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

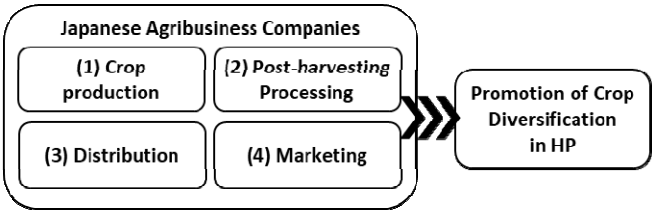
6. Number of Participants and Target Group

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

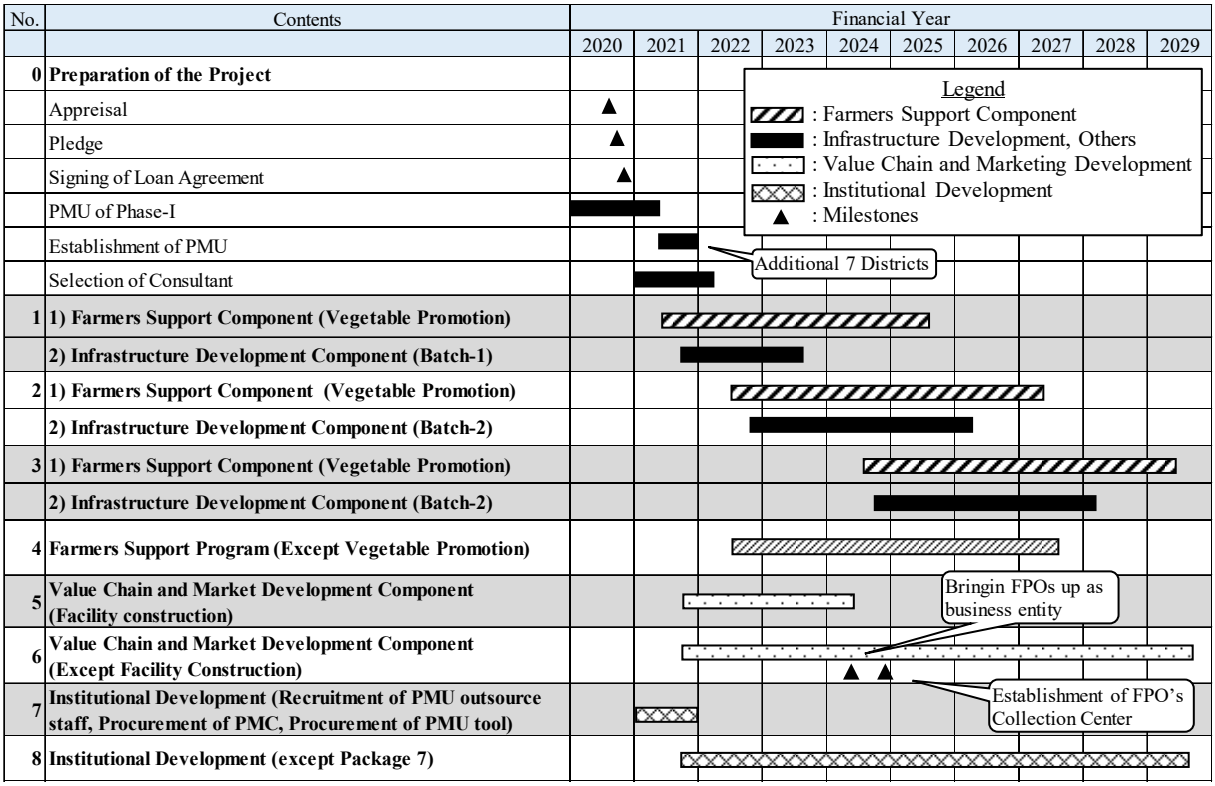
The total duration of consulting services will be ninety one months followed by 6 months of defects liability (notification) period. The implementation schedule expected is as shown below.

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

Non-disclosure information

Source: JICA Survey Team

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

2. Farmers' Support Component

Non-disclosure information

Source: JICA Survey Team

3. Value Chain and Market Development Component

Non-disclosure information

Source: JICA Survey Team

Att.8.2.1-4 Cost Breakdown of Institutional Development Component

4. Institutional Development Component

Non-disclosure information

Source: JICA Survey Team

Attachment 8.2.2 List of Unit Price of Infrastructure Component-1

Non-disclosure information

Attachment 8.2.2 List of Unit Price of Infrastructure Component-2

Non-disclosure information

Attachment 8.2.2 List of Unit Price of Infrastructure Component-3

Non-disclosure information

Attachment 8.2.2 List of Unit Price of Infrastructure Component-4

Non-disclosure information

Attachment 8.2.2 List of Unit Price of Infrastructure Component-5

Non-disclosure information

Attachment 8.2.2 List of Unit Price of Infrastructure Component-6

Non-disclosure information

Attachment 8.2.2 List of Unit Price of Infrastructure Component-7

Non-disclosure information

Attachment 8.2.2 List of Unit Price of Infrastructure Component-8

Non-disclosure information

Attachment 8.2.2 List of Unit Price of Infrastructure Component-9

Non-disclosure information

Attachment 8.2.2 List of Unit Price of Infrastructure Component-10

Non-disclosure information

Attachment 8.2.2 List of Unit Price of Infrastructure Component-11

Non-disclosure information

Attachment 8.2.2 List of Unit Price of Infrastructure Component-12

Non-disclosure information

Attachment 8.2.2 List of Unit Price of Infrastructure Component-13

Non-disclosure information

Attachment 8.2.2 List of Unit Price of Infrastructure Component-14

1.3 Unit Price of Catchment Area Treatment

Non-disclosure information

Attachment 8.2.2 List of Unit Price of Infrastructure Component-15

Wire Crates **ISC-022**

Non-disclosure information

Silt Retention Structure **ISC-023**

Non-disclosure information

Attachment 8.2.2 List of Unit Price of Infrastructure Component-16

1.4 District wise cost estimation of Solar Pumps

Non-disclosure information

1.5 District wise cost estimation of Farm Access Roads

Non-disclosure information

Attachment 8.2.2 List of Unit Price of Infrastructure Component-18

1.5 Farm Access Road **ISC-024**

Non-disclosure information

1.6 District wise Projections of Fencing

Non-disclosure information

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

Farmer's support project Unit Price

Non-disclosure information

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

Farmer's support project Unit Price

Non-disclosure information

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

Training (1) **FSC-001**

Non-disclosure information

Source: Based on Phase-1 results

Training (2) **FSC-002**

Non-disclosure information

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

Training (3) **FSC-003**

Non-disclosure information

Source: Based on Phase-1 results

Training (4) **FSC-004**

Non-disclosure information

Source: Based on Phase-1 results

Training (5) **FSC-005**

Non-disclosure information

Source: Based on Phase-1 results

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

Training (6) **FSC-006**

Non-disclosure information

Source: Based on Phase-1 results

Training (7) **FSC-007**

Non-disclosure information

Source: Based on Phase-1 results

Training (8) **FSC-008**

Non-disclosure information

Source: Based on Phase-1 results

Training (9) **FSC-009**

Non-disclosure information

Source: Based on Phase-1 results

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

Training (10) **FSC-010**

Non-disclosure information

Source: Based on Phase-1 results

Training (11) **FSC-011**

Non-disclosure information

Source: Based on Phase-1 results

Training (12) **FSC-012**

Non-disclosure information

Source: Based on Phase-1 results

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

Training (13) **FSC-013**

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

Source: Based on Phase-1 results

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

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

Non-disclosure information

Source: Based on Phase-1 results

Awareness Camp **FSC-017**

Non-disclosure information

Source: Based on Phase-1 results

Workshop **FSC-018**

Non-disclosure information

Source: Based on Phase-1 results

Learning **FSC-019**

Non-disclosure information

Source: Based on Phase-1 results

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

Orientation **FSC-020**

Non-disclosure information

Source: Based on Phase-1 results

Planting Material **FSC-021**

Non-disclosure information

Source: Based on Phase-1 results

Dairy Cost **FSC-023**

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

Source: Based on Phase-1 results

Mushroom Cultivation **FSC-027**

Non-disclosure information

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)

Non-disclosure information

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**

Non-disclosure information

Source: Based on Phase-1 results

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

B. Young Farmers **FSC-030**

Non-disclosure information

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**

Non-disclosure information

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**

Non-disclosure information

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.)

Non-disclosure information

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**

Non-disclosure information

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

Non-disclosure information

Source: Based on Phase-1 results

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

Establishment of R & D support

Non-disclosure information

Source: Based on estimates from universities

4. Institutional Development Component Unit Price

Non-disclosure information

4. Institutional Development Component Unit Price

Non-disclosure information

Workshop (1) **IST-001**

Non-disclosure information

Source: Based on Phase-1 results

Workshop (2) **IST-002**

Non-disclosure information

Source: Based on Phase-1 results

Workshop (3) **IST-003**

Non-disclosure information

Source: Based on Phase-1 results

Workshop (4) **IST-004**

Non-disclosure information

Source: Based on Phase-1 results

Workshop (5) **IST-005**

Non-disclosure information

Source: Based on Phase-1 results

Workshop (6) **IST-006**

Non-disclosure information

Source: Based on Phase-1 results

Workshop (7) **IST-007**

Non-disclosure information

Source: Based on Phase-1 results

Training (1) **IST-008**

Non-disclosure information

Source: Based on Phase-1 results

Training (2) **IST-009**

Non-disclosure information

Source: Based on Phase-1 results

Training (3) **IST-010**

Non-disclosure information

Source: Based on Phase-1 results

Training (4) **IST-011**

Non-disclosure information

Source: Based on Phase-1 results

Meeting (1) **IST-012**

Non-disclosure information

Source: Based on Phase-1 results

Meeting (2) **IST-013**

Non-disclosure information

Source: Based on Phase-1 results

Material (1) **IST-014**

Non-disclosure information

Source: Based on Phase-1 results

Material (2) **IST-015**

Non-disclosure information

Source: Based on Phase-1 results

Material (3) **IST-016**

Non-disclosure information

Source: Based on Phase-1 results

Material (4) **IST-017**

Non-disclosure information

Source: Based on Phase-1 results

Material (5) **IST-018**

Non-disclosure information

Source: Based on Phase-1 results

Exposure visit **IST-019**

Non-disclosure information

Source: Based on Phase-1 results

Street Play **IST-020**

Non-disclosure information

Source: Based on Phase-1 results

Fair **IST-021**

Non-disclosure information

Source: Based on Phase-1 results

Demonstration **IST-022**

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

Source: Based on Phase-1 results

Transport facilities at PMU **IST-025**

Non-disclosure information

Source: Based on Phase-1 results

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-11

IST-026

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

Source: Based on Phase-1 results

Strengthening of ICT environment **IST-030**

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

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

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

Source: Based on Phase-1 results

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

Non-disclosure information

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**

Non-disclosure information

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

Non-disclosure information

Attachment 8.2.4 Cost Breakdown of Institutional Development Component-16

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

Non-disclosure information

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

Non-disclosure information

Source: Based on Estimation by PMU

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

(Unit: Rs. in Lakh)

Non-disclosure information

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**

Non-disclosure information

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**

Non-disclosure information

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**

Non-disclosure information

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**

Non-disclosure information

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**

Non-disclosure information

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**

Non-disclosure information

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**

Non-disclosure information

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**

Non-disclosure information

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**

Non-disclosure information

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

Non-disclosure information

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**

Non-disclosure information

Source: Based on Phase-1 results

Attachment for Chapter 9

Project Evaluation

Att.9.3.1-1

Attachment 9.3.1 Economic Evaluation

Economic Farm Gate Price Estimation (Traded Commodities)

Non-disclosure information

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 **2. Economic Price**

Non-disclosure information

Non-disclosure information

Non-disclosure information

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.

Economic Benefit **Att.9.3.1-5**
Project Benefit (Agricultural Production) -Annual

Non-disclosure information

Source: JICA Survey Team

Att.9.3.1-6

1. O&M Cost

Annual necessary cost for O&M

Non-disclosure information

Souce: JICA Survey Team
Note: Standard Conversion Factor =
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

Non-disclosure information

Souce: JICA Survey Team
Note: Standard Conversion Factor =
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

Non-disclosure information

Souce: JICA Survey Team
Note: Standard Conversion Facto

3) Replacement Schedule

Non-disclosure information

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

Non-disclosure information

Attachment 9.5.1 Crop Budget

Crop Budget

1. Financial Price **2. Economic Price**

Non-disclosure information

Attachment 9.5.1 Crop Budget

Non-disclosure information

Attachment 9.5.1 Crop Budget

Non-disclosure information

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.

Attachment 9.5.2 Economic Benefit

Project Benefit (Agricultural Production) -Annual

Non-disclosure information

Increment of Net Benefit
Irrigated Area
Source: JICA Survey Team

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

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

Non-disclosure information

Attachment 9.7.1 Farm Economic Analysis

Project Benefit (Agricultural Production) -Farm Household Analysis

Non-disclosure information

Increment of Net Benefit
Irrigated Area =
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.

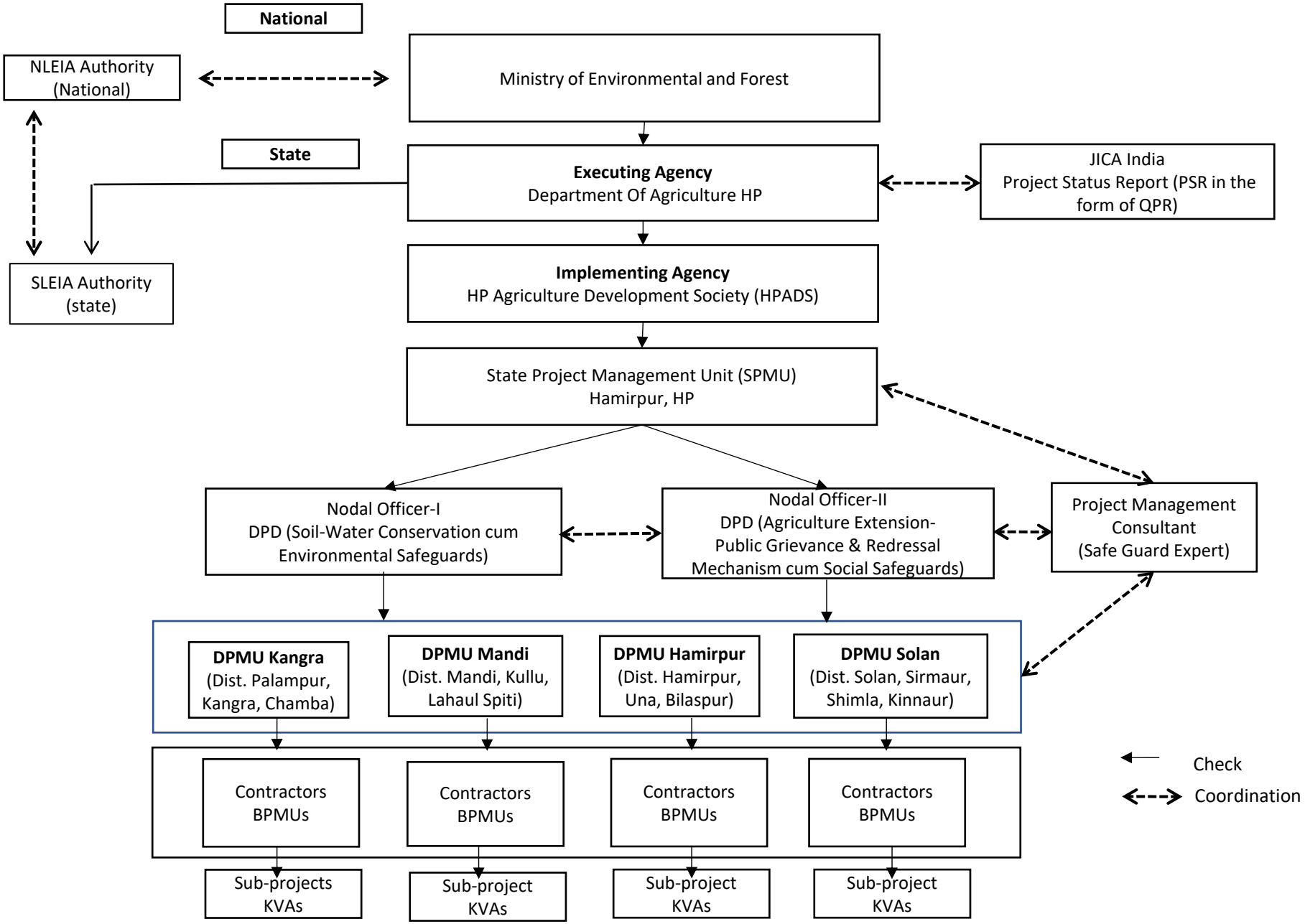
	(10) Disclosure of the accredited EIA Consultant Organization along with the EIA Coordinator and Functional Area Expert(s) involved in the environment impact assessment shall be included in the EIA Report in the format specified at AppendixXIII and they are accountable for the contents or data provided 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.

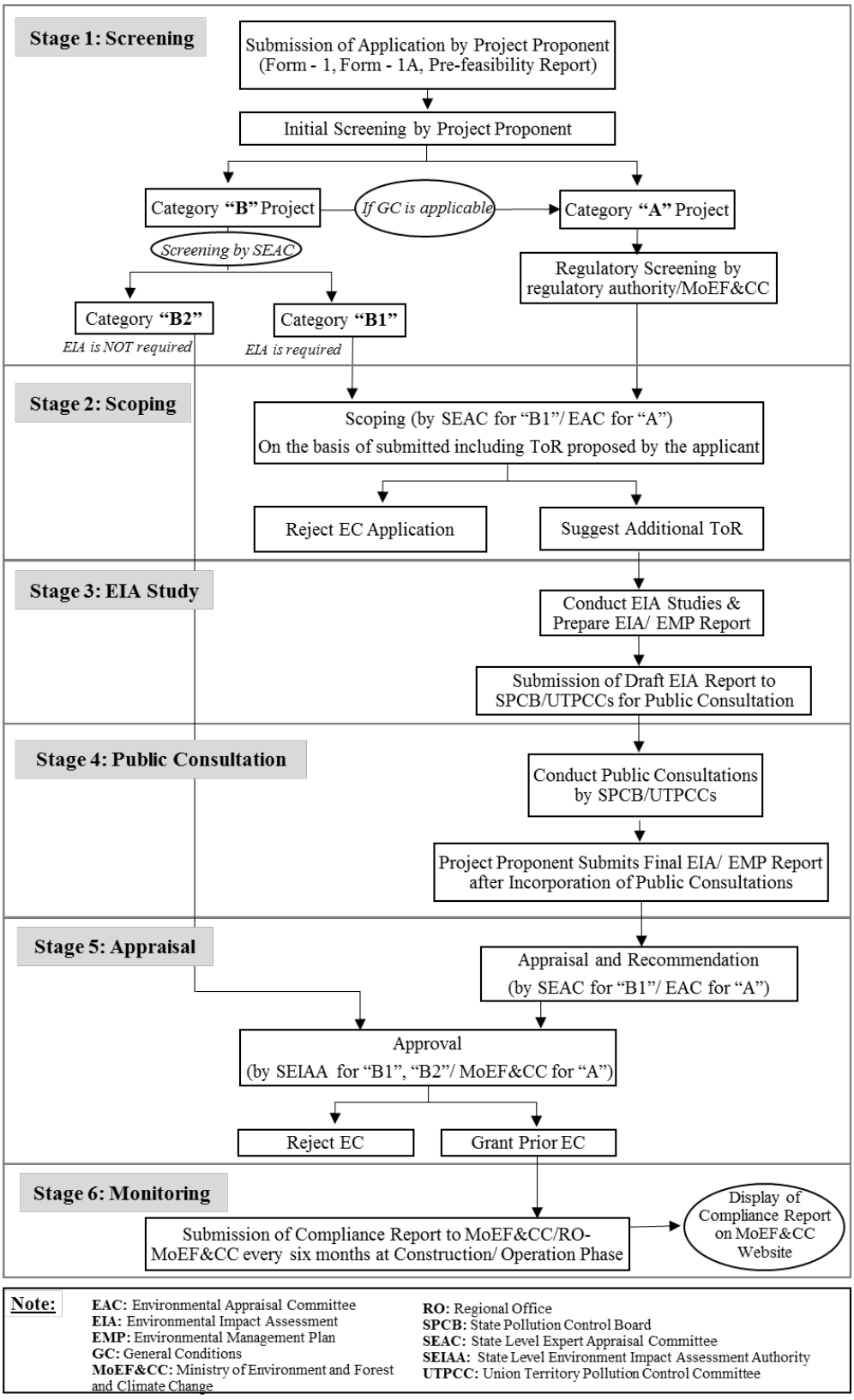
Indian EIA Category 'A' projects or development activities are mandated to conduct EIA studies along with conducting the "Public Consultation" as per the procedure stipulated in the Notification, and the environmental clearance is required from the Central Government or MoEF&CC.

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.

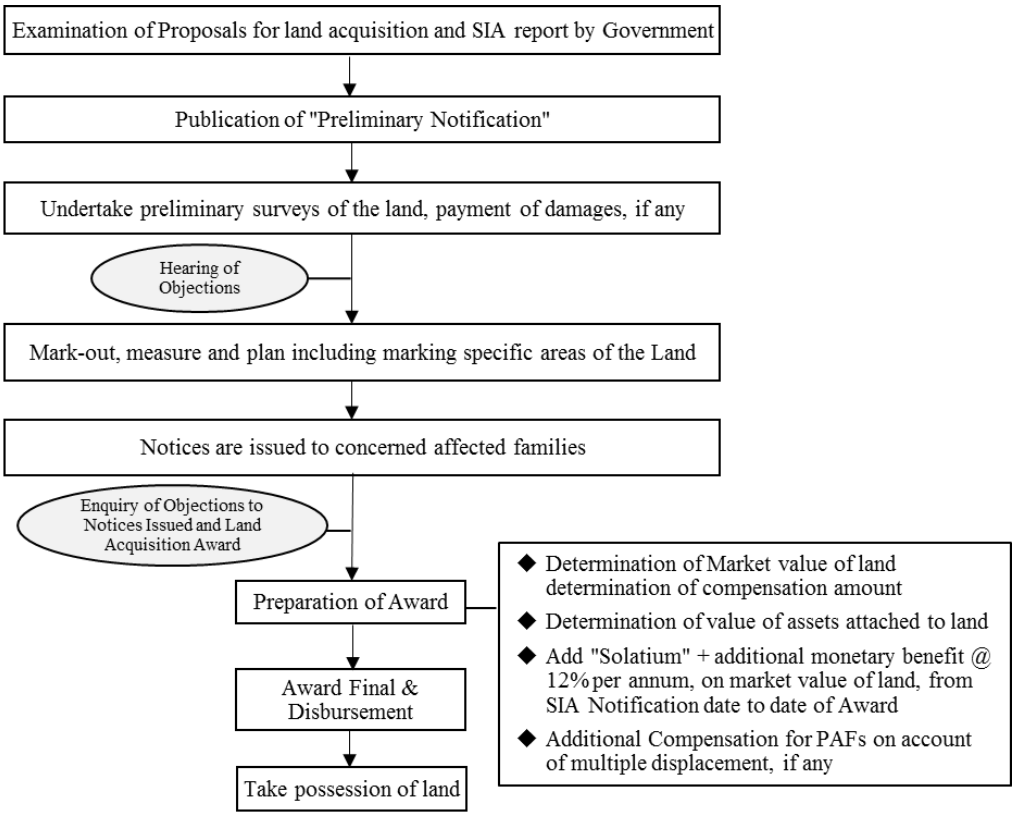
According to the Act; it ensures "a humane, participative, informed and transparent process for land acquisition for the purpose of industrialisation, development of essential infrastructural facilities and urbanisation, which is in consultation with the local self-government institutions and Gram Sabhas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

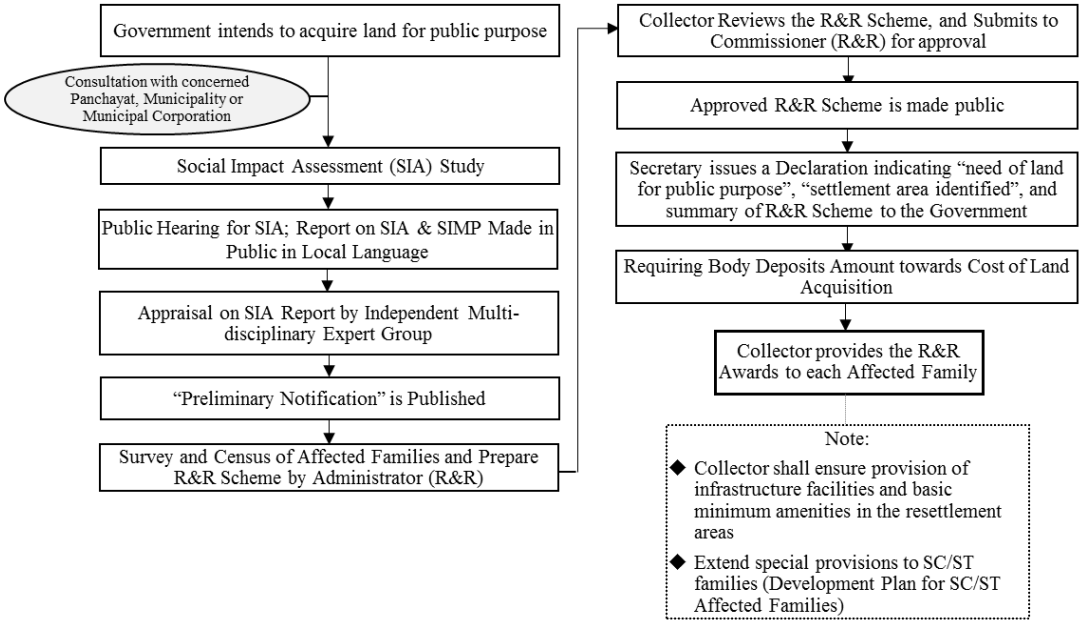
The processes involved in land acquisition and involuntary settlement are depicted in **Figure 2** and

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.