity during the project implementation. Accordingly, ESAF which provides guidance on the appropriate management and mitigation measures against environmental and social risks was prepared as the main safeguards

instrument considering the existing environmental and social management systems in Indian and HP state as well as the JICA requirements.

1.2 Target Social Groups of ESAF

ESAF shall be applicable to all communities and peoples within the project area. The draft framework is designed to ensure their participation in the course of the project implementation and include as beneficiaries as well as to avoid/mitigate any impacts affected by the Project. **Table 1** indicates the key groups identified in ESAF to address environmental and social considerations. It should be noted that an individual or household may be categorised into more than one of the categories below;

Table 1 Key Targeted Social Groups of ESAF

Social Groups	Definition/ Description
Scheduled Tribes (STs)	According to the Article 342 of the Constitution, STs are the tribes or tribal communities or part of or groups within these tribes and tribal communities which have been declared as such by the President through a public notification. As per 2011 Census, tribal population in the country is about 8.6% of the total population, while in HP state, they represent 5.71% of the total population of the state. Eight tribal communities are notified in HP state, namely, i) Bhot, Bodh, ii) Bhot, Bodh, Gaddi, iii) Gujjar, iv) Jad, Lamba, Khampa, v) Kanaura, Kinnaura, vi) Lahaula, vii) Pangwala, and viii) Swangla, and all of these groups reside in the project area, in which the highest concentration is found in districts of Kinnaur, Lahaul and Spiti and blocks of Bharmaour and Pangi of Chamba district. Also, three areas are nominated as Scheduled Areas by Constitution Order 102, dated 21st November 1975; 1) Lahaul and Spiti district, 2) Kinnaur district, and 3) Pangi tehsil and Bharmour sub-tehsil in Chamba district.
Scheduled Castes (SCs)	Traditionally, there are four main castes and one category of the society falls outside the caste system, and occupy the lowest rank in the ritual hierarchy of Indian society. These communities were notified as the SCs as per provisions contained in Clause 1 of Articles 341 and 342/ Clause 24 of Article 366 under the Constitution of India which require special consideration for safeguarding their interests and to accelerate their socio-economic development. In HP state, there are 65 notified communities belonging to SCs. Unlike STs who live in isolated regions, major portion of the Schedule Caste population lives in scattered households or concentrated colonies with people of other caste groups, although there exists an invisible social segregation. The SCs comprise about 8.2% of the total population of the state. Highest distribution of SCs is in districts Sirmour (30.34%), Solan (28.35) and Shimla (26.51%).
Other Backward Classes (OBCs)	Other Backward Class (OBC) is a collective term used by GoI to classify castes which are socially and educationally disadvantaged; the Constitution of India describes OBCs as "socially and educationally backward classes". All tribal communities and castes deemed under article 341 and 342 of the constitution of India are considered backward classes and there are OBC, which are not scheduled. According to the Department of Social Justice and Empowerment and the Himachal Backward Classes Finance and Development Corporation, 48 communities belong to OBC. Social and educational backwardness has been identified as reasons due to which the OBCs also need special attention. OBC population constitutes about 13.51% of the total population of the state.
Small scale and marginal farmers	Small scale and marginal farmers tend to be more dependent on agriculture and are thus disproportionately impacted by agriculture extension activities. For various reasons, they may also be excluded from decision-making processes. In HP state, 23.87% of the rural population is considered to be below poverty line. The highest incidences of poverty are observed in Chamba district (54.15%), followed by Lahaul-Spiti (43.50%). Followed by Shimla (29.07%). Sirmaur (19.44%), Una (16.92%) and Kullu (16.24%) indicated the lowest figures. "Scaling the Heights (World Bank, 2015)", mentions successful reduction of the poverty rate regardless of gender and caste, both in the rural and urban areas. The report has highlighted that the poverty level in the rural areas of the state has declined from 36.8 % in 1993 to 8.5 % in 2011. This is better than any other state in the country, but still consideration on poor

Social Groups	Definition/ Description
	households are required as one of the marginalized groups in the society.
Landless Households	According to "The Himachal Pradesh Tenancy and Land Reforms Act, 1972" by Revenue Department, Government of HP, "Landless person" means a person who holding no land for agriculture purposes, whether as an owner or a tenant, earns his/her livelihood principally on manual labour on land and intends to take the profession of agriculture and is capable of cultivating the land personally. The landless households are often neglected from development interventions as targets are often focused on farmers who have land and assets.
Women and Female Headed Households	Women play a specific and differentiated role in terms of agricultural production (e.g. sowing, tending/weeding, marketing/selling produce, collection of NTFPs, craft production). In the recent past, along with the economic growth, literacy, education access to communication, banking services have improved amongst women. The proportion of women who have gone through ten or more years of education are much higher than the national average. On the other hand, women's work participation and ownership of a house/land still significantly behind in comparison to rest of India so that females traditionally have not inherited any lands. Female Headed Households should also be a key target group as they are a particularly vulnerable sub-group with typically limited asset/livelihood options.
Affected Persons/ Families	Criteria to be defined as "Affected Persons/ Families" are as follows; a) Whose land or other immovable property has been acquired, b) Which does not own any land, but family may be agricultural laborers, tenants with any form of tenancy or usufruct rights, share croppers or artisans, residing in the affected area for the last three years before acquisition of land, and who primary source of livelihoods has been affected due to acquisition of land, c) Whose primary source of livelihood, three years prior to acquisition of land, is dependent of forests or water bodies, and whose livelihood is affected due to acquisition of land, and d) Member of family who has been assigned land by the Government (central/ state) under any scheme, and such land has been acquired.
Displaced Families	Displaces Families mean any family, that has to be relocated and resettled from the affected areas to a new resettlement site *(* Family will include a person with his/her spouse, minor children, minor brother and sister dependent on him/her)*

Source: Prepared by JICA Survey Team (2020)

1.3 Structure of ESAF

ESAF of the Project is structured as follows:

i) **Project Summary Description** will describe the project objectives, proposed Project components and expected outcomes, phasing of Project, etc,

ii) **Environmental and Social Safeguard Policies of JICA:** briefly describes JICA's environmental and social safeguard policies, and clarifies how the Project shall be categorised and what types of measures will be required,

iii) **Existing Environmental and Social Management Systems**: Outline the legal and policy context for environmental and social safeguard in India as well as in the HP state,

iv) **Environmental and Social Considerations and Potential Impacts:** details-out the environmental and social considerations within the Project and assessment of positive and negative impacts,

v) **Environmental and Social Management Measures and Monitoring**: explains the procedures to be followed to manage and monitor environmental and social aspects, including the procedures for the preparation of environmental management plan and environmental monitoring plan,

vi) **Institutional Arrangement and Capacity Development for ESAF**: identifies the recommended institutional arrangement and capacity development and training requirements for effective implementation of ESAF,

vii) **Public Consultation Mechanism**: describes the mechanisms for public consultations including Free, Prior and Informed Consultation(FPIC) as one of important principles,

viii) **Grievance Redress Mechanism**: identifies the available and suggested mechanisms for grievance redress, and

ix) **Cost Estimation and Budget Allocation**: identifies the required cost to implement ESAF, with the estimation of the necessary human resources and capacity development programme, and its budget allocation.

2 Project Summary Description

Outline of the project is summarized as follows.

Table 2 Project Summary Description

Item	Description
Project Objectives	The objectives of the project are to increase farm income though promotion of crop diversification and/or value addition by improvement and development of rural infrastructure, value chain & market development and cultivation & farm management skills development.
Identified Project Area	The project targets 7,933 (ha)with 306 Minor Irrigation Projects spread over 12 districts in State of Himachal Pradesh
Proposed Project Components	There are four project components as described below. 1) Infrastructure development component 2) Farmers' support component 3) Value chain and market development component 4) Institutional development component
Project Implementation Structure	Department of Agriculture (DOA) Himachal Pradesh shall be fully responsible for project implementation. After completion of the project, Department of Agriculture would continue to be responsible for the efficient operation and maintenance of the assets created through the project. The Phase-I of the project has already established Project Management Unit (PMU) with headquarter at Hamirpur for smooth implementation, decision making & budgetary appropriations. H.P. Agri. Development Society has been registered as a autonomous body under Societies Registration Act. The Society has the Governing Council and Executive Committee to take necessary policy decisions. Three levels of PMU's shall be set up at State level, District level and Block level with different roles and responsibilities. State Project Management Unit at Hamirpur (SPMU): The State level unit shall handle the overall project planning, management, overall project coordination including with JICA, MOA & DEA, overall procurement management, financial management including collecting the expenditure statements from district & block level, Project Management Units (PMUs) and consolidate these for the reimbursement claims to JICA, monitoring and evaluation preparation, quarterly progress reports and Project Completion Report.

	District Project Management Units (DPMU): 4 District Project Management Units (DPMUs) shall be established at Kangra (Palampur), Mandi, Hamirpur, Solan. The main function of DPMU would be to conduct district level monitoring and supervision by PDCA cycle as well as by utilizing GIS & MIS system. They would also check quality of the works undertaken by Block Project Management Units (BPMUs), prepare designs, review DPRs and reporting to State Project Management Units. Block Project Management Units (BPMUs): Block Project Management Units (BPMUs) shall be created at 14 locations (3 in Kangra, 2 in Mandi, one each in Kullu, Lahaul, Hamirpur, Bilaspur, Una, Solan,Nahan, Chamba, Shimla (Theog and Rampur) to implement the project at the sub project level (to be updated based on the result of Appraisal).
Implementation Schedule of the Proposed Project	9 years from April 2021

Source: Prepared by JICA Survey Team (2020)

3 Environmental and Social Safeguard Policies of JICA

3.1 JICA Principles for Environmental and Social Considerations

The environmental and social safeguards policies of JICA are covered within the JICA Guidelines for Environmental and Social Considerations (2010), in which it is committed to ensure that human rights are respected and that environmental issues are seriously considered in its investments, projects and programmes, with the following principles:

- JICA is committed to address environmental and social issues in a prompt/ timely manner,
- Assess a wide range of environmental and social impacts in all JICA projects/programmes,
- Issues related to environmental and social must be considered from an early stage, from design and throughout the project cycle,
- Accountability and transparency are JICA's responsibility,
- Requirement of stakeholder consultation/participation in consideration of environmental/ social issues,
- Requirement for Information disclosure, and
- Implementation of the guidelines should enhance organizational capacity to ensure appropriate consideration, management and monitoring of environmental/ social issues.

3.2 Key Process Elements as per the requirements of JICA Guideline

Key processes in JICA projects related to environmental and social considerations are summarised below;

(1) Categorisation of Projects

Projects are categorised according to the scope/severity of the environmental and social impacts or

indicated as follows;

- ***Category A*:** Significant adverse impacts (e.g. Large-scale development/ infrastructure),
- ***Category B*:** Generally site-specific impacts, few impacts are irreversible, normal mitigation measures can be designed,
- ***Category C*:** Minimal/little adverse impact
- ***Category FI (Financial intermediary)*:** Substantial selection and appraisal of sub-projects after JICA approval of funding

The proposed Project is currently categorised as **'B'** as per the JICA Guidelines (2010), due to that the project is not located in a sensitive area, nor has sensitive characteristics, nor falls into sensitive sectors under the JICA guidelines for environmental and social considerations (April 2010), and its potential adverse impacts on the environment are not likely to be significant.

The Project is anticipated not to have significant negative impacts on the environment. Although it is not possible to precisely state which sub-projects will be executed in which specific location and scale, the Project will exclude "Category A", sub-projects with significant environmental impacts or risks. The following Tables show projects which are classified as Category A according to JICA guideline

Table 3 Projects Classified as Category A according to JICA Guidelines

Category	Sectors and Characteristics
1. Large-scale projects in the sensitive sectors	(1) Hydropower, dams, and reservoirs (2) Roads, railways, and bridges (3) Agriculture involving large-scale land clearing or irrigation
2. Project with the sensitive characteristics	(1) Large-scale involuntary resettlement (number of Displaced Persons is more than 200) (2) Large-scale land reclamation, land development, and land clearing (3) Large-scale logging
3. Projects in the sensitive areas or their vicinity	(1) National parks, nationally-designated protected areas (including areas for ethnic minorities and cultural heritage, etc. designated by national governments) (2) Areas with unique archeological, historical, or cultural value (3) Areas inhabited by ethnic minorities, with traditional ways of life, and other areas with special social value

Source: JICA Environmental and Social Guidelines (2010)

At the time of selection, finalisation and approval of sub-projects, respective sub-projects will be categorized as either "Category B" or "Category C" according to the scope and severity of the environmental and social impacts or risks.

(2) Potential Impacts Assessment

An array of environmental and social impacts and risks are taken into account with a view towards enhancing positive benefits and at the same time avoiding/mitigating negative impacts. **Table 4** indicates the required items to be assessed as potential environmental and social impacts respectively.

Table 4 Potential Impacts to be Assessed

Type of Impact	Items to be Assessed
Environmental Impact	On the natural environment transmitted through air, water & ground water, soils, waste, accidents, water usage, ecosystems, fauna and flora and trans-boundary impacts.
Social Impact	On farmers/people's lands, land acquisition and resettlement, economies, livelihoods, employment, social institutions, vulnerable groups, gender, indigenous peoples, children, health, cultural heritage, utilization of land and local resources, existing social infrastructures and services, equality of benefits and losses, local conflicts, working conditions, etc.

Source: Compiled by JICA Survey Team (2020) based on the JICA Guidelines for Environmental and Social Considerations 2010

(3) Information Disclosure and Consultation

Executing Agency (EA) of the Project shall monitor the sub-projects following the Environmental Monitoring Programme (EMoP) which are the requirement for only Category B sub-projects. Such sub-projects information on the environmental and social impacts is encouraged to disclose to all relevant stakeholders. Also, EA shall prepare annual report of the Project in which ESC relevant report will be incorporated as one chapter/section.

3.3 Compatibility with International Standards

JICA corroborates that projects do not deviate considerably from the World Bank's Safeguard Policies, and refers to it as a benchmark to the standards of international development agencies; to internationally recognized standards, or international standards, treaties, and declarations, etc. and to the good practices, etc. of developed nations as appropriate.

JICA also suggests international policies, procedures and standards such as the World Bank. Of relevance to the Project, Although JICA has particular trepidations with respect to Indigenous Peoples, it does not reflect a detailed policy with clear procedures for such peoples affected by the projects interventions, and refers to the World Bank Operational Policy 4.10 (OP4.10) on Indigenous Peoples. Thus, the contents and format of the safeguards framework elaborated for the Project follows that indicated in the World Bank OP 4.10, as requested by JICA for the preparation of the Project.

3.4 Requirements as per JICA Guidelines

As per the JICA guidelines, the following conditions are examined with respect to the project implementation. Financial intermediary or the executing agencies are mandated to comply with the following requirements:

a) Ensure appropriate environmental and social considerations,

b) Sufficiency of institutional capacity to confirm environmental and social considerations of the financial intermediary/ executing agency is sufficient; if requires adequate measures be taken to strengthen the capacity,
c) Financial intermediary or executing agency to assess potential positive and negative environmental impacts of sub-projects, takes appropriate measures to avoid, minimise, mitigate, or compensate for potential negative impacts, and promote positive impacts if any available,
d) Disclosure of the results of environmental reviews on its website after concluding agreement documents, and
e) Confirm with project proponents on the results of monitoring items that have significant environmental impacts. Project proponents are undertaking environmental and social considerations for projects that fall under Categories A, B, and FI.

4 Existing Environmental and Social Management Systems

The following section focuses on the existing environmental and social management systems in Indian and HP state and examines the probable manner for implementing the Project. Through the review by the Study Team, the existing legal and regulatory frameworks are confirmed to be in line with the requirement of JICA Guideline as well as the World Bank's Safeguard Policies. An overview of the environmental and social legal frameworks and institutional arrangements processes and procedures for its implementation are presented as follows.

4.1 Existing Systems for Environmental Management

In the Indian context, there are a number of laws, rules, regulations, notifications, and policies for addressing various issues related to control, protection and management of environment.

In the following sections, the processes adopted in India for environmental clearance is described. Under the ambit of EIA laws and regulations in India, all projects and activities requiring "Environmental Clearance" (EC) are classified broadly into two categories - **Category A** (hereafter refer to as "Indian EIA Category A") and **Category B** (hereafter refer to as "Indian EIA Category B"), which is based on the spatial extent of potential impacts on natural and man-made resources.

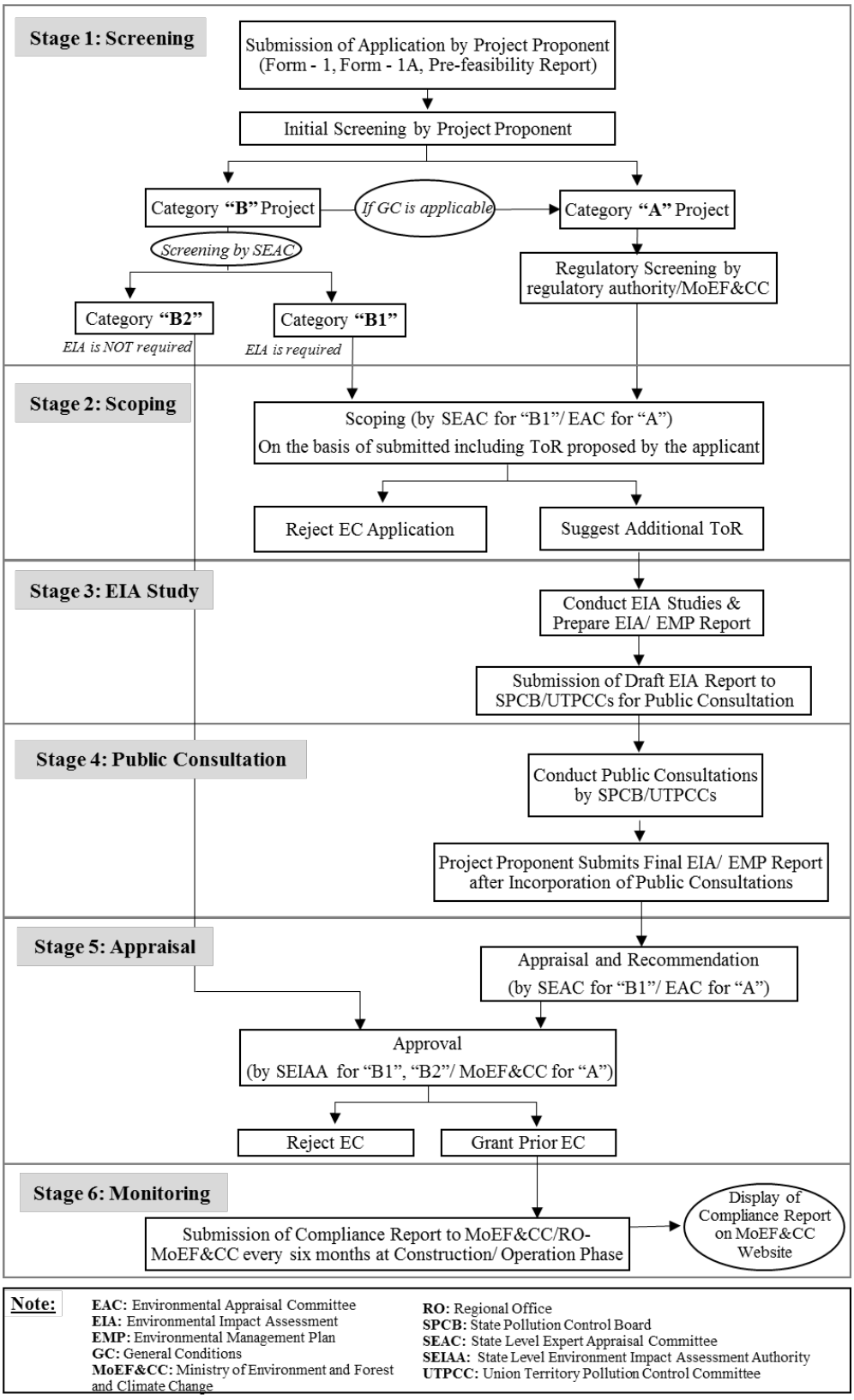
Indian EIA Category 'A' projects or development activities are mandated to conduct EIA studies along with conducting the "Public Consultation" as per the procedure stipulated in the Notification, and the environmental clearance is required from the Central Government or MoEF&CC.

Indian EIA Category 'B' projects fall under the purview of the state authority as mentioned in EIA notification 2006 and decentralized procedure is done. The Government of India has constituted the State Expert Appraisal Committee (SEAC) and State Environmental Impact Assessment Authority (SEIAA) committee for decentralized procedure of environmental clearance. The category 'B' projects are further divided into **Category 'B1'** (projects that require submitting

an EIA report) and **Category 'B2'** project activities which do not require EIA report.[1]

The stages in the environmental clearance procedure as per EIA notification 2006 is described in **Figure 1**. For convenience, stages of EIA have been divided into following six stages in this report; *1) Screening, 2) Scoping, 3) EIA Study, 4) Public Consultation, 5) Appraisal, and 6) Monitoring.*

[1] Source: EIA Notification 2006 and http://www.sciencebeing.com/2012/10/eia-notification-and-its-implementation-in-india/



Source: Prepared by JICA Survey Team (2020) based on EPA 1984 and Notification 2006 and Amendments, MoEF

Figure 1 Prior Environmental Clearance Process as per Indian EIA Law

4.2 Existing Systems for Social Management

JICA concerns that development projects are implemented with special attention to vulnerable groups such as the poor, landless/landed poor, indigenous peoples (or STs in India) and women. Rights of local communities and STs should be respected in all interventions.

The potential negative social impacts are much lower compared with the large infrastructure projects which involve physical displacement and involuntary resettlement, but still there is a possibility to negatively impacts the local communities on their livelihoods, loss of access, ownership or use rights, and increased conflicts on agriculture lands. Therefore, Relevant Social Policies, Laws and Regulations in Indian and Himachal Pradesh identifies some of the main relevant policies, laws and regulations with respect to addressing social issues and concerns, for the types of activities that have been proposed under the Project. The Project will involve the local communities to work through their respective village level implementation bodies in the designated project areas so that the relevant labour laws are also listed up.

In the following sections, the procedures for land acquisition and involuntary resettlement applied in India are presented.

(1) Land Acquisition and Involuntary Resettlement

"The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 [No. 30 of 2013] dated 26th September 2013" (RFCTLARR Act 2013), came into force on 01-Jan-2014, is the legal foundation for all matters related to land acquisition and involuntary resettlement in the country.

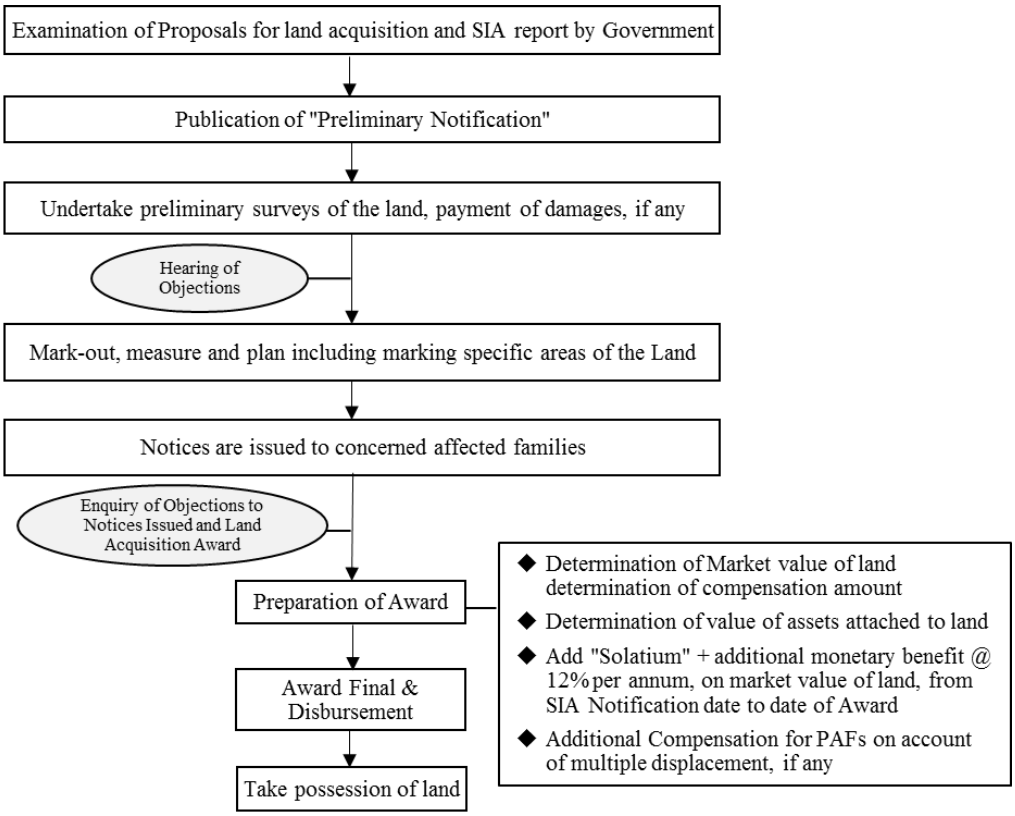
According to the Act; it ensures "a humane, participative, informed and transparent process for land acquisition for the purpose of industrialisation, development of essential infrastructural facilities and urbanisation, which is in consultation with the local self-government institutions and Gram Sabhas established under the Constitution".

Also, the Act ensures that the negative impacts on the land owners and other affected families shall be minimised with the provision with a just and fair compensation to the affected families, leading to an improvement in their socio-economic status for their rehabilitation and resettlement.

The state government of HP has notified the HP Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement, Rules 2015, dated 27 Jan 2015. As per this Rule, the state government shall (i) identify, establish and build a database of Social Impact Assessment (SIA) resource partners and practitioners, who will be responsible to ensure that SIAs are commissioned and conducted with project specific terms of reference, (ii) the state government will thereafter recommend an area for acquisition depending on the SIA report with the bearing that minimal adverse impact is suffered by the people, (iii) written consent will be sought from all individuals who are opposing any project; such persons will be asked to record their objections.

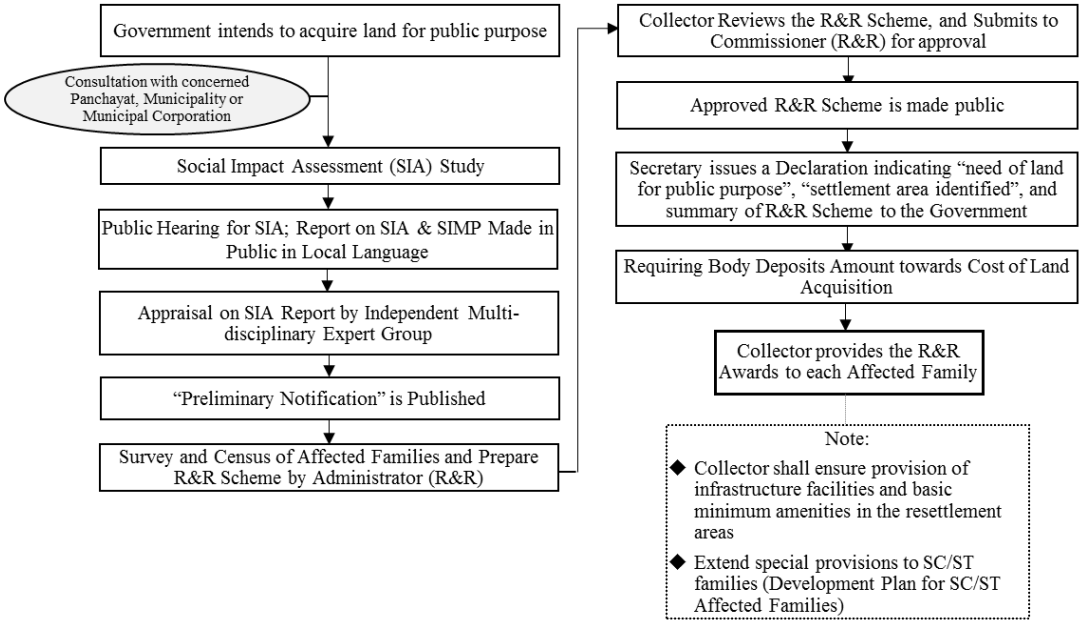
The processes involved in land acquisition and involuntary settlement are depicted in **Figure 2** and

Figure 3 respectively.



Source: JICA Survey Team (2020) based on information from RFCTLARR Act 2013and subsequent Rules

Figure 2 Flow Diagram for Land Acquisition Process



Source: Compiled by JICA Survey Team (2020) based on information from RFCTLARR Act 2013and subsequent Rules

Figure 3 Flow diagram for Resettlement and Rehabilitation

4.3 Existing Agencies for Environment and Social Management System

Department of Agriculture in the state government of HP (DoA), as the Executing Agency (EA), shall be responsible for the implementation of the entire Project, while the FPOs and their respective KVAs are to control and support the project activities in their lands from farmers perspective. Key gaps and shortfalls identified in each institution in comparison to international standards as indicated in the JICA Guidelines are summarised in **Table 5**.

Table 5 Key Gaps and Shortfalls in Comparison to the Standards in the JICA Guidelines

Executing Agency/ Body	Key Gaps and Shortfalls	Possible Gap Filling Measures
Executing agency (General body of autonomous society)	- Prior consultations with beneficiaries and project-affected communities is limited - Insufficient appraisal of environmental and social considerations prior to implementation (weak baseline for impact evaluation) - Restricted procedures for environmental screening and subsequent management of environmental risks associated with small-scale construction and other activities with potential adverse impacts - Inadequate monitoring of safeguard processes and procedures	- Application of ESAF - Implementation of Capacity Development Plan for Environmental and Social Safeguards - Engagement of Environmental and Social Consideration Expert/ Specialist(s)
HPSAMD/ SAU/ SAMETI	- Inadequate awareness of potential adverse environmental impacts - Restrictive comprehension of safeguard processes and procedures - Insufficient appraisal of environmental and social considerations prior to implementation (weak baseline for impact evaluation) - Inadequate monitoring of safeguard processes and procedures	- Application of ESAF - Implementation of Capacity Development Plan for Environmental and Social Safeguards - Engagement of Environmental and Social Consideration Expert/ Specialist(s)

Source: JICA Survey Team (2020)

DoA does not have any system for environment and social management, for screening, managing and monitoring environmental and social risks. Thus, it is recommended to incorporate subject matter experts and specialist within the SPMU to establish and institutionalise ESMS within the project, supported by PMC in charge of environmental and social safeguards for compliance of the required environmental and social safeguards, that further described in **Section 7** of this document

5 Environmental and Social Considerations, Potential Impacts and Mitigation Measures

As mentioned above, it is impracticable at this survey phase to assess the detailed environmental and social impacts and propose management and mitigation measures for each sub-project level which are not yet defined in detail. Therefore, in this section, the potential environmental and social impacts for proposed broad types of activities are assessed and mitigation measures are proposed through ESMS checklist (**Attachment II**), and component-wise potential deleterious environmental and social impacts assessment (**Table 6** and **Table 7**). The purpose of the initial assessment is to summarise the potential (especially negative) impacts which could be referred when Environmental Management Plans (EMPs) as well as Environmental Monitoring Plan (EMoP) are required to prepare. Also, EA, i.e. PMUs, can refer these documents at the screening and selection stage of sub-projects as reference documents as well as during construction

phase/implementation which indicate major points to be concerned from ESC perspective.

5.1 Environmental Scoping and its Potential Impacts

(1) Environmental Scoping

JICA guidelines indicate a wide range of environmental considerations that are required to be taken into account. Initial scoping identified the following impacts on the natural environment to be assessed;

- Air, Water, Waste and Soils (resulting from infrastructure activities and agricultural chemical use)
- Ecosystems (especially fauna and flora, afforestation, sites of importance to biodiversity conservation and protected areas)

The purpose of scoping is to identify the potential environmental and social impacts caused by the Project based on available secondary data and information, and preliminary site reconnaissance.

(2) Assessment of Potential Environmental Impacts

i) Positive Environmental Impacts

The proposed Project will achieve crop diversification and high added value by supporting agricultural developments such as small-scale irrigation and access farm roads as well as marketing promotion and strengthening agricultural extension services, and will improve livelihoods for the farmers. The associated activities are expected to present some environmental benefits, including;

- Decrease land erosion through catchment area treatment,
- Forest conservation with reduction of illegal logging,
- Reduction in accident at rough access farm roads and unstable irrigation structures,
- Enhancements in protection of protected areas,
- DoA to be well equipped and strengthened to manage sound agriculture extension with active participation of an empowered & organized farmers.
- Reduce unnecessary conflict between human and wild animal by providing the fence around cultivated area

ii) Negative Environmental Impacts

Table 6 below depicts potential deleterious environmental impacts associated with each project component. The table includes all aspects of implementation components, including project management, monitoring and evaluation components. Specific mitigation measures to the project components and activities are also indicated and these measures will be implemented through ESAF, especially through EMP and EMoP.

5.2 Social Scoping and Potential Impacts

(1) Social Scoping

JICA Guideline specifies a wide range of social aspects to be considered. Initial scoping identified the following social impacts to be assessed:

- land acquisition
- Poverty, vulnerability and loss of livelihoods
- Specific impacts on Scheduled Castes (SCs), Scheduled Tribes (STs), Other Backward Classes (OBC), etc.

(2) Assessment of Potential Social Impacts

i) Positive Social Impacts

The primary objective of the Project is to achieve crop diversification and high added value. It will also focus on livelihoods of the local communities, thus it is anticipated to provide various social benefits that would include;

- Improvement of physical capital for rural communities, including poor, with the help of renovation upgraded agricultural infrastructure,
- Income opportunities from agriculture products would result in enhanced financial capital,
- Well managed agriculture land and marketing would improve livelihood of the farmers,
- Increase in income levels of people,

ii) Negative Social Impacts

Table 7 details-out the potential deleterious social impacts or risks associated with each project component. Impacts on the social setting often over-weigh the environmental risks associated with the project activities. The project area includes a diverse variety of tribal communities, transhumance (also designated as STs), the SCs and other farmers, vulnerable groups including women, widows, destitute, poor, landless, etc., on whom potentially significant social safeguard issues could be linked with respect to their lands and impacts on their livelihoods.

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Table 6 Potential Deleterious Environmental Impacts

Component	Sub-Component	Potential Environmental Concerns	Mitigations Measures/ Suggestions
Component 1: Irrigation system	1.1 Minor irrigation 1.2 Micro irrigation systems	- Vegetable farming may entail more use of fertilisers and pesticides; Use of chemical fertilizers, insecticides and pesticides may seep into ground water and contaminate well water (drinking water).	- Ensure judicious use of chemical fertilizers, insecticide/ pesticides - Ensure use of bio fertilizers and insecticides/ pesticides - Under Farmers Support Program, the Project will be promoting the following- i) promotion of organic farming, ii) promotion of optimum use of pesticides under Integrated Pest Management (IPM) and biological control of pest and diseases, iii) promotion of farming practices to reduce soil erosion, iv) promotion of optimum quantities of farm inputs such as seeds and fertilizers.
		- Purchase, storage and disposal of chemical fertilizers and pesticides in the form of fire retardants may pose environmental concerns and contamination of the site	- Proper storage and disposal of chemical fertilizers and pesticides as prescribed by vendor and safety aspects
		- Digging top soils for installation of irrigation system may loosen top soils	- Ensure dug-up soil is re-utilized - Ensure construction materials are properly disposed
		- Construction works may lead to air and noise pollution - Construction works may lead to smoke and dust from construction sites - Water mixed with concrete, oil from construction equipment may contaminate nearby agriculture lands, water sources and channels, agricultural fields, etc. - Construction worker's labour camps may lead to deterioration of environment	- Construction equipment to be serviced regularly and installed with noise mufflers and resonators - Sprinkling of water in the construction sites and nearby areas - Ensure proper storage of and control on spillage of diesel, machine lubricants, and other oils - Judicious use of water and containment of water from construction site - Proper disposal of solid wastes from labour camps - Proper disposal of waste water from labour camps - Provision of fuel for cooking and heating to avoid cutting from forests - After construction activities, proper disposal or removal of left-out construction materials and equipment
		- There is a possibility that extraction of large volume may cause subsidence	- Tube wells will be undertaken only after they have been deemed feasible by the Ground Water Organisation of the IPH Department of the concerned area
		- There is a possibility that installation of structures will block the movement of the migratory fish species	- The minor irrigation structures are proposed mainly in perennial streams and tributaries of rivers where fishing activities are rarely undertaken. However this will need to be confirmed in selection of sources and where fishing activities are found
		- Over usage of ground water to decline the water table in the respective area or respective season	- Prepare firm regulation among KVA to stop over usage of irrigation water - KVA monitor the irrigation water use regularly.

Component	Sub-Component	Potential Environmental Concerns	Mitigations Measures/ Suggestions
Component 2: Catchment area treatment	2.1 Wire Crates 2.2 Silt Retention Structure 2.3 Vegetation	- Construction works may lead to air, water and noise pollution - Construction works may lead to smoke and dust from construction sites - Water mixed with concrete, oil from construction equipment may contaminate nearby agriculture lands, water sources and channels, agricultural fields, etc. - Construction worker's labour camps may lead to deterioration of environment	- Construction equipment to be serviced regularly and installed with noise mufflers and resonators - Sprinkling of water in the construction sites and nearby areas - Ensure proper storage of and control on spillage of diesel, machine lubricants, and other oils - Judicious use of water and containment of water from construction site - Proper disposal of solid wastes from labour camps - Proper disposal of waste water from labour camps - Provision of fuel for cooking and heating to avoid cutting from forests - After construction activities, proper disposal or removal of left-out construction materials and equipment
		- Use of non-native and exotic species may have a negatively impact the bio-diversity	- Ensure use of native species - Ensure propagation of native species
		- There is a possibility that installation of structures will block the movement of the migratory fish species	- The silt retention structures are proposed mainly in perennial streams and tributaries of rivers where fishing activities are rarely undertaken. However this will need to be confirmed in selection of sources and where fishing activities are found
Component 3: PV system	3.1 Solar Pumping 3.2 Solar/Electric Fencing	- Construction works may lead to air, water and noise pollution - Construction worker's labour camps may lead to deterioration of environment	- Construction equipment to be serviced regularly - Proper disposal of solid wastes from labour camps - Provision of fuel for cooking and heating to avoid cutting from forests - After construction activities, proper disposal or removal of left-out construction materials and equipment
Component 4: Access farm road	4.1 Access farm roads	- Construction works may lead to air, water and noise pollution - Construction works may lead to smoke and dust from construction sites - Water mixed with concrete, oil from construction equipment may contaminate nearby agriculture lands, water sources and channels, agricultural fields, etc. - Construction worker's labour camps may lead to deterioration of environment	- Construction equipment to be serviced regularly and installed with noise mufflers and resonators - Sprinkling of water in the construction sites and nearby areas - Ensure proper storage of and control on spillage of diesel, machine lubricants, and other oils - Judicious use of water and containment of water from construction site - Proper disposal of solid wastes from labour camps - Proper disposal of waste water from labour camps - Provision of fuel for cooking and heating to avoid cutting from forests - After construction activities, proper disposal or removal of left-out construction materials and equipment

Component	Sub-Component	Potential Environmental Concerns	Mitigations Measures/ Suggestions
		- There is a possibility that installation of roads will cause impacts, such as destruction of forest	- This will be very minimal as most roads are proposed on existing foot tracks that cut across barren forest land, but care will be taken to avoid vegetated forest land
Component 5: Building construction	5.1 Seed centre 5.2 Research center 5.3 Terminal market complex	- Construction works may lead to air, water and noise pollution - Construction works may lead to smoke and dust from construction sites - Water mixed with concrete, oil from construction equipment may contaminate nearby agriculture lands, water sources and channels, agricultural fields, etc. - Construction worker's labour camps may lead to deterioration of environment	- Construction equipment to be serviced regularly and installed with noise mufflers and resonators - Sprinkling of water in the construction sites and nearby areas - Ensure proper storage of and control on spillage of diesel, machine lubricants, and other oils - Judicious use of water and containment of water from construction site - Proper disposal of solid wastes from labour camps - Proper disposal of waste water from labour camps - Provision of fuel for cooking and heating to avoid cutting from forests - After construction activities, proper disposal or removal of left-out construction materials and equipment
		- There is a possibility that construction of the buildings will cause impacts, such as destruction of forest	- This will be very minimal as most roads are proposed on existing foot tracks that cut across barren forest land, but care will be taken to avoid vegetated forest land

Source: Compiled by JICA Survey Team (2020)

Table 7 Potential Deleterious Social Impacts

Component	Sub-Component	Potential Social Concerns	Mitigations Measures/ Suggestions
Component 1: Irrigation system	1.1 Miner irrigation 1.2 Micro irrigation systems	- Following activities on private lands may result in formal acquisition of land, loss of agricultural production, reduce income levels; ✓ Establishment of facilities ✓ Civil engineering structures ✓ Construction of new access roads/ paths	- Ensure that private or lands held by community by virtue of customary traditions are avoided which may result in formal land acquisition and loss of livelihoods - Ensure active participation of beneficiary and affected community members in the process of the identification of the locations - Avoid and/or mitigate social risks, if any, through the process of consultations and participation
		- Drinking water needs are affected by the proposed project as in Himachal Pradesh the streams also sometimes the main sources of drinking and domestic water in the lean seasons	- Wherever there are IPM schemes downstream/upstream of the source of the proposed project clearance is being sought from the IPM. Also during community meetings the issue is being discussed and adequate measures are being taken to avoid any adverse impact on their drinking water source
		- Exclusion of vulnerable groups from project activities and benefits	- Identify specific activities for marginalized groups such as landless, poor households, female headed households, women, etc. - Specify minimum quota for selection of SCs, STs, and other vulnerable groups such as women, women headed households, landless, small scale and marginal farmers, etc., as beneficiaries for livelihood development activities
		- Disturbance and inconvenience from air and noise pollution, dust resulting from construction activities	- All construction equipment to be regularly serviced, installation of noise mufflers and resonators, etc., to control air pollution, noise and vibrations from construction equipment
		- Contaminated water from construction sites may pollute water sources, water channels, agricultural fields, plantations, etc., resulting in risk to health and reduction of incomes	- Sprinkling of water in the construction sites and nearby areas to control dust - Judicious use of water to control contaminated water from construction site from run-off into agricultural fields, water sources, etc.
		- Incestuous relationships between local community and construction workers resulting in spread of Sexually transmitted diseases, AIDS/ HIV, etc.	- Ensure medical check-up for laborers before commencing work in the construction sites, regular health check-ups thereafter
		- Unfair distribution of water causes the social disturbance in the area	- Prepare firm regulation of irrigation water use among the KVA and KVA monitor it.
Component 2: Catchment area treatment	2.1 Wire Crates 2.2 Silt Retention Structure 2.3 Vegetation	- Vegetation activities on private lands may result in formal acquisition of land	- Ensure that private or lands held by community by virtue of customary traditions are avoided which may result in formal land acquisition and loss of livelihoods - Ensure active participation of beneficiary and affected community members in the process of the identification of the locations - Avoid and/or mitigate social risks, if any, through the process of consultations and participation

Component	Sub-Component	Potential Social Concerns	Mitigations Measures/ Suggestions
Component 3: PV system	3.1 Solar Pumping 3.2 Solar/Electric Fencing	- Installation of PV system on private lands may result in formal acquisition of land	- Ensure that private or lands held by community by virtue of customary traditions are avoided which may result in formal land acquisition and loss of livelihoods - Ensure active participation of beneficiary and affected community members in the process of the identification of the locations - Avoid and/or mitigate social risks, if any, through the process of consultations and participation
		- Conflicts within the community individuals and institutions may arise on benefit sharing	- Ensure cohesion among community institutions, immediate resolution of conflicts and redress of grievances
		- Exclusion of vulnerable groups from project activities and benefits	- Identify specific activities for marginalized groups such as landless, poor households, female headed households, women, etc. - Specify minimum quota for selection of women, SCs, STs, and other vulnerable groups such as women, women headed households, landless, poor/ near poor, etc., as beneficiaries for livelihood development activities
		- There is a possibility that the project will cause significant impacts, such as extensive alteration of existing land uses, changes in sources of livelihood	- In some places some private land or common land may need to be secured. Care will be taken to use non-cultivable land and minimise the use of farmland. Marginal area from near the farm boundaries on either side of existing paths may need to be secured. Acquisition of land will be done with the full consent of the affected farmers and the concerned communities
Component 4: Access farm road	4.1 Access farm roads	- Disturbance and inconvenience from air and noise pollution, dust resulting from construction activities	- All construction equipment to be regularly serviced, installation of noise mufflers and resonators, etc., to control air pollution, noise and vibrations from construction equipment

Component	Sub-Component	Potential Social Concerns	Mitigations Measures/ Suggestions
		- Road construction activities on private lands may result in formal acquisition of land	- Ensure that private or lands held by community by virtue of customary traditions are avoided which may result in formal land acquisition and loss of livelihoods - Ensure active participation of beneficiary and affected community members in the process of the identification of the locations - Avoid and/or mitigate social risks, if any, through the process of consultations and participation
Component 5: Building construction	5.1 Seed centre 5.2 Research centre 5.3 Terminal market complex	- Building construction activities on private lands may result in formal acquisition of land	- Ensure that private or lands held by community by virtue of customary traditions are avoided which may result in formal land acquisition and loss of livelihoods - Ensure active participation of beneficiary and affected community members in the process of the identification of the locations - Avoid and/or mitigate social risks, if any, through the process of consultations and participation
		- Disturbance and inconvenience from air and noise pollution, dust resulting from construction activities	- All construction equipment to be regularly serviced, installation of noise mufflers and resonators, etc., to control air pollution, noise and vibrations from construction equipment
		- There is a possibility that the project will cause significant impacts, such as extensive alteration of existing land uses, changes in sources of livelihood	- In some places some private land or common land may need to be secured. Care will be taken to use non-cultivable land and minimise the use of farmland. Marginal area from near the farm boundaries on either side of existing paths may need to be secured. Acquisition of land will be done with the full consent of the affected farmers and the concerned communities

Source: Compiled by JICA Survey Team (2020)

6 Environmental and Social Management Measures and Monitoring

ESAF has been prepared to ensure that potential adverse environmental and social impacts associated with the Project are either avoided or minimised in line with the JICA Guideline as well as India and HP's relevant policies, laws and regulations. ESAF targets at managing the potential unfavourable and deleterious impacts, with the help of simple procedures to expedite appropriate environmental and social management.

An EIA study would not be required for the entire Project, however, the Project may need to be evaluated from the environmental and social risk perspective before implementation of sub-projects. Overall the proposed project activities do not have any negative environmental impact as they include minor irrigation schemes and small connecting road etc. On the other hand, the exclusion criterion also says that the sub-project areas will be outside eco-sensitive zones defined by the Forest Department. In general, the project is not considering any activity within eco-sensitive zones from the boundary of the Wildlife sanctuary/National parks and will be further checked with Forest Department whether the sub-project areas are within "notified" eco-sensitive zones or not.

All sub-projects will be screened and Category A sub-projects are excluded mentioned in Section 3.2 (Table.3). Sub-projects categorized as B or C will be implemented and the criteria for Category B and C in JICA Guidelines are as follows.

Category B: Projects are classified as Category B if their potential adverse impacts on the environment and society are less adverse than those of Category A projects. Generally they are site-specific; few if any are irreversible; and in most cases normal mitigation measures can be designed more readily.

Category C: Projects are classified as Category C if they are likely to have minimal or little adverse impacts on the environment and society (no involuntary resettlement).

Generally, JICA's criteria to be Category C is as follows.

- Environmental and social negative impacts are minimal or nothing,
- No land acquisition and involuntary resettlement, and
- Project area does not correspond to "Illustrative list of sensitive areas" written in Appendix 3 of JICA Guidelins

If a project satisfys above three criteria, the project becomes Category C.

The following sections indicate the further outline of important procedures/ requirements of ESAF as below;

- Screening and Selection of Sub-Projects (Categorization),
- Environmental and Social Assessments (Category B),
- Preparation of Environmental Management Plan (Category B),
- Preparation of Environmental Monitoring Plan (Category B), and

- Implementation and Monitoring of Sub-projects (Category B).

6.1 Screening and Selection of Sub-Projects

Generally, the guidelines for selection of sub-project reinforce the key objectives of the Project. Specific sub-projects will be selected based on the preferences of the farmers/ needs and mandate of the project/ HPADS/ DoA, thus the guidelines should not be too prescriptive in terms of defining what a given farmers/DoA can and cannot do. At the same time, exclusion criteria should be clearly shown to eliminate sub-projects that may cause potentially significant adverse environmental impacts, resulting in the requirement of EIA.

The categorisation (Category B or C) of sub-project as per the JICA Guideline and exclusion criteria will be conducted by SPMU prior to the commencement of the Project or at the early stage of the preparatory work. In accordance with the JICA Guidelines, tentative exclusion criteria have been developed and are summarised in the **Table 8.**

Table 8 Sub-project Exclusion Criteria

Component	Exclusion Criteria for Sub-project
1. Overall	- likely to have major adverse impacts on the environment - fall into "Category A[2]" as per the JICA Guideline.
2. Natural Environment	- use of fertilizers and pesticides banned by WHO (Classes IA, IB and II) - activities conducted inside protected areas such as national parks/ wildlife sanctuaries - likely to cause damage to wildlife and their habitats - planting of non-native or invasive or exotic species of trees, shrubs or plants - felling of trees on forest - deteriorate physical environment (pollution)
3.Social Environment	- child labour - could lead to the exploitation of women - acquisition of private land and/or resettlement - cause damage to places of religious importance, historical monuments or cultural properties

Source: JICA Survey Team (2020)

6.2 Environmental and Social Assessments

Although, the Project is not anticipated to bring-out deleterious environmental and social impacts, yet it is suggested to conduct Environmental Assessment (EA) and Social Assessment (SA) for specific sub-project classified as Category B, which shall be conducted after the screening and selection procedures. DPMU under the guidance/direction of SPMU as well as support/ supervise of DoE shall determine the necessity of the assessments, considering the types of potential adverse impacts of the sub-projects. The assessment results will be utilised for the preparation of EMP/EMoP. The following sections describe the key tasks for the assessments and indicative contents of the reports.

(1) Environmental Assessment

The main purpose of EA is to help understand the issues and risks associated with environmental aspects, and its resultant impacts on the target population. Regular monitoring of environmental

[2] Though sub-projects which fall into the "Category A" as per the JICA Guideline are not anticipated in the Project, the criteria of the Category A is mentioned in Section 3.2 Table.3.

parameters such as air and water quality, noise levels, degradation of forests, soil erosion, solid waste disposal, disposal of sewage, etc., will enable the Project to understand the temporal changes in environmental conditions. Such monitoring activities would enable the Project to devise short/ long-term, recommendations, strategies and mitigation measures to address the concerns and issues that affect environment.

EA plan will be prepared by EA, assisted by ESCE hired by SPMU providing reasonable details outlining the objectives, contents, methods and schedule for its implementation. **Table 9** specifies key tasks for EA.

Table 9 Key Tasks for Environmental Assessment

No.	Tasks	Descriptions
1	Describe Environmental Setting	It will address the existing environmental setting, in terms of physiography and geology, land-use patterns, dependence on agriculture, ambient air quality, noise levels, water quality, socio-economics, etc.
2	Legal and Regulatory Environmental Consideration	Provides an account of the existing legal and regulatory milieu, compliance with multilateral funding agencies, such as World Bank, JICA, shortfalls, if any, etc.
3	Impacts Assessment and Mitigation Measures	It will describe all the activities/ sub-projects that have potential to impact the environment in a deleterious manner, assess and analyse in-depth various potential negative impacts related activities/ sub-projects, provide mitigation measures environmental risk and vulnerabilities.
4	Devise Strategies to Manage and Monitor Environmental Concerns and Parameters	Provide strategies to manage and monitor potential environmental concerns and parameters. It will also provide roles and responsibilities of various key positions, institutions, bodies that will manage and monitor the control and protection of environmental aspects, etc. It also examines the opportunities for community involvement in project preparation and implementation, the existing and proposed framework for property rights/ access, and sustainable management and monitoring of environment.
5	Recommendations for Project Design and Implementation Arrangements	It reviews proposals for project design and provide guidance to the implementing agency on participatory alternatives and institutional strengthening measures appropriate to the environmental characteristics of the project area(s). This will provide a basis for integrating the environmental analysis of the core elements into proposals for implementation arrangements.

Source: Compiled by JICA Survey Team (2020)

EA report shall include at least following contents.

Table 10 Indicative Contents of Environmental Assessment Report

No.	Chapter	Descriptions
1	Introduction	Define basic purposes for EA, its scope and a brief outline of report organisation.
2	Sub-Project Description	Provide an outline of the proposed sub-project, its rationale, objectives, area, key activities, the proposed implementation schedule, etc.
3	Approach and Methodology	Describe the study approach and methodology adopted for carrying-out the EA, including collation of quantitative data and information, describe tools for monitoring and management of environmental parameters
4	Environmental Baseline	Provide brief profiles of the target area, existing environmental conditions in these areas, that will serve as a reference for future comparison and monitoring
5	Sub-Project Impacts	Describe sub-projects, its objectives and activities of the sub-projects, explains potential positive and negative impacts as a result of establishment of the sub-projects.
6	Public Consultation and Information Disclosure	Describe the results of public consultations, meetings and other interaction events with the communities.
7	Conclusion and Recommendations	Provide overall conclusions and recommendations, describe precise measures to avoid, minimise and/or mitigate adverse impacts on the environment, communities and particularly vulnerable groups due to sub-project activities, environmental management

No.	Chapter	Descriptions
		mechanism and implementation arrangements and monitoring activities and implementation arrangements.

Source: JICA Survey Team (2020)

(2) Social Assessment (SA)

The main purpose of the Social Assessment (SA) is to help understand basic social issues and risks, and to determine social impacts on the target population of the proposed sub-projects. Analysis of the collected socio-economic information enables the Project to prioritise critical issues and means to address them, in consultation with other stakeholders.

The assessment will (i) establish baseline socio-economic situation of the target farmers in the project area that will act as a reference for measuring project impacts in future, (ii) assess the access to and opportunities for getting benefits of basic social and economic services, (iii) stipulates a basis to identify appropriate interventions for community development and livelihoods under the Project, and (iv) determine short/ long-term, direct/ indirect, and positive/ negative impacts of the Project on the socio-cultural and economic status, including women, small scale and marginal farmers, female-headed households, landless, SCs/STs, etc.

SA shall be carried out with assistance/supervise by hired subject matter experts and the results would assist the executing agency in reaching-out to the vulnerable and the poor and thus ensures that the objectives of the Project are acceptable to the intended beneficiaries. **Table 11** specifies key tasks for SA.

Table 11 Tasks for Social Assessment

No.	Tasks	Descriptions
1	Elucidate Social Setting, Socio-cultural Practices, Institutional, Historical, and Political Contexts	Address the macro-policy context of the Project. Describe the social settings, explain the extent of socio-cultural fragmentation or homogeneity. Address wide-ranging queries on traditional and cultural norms for using resources and how it relates to inter-relationships between stakeholder groups.
2	Legal and Regulatory Environmental Consideration	Provide an account of the existing legal and regulatory milieu of the Project, especially with regards to ownership of and access to arrangements and its implications to different stakeholders, specifically the poor and vulnerable.
3	Application of Core Aspects of Social Development to the Project	Describe the potential outcomes of the proposed Project in terms of social opportunities, constraints, impacts, and risks, such as socio-cultural diversity, gender, institutions, rules, stakeholder's interests, social risk and vulnerability.
4	Devise Strategy to Achieve Social Development Outcomes	Examine the opportunities for community involvement in project preparation and implementation, the existing and proposed framework for property rights/ access to resources, and sustainable management alternatives to achieve the desired social development outcomes.
5	Recommendations for Project Design and Implementation Arrangements	Review proposals for project design and provide guidance to the implementing agency on participatory alternatives and institutional strengthening measures appropriate to the socio-cultural characteristics of the project area(s). This will provide a basis for integrating the social analysis of the core elements into a proposal for implementation arrangements.
6	Development of a Monitoring Plan	The monitoring system needs to have local participation in the generation and refinement of indicators over the project cycle in order for the affected people to be involved in balancing their own interests in the management of their land and system.

Source: Social Analysis Guidelines in Natural Resource Management (2005), World Bank

SA report shall include at least following contents.

Table 12 Indicative Contents of Social Assessment Report

No.	Chapter	Descriptions
1	Introduction	Define basic purposes for Social Assessment, its scope and a brief outline of report organisation.
2	Sub-Project Description	Provide brief outline of proposed sub-project, its rationale, objectives, area, key activities, the proposed implementation schedule etc.
3	Approach and Methodology	Describe the study approach and methodology adopted for carrying-out the assessment, including quantitative and qualitative data and information collation
4	Socio-economic Baselines	Provide brief profiles of the study (target) area
5	Sub-Project Impacts	Describe sub-projects, its objectives and activities of the sub-projects, socio-economic and livelihoods assessment, explain potential positive and negative impacts of the sub-project.
6	Vulnerable Groups:	Identify and describe particularly vulnerable groups within the community and how Project may affect them.
7	Public Consultation and Information Disclosure	Describe the results of public consultations, meetings and other interaction events with farmers.
8	Conclusion and Recommendations	Provide overall conclusions and recommendations.
9	Mitigation Measures	Describe precise measures to avoid, minimise and/or compensate for sub-project activities with adverse impacts on communities.
10	Monitoring	Provide the developed monitoring plan including monitoring mechanism and monitoring implementation arrangements

Source: JICA Survey Team (2020)

6.3 Preparation of Environmental Management Plan

Environmental Management Plan (EMP) shall consist and cover environmental mitigations and consideration measures which shall be taken-up during construction and operation phases, which shall examine description and assessment results of environmental, social, health and safety impacts. EMP shall be prepared only for "Category B" sub-projects. Though quantifications of impacts as well as concerned mitigation measures of sub-projects are yet to be determined, indicative EMP is described in **Table 13**. Any additional costs for the proposed mitigation measures shall be included in the construction cost.

Table 13 Indicative Environmental Management Plan

Potential Environmental Impact	Proposed Mitigation Measures	Responsibility
Pre-construction Phase		
Land Acquisition	- Ensure that the forest land is not under the project - CCA is more than 5 ha. (for minor irrigation sub-projects) - In case any selected sub-project entails acquisition of the private land, it should be confirmed that the land surrendered for the use of project should be no more than 10% of the total holding of the owner. - Verification of the voluntary nature of land donation (e.g. affidavit or witnessed statements) must be obtained from every donor. - The Grievance mechanism must be established in the PMU, so that any concerns or claims could be voiced and solved in a neutral and transparent manner.	Contractor/DPMU
Shifting of Utilities and Relocation of Cultural and Religious Properties	- There may be some utility services such as electric lines, telephone lines, cable line, pipe lines etc need to bring in notice of project Engineer and which may be shifted on consultation with the SPMU before commencement of construction activity. These structures will be shifted in consultation with the concerned departments. - Religious structures though not under project, but in case any small structure	Contractor/DPMU

Potential Environmental Impact	Proposed Mitigation Measures	Responsibility
	appears to be shifted only after public consensus/SPMU approval. Relocation should be complete before construction work is taken up.	
Archaeological structure/ article	- There is no archaeological structure affected, directly or indirectly, in the sub-project. However, such structures/ articles found nearby during construction stage shall be brought to the notice of project Engineer.	Contractor /DPMU
Ecological Parks/Sanctuaries etc	- There is no ecological sensitive area affected, directly or indirectly, in the sub-project. However, such zones found nearby during construction stage, shall be brought to the notice of project Engineer.	Construction Contractor /DPMU
Construction Phase		
Air Quality	- Adequate dust suppression measures such as regular water sprinkling on construction sites, haul & unpaved roads particularly near habitation must be undertaken to control fugitive dust. - Plantation activity may be undertaken at the construction sites - Workers may be provided with mask to prevent breathing problems - Trucks carrying soil, sand and stone may be duly covered to avoid spilling. - Low emission construction equipment, vehicles and generator sets may be used - Plants, machinery and equipment should be handled so as tom minimize generation of dust. - All crusher used in construction should confirm to relative dust emission devises - All vehicles shall have pollution certificates - Air quality monitoring may be conducted at construction sites.	Contractor
Water Quality	- Silt fencing may be provided near water bodies to avoid spillage of construction material. - Discharge of waste from construction / labour camp into water bodies may be strictly prohibited. - Construction methodologies with minimum or no impact on water quality may be adopted, disposal of construction wastes at designated sites and adequate drainage system may be provided. - Project design may take care of irrigational canal and proper culverts may be proved so that irrigation setup is not disturbed - Construction activity may be prohibited during monsoon - Ponds near to work site with the habitat of birds etc shall be protected. Poaching must be strictly banned	Contractor
Soil Quality/ Sedimentation	- Asphalt emulsifier must be handled with caution and any leakage detected must be immediately rectified. - Construction work should not be done during rainy season to avoid erosion and spreading of loose material - Top soil removed during excavation work should be utilized stored separately in bunded area and should be utilized during plantation or refilling of excavated area.	Contractor
Solid Waste	- Construction work must be carried in such a way that minimum or no solid waste is generated at construction site. - Extra earth material produced may be utilized for refilling of borrow areas. - Rainy season may be avoided to minimize spreading of loose materials. - Solid waste management may be framed for camp areas. Dustbins may be provided in the Camps. - Proper sanitation facilities must be provided in Camp by the Contractor.	Contractor
Noise & Vibration	- Modern technologies producing low noise may be used during construction. - Construction equipment's and vehicles must be in good working condition, properly lubricated and maintained to keep noise within permissible limits. - Temporary noise barriers installed at settlements and nearby forest area, if required - Head phones, ear plugs to be provided to the workers at construction site. - Noise level monitoring must conducted during construction phase. - All vehicles, equipment and machinery used in construction should be fitted by exhaust silencers. - Equipments should be maintained regularly and soundproof gadgets should be used. - Provision of ear-plugs to heavy machinery operators	Contractor
Land Subsidence	- Plantation must be carried to control erosion	Contractor
Bottom Sediment	- Silt fencing may be provided to avoid runoff into the river. - Construction activity should be taken in dry season to avoid spreading of construction material and minimize impact on water quality	Contractor
Applicability of	- All the construction works shall be undertaken in accordance with all applicable	Contractor

Potential Environmental Impact	Proposed Mitigation Measures	Responsibility
legislations and statutory requirements	legislations and Indian statutory requirements.	
Removal of Trees/ Vegetation	- Permission for cutting of individual trees shall be taken - Vegetation removed shall be properly disposed.	Contractor
Soil	- Suitable protection measures consisting of bio-engineering techniques such as plantation of grasses and shrubs & check dams, may be provided to control erosion. - Borrow areas may be finalized in concern with ecological sensitivity of the area. - Agriculture land may not be used as borrow area. Priority may be given to degraded area for excavation of borrow material. - Rehabilitation of borrow area may be taken under the project. - Construction work may be avoided during rainy season to evade erosion and spreading of loose material. - Top soil removed from agricultural land may be stored separately in bunded areas and utilized during plantation or refilling of excavated area.	Contractor
Water	- Availability of water - Water used for construction activity shall be predefined and if ground water is to be used shall follow ground water department norms. - Provision of temporary drainage arrangement due to construction activities must be made by Contractor with proper approval of project Engineer - Silt fencing may be used near water bodies to avoid runoff into the water bodies. - Proper cross drainage structure may be planned at the crossing of the canal in consultation with project Engineer/Irrigation Department - Proper drainage shall be planned in the area to avoid water logging	Contractor
Construction / Labour Camp Management	- During the construction phase, the construction / labor camp will be located along the project area. - A proper Construction Camp has to be formulated to control degradation of the surrounding landscape due to the location of the proposed construction camp. The contractor must provide, construct and maintain necessary living condition and ancillary facilities. These must be included in contract documents provided to the contractor. - Sufficient supply of potable water must be provided at camps and working sites. - Adequate and clean washing and bathing facilities must be provided that also have sufficient drainage. - Adequate sanitary facilities may be provided within camp. The place must be cleaned daily and maintain strict sanitary conditions. Separate latrine must be provided for women. - Adequate supply of water must also be provided. - The contactor must ensure that there is proper drainage system to avoid creation of stagnant water bodies. - At every camp, first aid facilities with suitable transport must be provided to take injured or ill person to the nearest hospital. - Adequate supply of fuel in the form of kerosene or LPG may be provided to construction laborers, to avoid felling of trees for cooking and other household activities. No open fires may be allowed in camps. - The sites should be secured by fencing and proper lighting. - The Contractor may ensure that all construction equipment's and vehicle machinery may be stored at a separate place / yard. Fuel storage and refilling areas may be located 500 m away from the water bodies and from other cross drainage structures. - All the construction workers should be provided with proper training to handle potential occupation hazards and on safety and health which include the following:- - Environmental awareness programme - Medical surveillance - Engineering controls, work practices and protective equipment - Handling of raw and processed material - Emergency response - Construction / labour camps may be located away from forest areas, settlements, cultural heritage and historical sites and water bodies and dry river beds. - It should be ensured by the Contractor that the camp area is cleared of the debris and other wastes after the completion of construction. - First aid box shall readily available at site and a trained person shall always available during construction time.	Contractor

Potential Environmental Impact	Proposed Mitigation Measures	Responsibility
	- On completion of construction, the land should be restored back to its original form.	
Public Health and Safety	- Full height fence, barriers, barricades etc. shall be erected around the site in order to prevent the surrounding area from excavated soil, rubbish etc. which may cause inconvenience to workers and endanger the public. Follow all technical specifications mentioned under Bid Document. - The contractor must supply safety goggles, helmets, earplugs and masks etc. to the workers and staff. - Adequate precaution must be taken to prevent danger from electrical equipment's. Necessary light and fencing must be provided to protect the public. - All machines and equipment's used for construction purposes must conform to relevant Indian Standards (IS) codes. This equipment must be free from patent defects, in good working condition, regularly inspected, and properly maintained as per IS provisions. - All laborers working on mixing of asphaltic material, cement, lime mortars, concrete etc should be provided with protective footwear and protective goggles. Workers involved in welding work should be provided with welder's protective eye shields. - No men below the age of 18 years or women of any age will be employed to work with paint products containing lead in any form. Face masks must be supplied to workers when they use any form of spray paint or work with surfaces that have been dry rubbed and scrapped with lead paint. - All reasonable measures must be taken to prevent any damage to the public from fire, floods, etc. - All necessary steps must be taken to prompt first aid treatment for injuries that may be sustained during the course of work. - The contractor must conform to all anti-malarial instructions, including filling up of borrow pits. - Work that affects the use of side roads and existing accesses must not be taken without providing adequate provision. - On completion of the works, all the temporary structures may be cleared away, all rubbish disposed, excreta and disposal pits or trenches filled in and effectively sealed off and the entire site left clean and tidy. - No parking of trucks, trolleys, cranes and trailers etc shall be allowed on road which may obstruct the traffic movement.	Contractor
Emergency Preparedness Plan	- The contractor shall prepare as required under rule 36 of BOCWR an Emergency Response Plan for all work sites. This includes; - Fire and Explosion - Collapse of lifting appliances and transport equipment - Collapse of building sheds or structures etc. - Gas leakage or spillage of dangerous good or chemicals - Drowning of workers - Landslides getting workers buried, flood, earthquake, storm etc	Contractor
Accident Reporting	- All accidents and dangerous occurrence shall be immediately informed verbally to the project engineer - Reports of all accidents (fatal/injury) and dangerous occurrence shall be sent within 24 hrs.	Contractor
Operation Phase		
Air Quality	- AAQ monitoring at all sites is recommended under the guidance of SPCB	DoA/Contractor/
Water Quality	- Judicious use of chemical fertilizers, insecticide/ pesticides is managed - Use of bio fertilizers and insecticides/ pesticides is introduced - Under Farmers Support Program, the Project is promoting the following- i) promotion of organic farming, ii) promotion of optimum use of pesticides under Integrated Pest Management (IPM) and biological control of pest and diseases, iii) promotion of farming practices to reduce soil erosion, iv) promotion of optimum quantities of farm inputs such as seeds and fertilizers. - Water Quality monitoring at all irrigation sites is recommended under the guidance of SPCB	DoA/Contractor/ KVA

Source: Compiled by JICA Survey Team (2020)

6.4 Preparation of Environmental Monitoring Plan

Environmental Monitoring Plan (EMoP) provides monitoring plan to administer and scrutinize the

implementation of proposed environmental mitigation measures and considerations and to regularly monitor the quality of surrounding environments during construction, and operation phases. Same as EMP, EMoP shall be prepared only for "Category B" sub-projects.

EMoP ensures that environmental and social safeguards adopted measures are bringing the desired results. Therefore, indicators of environmental and social considerations are utilised to measure the quality environmental parameters and safeguard processes. **Table 14** presents indicative monitoring items, their indicators, means of verification, frequency and responsible parties for measuring safeguards measures that have been implemented. However, these aspects need to be finalised in relation to EMP, in case, EMP are prepared for some specific sub-projects.

It shall be the responsibility of the designated DPMU officers to implement, monitor, and report safeguards, as an integral part of the project implementation, and for the purpose of site-level planning and implementation, the designated DPMU officers ensure the required monitoring activities are conducted. The compliance of environmental and social safeguards during implementation of sub-project must be also closely observed by BPMUs, and relevant local stakeholders such as FPOs, representatives of the KVAs, local NGOs, if any appointed, women's groups, youth groups, etc. Periodic visits should also be carried out by the designated officers to confirm that mitigation measures for deleterious impacts are being carried out properly by the contractors.

Table 14 Indicative Environmental Monitoring Programme

Aspects	Parameters to be monitored	Locations	Method	Frequency	Responsibility
Pre-Construction Phase					
Land acquisition	Land donation ratio and verification	Sub-project areas	Interview	Once in a month	DPMU, Environment Safeguards Officer/ Contractor
Shifting of utilities	Shifting of utilities	Sub-project areas	Interview	Once in a months	DPMU, Environment Safeguards Officer/ Contractor
Construction Phase					
Air pollution	Dust, smoke	Sub-project areas	Site visits, visual checks	Twice a week	DPMU, Environment Safeguards Officer/ Contractor
Noise and Vibrations	Noise of equipment, complaints from local residents	Sub-project areas - Major sources of noise	Sound Level Meter	Once in three months	DPMU, Environment Safeguards Officer/ Contractor

Aspects	Parameters to be monitored	Locations	Method	Frequency	Responsibility
Ground water quality and Surface water quality * Whenever the Environmental Expert or other Monitoring Officers feel the necessity for carrying out tests during construction. Otherwise, site visits and visual checks only	pH, Electrical conductivity, Turbidity, TDS, TSS, Total Hardness, Alkalinity, Carbonate, BOD, COD, TN, TP, Fluorides, Chlorides, Sulphates, Sodium, Potassium, Calcium, Magnesium, Oil & Grease, Iron, Manganese, Copper, Zinc, Phenolic Compounds, Colour, Cadmium, Chromium, Cyanides, Lead, Total Coliform, Pesticides (to be specified)	Sub-project areas and nearest villages - 10 location	Collected sample to be analysed from DoA Laboratory Or Site visits, visual checks	Once in three months	DPMU, Environment Safeguards Officer/ Contractor
Solid waste (Waste)	Volume and kind of construction wastes,	Sub-project areas	Site visits and visual checks	Once in three months	DPMU, Environment Safeguards Officer/ Contractor
	Kitchen and other solid waste generated in labour camp	Sub-project areas	Site visits and visual checks	Once every month	DPMU, Environment Safeguards Officer/ Contractor
Chemical or hazardous wastes	Oils, lubricants, cleaning agents, etc	Sub-project areas	Site visits and visual checks	Once in three months	DPMU, Environment Safeguards Officer/ Contractor
Subsidence and sedimentation		Sub-project areas	Site visits and visual checks	Once in three months	DPMU, Environment Safeguards Officer/ Contractor
Soil erosion	Visual inspection of rain water run-off	Sub-project areas	Site visits and visual checks	Twice in a Year	DPMU, Environment Safeguards Officer/ Contractor
Disturbance to ecological resources and vegetative cover	Illegal tree felling, wildlife hunting, illegal extraction of forest resources	Sub-project areas	Site visits and visual checks	Twice in a Year	DPMU, Environment Safeguards Officer/ Contractor
Interactions with local communities	Complaints and grievances, from local residents	Sub-project areas	Site visits and visual checks	Once in two months	DPMU, Environment Safeguards Officer/

Aspects	Parameters to be monitored	Locations	Method	Frequency	Responsibility
					Contractor
Land acquisition(loss of income or loss of access)	Economic condition of households, process of selection of project areas	Sub-project areas	Interviews	Twice in a Year	DPMU, Environment Safeguards Officer/ Contractor
Grievance mechanism	Grievance redress condition	Sub-project areas	Interviews	Twice in a Year	DPMU, Environment Safeguards Officer/ Contractor
Impact of livelihoods	Direct or indirect impacts of livelihoods	Sub-project areas	Interviews	Twice in a Year	DPMU, Environment Safeguards Officer/ Contractor
Health and Safety	Training and health check-ups for workers, fencing, warning signs, emergency evacuation	Sub-project areas	Site visits and visual checks	Twice in a Year	DPMU, Environment Safeguards Officer/ Contractor
Accidents and traffic management	Signage, regular maintenance	Sub-project areas	Site visits and visual checks, record of accidents and training	Twice in a Year	DPMU, Environment Safeguards Officer/ Contractor
Operation Phase					
Ground water quality Surface water quality	pH, Electrical conductivity, Turbidity, TDS, TSS, Total Hardness, Alkalinity, Carbonate, BOD, COD, TN, TP, Total Coliform, Pesticides	Sub-project areas and nearest villages - 10 location	Collected sample to be analysed from DoA Laboratory	Once in six months	DoT, Environment Safeguards Officer/ Contractor
Ground water level	Water level of existing well nearby	Sub-project areas	Measurement	Once in three months	Contractor/ KVA
Impact of livelihoods	Direct or indirect impacts of livelihoods	Sub-project areas	Interviews	Twice in a Year	DoT, Social Safeguards Officer/ Contractor
Accidents	Direct or indirect impacts of livelihoods	Sub-project areas	Site visits and visual checks, record of accidents and training	Twice in a Year	DoT, Environment Safeguards Officer/ Contractor
Grievance mechanism	Grievance redress condition	Sub-project areas	Interviews	Twice in a Year	DoT, Environment Safeguards Officer/ Contractor

Source: Compiled by JICA Survey Team (2020)

6.5 Implementation and Monitoring of Sub-projects

The institutional arrangement for the implementation and monitoring system for EMP and EMoP is basically same as the project component monitoring system, but again it should be noted that only the sub-projects which are identified as Category B as per JICA Guideline shall be the target of this monitoring. A sample monitoring format at this level is Attachment III. BPMU officer shall compile monitoring results and reviews regularly, thereafter, DPMU shall compile and report to SPMU, which analyse the result and share to concerned departments in the state government as well as annual report to JICA. A specialist under PMC, and subject matter experts, identified in **Section 7.1** below shall support SPMU/ DPMUs/ BPMUs for the monitoring related activities which are in line with JICA Guideline.

7 Institutional Arrangement and Capacity Development for ESAF

7.1 Institutional Arrangement

In the proposed Project, most of the environment and social issues and protection are managed through the institutions responsible for agriculture management i.e. HPADS, is responsible for overall planned intervention in the proposed Project, legal/policy development, ensuring adequate consultation and participation, inclusion of vulnerable people such as STs, poor/ women headed households, in planning and implementation and the equitable distribution of benefits associated with site-level project interventions. Other agencies would also be involved in different environment and social safeguard aspects or issues. The district administration is the designated agency responsible for land administration, land acquisition and disbursement of compensation and providing Resettlement and Rehabilitation (R&R) benefits to the project-affected families.

ESAF will be implemented through the institutional structure of the Project and a director/ officers at each administrative level shall be appointed as focal persons for ESAF compliance. **Table 14** highlights the institutional structure for ESAF with key environmental and social management roles and responsibilities.

Table 14 Institutional Structure for ESAF Implementation and Monitoring

Institution	Role in the Project	(Additional) Role and/or Responsibility in ESAF
Executing Committee	- Highest decision-making body - Lay-down the broad policy framework for functioning of HPFEMLIP Society - Review the Society's performance - All administrative and financial powers - Monitor utilisation of funds	- Overall supervision on ESAF and its implementation and M&E - Facilitation and coordination with various line departments and other agencies - Provide directions/advice to SPMU to ensure smooth/ efficient project operation on environment and social consideration - Periodical checks and due diligence on safeguards reports, monitoring data etc.
State Project Management Unit (SPMU)	- Project implementation, supervision and monitoring of all activities. - Documentation and reporting - Monitoring of project activities at state level	- Owner and implementation of ESAF - Report to concerned departments in the state government as well as to JICA in relation to environmental and social consideration - Information disclosure through project information brochures and project homepage, etc. - Consultation and guidance to DPMU/BPMU, and field level officers on information disclosure and consultation

Institution	Role in the Project	(Additional) Role and/or Responsibility in ESAF
		- Ensure FPIC consultation - Technical guidelines on beneficiary selection, safeguard checks/ guidelines for particular activities (if required) - Development of planning/ monitoring forms, review of monitoring data, reporting, assistance with evaluations - Finalise criteria for categorisation (Category B or C) as per JICA Guidelines as well as exclusion criteria - Review of participatory Environmental and Social Assessments - Performance of due diligence follow-up - Guide, instruct, prepare guidelines, establish and operate M&E, dissemination of project information, hand-holding support in the field for all project activities
Project Management Consultants (PMC)	- support and facilitate the SPMU for project implementation, and would extend all technical inputs and guidance to DoA at requirement basis and through regular review meetings frequency of which to be determined during the preparatory phase of the Project - ? would not form the part of the society	- Coordinate, monitor and supervise the ESC relevant activities, including the screening and selection of sub-projects and determination of the required procedures for specific sub-projects following the guidance/instruction of SPMU, - Liaise with other line departments at the appropriate level, for inter-sector convergence - Provided any specific support required for implementation and monitoring of the Project
District Project Management Unit (DPMU)	- function as the dedicated and extended wing of the SPMU for project implementation at division level and as a subordinate office of the autonomous society. - facilitate project implementation at district level, and would extend all technical inputs and guidance to the BPMUs - Monitoring of project activities at District level	- Coordinate, monitor and supervise the ESC relevant activities at division level, - Conduct the screening and selection of sub-projects and determine the required procedures for specific sub-projects following the guidance/instruction of SPMU, - Liaise with other line departments at the appropriate level, for inter-sectoral convergence - Provided any specific support required for implementation and monitoring of the Project - Coordinate with subject matter experts
Block Project Management Unit (BPMU)	- facilitate project implementation at the field level, and would extend all technical inputs and guidance at field level on day-to-day basis - Monitoring of project activities at Block level	- Coordinate with field-level implementing organisation to select sub-projects with screening procedures and to conduct participatory Environmental and Social Assessments - Support field-level implementing organisation with monitoring and reporting, logistical support for independent evaluations. - Regularly undertake site visits at construction areas to ensure compliance of ESAF.
Village Level		
KVA	- Assist in selecting target beneficiaries - Clarify local needs and expectations on the Project - Self monitoring of project activities at village level in consultation with officials of BPMU/ DPMU	- Conceive and raise awareness in the locality on environmental and social considerations. - Provision of support in micro planning activities. - Participating in Environmental and Social Assessments

Source: JICA Survey Team (2020)

The State Project Management Unit (SPMU) headed by the Project Director shall be responsible for project administration, programme management, procurement, financial management, supervision of field units, project implementation, monitoring and evaluation, and providing direction and support to the Project. Thus, the overall responsibility of the implementation of ESAF shall be vested with SPMU. Under SPMU, one officer is required to be given a responsibility to ensure implementation and monitoring and compliance of environment and social safeguards, and provide technical advice on environmental and social safeguard during the project implementation. And DPMU/ BPMU officers shall be responsible for ensuring implementation and monitoring of

ESAF at field level with a support of KVAs and at district/block level respectively.

In order to strengthen organisation and institutionalise ESC within DOA, it is proposed to have two subject matter experts within SPMU under the APD M&E who will be well supported by one specialist in Project Management Consultant (PMC) for the compliance of the environmental and social safeguards and its smooth and efficient implementation such as environmental and social assessment, management and monitoring of the environmental and social aspects within the ambit of the Project. The details of the proposed positions are as follows.

- (Subject Matter Expert) Environmental Consideration Expert (ECE): ECE shall/ could be engaged as contract basis with SPMU from the initial Preparatory Phase of the Project. This is to assist the SPMU in head start with the safeguard related actions. Once the project implementation begins, ECE will report to the Director under SPMU who would be vested with additional charge to ensure the compliance of ESC. ESCE will assist SPMU for the following aspects;
  a) To facilitate and coordinate with various implementation and line departments,
  b) To update and finalise ESAF (if required),
  c) To develop appropriate training materials on environmental and social safeguards, following the requirements in ESAF,
  d) To provide training courses and capacity enhancement at the different levels of stakeholders who will be designated with the responsibilities to ensure implementation of environment and social safeguards, and
  e) To supervise/ manage the project activities to ensure that the required procedures indicated in ESAF are followed properly. The expert may also be required to follow-up in the field where particular issues are identified and report to the specialist/ SPMU.
  f) To assist in monitoring the environmental aspects (if any) at regular interval
- (Subject Matter Expert) Social Consideration Expert (SCE): ESCFE will also be engaged as contract basis with SPMU, and will assist ECE to provide the relevant trainings at respective administrative level such as preparation of the training materials, record minutes of meeting of the relevant consultation meeting, etc. SCE would also assist in smooth and effective implementation of public grievance and redressal mechanism under the project.
- (SPMC member) Environmental and Social Consideration/ Environmental Economics Specialist: The specialist is planned to be deployed under the Project Management Consultant (PMC) to assist SPMU on ESC issues of the Project. He/she is expected to support SPMU to review the project activities with focus on the compliance on ESAF, provide guidance and technical advice to PMUs for required environment and social safeguard measures, as well as reporting to JICA to ensure smooth and efficient

implementation of environment and social safeguard measures.

7.2 Capacity Development Programme

In order to ensure effective implementation of the proposed ESAF and associated safeguards procedures under the above proposed institutional arrangement, it would be obligatory to enhance capacity of various agencies and stakeholders. In this regard, capacity development programmes, supported by the above proposed specialist/experts will not only help addresses gaps in the existing environmental and social management system, but would also ensure that environmental and social safeguards are effectively operationalised.

The details of the training programme such as venue, time, date, frequency of the proposed trainings sessions should be further developed by hired specialist/experts with comments and clearance of SPMU. An indicative capacity development programme has been devised and depicted in **Table 15** as a reference to devise capacity enhancement training programmes.

Table 15 Indicative Capacity Development Programme for Environmental and Social Safeguards

Item	Descriptions
Training 1	**Programme for Management/ Administrative Level**
Key Participants	Designated officials of SPMU
Training Programme	**Topic 1: General Orientation on ESAF for the Project** - Legal framework on environmental and social safeguard of India and JICA - Basic introductory concept of safeguard - Environmental and social impact assessment: overview & regulations - Safeguard issues (vulnerable groups, SCs, STs, etc.) - ESAF: steps and procedures with respect to the Project - FPIC **Topic 2: Monitoring and Evaluation for Environmental and Social Safeguard** - Concept of M&E - M&E and reporting procedures - Use of M&E results and feedback, including Grievance Redress Mechanism (GRM)
Duration	Two days training (once a year in the first four years at each district)
Training 2	**Programme for Field/ Operational Level**
Key Participants	- Designated officials and staff of DPMU and BPMU - Designated field level officers - (If necessary) representatives of FPOs and KVAs
Training Programme	**Topic 1: General Orientation on ESAF for the Project** - Basic introductory concept of safeguard - Environmental and social impact assessment: overview - ESAF: steps and procedures with respect to the Project - Environmental protection, EIA and social safeguard regulations (specific) - Safeguard issues (vulnerable groups, SCs, STs, etc.) - Process of community consultation and public participation - FPIC - PRA for data collection, analysis and report preparation - Micro-planning **Topic 2: Monitoring and Evaluation for Environmental and Social Safeguard** - Concept of M&E - M&E and reporting procedures - Use of M&E results and feedback, including GRM
Duration	Two days training (once a year in the first four years at each division)
Training 3	**Farmers Facilitation and Environmental and Social Assessment for ESC**
Key Participants	- Designated field level officers - Representatives of FPOs and KVAs
Training Programme	- ESAF: steps and procedures with respect to the Project - Project activities planning (and micro planning) - Role of related organizations

Item	Descriptions
	- Participatory ESA procedures - Working with vulnerable groups - Conflict resolution/ grievance procedures
Duration	One session as part of other community related trainings (Once a year in the first four years/ location and timing shall be determined accordingly)
Training 4	**Specific Training for Specific Techniques/Tasks to be Required**
Key Participants	To be defined according to the main topics
Training Programme	For example: - Appropriate chemical use - Environment health & safety standard for construction - Occupational health & safety - Mitigation planning and implementation
Duration	To be defined when necessary

Source: JICA Survey Team (2020)

8 Public Consultation Mechanism

Public consultation and participation is an apt process to provide information to farmers, project-affected persons and other stakeholders relevant to the proposed Project, so that they (i) are sufficiently informed about the project's objectives, activities, benefits and risks; (ii) have equal opportunities to participate in the Project; (iii) receive culturally appropriate benefits which are more suited to their interests, capabilities and priorities; these shall be identified during the course prior consultations, and such benefits are shared equitably; (iv) are not adversely affected by the Project or its associated activities; adverse impacts shall be mitigated appropriately; and (v) can raise project related grievances and required mechanism is in place.

Consultation and Participation provides an opportunity and platform for people to express and sharing their views and concerns, contribute to design and implementation of the programme activities, discussions on sensitive social mitigation measures, while at the same time creating a sense of ownership for the Project. In this regard, FPIC is an important process to minimise any negative impacts. Summary of FPIC relevant activities are described in **Table 16**.

Table 16 Summary of FPIC Activities

Item	Descriptions
Objective	To establish broad farmer's support and willingness for implementation of the Project
Topic for Consultation:	- Disclosure of basic project related information including area, location, purpose/objectives, key activities, stakeholders involved, target beneficiaries. - Expected role and involvement of communities. - An overview of anticipated environmental and social risks. - Involuntary Resettlement Plan and Vulnerable Scheduled Tribal Plan (if any)
Participants:	- Relevant members of FPOs/ KVAs/ SHG, etc. - Other important key persons (e.g. Sarpanch/ Head of the village)
Process:	a) Before on-set of sub-project implementation, immediately following formations of beneficiary groups, appropriate KVA meetings and consultations that are culturally appropriate and in simple and understandable language b) Encourage farmer's participation in discussions, meetings and consultations, facilitate participation of women, elders and other vulnerable groups c) Field level officers will participate in general KVA meeting to discuss concerns, visit individuals who express doubt and/or criticism on any aspect of project implementation. d) Participants to be provided adequate time to assimilate information provided/ shared e) Opportunity to decide if they do not wish to participate. f) Presentation and discussion with stakeholders well represented by all sections including small and marginal farmers, SC/ST, poor and disadvantaged.
Material Required:	- Provision of simple/easy to read project brochures in local language. - Consultation and Participation Monitoring Sheets

Source: JICA Survey Team (2020)

The public consultation mechanism shall reduce conflicts between the stakeholders. This is particularly focused on ensuring that vulnerable groups, including the poor, landless, STs/SCs, and women, are properly consulted during site-level project planning and that they are given the opportunities and encourage to participate in the Project.

9 Grievance Redress Mechanism

While there are the existing legal frameworks related to the Grievance Redress Mechanism (GRM) in the country[3], a Project-level GRM which shall be applied all sub-projects is expected to be institutionalised, in which project-related grievances such as disputes over locations of infrastructure development, intended farmer's support, beneficiaries of value chain and marketing development, distribution of project benefits, contractor and his workers, project-related staff or consultants, etc. can be reported directly to the project.

In this regard, KVA, would be the first level of intervention. Thus, all concerns of the stakeholders shall be recorded in a project grievance logbook. Individuals can raise their grievances in name or anonymously, or through traditional institutions according to culture and context, as appropriate, which shall be recorded in written form. A grievance redress format/ template could be devised for this purpose, which would depend on the type and context of the grievance.

KVA officers should resolve all concerns or grievances raised by the communities, beneficiaries, etc. and in case an anonymous grievance has been put-up, it shall be addressed through public consultation through a village meeting, retorting generally to the raised point(s) and minutes of the meeting and outcomes shall be recorded. The grievance redress or compliance response is sent to the applicant in written, after resolving the grievance/ concerns.

However, in case the applicant (individual/ group) is not satisfied, she/he may approach to DPMU for further redress, or in case of grievances that are more serious in nature, the KVA staff should forward such grievances to DPMU. In charge of DPMU shall be responsible to redress the grievance in consultation with the KVA staff, concerned applicants. All grievances should be addressed, redressed and resolved at this level.

In case of more serious grievances, then they should be dealt with through the project hierarchy as necessary and any complainant should be made aware of their legal rights according to the relevant legal documents.

[3] EIA Notification 2006 states that "Public Consultation and Public Hearing" which refers to "the process through which the concerns of local affected persons and others who have plausible stake in the environmental impacts of a project or activity are ascertained with a view to taking into account all the material concerns in the project or activity design as appropriate. All Category 'A' and Category 'B1' projects or activities shall undertake Public Consultation…". Further, the RFCTLARRA-2013, involves consultations and redress of concerns of affected persons at various stages. Besides, Department of Administrative Reforms & Public Grievances under the Ministry of Personnel, Public Grievances & Pensions, GoI, has issued a Compilation of Guidelines for Redress of Public Grievances and also operates a web-based portal (http://pgportal.gov.in/).

10 Cost Estimation and Budget Allocation

ESAF is a tool to provide guidance on how the project activities should be carried out following the requirements of the JICA Guideline. And in many instances, the actions or measures mentioned in ESAF do not necessarily entail additional costs as they are often already identified in the project cost estimate. For example, baseline survey for identification and selection of target sub-project/ intervention areas are already proposed as project activities. Therefore, while there are activities related to ESAF implementation such as SA, Consultation, Information Dissemination, GRM, M&E, etc., these costs are embedded within the budgets of the corresponding project components. However, still some of the items/topics are required the additional budget which are described in the following sections.

10.1 Personnel

As proposed above, considering the current capacity of the implementation agencies, external specialist/experts in charge of environmental and social safeguard should be allocated as indicated below. The cost of such personnel has been incorporated into the proposed budget.

- **Environmental and Social Consideration/ Environmental Economics Specialist:** It is proposed that 16 man-months during Preparatory and Implementation phase for the allocation of the specialist under PMC and he/she would support the project in ESC. The specialist is expected to review the project activities with focus on the compliance on ESAF, and provide directions or advice to PMUs to ensure smooth and efficient implementation of environment and social safeguard measures, including the reporting to JICA.
- **Nodal Officer-I / Soil-Water Conservation cum Environmental safeguards Expert (ESE)**: ESE shall/ could be responsible for environmental safeguards aspects under the project and responsible for implementation of ESC/ESAF from environmental safeguard aspects under the project.
- **Nodal Officer-II / Public Grievance & Redressal Mechanism cum Social SafeguardsExpert (SSE):** SSE will be responsible for implementation of ESC from social safeguard aspects under the project and will also be responsible for estb and functioning of public grievance and redressal mechanism.

1-2 members from respective administration level such as SPMU, DPMUs, BPMUs shall be nominated as responsible positions for environmental and social safeguard and these costs shall be covered by their own organization, i.e. DoA.

10.2 Capacity Development Programme

The following capacity development trainings are proposed in the **Section 7** in this document and ESCE/ESCFE shall support PMUs to ensure such capacity building trainings are delivered at each administrative level adequately.

- **Training 1: Program for Management/Administrative Level** (once a year in the first four years at each district, two days training/year/district, SPMU only need to attend one training in a district)
- **Training 2: Program for Field/ Operational Level** (once a year in the first four years at each district, two days training/year/district)
- **Training 3: Farmers Facilitation and ESA for Environmental Special Safeguard** (Once a year in the first four years/ the location/timing shall be determined accordingly)
- **Training 4: Specific Training for Specific Techniques/Tasks to be Required** (To be determined)

Basically, these trainings are delivered as a lecture style and no special equipment is required so that the cost requirement would be small (i.e. mainly for personnel, material preparation, accommodation or allowance for participants, etc.) Also, at the sub-project level, the trainings are delivered as a part of other trainings considering the several trainings are organized during the course of project implementation.

Attachment 10.5.2 Environmental Monitoring Forms

Environmental Monitoring Form – A
(To be used during Construction)

Name of the Sub-Project:
ID:
Period of reporting (Quarter/Month/Fortnight):
Name and signature of the Reporting Officer:
Date of reporting:

1. Monitoring of environmental issues (Field observation)

(This shall be used in the sites, where significant environmental issue is expected. The Environment Expert/ Monitoring Officer feels the need for testing of samples for environmental pollution then a form – A1 appended to this form may be used)

Date and time of site inspection	Subproject/ Location	Issues	Mitigation measures undertaken	Remark
1.1	Air pollution			
1.2	Noise and Vibration			
1.3	Surface water			
1.4	Ground water			
1.5	Construction waste			

1.6	Kitchen and other wastes from labor camp			
1.7	Chemical or hazardous wastes			
1.8	Construction waste			
1.9	Subsidence and sedimentation			
1.10	Soil erosion			
1.11	Disturbance to ecological resources and vegetative cover			

Environmental Monitoring Form – A
(To be used during Construction)

Name of the Sub-Project:
ID:
Period of reporting (Quarter/Month/Fortnight):
Name and signature of the Reporting Officer:
Date of reporting:

2. Monitoring of environmental issue (sampling and laboratory analysis)

(Whenever the Environmental Expert or other Monitoring Officers feel the necessity for carrying out tests for environmental pollution during construction, this form may be used)

(1) Groundwater Quality

a) Date of testing:

b) Results:

Parameter	Unit	Measurement (Well)										Average	Limit (E class water)	Remark
		1	2	3	4	5	6	7	8	9	10			
pH														
EC														
Turbidity														
TDS														
TSS														
Hardness														
Alkalinity														
Carbonate														
BOD														
TN														
TP														
Fluorides														
Chlorides														
Sulphates														
Sodium														
Potassium														
Calcium														
Magnesium														
Oil&Grease														
Iron														
Manganese														
Copper														
Zinc														
Phenolic C														
Color														

Cadmium														
Chromium														
Cyanides														
Lead														
T Coliform														
Pesticides														

Note: Standards set by Central Pollution Control Board as well as BIS-IS:10500, 2012 may be referred.

(2) Groundwater Quality

a) Date of testing:

b) Results:

Parameter	Unit	Measurement (Site)										Average	Limit (E class water)	Remark
		1	2	3	4	5	6	7	8	9	10			
pH														
EC														
Turbidity														
TDS														
TSS														
Hardness														
Alkalinity														
Carbonate														
BOD														
TN														
TP														
Fluorides														
Chlorides														
Sulphates														
Sodium														
Potassium														
Calcium														
Magnesium														
Oil&Grease														
Iron														
Manganese														
Copper														
Zinc														
Phenolic C														
Color														
Cadmium														
Chromium														
Cyanides														
Lead														
T Coliform														
Pesticides														

Note: Standards set by Central Pollution Control Board as well as BIS-IS:2296, 1992 may be referred.

Social Monitoring Form – B
(To be used during Pre-construction)

Name of the Sub-Project:
ID:
Period of reporting (Quarter/Month/Fortnight):
Name and signature of the Reporting Officer:
Date of reporting:

1. Monitoring of social issue

Date and time of site inspection	Subproject/ Location	Issues	Mitigation measures undertaken	Remark
1.1	Land donation (land donation ratio and verification)			
1.2	Shifting of Utilities			

Social Monitoring Form – B
(To be used during Construction)

Name of the Sub-Project:
ID:
Period of reporting (Quarter/Month/Fortnight):
Name and signature of the Reporting Officer:
Date of reporting:

2. Monitoring of social issue

Date and time of site inspection	Subproject/ Location	Issues	Mitigation measures undertaken	Remark
1.1	Interactions with local communities			
1.2	Land donation (loss of income and loss of access)			
1.3	Impact of livelihoods			
1.4	Health and safety			
1.5	Accidents and traffic management			
1.6	Grievance mechanism			

Environmental and Social Monitoring Form – C
(To be used during Operations and Maintenance)

Name of the Sub-Project:

ID:

Period of reporting (Quarter/Month/Fortnight):

Name and signature of the Reporting Officer:

Date of reporting:

1. Monitoring of environmental issue

(1) Surface water Quality

a) Date of testing:

b) Results:

Parameter	Unit	Measurement (Well)										Average	Limit (E class water)	Remark
		1	2	3	4	5	6	7	8	9	10			
pH														
EC														
Turbidity														
TDS														
TSS														
Hardness														
Alkalinity														
Carbonate														
BOD														
TN														
TP														
T Coliform														
Pesticides														

Note: Standards set by Central Pollution Control Board as well as BIS-IS:10500, 2012 may be referred.

(2) Groundwater Quality

a) Date of testing:

b) Results:

Parameter	Unit	Measurement (Site)										Average	Limit (E class water)	Remark
		1	2	3	4	5	6	7	8	9	10			
GW level														
pH														
EC														
Turbidity														

TDS														
TSS														
Hardness														
Alkalinity														
Carbonate														
BOD														
TN														
TP														
T Coliform														
Pesticides														

Note: Standards set by Central Pollution Control Board as well as BIS-IS:2296, 1992 may be referred.

2. Monitoring of social issue

Date and time of site inspection	Subproject/ Location	Issues	Mitigation measures undertaken	Remark
1.1	Impact of livelihoods			
1.2	Accidents			
1.3	Grievance mechanism			

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) N (b) N (c) N (d) N	(a) As per the EIA notification of 14th Sep 2006 of Ministry of Environment and Forest, Environmental Clearance (EC) is required only for River Valley/ Irrigation Projects with > 2000 ha CCA. All the proposed sub-projects are minor-irrigation projects with < 2000 ha CCA and therefore Environment Impact Assessment report is not required. (b) Not applicable (c) Not applicable (d) Other environmental permits are also not required for the proposed Project.
	(2) Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) N (b) N	(a) Specific stakeholder consultation meetings/workshops are yet to be planned. However, a series of meetings/ workshops are to be held with various stakeholders in relation to project formulation. Comments of local stakeholders will be integrated into the design of sub-projects and activities prior to their implementation, following the social assessment and consultation processes. Consultation and information disclosure procedures to be implemented before and during preparatory phase, prior to subproject (component) implementation. EIA is not required for the proposed project according to Indian Law. However, based on necessity, public consultation related to project shall be considered. (b) While preparation of DPRs the EA will consult with different stakeholders including the local residents and their comments and suggestions shall be included in the DPR. The Survey Team has consulted a wide range of stakeholders and their suggestions and comments have been incorporated in the Preparatory survey report.
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a)N	(a)The project location and components have not been fully determined yet. However social and environmental considerations are to be factored into project design (through exclusion/selection criteria for project activities). For the proposed project sites alternative locations have been examined considering environmental and social considerations.
	(1) Water Quality	(a) Are considerations given to water pollution of the surrounding water bodies, such as rivers and groundwater by effluents or leachates from agricultural lands? Are adequate use/disposal standards for fertilizers, agrochemicals, and livestock wastes established? Is a framework established to increase awareness of the standards among farmers? (b) Is a monitoring framework established for water pollution of rivers and groundwater?	(a)Y (b)Y	(a) There is possibility of water pollution in the surrounding water due to inappropriate usage of fertilizers /pesticides for certain project activities. Some limited usage of chemicals as fertilizers/ pesticides for certain crop cultivation activities is anticipated. However, no significant serious impacts to water quality by the Project are predicted. (b) The Central Pollution Control Board and Himachal Pradesh State Pollution Control Board, Central Water Commission, Public Health Engineering Departments are carrying out regular testing of water quality in selected places. There is a monitoring framework established to regularly monitor the water and soil quality - especially water used by farmers for their toxicity and contamination level and take appropriate measures to improve the quality of water and soil, and address the environmental concerns.
	(2) Wastes	(a) Are wastes properly treated and disposed of in accordance with the country's regulations?	(a)Y	(a) It is anticipated that there will be no significant waste generation associated with the project activities since there will be virtually no manufacturing. However, if any impact may be predicted by further studies, as required, necessary measures will be carried out according to national regulations.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
2 Pollution Control	(3) Soil Contamination	(a) Is there a possibility that impacts in irrigated lands, such as salinization of soils will result? (b) Are adequate measures taken to prevent soil contamination of irrigated lands by agrochemicals, heavy metals and other hazardous substances? (c) Are any agrochemicals management plans prepared? Are any usages or any implementation structures organized for proper use of the plans?	(a)Y (b)Y (c)Y	(a) Salinization is not a problem in Himachal Pradesh since enough rainfall in Kharif season has been recorded to avoid accumulation of salts in the soil. There is however a possibility as vegetable farming will entail the use of more fertilisers and agro chemicals. (b) Training of farmers will be conducted for appropriate application of chemical fertilizers and pesticides and is to be supported under agricultural support program. (c) There are no plans specifically for promotion of agrochemicals. However, the Project will prepare cropping plan for KVAs, which will include package of practices for cultivation of different crops. Standard use of agrochemicals, use of organic manures, INM, IPM etc. will be included in the cropping plan. The BPMU and FPOs shall monitor the implementation of these plans. The Environment Expert at PMC will monitor the environment related activities as per EMP and EMoP.
	(4) Subsidence	(a) In the case of extraction of a large volume of groundwater, is there a possibility that the extraction of groundwater will cause subsidence?	(a)N	(a) The project proposes Shallow Tubewells and Deep Tubewells. There is however the possibility that extraction of large volume may cause subsidence. This however will be minimal. Besides, Tubewells will be undertaken only after they have been deemed feasible by the Ground Water Organisation of the IPH Department of the concerned area.
	(5) Odor	(a) Are there any odor sources? Is there a possibility that odor problems will occur to the inhabitants?	(a)N	(a) There shall not be any problems relating to odor. The Project does not involve any activity, which would create any odor problem.
3 Natural Environment	(1) Protected Areas	(a) Is the project site or discharge area located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a)N	(a) The EA confirmed that no activities will be carried out inside the Protected Areas (National Parks and Wildlife Sanctuaries). The Project activities include construction of minor irrigation systems. The Government of Himarchal Pradesh is to demarcate Eco Sensitive Zones/ Areas around each National Park and Wildlife Sanctuary. If any repair work will be carried out in any eco sensitive zone then necessary permission will be obtained from the Forest Department.
	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site or discharge area encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) Is there a possibility that the project will result in the loss of breeding and feeding grounds for valuable wildlife? If they are lost, are there substitutes for the grounds near the original locations? (d) Is there a possibility that overgrazing will cause ecological degradation, such as impacts on wildlife habitats and desertification? (e) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem?	(a)N (b)N (c)N (d)N (e)N	(a) The Project sites shall not be located within the primeval forest and ecologically valuable habitats. (b) The Project does not involve activities which are going to have huge discharge of wastes and effluents. (c) From the preliminary listing of sub-projects it was found that the majority of the sites not located near to the Protected Areas. If any site is located within an eco-sensitive zone, the EA will discuss with the Forest Department for necessary precautionary measures and approvals and accordingly carry out the repair and maintenance work. (d) The Project is not predicted to cause significant negative impact to the wildlife habitats and desertification. (e) The Project activities include construction activities to improve existing irrigation systems, but the scale is small. No significant ecological impacts are anticipated. The Project shall establish Project Monitoring System, which would include monitoring of environmental and social aspects. Environment Management Plan (EMP) shall be prepared for the sub-projects, which are going to create significant environmental impacts. Environmental Monitoring Plan (EMoP) shall also be prepared for these sub-projects.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
4 Social Environment	(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? (b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement? (c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? (d) Is the compensations going to be paid prior to the resettlement? (e) Is the compensation policies prepared in document? (f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples? (g) Are agreements with the affected people obtained prior to resettlement? (h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan?	a) N (b) NA (c) NA (d) NA (e) NA (f) NA (g) NA (h) NA (i) NA (j) NA	The Project shall not have any activity, which involves involuntary resettlement or relocation of villages/ habitations.
4 Social Environment	(2) Living and Livelihood	(a) Is there a possibility that the project will adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary? (b) Is proper allotment made for rights to agricultural land use? Is there a possibility that the allotment will result in inequitable distribution or usurpation of land and available resources? (c) Are proper allotments, such as water rights allotment in the project area made? Is there a possibility that the allotments will result in inequitable distribution or usurpation of water rights and available resources? (d) Is there a possibility that the amount of water used (surface water, groundwater) by the project will adversely the downstream fisheries and water uses? (e) Is there a possibility that water-borne or water-related diseases (e.g., schistosomiasis, malaria, filariasis) will be introduced? Is adequate consideration given to public health education, if necessary?	a) N (b) NA (c) Y (d) N (e) N	(a) The availability of irrigation water will enhance local economy. However in each site it must be confirmed that drinking water needs are not affected by the proposed project as in Himachal Pradesh the streams also sometimes the main sources of drinking water in the lean seasons. Wherever there are IPM schemes downstream/upstream of the source of the proposed project clearance is being sought from the IPM. Also during community meetings the issue is being discussed and adequate measures are being taken to avoid any adverse impact on their drinking water source. (b) There is no allotment of land or land rights to the Project beneficiaries for agriculture. The Project shall target the farmers, who are already having land in the command area of irrigation projects. (c) With the formation of the KVA, the right to use the water from the facility will be bestowed on the KVA. Some traditional flow irrigation systems serves more than one village down the stream and there are issues of conflict over water use during lean season. The project proposes the building of strong institutional mechanisms for operation and maintenance that will also ensure the equitable distribution of water. (d) There are no commercial fisheries downstream. The downstream users in the sites have been integrated into the project as target beneficiaries and thus will not be adversely affected by the project. (e) The chances of waterborne diseases will be less for minor irrigation structures. But the EA (SPMU and DPMUs) will closely monitor the incidences of water-borne diseases and respond to them, if need be.
	(3) Heritage	(a) Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a)N	(a) None of the project sites area located in areas that is of archaeological, historical, cultural, heritage or religious significance. Necessary precautions will be taken, while the construction activity is going on nearer to any heritage place.
4 Social Environment	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) N	(a) Construction activity is a small-scale system. It will involve construction of water intake facilities in tributaries or groundwater, main and distribution irrigation lines which consist of canals or pipelines. Besides, in many sites the existing irrigation facilities will be rehabilitated. Accordingly significant negative impacts are not predicted with proper management at construction stage. Hence the project will not affect the landscape adversely.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources respected?	(a) Y (b) Y	(a) The Project will take up only small scale construction structures. There will not be any change in culture as well as in the existing water use rights. The existing water users will get improved agriculture benefits. (b) If ethnic minorities/ tribal people are already there in the command area and hold land in the CCA, they will continue to get the benefits from the agriculture system.
	(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project? (b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.? (d) Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	(a)Y (b)Y (c)Y (d)Y	(a) The Project Proponent is a State Government Department (Agriculture Department) and it has to abide by all laws and rules of land associated with the working conditions. (b) As required, proper instruction and guidance on safety consideration will be given to workers and other individuals involved in the Projects. Construction activities will be done by construction contractors engaged by the EA. They will be bound by the provisions of the contract executed between the EA and Contractors. The EA has an elaborate procurement guidelines and contracts. The provisions of safety and security, fair working conditions, fair wage/ minimum wages, basic work place facilities are included in the contract. The EA confirmed that all these terms and conditions will be closely monitored during the project. (c) These aspects will be looked into during the construction phase as mentioned in (b). (d) The Construction Contractor will be responsble for providing safety and security. The EA will closely monitor the work of the Contractors.
5 Others	(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?	(a)Y (b)Y (c)Y	(a) The Construction Contractor is bound to take adequate measures to reduce the impact on the environment as per the conditions of the contract. The EA will add further compliances required to safeguard the environment as well as social concerns in the legally binding contract. (b) Mitigation measures against different environmental problems have been identified and included in the contract document. (c) Mitigation measures against different social problems have been
	(2) Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program? (c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? (d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	(a)Y (b)Y (c)Y (d)N	(a) Monitoring should be executed, based on a monitoring system to be developed for the Project which includes the monitoring of environmental and social safeguards measures (b) and (c) The items, methods, and frequencies of the monitoring system are covered in ESAF (d) The monitoring requirements will be entirely for the purposes of the Project and additional reporting to regulatory agencies will not be required because the project activities will not require environmental clearance.

Environmental Checklist: 16. Agriculture, Irrigation and Livestock Industry

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
6 Note	Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Forestry checklist should also be checked. (b) For the projects including construction of large-scale weirs, reservoirs, and dams, where necessary, pertinent items described in the Hydropower, Dams and Reservoirs checklist should also be checked.	(a)NA (b)Y	(a) The Project doesn't include forestry activities. Although some access road may pass forests, but no significant impacts are predicted for the Project. (b) The Project will construct/rehabilitate irrigation system, treatment catchment area, installation of PV system, rehabilitation of access road and construction of small building. No new construction of dams and reservoirs are proposed.
	Note on Using Environmental Checklist	(a) If necessary, the impacts to transboundary or global issues should be confirmed (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a)NA	(a)NA (global issues may affect agriculture activities by the project, but the project doesn't cause negative impact to transboundary or global issues.)

Source: JICA Survey Team (based on JICA Environmental Checklist 16 Agriculture, Irrigation and Livestock Projects)

1) Regarding the term “Country's Standards” mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made.
   In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).
2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which the project is located.