Government of Nepal

Ministry of Irrigation

Department of Irrigation

Irrigation and Water Resources Management Project (IWRMP)

Irrigation Infrastructures Development & Improvement (AF), Component-A

(Word Bank Project ID: P144474)

SUBPROJECT COMPLETION REPORT

Sanichaur, Jajarkot

CMS Engineering Consult Pvt. Ltd.

Full Bright Consultancy Pvt. Ltd. JV

June 2018 / Asar 2075

IWRMP (AF) - COMPONENT A
Sanichaur Subproject Completion Report

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IWRMP (AF) - COMPONENT A
Sanichaur Subproject Completion Report

Name of Subproject	Sanichaur	**Ecological Belt**	Hill
Municipality & Ward No(s)	Bheri Municipality	**District**	Jajarkot

SUBPROJECT DESCRIPTION

Brief Description of Subproject

This sub-project is a rehabilitation type but was defunct since long. The canal is a contour canal and command area is plateau protuding to wards Bheri river south. The size of command area is about 20 ha with red soil. The Metalled Road joining Jajarkot Khalanga passes through the command area facilitating marketing agricultural produce and import farm inputs. The canal is about Five Km long and has one Aqueduct and 2800 m lined canal. There are many small cross drainage works ,mostly superpassages . There are Foot bridges to facilitate pedesttrians and cattles to cross the canal. Canal alignment mostly passes through public land covered by bushes and small trees.
The intake is from Phere khola and is mantained by water mill owner.The tail race of water mill is tapped and diverted in to the canal which is comparatively easy for users.
Road track opening by municipalities has started to disturb canals here also. The ramphant disposal of excavated materials roll or flow down and damage the canal sections in many places. There is a need of coordination in this matter to reduce such losses . We had talked with Municipality ward chair person to coordinate and prevent loss of public property constructed by government fund.

Size of Command Area Gross 21 ha Net 20 ha

Location of Centre of Command Area

Northing	28 °	39 '	26.00 "		
Easting	82 °	7 '	14.00 "		

Distance from Command Area to:

nearest road accessible by jeep/tractor			1 km
nearest paved road			1 km
nearest urban centre/market	(name)	Aathbiskot	20 km
nearest local IDD/IDSD/GWIDD office	(name)	Jajarkot	20 km
nearest local DADO office	(name)	Jajarkot	20 km

Source(s) of Irrigation Water Supply

Source Reference			Location of Headworks				Measured Flow		Comments
1	Name	Phera Khola	N	28 ° 39 '	26.00 "		500	lps	This river has very good discharge at intake.
	Type	Pernnial	E	82 ° 7 '	13.90 "			date	
2	Name		N	° '	"			lps	
	Type		E	° '	"			date	
3	Name		N	° '	"			lps	
	Type		E	° '	"			date	

IWMRP INTERVENTION

Irrigation Water Supply

Source	Target Supply	Actual Flow Rate Measurements							
1	30	l/s	30	l/s	20 May 18	date		l/s	date
2		l/s		l/s		date		l/s	date
3		l/s		l/s		date		l/s	date
Total	30	l/s	30	l/s			0	l/s	
Duty	1.500	l/s/ha	1.500	l/s/ha			-	l/s/ha	

Infrastructure Development Works under IWRMP

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
Side Intake	2m long and 2 m wide to tap tail race of local water mill	1	1
RCC canal lining	690 m long 0.35 m wide and 0.40 high	1	1
Superpassage	5M wide one and 10 M wide one altogether two in no	2	2
Foot bridge	4 m wide and 1.4 long , five in no	5	5
Retaining wall at different places	98.1m in length in different place with varying heights	1	1
Outlets	0.7 mwide,0.5 m high and 1.o m long 4 in nos	4	4
Escape	8 m long ,3 m wide and 0..5 in height. 2 in nos	2	2
Covered canal	75m in length	1	1
Protection work	99 gabion boxes to protect the intake	1	1
Trashrack	0.45 m wide and 0.5 m high , one	1	1
Steel Gate	0.45 m wide 1 m high with spindle , 2 in nos	2	2

Infrastructure Development Works under IWRMP (continued)

Name and Description of Structure	Key Dimensions	Quantity	
		Planned in DFSR	Constructed

Financial Summary (all figures in NPR)

	Approved Estimate	Contract Value	Final Value
[A] Civil Works			
NCB (All Packages)	2,744,115	2,757,024	2,724,950
WUA Payable (All Packages)	5,800,000	5,800,000	5,800,000
WUA Contribution (All Packages)	1,005,622	1,005,622	1,005,622
Subtotal	9,549,737	9,562,646	9,530,572
[B] Coningencies (All NCB Packages)			
Physical	905,306	0	0
Price Escalation	905,306	0	0
Other (5%)	453,000	453,000	453,000
Subtotal	2,263,612	453,000	453,000
[C] Miscalleneous Items	62,000	0	60,000
[D] SEMP	500,000	450,000	450,000
Total Expenditure [A]+[B]+[C]+[D]	12,375,349	10,465,646	10,493,572
Calculation of DoI/WUA Contributions			
Total DoI Works	11,369,727	9,460,024	9,487,950
WUA Net Cash Contribution*			
Net DoI Contribution	11,369,727	9,460,024	9,487,950
WUA Contribution Contracts (All)	1,005,622	1,005,622	1,005,622
Total DoI+WUA Contributions	12,375,349	10,465,646	10,493,572
Total WUA Contribution	1,005,622	1,005,622	1,005,622
Overall Effective WUA Contribution	8.1%	9.6%	9.6%

(* where appropriate)

WATER MANAGEMENT

Description of How the Physical Water Distribution System Operates

The water distribution system operates manually. There are small cuts in unlined portion of the canal which act as outlets from the main canal . In lined portion , circular openeing of 150mm diar provided to serve as an outlets. These outlets are closed or opened as per the need of water for the crops manually.

Description of How Farmers Share the Water Among Themselves

Generally ,water is sufficient in all season , no rotational irrigation is adopted. They have rules and regulation to operate and maintain the canal.

Desciption of Field Application Methods Being Used

Wild flooding is invariably adopted in this sub-project also for irrigation . Here drip and sprinkler can be used and knowledge on benefits of such water use techniques needs dissemination among all users to reduce erosion and preserve soil neutrients.

WATER USERS ASSOCIATION

Participation		Total	Men	Women	Janajati	Dalit	Other
Number of Households		22					
Total Population	No	186	90	96	36	5	145
	%		48%	52%	19%	3%	78%
WUA Executive Committee	No	9	6	3	3	1	5
	%		67%	33%	33%	11%	56%
Number of Traing Events		1					
WUA Training Participation	No	25	15	10	5	2	18
	%		60%	40%	20%	8%	72%

	day	month	year
Date of WUA Registration	2	10	2073
Date of WUA Subproject Agreement with DoI	3	12	2073

Observations on WUA Organisation, Rules, Regulations and Conflict Resolution

There is no any written rules & regulations formulated so far.They run the irrigation system as per the decision of WUA.There is enough water at source and water related conflict among users is not likely.The canal can convey enough discharge upto the end of command area thus promoting participation of all users.We did not notice any interest related conflicts among users but absentism has little effect on canal operation.There is good leadership at present to encourage users in maintenence of the entire canal system.As said earlier,there is no conflict/ misunderstanding among users if at all it occurs will be resolved amicably through interaction . WUA is active and performs regular meeting and has own office.

Observations on WUA Organisation of Operation and Maintenance (see also Annex F)

WUA organization is active and canal construction work is completed. ISF plan is prepared. The users need training on resource generation, mobilization,leadership ,accounting,water management and high value crops.There is all weather metallic road connecting Jajarkot Khalanga and surkhet. There should be no market constraint for the products of command area. There is no conflict of interests among users if at all it occurs will be resolved amicably .ISF collection to meet operation and maintenance expenses in this system is rather complicated and difficult. The maintenance requirement of 5 km long canal is more than the agreed ISF rate. So it has to be revised after users get the taste of irrigated crops in the command area.

AGRICULTURE EXTENSION AND TRAINING

Participation

		Total	Men	Women	Janajati	Dalit	Other
Total Population	No	186	90	96	36	5	145
	%		48%	52%	19%	3%	78%
Number of Traing Events							
Participants in Training	No	0					0
	%		-	-	-	-	-

Productivity

	DFSR Baseline		Latest Available Data, FY: ***<enter FY of data here>***					
	Area (ha)	Productivity (t/ha)	Area (ha)	Productivity (t/ha)	Price (NRs/t)	Gr Income (NRs/ha)	Prod Cost (NRs/ha)	Net Income (NRs/ha)
Spring Paddy						0		0
Increase in Productivity				-				
Paddy	2	2.40	6	2.40	30,500	73,200	55,000	18,200
Increase in Productivity				*0%*				
Wheat	15	1.80	15	1.80	35,700	64,260	48,000	16,260
Increase in Productivity				*0%*				
Maize	15	2.00	13	2.00	25,200	50,400	42,000	8,400
Increase in Productivity				*0%*				
Potato	1	10.00	2	10.00	30,000	300,000	165,000	135,000
Increase in Productivity				*0%*				
Pulses			2	0.60	130,000	78,000	32,000	46,000
Increase in Productivity				-				
Oilseed			1	0.60	120,000	72,000	30,000	42,000
Increase in Productivity				-				
Vegetables			2	10.00	25,500	255,000	120,000	135,000
Increase in Productivity				-				
Other						0		0
Increase in Productivity				-				

Total ISP Net Income (NRs)	1,136,300
Overall Net Income per hectare of Command Area (NRs/ha)	56,815

Command Area Performance

	DFSR Baseline	Target	Latest
Cropping Intensity	165%	210%	205%
% Cropped Area Planted with Improved Seed			70%
% Farmers Using Improved Techniques			55%

Adoption of Improved Crop Varieties

Spring Paddy	
Paddy	Radha-4, Radha-7, Sukkha-4, Sukkha-6, Khumal-4
Wheat	WK-1204, Gautam, Danfe
Maize	Arun-2, Manakamana-3
Potato	Cardinal
Pulses	Local
Oilseed	Local
Vegetables	Cauliflower-Snow Crown, Cabbage-Green Coronet, Radish-40 days, Meno Early

SOCIAL AND ENVIRONMENTAL MANAGEMENT

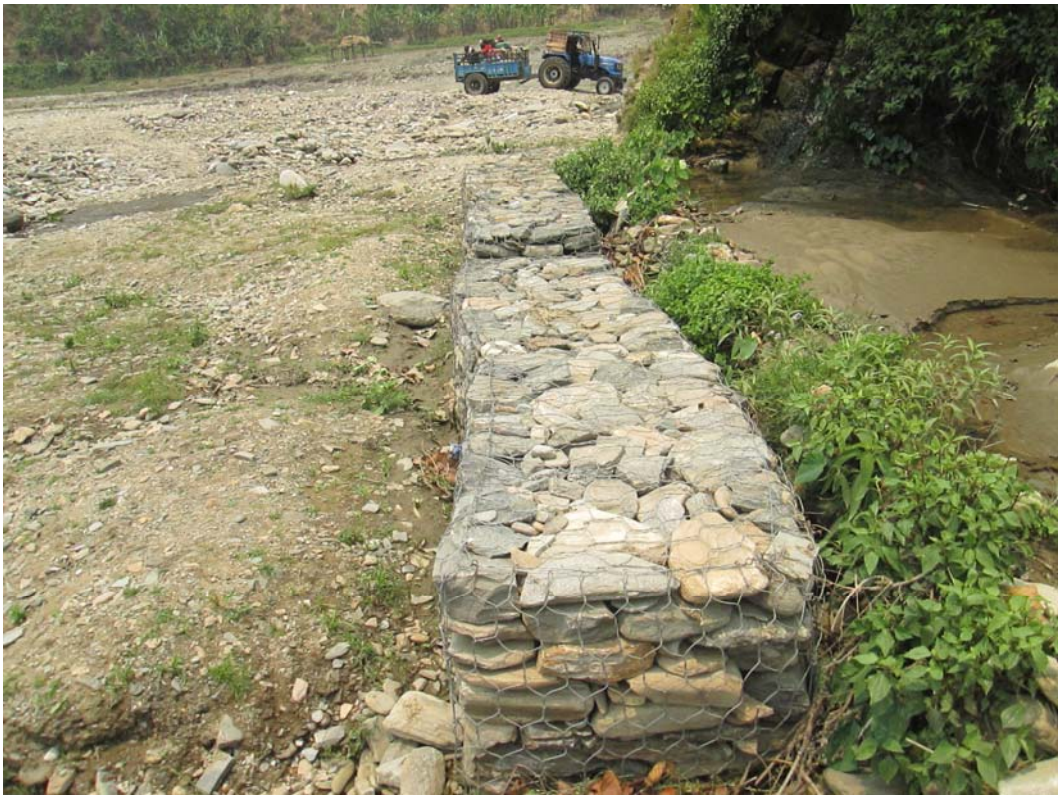
Implementation of SEMP Recommendations

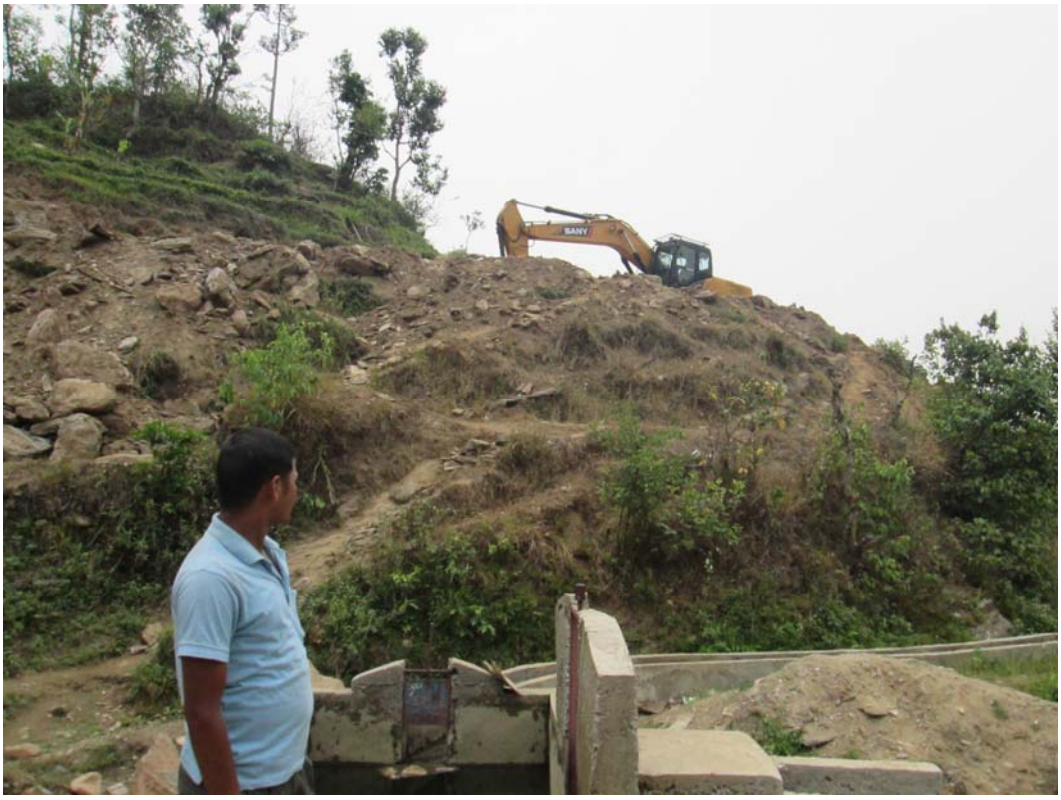
SEMP Issue	Location	Mitigation Measure	Compliance	Remarks
Slope stabilization in landslide zones		Construct masonary wall and gabion revetment for weaker slopes along the canal.	Yes	
Impediment of movement of wildlife, livestok and people		Construction of low cost foot bridges at required locations	Yes	
Lack of awareness on WUA functions, gender issues and water management.		Institutional development , gender awareness and water management training to WUA	Yes	

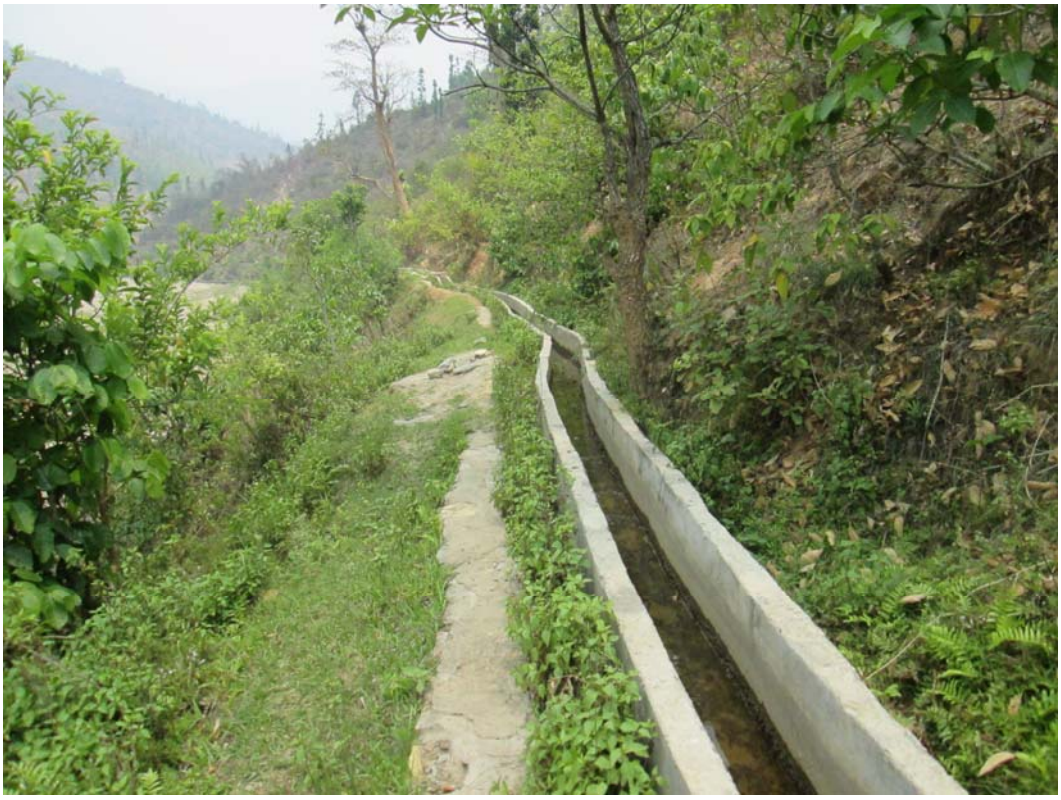
Total Number of Mitigation Measures (not including those no longer relevant)	3
Number of Mitigation Measures Fully Implemented	3
Overall Rate of Compliance	100%

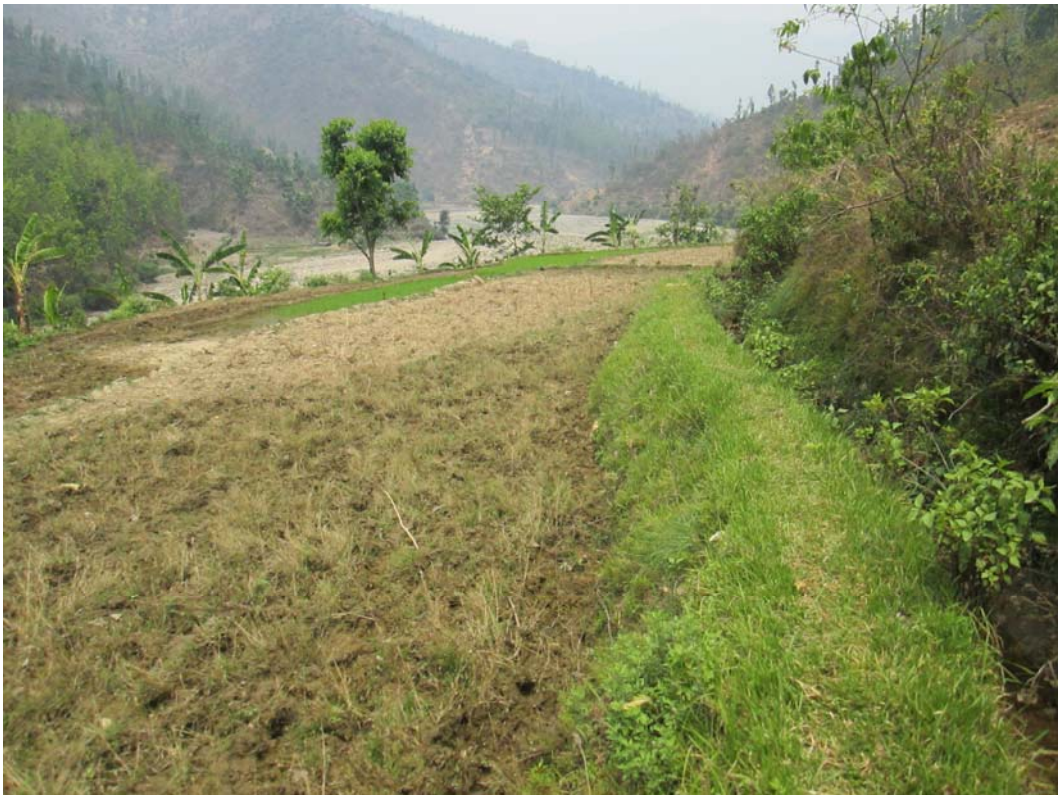
ANNEX B

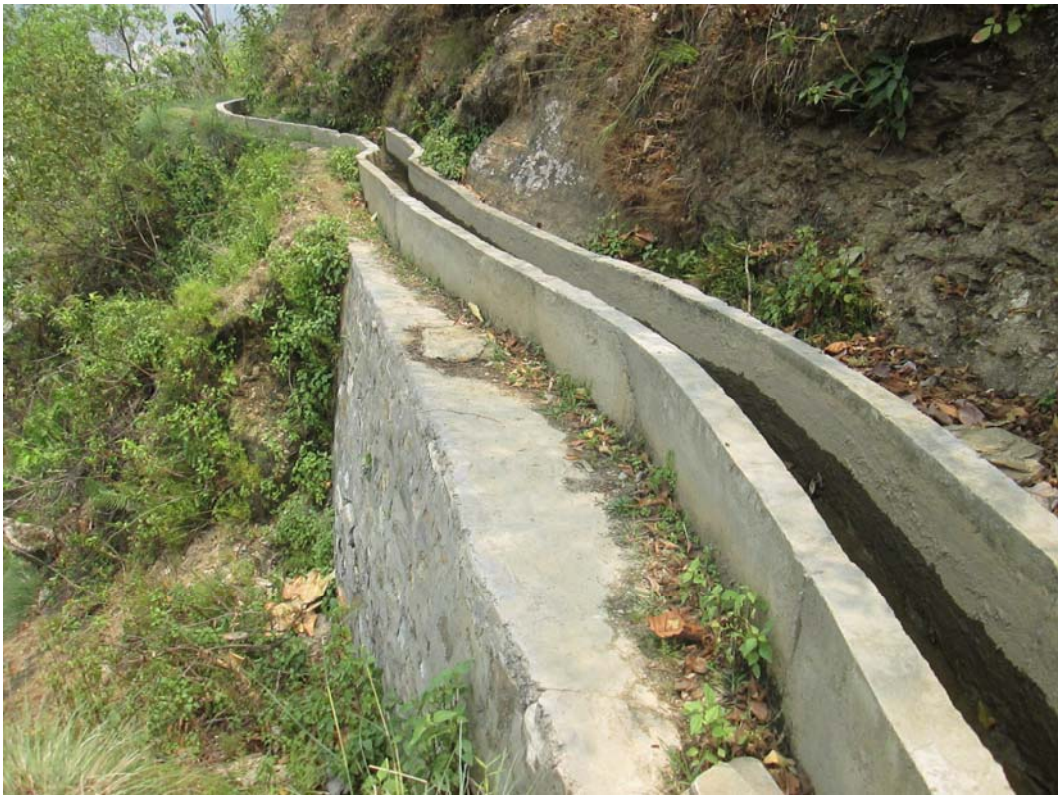
PHOTOGRAPHS

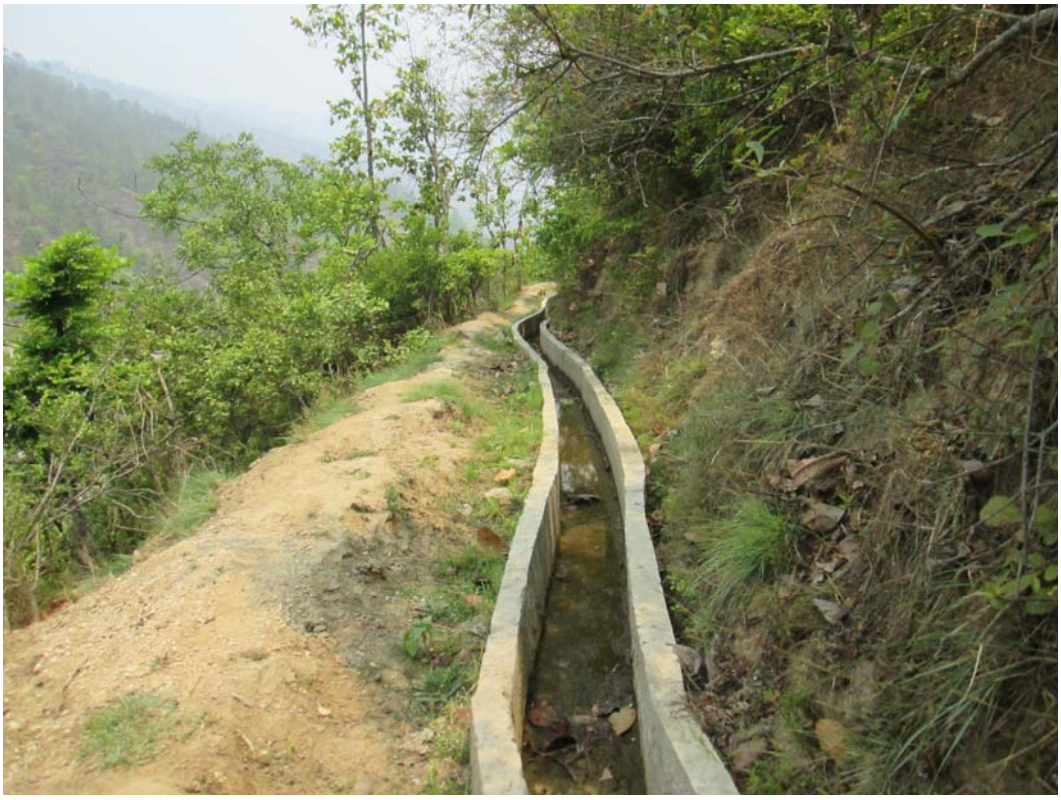


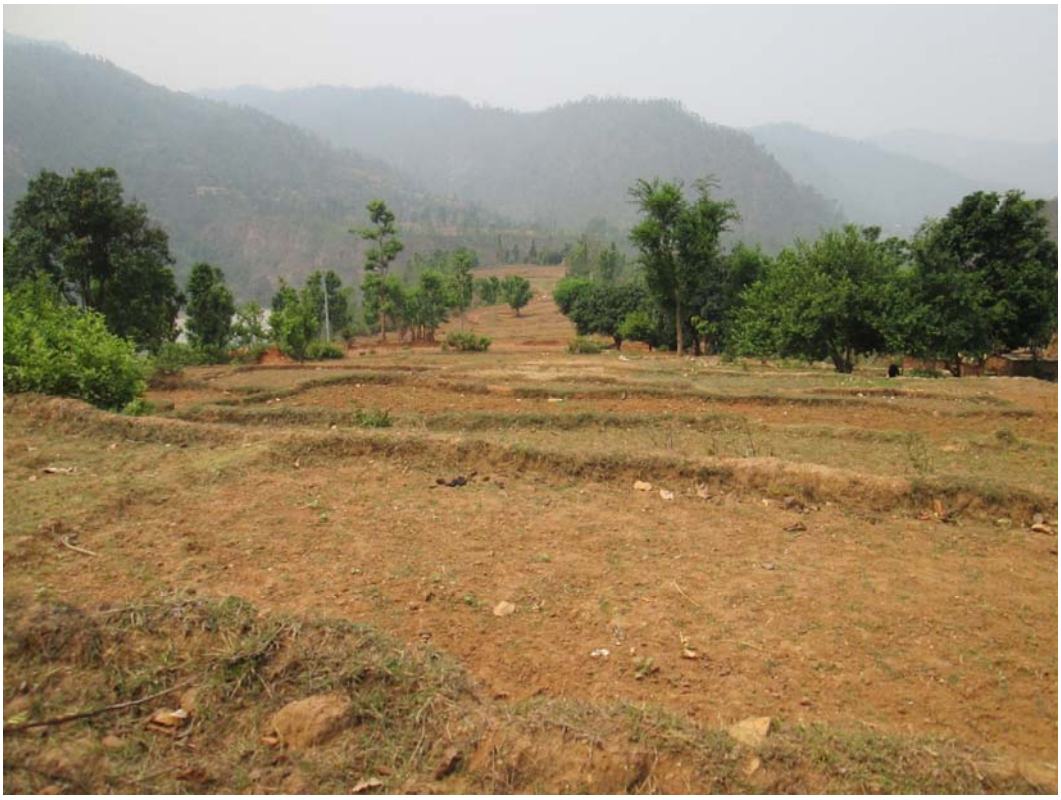

SANY

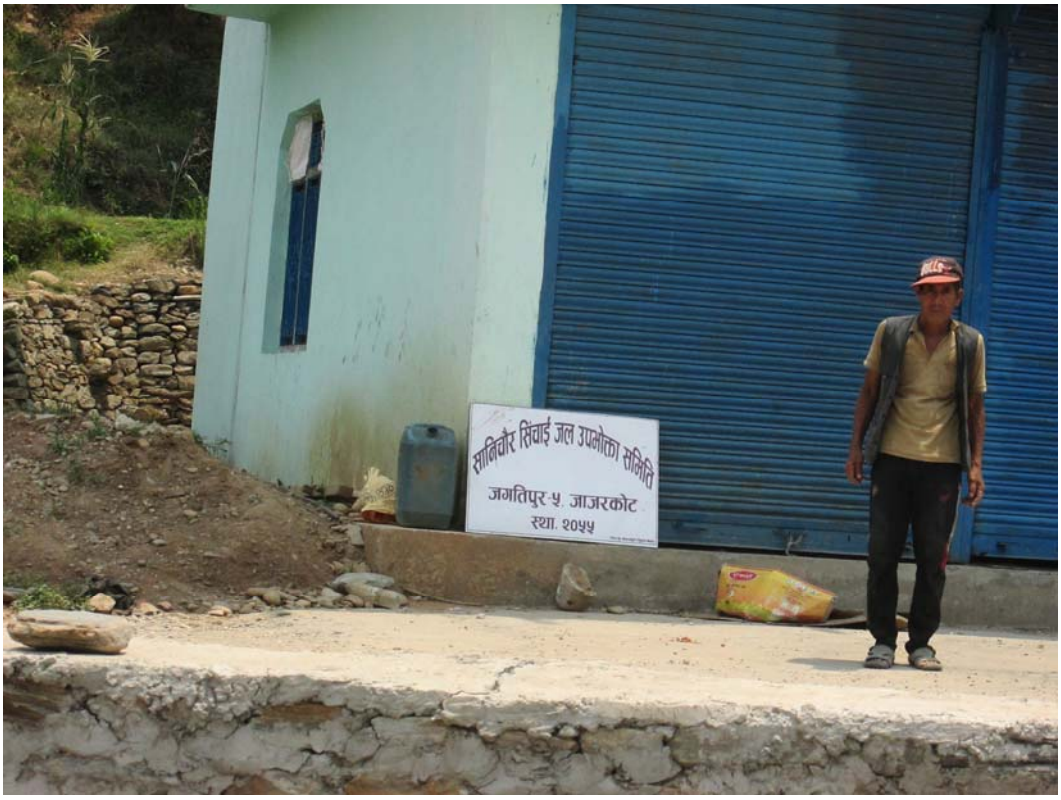











खानिवोर सिंचाई जल उपभोक्ता समिति
जगतिपुर-५, जाजरकोट
स्था. २०५५

ANNEX E

LAND DONATION RECORDS

नेपाल सरकार
सिंचाई मन्त्रालय
सिचाई विभाग

मध्यपश्चिमाञ्चलक्षेत्रीय सिंचाई निर्देशनालय

सिंचाई विकास डिभिजन,जाजरकोट

प.स.०७४/०७५
च.नं. १६८

मिति : २०७४/१२/१४

श्री .परामर्स दाता (TA Team)
फिल्ड कार्यालय सुर्खेत ।

विषय : विवरण पठाएको बारे ।

उपरोक्त विषयमा यस सिचाई विकास डिभिजन जाजरकोट अर्न्तगत संचालित चौखा रोलीज्यूला र सानिचौर सिंचाई योजना को नहर रहेको क्षेत्र मा व्यक्तिगत बाधा अबरोध नरहेको भनि सम्बन्धित उपभोक्ता सस्थाबाट प्रमाणीत भए आएको ले सोको प्रतिलिपी (Photo Copy) सहित पठाएको छ ।

विष्णु प्रसाद पौड्याल
(डिभिजन प्रमुख)

डिभिजन प्रमुख

तपसिल

प्रस्ताव नं. ९. अनुगमन गरिएको सम्बन्धमा ।

निर्णय नं. ९ प्रस्ताव नं. ९ सम्बन्धमा व्यापक छलफल गर्दा यस सानिचौर सिंचाई आयोजनाको मुहान देखि पुछार सम्मका उपभोक्ताहरुको आम भेलाबाट यस सानिचौर सिंचाई योजनाको मुहान देखि पुछार सम्म कुलोमा पर्ने जग्गा सबै सार्वजनिक भएको हुँदा कोही कसैको विवाद नभएकोले सर्वसम्मती बाट यो निर्णय पारित गरियो ।

नन्दराम देल

आज मिति २०६३ साल फागुन ११ गतेका दिन यस सानिचौर सिंचाई जल उपभोक्ता संस्थाका अध्यक्ष पदम बहादुर बुढाको अध्यक्षतामा बसेको आम भेलाले तपसिलका प्रस्तावहरू उपर छलफल गरि निर्णय पारित गरियो ।

उपस्थिति

१.	पदम बहादुर बुढा	(अध्यक्ष)
२.	शशी बहादुर राना	(कोषाध्यक्ष)
३.	लक्ष्मी प्रसाद जैसी	(सचिव)
४.	नन्दराम राना	— ,, —
५.	ठेरो बुढा	— ,, —
६.	चन्द्र बहादुर काकी	— ,, —
७.	कलु जैसी	— ,, —
८.	रुद्रलाल जैसी	— ,, —
९.	लक्ष्मी बुढा	— ,, —
१०.	भद्र ब बुढा	— ,, —
११.	तिलक बुढा	— ,, —
१२.	खलविर राना	— ,, —
१३.	जित बहादुर राना	— ,, —
१४	नर बहादुर विष्ट	— ,, —
१५	सुके बुढा	— ,, —
१६.	सैते वर	— ,, —
१७.	तिकाराम वर	— ,, —
१८.	अमृत दमटा	— ,, —
१९.	ससे बुढा	— ,, —
२०	चाम्री बुढा	— ,, —
२१	राम-चन्द्र शर्मा	— ,, —
२२.	नारायण प्रसाद शर्मा	— ,, —
२३.	चन्द्र बहादुर बुढा	— ,, —
२४.	दल बहादुर बुढा	— ,, —
२५	रतन बहादुर बुढा	— ,, —

ANNEX F

IRRIGATION SERVICE FEE COLLECTION PLAN

Irrigation and Water Resources Management Project
(Additional Funding)

O & M Cost and ISF Collection Plan

Subproject: Sanichaur. District: Jajarkot .. Construction Start: 2073/074 Finish: 2074/075..

1. Salient Features of Subproject Infrastructure:

Name of Canal/Structure	Size / No	Critical Features regarding O&M
Intake	1	Needs periodic and emergency clearing of gravel/boulders after each flood.
Main Canal	4 Km	2900 M lining and the rest unlined. Needs periodic cleaning of litters, and debris from river and road cutting.
Foot bridge	4	Needs clearing of litters under the slab.
Road culvert	1	Needs repair after some period
Superpassage	12	Needs clearing after each major flood
Aqueduct	1	Needs repair periodically.

2. Summary of Engineer's Estimate for O & M Cost and ISF Rate:

See attached spread sheets(Tables A, C, D & F) for details:

a) Engineer's estimate of overall O&M cost 8063 NPR

b) Estimated non-ISF income of WUA (excluding labor contributions) 9700 NPR

c) Additional funds required by WUA through ISF to meet O&M costs = (a – b) =161267.87 NPR

d) Equivalent rate per ha for ISF 8063 NPR/ha

3. WUA's Agreed O&M Budget and ISF Rate:

Details of budget agreed with WUA, based on their past experience and summarized in the attached spreadsheet (Tables A, F, G & H).

a) Agreed Overall O&M budget (including deposits for emergency repairs) 117000 NPR

b) Estimated non-ISF income of WUA (excluding labor contributions) 9700NPR

c) Additional funds required by WUA through ISF to meet O&M costs (= a – b) 107300 NPR

d) Equivalent rate per ha for ISF 5365 NPR/ha

e) Available records, if any, of ISF collection in recent years. No

Year	NPR '000					
	Balance at Start of Year	Est. Value of Labour/Kind Contribution	ISF rate(NPR/ha)	Total Amount Collected	Total Expenditure	Balance at End of Year

4. <u>Recommended Annual ISF Collection Rate</u>

ISF Rate (NPR/ha)						
Engineer's Estimate	Currently collected by WUA	Recommended transition from Existing Collection Rate to Engineer's Estimated Rate				
	2073-74	2074-75	2075-76	2076-77	2077-78	2078-79
8063.39			2,000	4000	6000	8063.39

In the beginning WUA may not agree collect ISF as per engineer's estimate and should be suggested during discussion to increase ISF rate gradually to meet within 4- 5 years so that the surplus amount will be helpful at the time of heavy damage if any in future and also they can benefit from bank interest.

5. <u>ISF Collection Plan as per WUA</u>:

Give details as per discussion with WUA, based on the following checklist.

a) Timing of payments (before/after harvest). After Harvest

b) Has a person responsible for ISF collection been appointed yet? (Y/N) No, The whole committee

c) Will the person responsible for ISF collection be remunerated in any way? no

6. Financial Management by WUA

Confirm (from project records) that WUA members have completed the relevant training and financial procedures according to the IDF, namely:

Phase 1 – Pre-project Implementation

- SN 25 Preparation of annual work programme and budgets

Phase 2 – Project Implementation

- SN 6 ISF and other resources collection
- SN 7 Formulation of financial and administrative rules and regulations
- SN8 Auditing
- SN 10 Notice issued on financial activities and public auditing

Phase 3 – Operation and Maintenance

- SN 3 ISF and other resource collection
- SN 6 Establishing canal maintenance fund
- SN 10 Submitting financial details to DoI after end of financial year

SAMPLE

IWRMP-AF

Expenditure Model Plan for ISF Collection to Meet O & M Costs

10 June 2018

A Project Details

Name of Irrigation Sub-project (ISP)	**Sanichaur**	
Command Area	20	ha
Number of Households	25	Nos
Population	186	Nos

B	**Estimated Cost of Civil Works**	8,548,391	NPR

C Engineer's estimate for Annual O&M Costs

Description	Rate	Amount(NPR)
Engineer's estimate for overall O&M cost of sub-project @ 2 - 3 % of civil works cost and including:	2%	170,967.82
a) Operation cost includes the following - Office rent and furnitures - Stationary - WUA Renewal cost - WUA audit cost - WUA G assembly/ election cost - other office expenses - Miscellaneous expenses b) Mainteneance cost includes the following - Routine maintenance of H/W and structures including operating gates. - Dhalpa/chaoukidar/heralu - ISF collector remuneration - Emergency maintenenace of Canal and structures as and when required - Miscellaneous expenses		

D Calculation of ISF based on Engineer's Estimate

Annual amount required for O& M = (Engineer's estimate - WUA income)	161,267.82
ISF rate per ha	8,063.39
ISF rate per bigha (1ha = 1.48 Bigha)	5,448.24
ISF rate per kattha (1ha = 29.60 Kattha)	272.41
ISF rate per ropani (1ha = 19.675 Ropani)	409.83

SAMPLE

E Estimated Value of Routine Maintenance Activities (supplied as labour)

SN	Description	Quantity (Labor)	Rate	Amount(NPR)
1	Main Canal/structures cleaning (2 times/year)	50	600	30000
2	Intake H/W Diversion (2 times/year)	25	600	15000
2	Branch canal repair/cleaning (2 times/year)			0
	Total			***45,000***

F Expected Sources of Cash Income of WUA

SN	Description	Quantity	Rate	Amount (NPR)
1	Membership Fee	25	100	2,500
2	Defaulter's Fee	2	600	1,200
3	Industries (Fish, water shear etc)			0
4	Visitor's fee			0
5	Agro-mechanical rental of WUA equipments			0
6	Profit from Land buy/sell fee			0
7	Profit from culture program	1	5,000	5,000
8	Profit fromWUA Training allowance/Expopsure visit	20	50	1,000
9	Sand obtained from canal de-silting			0
10	Interest of bank deposit			0
11	Interest of loan provided to WUA beneficiaris by WUA			0
12	Grass of canal bank			0
13	Other			0
	Total			***9,700***

G Provisional O&M Budget Agreed with WUA

SN	Description	Quantity	Rate	Amount (NPR)
1	O&M of Headworks	1	10,000	10,000
2	O&M of Main Canals	1	20,000	20,000
3	O&M of Branch Canals			0
4	O&M of Flow Control Structures	4	2,000	8,000
5	O&M of Bridges, Culverts and Syphons	1	8,000	8,000
6	Remuneration of Dhalpa / Heralu / Chowkidar			0
7	Transportion	2	1,000	2,000
8	Office Rent	1	1,000	1,000
9	Office Equipment (incl furniture and stationery)	1	30,000	30,000
10	Remuneration for ISF Collector			0
11	WUA General Assembly	1	3,000	3,000
12	WUA Audit	1	10,000	10,000
13	other	1	5,000	5,000
	Subtotal			***97,000***
14	Deposit into fund for emergency repairs	1	20,000	20,000
	Total			***117,000***

H Calculation of ISF based on WUA's Agreed Budget

Annual amount required for O& M = (Engineer's estimate - WUA income) - NPR	107,300
ISF rate per ha	5,365
ISF rate per bigha (1ha = 1.48 bigha)	3,625
ISF rate per kattha (1ha = 29.60 kattha)	181
ISF rate per ropani (1ha = 19.675 ropani)	273

Note:-

WUA beneficiaries may pay ISF fee in cash, in kind (such as with paddy, wheat, or other crops) or in labour, as agreed by the WUA.