

DETAILED PROJECT REPORT
OF
UMMAWIONG MICRO WATERSHED
UNDER
INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP)
PROJECT – VIII (2010 – 2011)
WEST KHASI HILLS DISTRICT, MEGHALAYA



PROJECT IMPLEMENTATION AGENCY (IWMP)
WEST KHASI HILLS DISTRICT
SOIL & WATER CONSERVATION DIVISION: NONGSTOIN

SUMMARY

Name of the State : Meghalaya

Name of the District : West Khasi Hills District

Name of the C&RD Block : Nongstoin

Name of the Villages : Siejlieh, Mawklam, Mawtynrong, Mawthoh

Name of the Project : West Khasi Hills – IWMP – VIII

Total Geographical Area : 1223 Ha

Total Treatment Area : 1000 Ha

Total Project Cost : 150.00 Lakhs

Project Duration : 5 Years

Project Implementing Agency : Soil & Water Conservation Division, Nongstoin.

Location Map

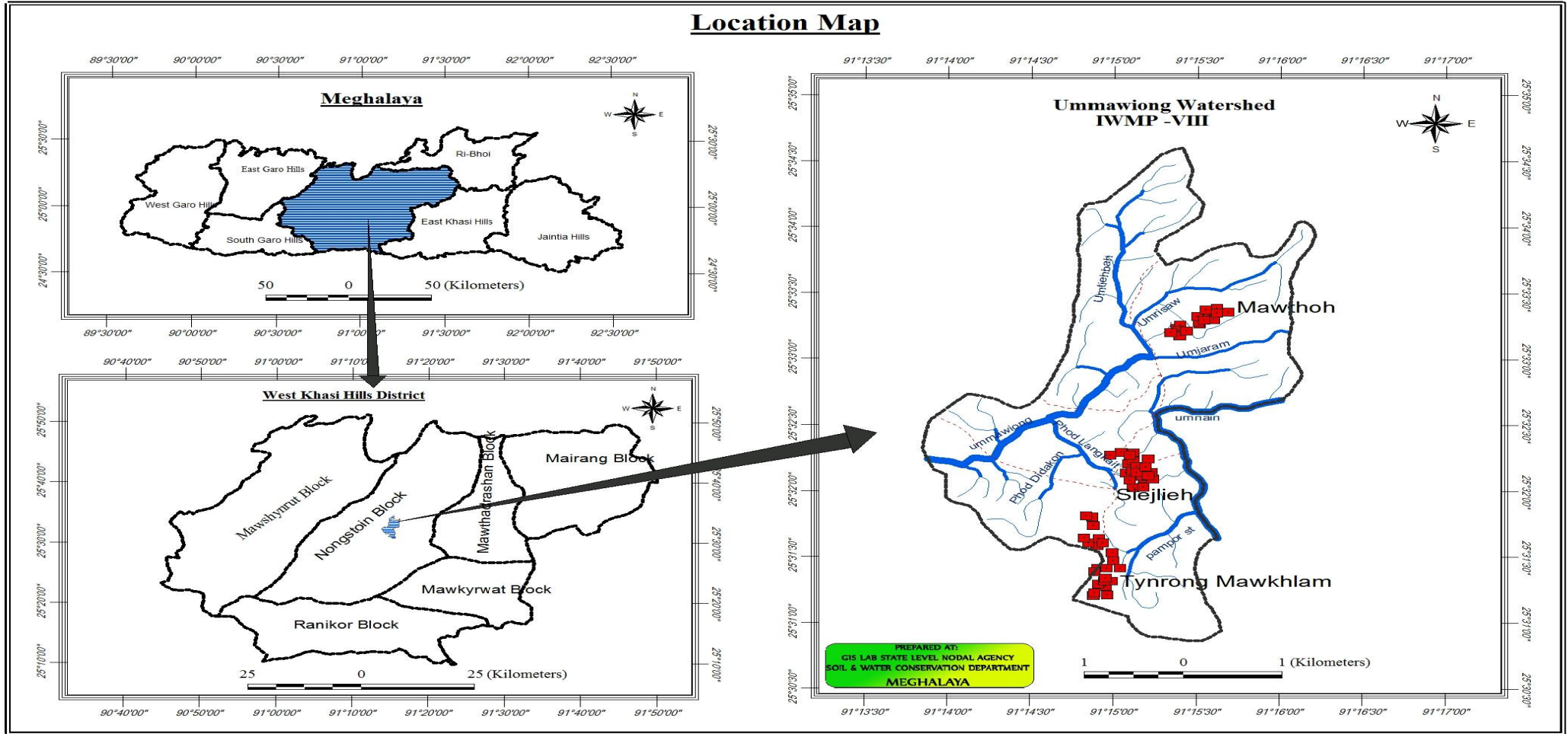


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CHAPTER I
INTRODUCTION AND BACKGROUND

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INTRODUCTION AND BACKGROUND

1.1 Project Background: The Ummawiong Micro Watershed (IWMP- VIII) project is located in Nongstoin C&RD Block, West Khasi Hills District of Meghalaya. Consisting of a single micro-watershed, the project area is drained by the Ummawiong Micro Watershed stream and its tributaries flowing in a North to East direction falls to the Nanhah River which is the main Drainage Basin of the area. The total area is 1223 Ha. with 1000 Ha to be treated under the Integrated Watershed Management Programme (IWMP).

The Project area is located at a distance of about 4 km from Nongstoin Head Quarter.

A total of 4 villages are covered under the project. These are –

- | | |
|---------------|-------------|
| 1. Siejlieh | 2. Mawkhlam |
| 3. Mawtynrong | 4. Mawthoh |

1.2 Micro-watershed Information: There are four numbers micro-watershed with code number are, 3C1B2b3d, 3C1B2b2g , 3C1B2b4b as codified by the North East Space Application Centre (NESAC). The total area of the micro-watershed is 1223 Ha with 1000 hectares to be treated under the Integrated Watershed Management Programme (IWMP).

1.3 Need and Scope for Watershed Development: The micro-watershed Ummawiong Micro Watershed falls under the High Priority category as per the prioritization of watersheds by the North East Space Application Centre (NESAC). The major landscape consists of degraded and barren land/ wastelands with rocky outcrops and sandy soil exposed due to lack of vegetative cover which is highly vulnerable to soil erosion. The farmers are all marginal and 113 households are below the poverty line, which are 237 of the total households. Unscientific cultivation is practiced by most of the inhabitants of these villages on the slopes.

1.4 Aim of The Project : To conserve and manage natural resources such as soil, water & vegetation for enhancing & sustaining land & water productivity on sustainable basis thereby promoting food, social, economic & livelihood security.

- 1.5 Objective :**
1. To dissipate soil & water erosion & surface runoff.
 2. To harvest/ recycle surface runoff & rain water.
 3. To enhance soil moisture regime/ water holding capacity.
 4. To promote sub- surface flow, base flow & recharge ground water.
 5. To improve soil health & tilth.
 6. To improve crop production & biomass productivity.
 7. To promote generation of gainful employment opportunities.

- 1.6 Other Development Project/Scheme running in the project area:** The other development project/scheme running in the project area are
1. IC DS
 2. MGNREGS

CHAPTER II

BASIC INFORMATION OF THE PROJECT AREA

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BASIC INFORMATION OF THE PROJECT AREA

2.1.1 **Location:** It is situated at a distance of 4 Kms away from Nongstoin the Headquarter of West Khasi Hills District and falls under Nongstoin C&RD Block which is within Nongstoin Districts jurisdiction. The geographical location is between 91⁰14'00" to 91⁰16'15"E Longitude and 25⁰30'45" to 25⁰34'30"N Latitude.

There are 4 villages within the Watershed which are as follows –

- | | |
|---------------|-------------|
| 1. Siejlieh | 2. Mawkhlam |
| 3. Mawtynrong | 5. Mawthoh |

2.1.2 **Physiography:** The physiography of the micro-watershed is sloppy and moderately undulating. The altitude ranges from 1360 m to 1640 m above mean sea level. In the lower reaches the slope ranges from 1% to 70% from the main sea level.

Table 2.1: Physiographic details

Elevation (metres)	Slope Range (%)	Order of watershed Sub/Micro-watershed	Major streams	Topography
1319m to 1500m	< 1% to > 70 %	Micro Watershed	Ummawiong	Gentle to moderately Sloping

2.1.3 **Drainage:** The Watershed is drained by Ummawiong Micro Watershed and Nanbah Rivers as the main drainage North-East direction with a network of tributaries & streamlets. The drainage density calculated is 3.75 Km/Km² & the average bifurcation ratio worked out is 3.30 The total length of all the streams/rivers is 119.72 Km (Ist Order to IVth Order). There are 144 First Order streams, 38 Second Order streams, 6 Third Order streams, and 2 Fourth Order streams.

2.1.3.1 **Soil:** Soils are clays-loam at the upper reach fine at the middle and loamy at the lower reach. Texture is medium and soil depth is deep. Exposure to erosion hazard is moderately severe. Soil sample collected and tested are acidic in nature where the average Ph-value range from 4.636 to 5.124 which may be due to high available nitrogen. Soil nutrients list indicates exposure to erosion hazard is somewhat moderately severe in the area due to less vegetative cover and low phosphorous(Source) Soil & Water Conservation Survey Division Meghalaya, Shillong.

Table 2.2: Details of soil erosion in the project areas:

1	2	3	4	5	6	7	8	9
Sl. No.	Names of State	Names of District	Names of Projects	Cause	Types of erosion	Area affected (ha)	Run-off (mm/ year)	Average soil loss (Tonnes/ ha/ year)
1	Meghalaya	West Khasi Hills	West Khasi Hills – IWMP VIII	Water erosion:		1223	2700 - 3200	10.50 – 32.50
				a	Sheet			
				b	Rill			
				c	Gully			
				Sub total		1223	2700 - 3200	10.50 – 32.50
Wind erosion		NA	NA	NA				

2.1.4 **Climate:** The Climate of the Area is humid Sub-Tropical (Sub – Montane), a typical characteristic & representative of the Shillong Plateau Agro – Climatic Zone. The area experiences moderately warm summer & severe winter. Average Annual Rainfall is 3070.83mm received during June to September. The Watershed Project area is adjacent to Nongstoin Area . Aerial distance is about 4 Kms (approximately).

2.3 Agro-climatic zones of the project areas, soil types, average rainfall and major crops.

Sl. No.	Name of State	Name of the Agro-climatic zone	Area (in ha)	Name of the Districts	Name of the Projects	Major soil types		Average rainfall in mm (preceding 5 years average)	Major crops	
						a) Type	b) Area (ha)		a) Name	b)Area (Ha)
1	Meghalaya	Cold Moisture	1223	West Khasi Hills	WKH – IWMP VIII	Soils are course-loam at the upper reach fine at the middle and loamy-skelets at the lower reach. Texture is medium and soil depth is deep. Exposure to erosion hazard is moderately severe.	1223	2960 mm	Paddy Potato Maize Sweet Potato Ginger	35 15 20 10
								Total		80

2.1.5 **Agriculture:** Agriculture in the mainstay of the people of the area Principal agricultural Crops include Paddy, Potato, Maize, Sweet Potato, Yam & other Vegetables. Important horticulture crops are, Pear, Peach, Plum, Sohlyngdkhur (*Morus alba*), Sohphie bah (*Myrica nagii*), Sohphie nam(*M. farquhariana*, *M. esculenta*). Himalayan cherry, Passion fruit, etc.

Table 2.4: Crop yield and production

Crops	Area (ha)	Average Yield (Qtl) per ha.	Total Production (Qtl.)
Paddy	35	120	4200
Maize	20	80	1600
Ginger	40	80	3200
Potato	15	90	1350
Sweet Potato	10	37	3700

2.1.6 **Natural Vegetation:** The natural vegetation of the area is fairly poor due to tremendous biotic pressure such as recurring fire hazards, over exploitation of timber and fuel wood, which has spelt a bane for the farmers of the area.. As a result of these factors Pine (*Pinus kesiya*) has become the dominant tree species across landscapes. The primary vegetation of the area can be seen only on a few scattered pockets along depressions having good moisture concentration mostly on the northern aspects. The important tree species includes - *Quercus spp.* (Dieng sning, Dieng sai), *Castanopsis spp.* (Dingstap, Dieng sohot), *Schima khasiana*, (Dieng ngan) *Myrica nagii*, (Sohphie bah) *Myrica farquhariana*, (Sohphie nam) *Betula alnoides*, (Dieng lieng lieh) *Alnus napalensis*, (Dieng lieng iong) *Bucklandia populnea*, (Dieng doh)

Socio-Economic Profile: Socio-economically the people of the area are very poor owing primarily to low agricultural productivity where people have to explore other means of livelihood to make both ends meet. Although agriculture is the primary occupation of the people, this sector could barely meet their livelihood requirements as it is largely mono – agriculture (single cropping) and because of low productive potential of the land. The average annual income is only about Rs.24,557/- per family.

Demographic Status: The total population of the watershed is 3813 numbers of which 1884 are males & 1929 are females and the total no. of household is 602. The

demographic details village-wise falling within the Project area are as below:

Sl.No	Villages	Nos of Households	Male	Female	Total
1	Siejlieh	329	1034	1016	1352
2	Mawkhlam	209	634	718	240
3	Mawtynrong	38	120	120	2050
4	Mawthoh	26	96	75	171
	TOTAL	602	1884	1929	3813

2.5 Infrastructure facilities :

2.1.1 (a) Roads: Almost all the villages within the Project Area are connected by roads Communication except for Mawthoh village which has proper communication means by P.W.D road but all are by approaching road or footpaths (kutchra).

2.1.2 (b) Schools: : there are only 10 L.P Schools and 7 U.P. School see 2 within the Project Area run either by the Mission or by the Government..

2.1.3 (c) Electricity: Connections have been provided to all villages .

2.1.4 (d) Health: No Community Health Centre at the Project area and the villagers of this area could get medical aids only at Nongstoin CHC.

2.1.5 (e) Water Supply: Drinking water supply have been provided by the PHE Deptt. but not regularly. However, during lean season the entire population has to depend on springs available in the area as the supply is not sufficient to meet the daily requirement.

2.1.6 (f) Marketing Facility: There is a weekly market held twice a week on rational basis centrally located at Nongstoin where all the villages avail marketing facilities.

2.5 Details of infrastructure in the project areas:

1	2	3		4			
Name of District	Name of Project	Parameters:		Status			
West Khasi Hills	WKH-IWMP V	(i)	No. of villages connected to the main road by an all-weather road.	4Nos. villages are connected by village roads to the main road .			
		(ii)	No. of village provided with electricity	All 4 villages have been electrified			
		(iii)	No. of households without access to drinking water	375 Nos.			
		(iv)	No. of educational institutions: Primary (P)/ Secondary (S)/ Higher Secondary (HS)/ Vocational institution (VI)	(P) 12Nos	(S) 2	(HS) 2	(VI) -
		(v)	No. of village with access to Primary Health Centre	Nil			
		(vi)	No. of village with access Veterinary Dispensary	Nil			
		(vii)	No. of village with access Post Office	Nil			
		(viii)	No. of village with access Banks	Nil			
		(ix)	No. of village with access Markets/ mandis	Nil			
		(x)	No. of village with access Agro-Industries	Nil			
		(xi)	Total quantity of surplus milk	Nil			
		(xii)	No. of milk collection centres (e.g. Union (U)/ Society (S)/ Private agency (PA)/ Others (O))	(U) Nil	(S) Nil	(PA) Nil	(O) Nil
		(xiii)	No. of villages with access to Anganwadi Centres	5 Nos.			
		(xiv)	Any other facilities with no. of villages (please specify)				

2.1.7 Livestock: The important livestock of the area includes Cattle (Cows), Goats, Piggery & Poultry, etc and these are also being taken up only as a part time occupation.

2.1.8 Table 2.6: Existing livestock population

Type of Animal	Population
Cattle (Cows)	1050
Goats	282
Piggery	345
Poultry	3216

Land ownership: There are primarily two types of land holding system, namely private lands (Ri Kynti i.e. individually owned land) and community lands (Ri Kur i.e. clan land and Ri Raid i.e. village community land).

2.7 Details of land holding pattern in the project area:

1	2	3	4	5	6		
Name of District	Name of projects	Types of Farmer	No. of households	No. of BPL household	Land holding (ha)		
					Irrigated	Rainfed	Total
West Khasi Hills	WKH-IWMP VIII	(i) Large	5 nos	-	Nil	1223Ha	1223Ha
		(ii) Small	150 nos	56			
		(iii) Marginal	76 nos	51			
		(iv) Landless	6 nos	6			
		Sub - Total	237	113		1223Ha	1223Ha

2.8 Details of Common property resources of the project areas:

1 Name of District	2 Name of the Projects	3 CPR Particulars	4 Total Area (ha) Area owned/ In possession of				5 Area available for treatment (ha)			
			Pvt. Person	Govt. (specify deptt)	PRI	Any other (Pl.specify) Village community	Pvt. Person	Govt. (specify Deptt.)	PRI	Any other (Pl. specify) Village community
West Khasi Hills	WKH – IWMP VIII	(i) Wasteland/ degraded land	464Ha	-	-				260	
		(ii) Pastures								
		(iii) Orchards/private agriculture	170 Ha						99	
		(iv) Village woodlot								
		(v) Forest (degraded)	419 Ha	-	-				70	
		(vi) Village Ponds/ Tanks	2 Ha						114	
		(vii) Community Buildings	82 Ha							
		(viii) Weekly Markets				1 (Nongstoin)				
		(ix) Permanent Markets				1 (Nongstoin)				
		(x) Temples/ Places of worship	7 Ha			5 Nos				
		(xi) Others (Pl. specify)/ Build up	79 Ha							
		(xii) Improvement of Existing Paddy Field								
		(xiii) Construction of Terrace								
		(xiv) Check Dam cum Washing place								
		(xv) C.C. Check dam								
		(xvi) Protection Wall/ Retaining Wall								
(xvi) Run off Disposal Channel										
		Total	1223Ha	-	-			457	1000	

2.10 Land use and land cover : As per Land Use & Land Cover map generated by the North Eastern Space Application Center (NESAC), Meghalaya from Satellite image taken during 2005 – 2006 (LISS – 3, Image), the Watershed is broadly classified in to the following Land uses:-

(a) Built up Area	-	79.00 Ha
(b) Built up Residential	-	89.00 Ha
(c) Agriculture Land – Crop Land – Kharif Crop	-	170.00 Ha
(d) Tree Clad Area – Close	-	111.00 Ha
(e) Tree Clad Area – Open	-	310.00 Ha
(f) Wasteland/open Scrub	-	<u>464.00Ha</u>
Total	-	1223.00 Ha

2.12 Problems of the Area : Baseline Survey and PRA Exercise carried out indicates the major problems of the Watershed Area as per the villages surveyed are as listed below: -

1. Very low agricultural productivity
2. Low fertility of soil due to heavy rainfall causing leaching of nutrients.
3. Lack of Awareness & Knowledge on improved agricultural practices.
4. Inadequate primary infrastructure.
5. Shortage of drinking water.
6. Production potential of the land.
7. Preponderance of degraded lands/wastelands.

These problems have been identified through Participatory Rural Appraisal (PRA) Exercises conducted in all the villages within the Watershed. Measurable attempts

& approaches have been formulated in the watershed treatment plan of the Detailed Project Report so as to mitigate & overcome them.

CHAPTER III
PROJECT PLANNING & INSTITUTION BUILDING

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3.1 Scientific Planning

Base Line Survey: To establish a benchmark for assessing the impact of any intervention (pre-project & post project) a baseline survey is essential. The baseline survey included household census & socio-economic survey by using structured and semi –structured questionnaires, bio-physical survey to identify and assess the status of natural resources in the project area.

Participatory Rural Appraisal: To further obtain information on the project area, the people, resources, various PRA techniques like resource mapping, social mapping, seasonal calendars, matrix ranking, Venn diagrams were used.

GIS & Remote Sensing: To facilitate the process of prioritization and planning Geographic Information System was use. The land use and land cover (LULC) maps were prepared by the North Eastern Space Application Centre (NESAC) using the LISS III images (2006). The activities were located on the field by using GPS and accordingly transferred to the maps on GIS platform.

Table 3.1: Details of Scientific Planning and Inputs in IWMP projects:

1	2	2
Sl.No.	Scientific criteria/ inputs used	No. of projects in which scientific criteria were used
A.	Planning	
	Cluster approach	3
	Whether technical back-stopping for the project has been arranged? If yes, mention the name of the Institute.	Yes, NESAC, Nongsder
	Baseline survey	Yes
	Hydro-geological survey	No
	Contour mapping	Yes
	Participatory Net Planning (PNP)	Yes
1	2	2
	Remote sensing data-especially soil/ crop/ run-off cover	Yes
	Ridge to Valley treatment	Yes
	Online IT connectivity between	
	Project and DRDA cell/ZP	No
	DRDA and SLNA	No
	SLNA and DoLR	Yes
	Availability of GIS layers	
	Cadastral map	No
	Village boundaries	No
	Drainage	Yes
	Soil (Soil nutrient status)	Yes

	Land use	Yes
	Ground water status	No
	Watershed boundaries	Yes
	Activity	Yes
	Crop simulation models [#]	No
	Integrated coupled analyzer/ near infrared visible spectroscopy/ medium spectroscopy for high speed soil nutrient analysis	No
	Normalized difference vegetation index (NDVI)#	Yes
	Weather Stations	No
B.	Inputs	
	Bio-pesticides	No
	Organic manures	Yes
	Vermi-compost	Yes
	Bio-fertilizer	Yes
	Water saving devices	Yes
	Mechanized tools/ implements	No
	Bio-fencing	Yes
	Nutrient budgeting	No
	Automatic water level recorders & sediment samplers	No
	Any other (please specify)	-

Project Implementing Agency:

The PIA is the Soil & Water Conservation Division Nongstoin West Khasi Hills District of Meghalaya. The Project Manager will be the Divisional Soil and Water Conservation Officer and will be assisted by an Asst. Soil & Water Conservation Officer along with WDT members in which expertise is drawn from the relevant fields for achieving smooth and successful implementation of the project.

1	2	3	
Names of Districts	Names of projects	Details of PIA	
West Khasi Hills	West Khasi Hills – IWMP V	Type of organization#	Government
		Name of organization	Soil & Water Conservation Division, Nongstoin
		Designation & Address	Divisional Soil & Water Conservation Officer, Nongstoin
		Telephone	03654-280236
		Fax	-do-
		E-mail	Soil & Water Conservation .Ngn@Gmail.com

Institution Building

Watershed Committee (WC)

The Watershed Committee of the Ummawiong Micro Watershed, IWMP VIII was constituted with the active involvement of the villagers with strong support of the Traditional Institutions (Village Durbar/Council). The Ummawiong Micro Watershed Committee has been registered under the Society Registration Act 7 of 1990.

Table 3.2: Details of Watershed Committees (WC):

Sl No	Names of States	Names of the District	Names of projects	Names of WCs	Date of registration as a Society(dd/mm/yyyy)	Designation	Name	M/F	SC	ST	SF	M F	LF	Landless	UG	SHG	GP	Any other	Education I qualification	Function/s assigned#			
1	Meghalaya	West Khasi Hills	WKH-IWMP VIII	Ummawiong Micro Water Shed Committee	Yet to Register	President	Shri. Pero Nongsiej	M		√	√				√				X- (Passed)	ABCDEGHI			
2					Secretary	Shri. Gasparly Iawphniaw	M		√												BA	A To J	
3					Member	Shri. Micheal K.Dewsaw	M		√		√												
4					Member	Shr. Tlingdarius Marwein	M		√		√												
5					Member	Shri. Sparlin Thongni	M		√														
6					Member	Shri. Kyrmen Puwein	M		√							√						IX	ABE
7					Member	Shri. Phuljen Marngar	M		√							√						X	ABCDEGHI
8					Member	Smt. Christina Wanniang	F		√	√												XII	-DO-
9					Member	Smt. Meristela Marngar	F		√		√											VIII	ABE
10					Member	Smt. Spinlin Lyngkhoi	F		√		√											III	ABE
11					Member	Shri.Geral Iawhniaw	M		√										√			BA	A To J
12					Member	Smt.Phridolin	F		√										√			BA	-DO-
13					Member	Shri.Roselanding Lyngdoh	M		√								√					BA	-DO-
14					Member	Shri.Grosswell Nonglang	M		√													X	ABCDEGHI

*From column no.2, the total number of states, from column no.3, the total number of District: from column no.4, the total number of project: from column no.5, the total number of Watershed committees; from column no.6, the total number of registered watershed committees; from column no. 7, the total number of members, and WCs without a present and/or without a secretary, may be mentioned for the state as whole. From column no.8, the total no. of male and female members may be mentioned separately. The totals of column 9 to 18, for the entire country, may be mentioned at the end of the table.

In column 20 only the letter assigned, as below, needs to be typed, except for 'J', where the type may be specifically mentioned.

- | | |
|---|---|
| A. PNP and PRA | B. Planning |
| C. Maintenance of Accounts | D. Signing of cheques and making payments |
| E. Supervision of construction activities | F. Cost Estimation |
| G. Verification & Measurement | H. Record of labour employed |
| I. Social Audit | J. Any other (please Specify). |

i) Self Help Group

Awareness programmes were organized in the villages to inform and sensitize the people on the essence of organizing themselves in to homogenous groups for uplifting their livelihood especially the under privilege - the women folk and the landless. Discussions were held at length for organizing training and capacity building with the WDT on the scope and procedure of group formation, availing credit, grading of the groups and so on.

Detail of Self Help Group (SHGs) in the project areas:

1	2	3				4				5			6		
Name of District	Name of project	Total no. of registered SHGs				No. of members				No. of SC/ST in each category			No. of BPL in each category		
		With only Men	With only Women	With both	Total	Categories	M	F	Total	M	F	Total	M	F	Total
West Khasi hills Districts	WKH-IWMP-VIII			6Nos	6Nos	(i) Landless	6	8	14	6	8	14			
						(ii) SF	10	16	26	10	16	26			
						(iii) MF	7	6	13	7	6	13			
						(iv) LF	3	4	7	3	4	7			
				6Nos	6Nos		26	34	60	26	34	60			

(M- Male, F- Female)

* From column no. 2, 3 and 4, total no. of States, District and Projects, respectively. From column no. 5 to 8, category – wise grand totals may be given for the entire country at the end of the table.

i) User Group

To manage the assets created and ensure their sustainability User Groups will be formed. The people have been sensitized on the importance of ensuring that the assets created are sustainably used and the essentiality of having User Groups for maintenance and operation of their assets.

Details of UGs in the Project areas:

1	2	3				4				5			6			
Name of District	Name of Projects	Total no. of UGs				No. of Members				No. of SC/ ST in each category			No. of BPL in each category			
West Khasi hills Districts	WKH-IWMP-VIII	Men	Women	both	Total	Categories	M	F	Total	M	F	Total	M	F	Total	
							(i) Landless			Nil						Nil
							(ii) SF			Nil						Nil
							(iii) MF			Nil						Nil
							(iv) LF			Nil						Nil
Total								Nil						Nil		

(M-Male, F- Female).

* From column 2,3, and 4, total no. of State, District and Project, respectively, from column 5 to 8 category – wise grant totals, for the entire country may be given at the end of the table.

CHAPTER IV
PROJECT ACTIVITIES

CHAPTER IV PROJECT ACTIVITIES

4.1 Preparatory Phase:

i) Entry Point Activities (EPA)

(Financial – Rs. in lakh)

1	2	3	4
Names of Project	Amount earmarked for EPA	Entry Point Activities planned	Geographical Location
West Khasi Hills – IWMP-VIII	6.00	Washing Place Check Dam cum Washing Place Footbridge Drinking Well	91 ⁰ 14'00" to 91 ⁰ 16'15"E Longitude and 25 ⁰ 30'45" to 25 ⁰ 34'30"N Latitude

ii) Other activities of Preparatory Phase:

1	2	3	4	5	6	7
Initiation of village level institution	Capacity building	IEC activities	Baseline survey	Hydro-geological survey	Identifying technical support agencies	Resource agreements
1 no. W/C And 13 no. of watershed association	3 nos.	8 nos.	Participatory Rural Appraisals GPS Survey	N.A	Done	Done

4.2 Watershed Works Phase:

4.2.1 Activities related to surface water resources in the project areas:

1	2	3			4												
Name of Projects	Type of structures	Pre Project			Proposed Project												
		No	Area irrigated (ha)	Storage capacity	Augmentation/ repair of existing structures				Construction of new structures				Total target				
					No	Area to be treated (ha)	Storage capacity	Estimated cost (in lakhs)	No	Area to be treated (ha)	Storage capacity (per unit)	Estimated cost (in lakhs)	No	Area to be treated (ha)	Storage capacity (m ³)	Estimated cost	
West Khasi Hills – IWMP-VIII	(i) Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	(ii) Pond	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	(iii) Lake	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	(iv) Check Dam	-	-	-	-	-	-	-	-	4 Nos	7.20	60	1.9102	4 Nos	7.20	60	1.9102
	(v) Percolation Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	(vi) Diversion Channel	-	-	-	-	-	-	-	-	8366.20m	49.00 Ha	2	1.69259	8366.20Rm	49.00 Ha	2	1.69259
	(vii) Any others (please specify)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	(Viii) Protection wall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	(ix) Water Harvesting structure	-	-	-	-	-	-	-	-	9 Nos	19.35	29.28	12.91555	9 Nos	19.35	29.28	12.91555
	(x) Well	-	-	-	-	-	-	-	-	1 No	1.20	2	0.4614	1 No	1.20	2	0.4614
Total					-	-	-	-	14 Nos & 8366.20 Rm	76.75	91.28	16.97969	14 Nos & 8366.20 Rm	76.75	91.28	16.97969	

4.2.2 Activities related to recharging ground water resources in the project areas:

1	2	3		4							
Names of projects	Type of structures	Pre-project		Proposed target							
		No.	Area irrigated (ha)	Augmentation/ repair of existing recharging structures			Construction of new recharging structures			Total target	
				No.	Area to be irrigated (ha)	Estimated cost	No.	Area to be irrigated (ha)	Estimated cost	Area to be irrigated (ha)	Estimated cost
West Khasi Hills – IWMP-VIII	(i)Open wells		Nil		Nil		1 No.	1 Ha	0.4614	1 Ha	0.4614
	(ii)Bore wells										
	(iii)Any others (Pl. specify) 1 Farm Pond 2 Water Harvesting						4 Nos.	30 Ha	2.14772	30 Ha	2.14772
	Total for the project						5 NOs.	31 Ha	2.60912	31 Ha	2.60912

4.2.3 Activities executed by User Groups in the Project Areas.

User Groups will be formed accordingly for operation and maintenance of community assets created under the project, like community drinking water source, . The capacity of the user groups will be built through awareness and training programmes. User fees will be charged accordingly and fixed by the User Groups as per the requirement for maintenance of the assets created.

4.2.4 Activities executed by User Groups in the Project Areas:

Awareness programmes will be conducted to sensitize the people on various aspects of SHGs. Training programmes shall be from time to time to further build the capacity of the SHGs. Besides, skill development training shall also be conducted for promoting income generation of the SHGs such as Piggery, handicrafts, poultry, integrated farming system, fruit processing etc.

4.2.5 Other activities of watershed works phase:

1	2		3		4		5		6		7		8		9		10		11		12
Names of projects	Ridge area treatment		Drainage line treatment		Nursery raising		Land development		Crop demonstrations		Pasture development/ Other Arable Land Treatment		Veterinary services		Fishery development		Non-conventional energy		Any other (please specify)		Total Estimated Cost
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)
West Khasi Hills – IWMP-VIII	215 Ha	13.125 lakh	70nos & 8366.20 Rm	41.998 lakh	70 ha.	7.52 lakh	15002 Rm	10.717 lakh	-	-	145 Ha	10.64	54 units	9.60 lakhs	10 Units	2.00 lakhs	-	-	17.025 Units	112.50 Lakhs	150.00 Lakhs

4.2.6 Details of engineering structures in watershed works:

1	2	3			4			5					
Project	Name of structures	Type of treatment			Type of land			Target					
		(i) Ridge area (R)	(ii) Drainage line (D)	(iii) Land Dev (L)	(i) Pri-vate	(ii) Com-munity	(iii) Others (pl. specify)	No. of units (No./cum./ rmt)	Estimated cost (Rs. in lakh)				Expected month & year of completion (mm/yyyy)
									M	W	O	T	
West Khasi Hills – IWMP-VIII	Peripheral Bunding			L	P		15002 Rm	-	7.501		7.501	3 Years	
	Loose Boulder Contour Bund			L	P		10 Ha	0.18554	0.2783		0.46384	do	
	CC Check Dam/D am/HW Dam		D			C	4 Nos	0.76408	1.14612		1.9102	do	
	Protection Wall/R Wall		D			C	81 Nos	18.40096	27.60144		46.0024	do	
	Small Dug Out Pond/Farm Pond		D		P		4 Nos	-	2.14772		2.14772	do	
	Water Harvesting Structure		D			C	9 Nos	5.16622	7.74933		12.91555	do	
	Runoff Disposal Channel/D Drain		D		P		8366.20 Rm	0.87008	1.30513		2.17521	do	
	CC Dam Cum Washing Place		D			C	4 Nos	1.35276	2.02914		3.3819	do	
	Wells		D			C	1 No.	0.18456	0.27684		0.4614	do	
	Peripheral Bunding							26.9242	50.03502		76.95922	do	
	Loose Boulder Contour Bund			L	P		15002 Rm	-	7.501		7.501	3 Years	

4.2.7 Details of activities connected with vegetative cover in watershed works:

1	2	3			4			5			
Project	Name of structure/ work	Type of treatment			Type of land			Target			
		(i) Ridge area (R)	(ii) Drainage line (D)	(iii) Land dev. (L)	(i) Private	(ii) Community	(iii) Others (pl. specify)	Area (ha)	No. of plants	Estimated cost (Rs. in lakh)	Expected month & year of completion (mm/ yyyy)
West Khasi Hills – IWMP-VIII	Afforestation	R				C		145	58000	14.645	4 Years
	Improvement of Degraded Forest	R				C		70	7000	2.52	4 Years
	Fuel Wood										
	Agro-Forestry			L	P			115	34500	11.615	4 Years
	Agro-Horticulture			L	P			30	9000	2.505	4 Years
	Pasture dev.					C		360	108500	31.285	4 Years
	Nursery raising					C		145	58000	14.645	4 Years
	Others (Coffee)										

#in case two or more activities are executed over same area, the figures in area treated should be accounted only once and should reflect only the actual watershed area treated.

4.2.8 Details of allied / other activities:

1	2	3			4	
Project	Name of activity@	Type of land			Target	
		(i) Private	(ii) Community	(iii) Others (landless)	Estimated cost (Rs. in lakh)	Expected month & year of completion (mm/yyyy)
West Khasi Hills – IWMP-VIII	Carpentry/Basketry/Black Smithy/Agri Implements	P			1.85	4 Years 2015-2016
	Kitchen Garden	P			2.175	3 Years
	Vermin composting	P		SHG	1.25	3 Years
	Tailoring/knitting	P			4.00	3 Years
	Backyard poultry	P		SHG	9.60	3 Years
	Ginger / Turmeric cultivation	P		SHG	2.70	3 Years
	Pisciculture	P		SHG	2.00	3 Years
	Mushroom Cultivation			SHG	1.80	3 Years
	Apiculture	P			0.80	3 Years
	Weaving and handloom	p		SHG	1.80	3 Years
					27.975	

from column no.2 no. of States; from column no.3 no. of District; from column no. 4. total no of projects; from column no. 5 activity wise totals; from column no.6 type wise totals; from column no. 7 agency wise totals, from column no. 8 total estimated cost;

from column no. 9 total expenditure incurred. Structure – wise no. of completed works. from column no.10 items –wise totals, for the entire country may be indicated at the end of the table.

@ The activities given in this column are merely indicative and states are free to choose any other activity suited to the project area.

4.3 Consolidation and withdrawal phase

Details of activities in the CPRs in the project areas:

1	2	3	4	5			
Names of projects	Name(s) of the villages	CPR particulars	Activity proposed	Target			
				Target area under the activity (ha)	Estimated expenditure (Rs.)	Expected no. of beneficia-ries	Estimated contri-bution to WDF (Rs.)
West Khasi Hills – IWMP-VIII	1.Siejlieh	Degraded Forest/Wasteland	Improvement of Existing Degraded Forest	70 Ha	2.52	70 Nos.	0.126
	2.Mawkhlam	Steams	Footbridge	1 No	0.60	400 Nos.	0.030
	3.Mawtynrong	Steams	C.C. Dam/Washing Place	4 Nos	3.32855	500 Nos.	0.16643
	4.Mawthoh	Springs	Wells	1 No	0.416	30 Nos.	0.02307
Total				70 Ha & 6 Nos.	6.90095	1000 Nos	0.3455

CHAPTER V
PROJECT PHASING & BUDGETING

**ACTION PLAN
OF
IWMP PROJECT – VIII**

**PLAN FOR RELEASE OF PROJECT FUND BY SLNA TO UMMAWIONG AND KYNTHROIN PROJECT IMPLEMENTATION AGENCY (PIA)
& WATERSHED COMMITTEE FOR PROJECT VIII UNDER NONGSTOIN C&RD BLOCK 2010-2011**

(Physical in %) (Rs. In Lakhs)

SL N O.	Particulars of Budget Component	Prescribed Percentage (%)		PIA (%)		Watershed Committee (%)		Year wise Phasing & Breakup of Prescribed Percentage under Column 2									
		Phy	Fin	Phy	Fin	Phy	Fin	1 st Year		2 nd Year		3 rd Year		4 th Year		5 th Year	
								Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	2							3	4	5	6	7	8	9	10	11	12
1	Administration																
	i. Administrative Cost	10%	37.50	10%	37.50					2%	7.50	5%	18.75	3%	11.25		
	ii. Monitoring	1%	3.75	1%	3.75					0.2M	0.75	0.5M	1.875	0.3M	1.125		
	iii. Evaluation	1%	3.75	1%	3.75					0.3E	1.125	0.5E	1.875	0.2E	0.75		
	Total of 1	12%	45.00	12%	45.00					2.5%	9.375	6.00	22.50	3.5%	13.125		
2	Preparatory Phase																
	i. Entry Point Activities	4%	15.40	4%	15.40			4%	15.00								
	ii. Institutional Capacity building	5%	18.75	5%	18.75			1%	3.75	2%	7.50	1%	3.75	1%	3.75		
	iii. Preparation of DPR	1%	3.75	1%	3.75			1%	3.75								
	Total of 2	10%	37.50	10%	37.50			6%	22.50	2%	7.50	1%	3.75	1%	3.75		
3	Watershed Work phase																
	i. Watershed Works Phase	56%	210.00			56%	210.00			7.5%	28.125	37%	138.75	11.50%	43.125		
	ii. Livelihood Activities	9%	33.75			9%	33.75			1%	3.75	3%	11.25	5%	18.75		
	iii. Production system	10%	37.50			10%	37.50			1%	3.75	3%	32.25	6%	22.50		
	Total of 3	75%	281.25			75%	281.25			9.50%	35.625	43%	161.25	22.50	84.375		
4	Consolidation	3%	11.25	3%	11.25											3%	11.25
	Total of 4	3%	11.25	3%	11.25											3%	11.25
	TOTAL OF 1 to 4	100%	375.00	25%	93.75	75%	281.25	6%	22.50	14%	52.50	56%	187.50	27%	101.25	3%	11.25

PROJECT FUNDING: A. CENTRAL SHARE = 90% (337.50 Lakhs)
 B. STATE SHARE = 10% (37.50 Lakhs)
 TOTAL (A+B) = 100% (375.00 Lakhs)

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CHAPTER V

PROJECT PHASING & BUDGETING

WATERSHED TREATMENT PLAN OF UMMAWIONG MICRO WATERSHED UNDER IWMP – WEST KHASI HILLS PROJECT - VIII

NAME OF DISTRICT: WEST KHASI HILLS
NAME OF C&RD BLOCK : NONGSTOIN

TOTAL GEOGRAPHICAL AREA: 1223Ha
AREA PROPOSED FOR TREATMENT : 1000 Ha

TOTAL PROJECT COST : Rs. 150LAKHS Central Share : 135.00
NOS. OF VILLAGES : 4NOS State Share : 15.00

(Physical in Ha/Nos/Rm/Units)(Rupees in lakhs)

	Activities	TOTAL				1st Year				2nd Year				3rd Year				4th Year				5th Year			
		Physical			Fin	Physical			Fin	Physical			Fin	Physical			Fin	Physical			Fin				
		Ha.	Nos.	Rmt.		Ha.	Nos.	Rmt.		Ha.	Nos.	Rmt.		Ha.	Nos.	Rmt.		Ha.	Nos.	Rmt.		Ha.	Nos.	Rmt.	
I	Administrative Cost		10		15					2		3.00		5		7.50		3		4.50					
II	Monitoring & Evaluation		2		3					0.50		0.75		1		1.50		0.5		0.75					
	Sub Total(I+II)		12.00		18.00					2.50		3.75		6.00		9.00		3.50		5.25					
III	Preparatory Phase																								
	EPA																								
	i. Drinking Well/Spring tapped chamber		1		0.4614		1		0.4614																
	ii. Washing Place		2		1.61005		2		1.61005																
	iii. Check Dam cum Washing Place		3		3.32855		3		3.32855																
	iv. Foot Bridge		1		0.60		1		0.60																
	DPR		1		1.50		1		1.50																
	Institutional & Capacity Building		5		7.50		5		7.50		2.00	3.00		1		1.50		1		1.50					
	Sub-Total of III		10.00		15.00		4%		9.00		2.00	3.00		1.00		1.50		1.00		1.50					
IV	Works Phase																								
A.	Arable Land Treatment																								
	Vegetative Barriers																								
	Contours Bunds	20	20		1.50					5	5		0.375	15	15		1.125								
	Graded Bunds																								
	Loose boulder Contour bund																								
	Bench Terracing,																								
	Wet Terrace	8	13		1.20					3	5		0.45	5	8		0.75								
	Box terrace																								
	Half Moon Terrace																								
	Field Bunding,																								

Peripheral Bunding		60	15002.00	7.501						1	267.64	0.13382		48	12107.26	6.05363		11	2627.10	1.31355				
Crop Demonstration																								
Kitchen Garden																								
Improvement of Existing Paddy Fields	10	22		0.516						5	10	0.2150		5	10	0.2150		2		0.0860				
Crop Demonstration																								
Agro-Horticulture	30	30		1.785										30	30	1.0740		30 (M)	30 (M)		0.7110			
Horticulture Development																								
Sub-Total of A	68.00	145.00	15002.00	12.5020						13.00	21.00	267.64	1.17382	55.00	111.00	12107.26	9.21763		13.00	2627.10	2.11055			
B. Non- Arable Land																								
Improvement of Degraded Forest/ existing Natural Forest	70	70		1.96										70	70	1.26		70(M)	70(M)		0.70			
Afforestation	145	50		11.1650										145	50	6.96		145(M)	50(M)		4.2050			
Agro-Forestry	115	65		8.8550										115	65	5.52		115(M)	65(M)		3.335			
Nursery Establishment	0.5	94000 (Seedling)		7.52						0.50	94000 Seedling)		7.52											
Avenue Plantation																								
Sub Total of B	330.50	185.00		29.50						0.50			7.52	330.00	185.00						13.74			8.24
C. Drainage Line Treatment																								
Farm Ponds / Dug Out Ponds		4		2.14772						1		0.86592		3		1.2818								
Water Harvesting Structures		9		12.9155 5										5		8.8952		4			4.02035			
Nallah Bund Earthen Embankment																								
Check Dam, H/W Dam, Diversion Dam/Irrigation Dam		4		1.9102										4		1.9102								
Loose Boulder Check Dam cum washing Place		1		0.46384										1		0.46384								
Gabion Protection/Retaining Wall																								
Stone Masonry Protection Wall/Retaining Wall		51		22.8681						4		1.6693		38		18.4656		9			2.7332			
Bamboo Wall, Bamboo Spurs																								
Drip Irrigation																								
Water Tank/ Percolation Tank																								
Runoff Disposal Channel		26	6509.98	1.69259						1	80.62	0.02096		20	5868.2	1.52573		5	561.16	0.1459				
Earthen Irrigation Channel																								

Cableway taxing																							
Apiculture/Bee Keeping																							
Grocery Shop		6		1.80					1		0.30		2		0.60		3		0.9				
Vermi-Composting		5		1.50												5		1.5					
Milch cow rearing																							
Saloon/ Beauty parlour																							
Mushroom cultivation																							
Floriculture																							
Goat Rearing																							
Weaving & Handloom		6		1.80								2		0.60		4		1.2					
Stabilized Mud block Making		8		1.20					2		0.30		6		0.90								
Carpentry/ Blacksmithy																							
Duckery																							
Sericulture																							
Soap making																							
Rice Mill Operation																							
Improved Fuel making (fire cakes etc.)																							
Integrated farming system																							
Basket Making																							
Kitchen Gardening																							
Sub Total of E		54		15.00					6.00		1.50		18.00		4.50		30.00		9.00				
Sub Totalof IV (A+B+C+D+E)	398.50	721.00	21511.98	112.50				13.50	78.00	348.26	14.25	385.00	460.00	17975.46	64.50		183.00	3188.26	33.75				
V																							
Consolidation Phase		3		4.50																	3		4.50
Sub Total of V		3		4.50																			
Grand Total (I+II+III+IV+V)	398.50	721.00	21511.98	150.00		7.00		9.00	13.50	78.00	348.26	21.00	385.00	460.00	17975.46	75.00		183.00	3188.26	40.50		0.00	4.50

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WATERSHED TREATMENT PLAN OF UMMAWIONG-KYNTHROIN MICRO WATERSHED UNDER IWMP – WEST KHASI HILLS, PROJECT – VIII

Project	IWMP-VIII
District	West Khasi Hills
C&RD Block	Nongstoin

Total Geographical Area	2979 Ha.
Treatable Area	2500 Ha.
Nos. of Villages	10 Nos.

Total Project Cost	` 375.00 Lakhs
Central Share	` 337.50 Lakhs
State Share	` 37.50 Lakhs

Total Population	1715
Total Household	315
No. of Micro-Watersheds	4 No.

(Rupees in Lakhs)

S. N.	Activities	Total				1st Year				2nd Year				3rd Year				4th Year				5th Year			
		Ha	Nos	Rm	Fin	Ha	Nos	Rm	Fin	Ha	Nos	Rm	Fin	Ha	Nos	Rm	Fin	Ha	Nos	Rm	Fin	Ha	Nos	Rm	Fin
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
I	Administrative Cost		10.0%		37.50						2.0%		7.50		5.0%		18.75		3.0%		11.25				
II	Monitoring & Evaluation		2.0%		7.50						0.5%		1.875		1.0%		3.75		0.50%		1.875				
	Sub Total (I+II)	0.00	12.0%	0.00	45.00	0.00	0.0%	0.00	0.00	0.00	2.5%	0.00	9.375	0.00	6.00%	0.00	22.50	0.00	3.5%	0.00	13.125	0.00	0.0%	0.00	0.00
III	Preparatory Phase																								
A	EPA																								
	i) Drinking Well		4		1.7224		4.00		1.7224																
	ii) Washing Place		5		4.6301		5.00		4.6301																
	iii) Foot path		1		0.7120		1.00		0.712																
	iv) Drinking Water Supply System		1		1.6014		1.00		1.6014																
	v) Community assets		7		2.4056		7.00		2.4056																
	vi) Check Dam cum Washing Place		3		3.3286		3.00		3.3286																
	vii) Foot bridge		1		0.60		1.00		0.60																

	Sub Total of EPA	0.00	22	0.00	15.00	0.00	22.00	0.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B	DPR		1%		3.75		1.0%		3.750		0.00		0.00												
C	Institutional & Capacity Building		5%		18.75		1.0%		3.750		2.0%		7.50		1.0%		3.75		1.0%		3.75				
	Sub Total of III (Preparatory Phase)	0.00	10%	0.00	37.50	0.00	6.0%	0.00	22.50	0.00	2.0%	0.00	7.50	0.00	1.0%	0.00	3.75	0.00	1.0%	0.00	3.75	0.00	0.0%	0.00	0.00
IV	Works Phase																								
A	Arable Land Treatment																								
	Contour bund	20.00	20		1.50					5.00	5.00		0.375	15.00	15		1.125								
	Wet Terrace	8.00	13		1.20					3.00	5.00		0.450	5.00	8		0.75								
	Bench Terracing	15.00	10		3.00									15.00	10		3.00								
	Peripheral Bunding		75	1830.00	9.14998						1.00	267.64	0.1338		60	14775.26	7.38763		14	3257.10	1.62855				
	Crop Demonstration		13		0.65										13		0.65								
S. N.	Activities	Total				1st Year				2nd Year				3rd Year				4th Year				5th Year			
		Ha	Nos	Rm	Fin	Ha	Nos	Rm	Fin	Ha	Nos	Rm	Fin	Ha	Nos	Rm	Fin	Ha	Nos	Rm	Fin	Ha	Nos	Rm	Fin
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
	Kitchen Garden		67		1.675										57		1.425		10		0.25				
	Improvement of Existing Paddy Fields	94.00	67		4.1280								0.3010	83.00	50		3.569	4.00	5		0.258				
	Agro-Horticulture	185.00	150		15.115									185.00	150		10.219	M	M		4.896				
	Sub Total of A (Arable)	322.00	415.00	18300.00	36.41798	0.00	0.00	0.00	0.00	15.00	23.00	267.00	1.2598	303.00	363.00	14775.26	28.12563	4.00	29.00	3257.10	7.03255	0.00	0.00	0.00	0.00
B	Non-Arable Land																								
	Improvement of Degraded Forest/ existing Natural Forest	300.00	140.00		10.24					230.00	70.00		5.980	70 & M	70		3.56	M	M		0.70				

	Afforestation	315.00	120.00		28.335					0.00	0.00			315.00	120		19.20	M	M		9.135				
	Avenue Plantation	50.00	24.00		2.1330					50.00	24.00		1.538	M	M		0.595								
	Agro-Forestry	115.00	65.00		8.8550						0.00			115.00	65		5.52	M	M		3.335				
	Nursery Establishment		94000.0		7.520						94000.0		7.52												
	Sub Total of B (Non Arable)	780.00	425.00	0.00	57.0830	0.00	0.00	0.00	0.00	280.00	170.00	0.00	15.038	500.00	255.00	0.00	28.875	0.00	0.00	0.00	13.17	0.00	0.00	0.00	0.00
C	Drainage Line Treatment																								
	Farm Ponds / Dug-out Ponds		23.00		5.1877						2.00		1.0259		21		4.1618								
	Water Harvesting Structures		28.00		40.1443 5						4.00		5.3698		17		26.282		7		8.49255				
	Check Dam, H/W Dam, Diversion Dam / Irrigation Dam		17.00		12.0707						3.00		2.2435		12		8.1182		2		1.709				
	Loose Boulder Check Dam cum Washing Place		1.00		0.46384						0.00				1		0.46384								
	Stone Masonry Protection Wall / Retaining Wall		116.00		45.3316						8.00		2.6893		74		31.1886		34		11.4537				
	Runoff Disposal Channel / Diversion drain		52.00	21020.23	13.3008						3.00	677.7450	0.4987		40	18379.70	11.5349 3		9	1962.785	1.2672				
	Sub Total of C (DLT)	0.00	237.00	21020.23	116.499 02	0.00	0.00	0.00	0.00	0.00	20.00	677.7450	11.8272	0.00	165.00	18379.70	81.7493 7	0.00	52.00	1962.785	22.9224 5	0.00	0.00	0.00	0.00
	Total of Watershed Works (A+B+C)	1102.00	1077.00	39320.23	210.00	0.00	0.00	0.00	0.00	295.00	213.00	945.3850	28.125	803.00	783.00	33154.96	138.75	4.00	81.00	5219.885	43.125	0.00	0.00	0.00	0.00
D	Livelihood Activities																								
	Tailoring		119.00		9.520						5.00		0.40		34		2.72		80		6.40				
	Carpentry / Black smithy		76.00		3.80						13.00		0.65		33		1.65		30		1.50				
	Kitchen Gardening		87.00		2.1750						30.00		0.75		17		0.425		40		1.00				
	Apiculture		33.00		2.640						8.00		0.64		10		0.80		15		1.20				

	Masonry / Hollow Block Making		19.00		0.950						5.00		0.25		11		0.55		3		0.15				
	Piggery		48.00		3.840						3.00		0.24		15		1.20		30		2.40				
	Poultry		50.00		4.00						4.00		0.32		16		1.28		30		2.40				
S. N.	Activities	Total				1st Year				2nd Year				3rd Year				4th Year				5th Year			
		Ha	Nos	Rm	Fin	Ha	Nos	Rm	Fin	Ha	Nos	Rm	Fin	Ha	Nos	Rm	Fin	Ha	Nos	Rm	Fin	Ha	Nos	Rm	Fin
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
	Vermi-Composting		13.00		1.225										9		0.725		4		0.50				
	Pisciculture		57.00		5.600						5.00		0.50		20		1.90		32		3.20				
	Sub Total of D (Livelihood)	0.00	502.00	0.00	33.750	0.00	0.00	0.00	0.00	0.00	73.00	0.00	3.75	0.00	165.00	0.00	11.25	0.00	264.00	0.00	18.75	0.00	0.00	0.00	0.00
E	Production Systems																								
	Poultry Farming		23.00		6.90						3.00		0.90		6		1.80		14		4.20				
	Piggery Farming		22.00		6.60						1.00		0.30		8		2.40		13		3.90				
	Food Processing		5.00		1.50						1.00		0.30		2		0.60		2		0.60				
	Pisciculture		18.00		5.40						3.00		0.90		6		1.80		9		2.70				
	Grocery shop		28.00		8.40						3.00		0.90		10		3.00		15		4.50				
	Vermi-composting		5.00		1.50														5		1.50				
	Mushroom cultivation		3.00		0.90														3		0.90				
	Weaving & Handloom		6.00		1.80										2		0.60		4		1.20				
	Carpentry / Blacksmithy		8.00		1.20						2.00		0.30		6		0.90								
	Rice Mill Operation		6.00		3.00														6		3.00				
	Kitchen Gardening		2.00		0.30						1.00		0.15		1		0.15								

	Sub Total of E (Production)	0.00	126.00	0.00	37.50	0.00	0.00	0.00	0.00	0.00	14.00	0.00	3.75	0.00	41.00	0.00	11.25	0.00	71.00	0.00	22.50	0.00	0.00	0.00	0.00
	Total of IV (A+B+C+D+E) Works Phase	1102.00	2545.00	39320.23	281.25	0.00	0.00	0.00	0.00	295.00	300.00	945.385	35.625	803.00	989.00	33154.96	161.25	4.00	416.00	5219.885	84.375	0.00	0.00	0.00	0.00
	Consolidation Phase		3.00%		11.25																		3.0%		11.25
	Sub Total of V (Consolidation Phase)	0.00	3.00%	0.00	11.25	0.00	0.0%	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	0.00%	0.00	0.00	0.00	3.0%	0.00	11.25
	Grand Total (I+II+III+IV+V)	1102.00	2545.00	39320.23	375.00	0.00	22.00	0.00	22.50	295.00	300.00	945.385	52.50	803.00	989.00	33154.96	187.50	4.00	416.00	5219.885	101.25		3.0%		11.25

Divisional Officer,
 Cum
 Project Leader
 Project Implementation Agency (IWMP)
 Soil & Water Conservation Division,
 Nongstoin

Deputy Commissioner,
 West Khasi Hills District,
 Nongstoin

**PLAN FOR RELEASE OF PROJECT FUND BY SLNA TO PROJECT IMPLEMENTATION AGENCY (PIA) & WATERSHED COMMITTEE FOR
UMMAWIONG MICRO WATERSHED (WEST KHASI HILLS, IWMP – PROJECT VIII)**

(Physical in %) (Rs. In Lakhs)

Sl No	Budget Component	1 st Year		2 nd Year		3 rd Year		4 th Year		5 th Year		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Administrative Cost	-	-	2	3.00	5	7.50	3	4.50	-	-	10%	15.00
	Monitoring	-	-	0.2	0.30	0.5	0.75	0.3	0.45	-	-	1%	1.50
	Evaluation	-	-	0.3	0.45	0.5	0.75	0.2	0.30	-	-	1%	1.50
2	Preparatory Phase	-	6.00	2	3.00	-	-	-	-	-	-	4%	6.00
	Entry Point Activities	-	6.00	2	3.00	-	-	-	-	-	-	4%	6.00
	Institutional Capacity building	-	1.50	-	-	1	1.50	1	1.50	-	-	5%	7.50
	Detailed Project Report (DPR)	-	1.50	-	-	-	-	-	-	-	-	1%	1.50
3	Watershed Work phase	-	-	7.50	11.25	37	55.50	11.5	17.25	-	-	56%	84.00
	Watershed Works Phase	-	-	7.50	11.25	37	55.50	11.5	17.25	-	-	56%	84.00
	Livelihood Activities for the Asset less Persons	-	-	1	1.50	3	4.50	5	7.50	-	-	9%	13.50
	Production system and Micro Enterprises	-	-	1	1.50	3	4.50	6	9.00	-	-	10%	15.00
4	Consolidation Phase	-	-	-	-	-	-	-	-	3%	4.50	3%	4.50
	Total	6%	9.00	14%	21.00	50%	75.00	27%	40.50	3%	4.50	100%	150.00

PROJECT FUNDING: A. CENTRAL SHARE = 90% (337.50 Lakhs)
 B. STATE SHARE = 10% (37.50 Lakhs)
 TOTAL (A+B) = 100% (375.00 Lakhs)

*Divisional Officer,
Cum
Project Leader
Project Implementation Agency (IWMP)
Soil & Water Conservation Division,
Nongstoin*

*Deputy Commissioner,
West Khasi Hills District,
Nongstoin*

UMMAWIONG MICRO WATERSHED IWMP-VIII

CHART FOR ENTRY POINT ACTIVITIES.

SL.No	NAME OF VILLAGES	ITEM OF WORK	MEASUREMENT	COST(RS)	LOCATION	REMARKS
1.	Siejlieh	Washing Place 2Nos.	As per estimates	161005.00	Siejlieh	
		Drinking Well 1no	As per estimates	46140.00	Siejlieh	
		Check Dam Cum Washing Place 1no	As per estimates	179990.00	Siejlieh	
2.	Mawkhlam	Check Dam Cum Washing Place 1no	As per estimates	71145.00	Mawkhlam	
		Footbridge 1no	As per estimates	60000.00	Mawkhlam	
3.	Mawthoh	Check Dam Cum Washing Place	As per estimates	81720.00	Mawthoh	
	TOTAL =			Rs.600000/-		
				Say Rs.600000/-		

Rupees (Six lakhs) only

/SUBMITTED/

VILLAGE WISE ACTION PLAN OF UMMAWIONG MICRO WATERSHED UNDER IWMP-CONVERGENE WEST KHASI HILLS PROJECT-VIII

Name of District : West Khasi Hills
Name of C & RD Block : Nongstoin

Nos of villages - 4nos
Project Area - 1000Ha

Physical in Ha
Financial (Rs.in lakhs)

Sl. No	Particulars	Siejlich		Mawkhlam		Mawtynrong		Mawthoh		Total	
		PHY	FIN	PHY	FIN	PHY	FIN	PHY	FIN	PHY	FIN
A	ARABLE LAND TREATMENT										
1	Agro-Horticulture@8350	20Ha	1.67	6 Ha	0.501	2 Ha	0.167	2 Ha	0.167	30	2.525
2	Agro-Forestry@10100	48Ha	4.848	40 Ha	4.04	20 Ha	2.02	7 Ha	0.707	115	11.615
3	Contour Bunding/Loose Boulder Bund @7500	8 Ha	0.60	6 Ha	0.45	4 Ha	0.30	2 Ha	0.15	20	1.50
4	Peripheral Bunding@50	10002 Rm	5.001	2968 Ha	1.48	1156Rm	0.578	884Rm	0.442	15002Rm	7.501
5	Improvement of existing Paddy field@4300	5 Ha	0.215	3 Ha	0.129	2 Ha	0.086	2 Ha	0.086	12 Ha	0.516
6	Terrace@15000	4 Ha	0.60	2 Ha	0.30	1 Ha	0.15	1 Ha	0.15	8 Ha	1.20
7	Crop Demonstration@5000	-	-	-	-	-	-	-	-	-	-
	TOTAL of A	-	12.934	-	6.90	-	3.301	-	1.702	-	24.837
B	NON-ARABLE LAND TREATMENT	-	-	-	-	-	-	-	-	-	-
1	Afforestation @10100	6 Ha	6.06	50 Ha	5.05	26 Ha	2.626	9 Ha	0.909	145 Ha	14.645
2	Improvement of Degraded Forest@3600	29 Ha	1.044	24 Ha	0.864	12 Ha	0.432	5 Ha	0.18	70 Ha	2.52
	Total of B	-	7.104	-	5.914	-	3.058	-	1.089	-	17.165
C	DRAINAGE LINE TREATMENT	-	-	-	-	-	-	-	-	-	-
1	Loose Boulder Check Dam	1 No	0.46384	-	-	-	-	-	-	1	46384
2	C/Dam/Diversion Dam/H/Dam	3 Nos	1.28580	1 No	0.62440	-	-	-	-	4	191020
3	Protection wall/Retaining wall	27 Nos	12.1791	15 Nos	7.5199	3Nos	1.05395	6 Nos	2.11515	51 Nos	22.8681
4	Farm Pond/Small Dug-out pond	-	-	4 Nos	2.14772	-	-	-	-	4 Nos	2.14772
5	Water Harvesting Structure	4Nos	6.37675	1 No	1.85555	-	-	4 Nos	4.68325	9 Nos	1291555
6	Runoff Disposal Channel@2618	3473.78	0.90318	1560Rm	0.40560	610Rm	0.15860	866.2Rm	0.22521	6509.98 Rm	1.69259
	TOTAL of C	-	21.20867	-	12.55317	-	1.21255	-	7.02361	-	41.998
	Total A,B & C	-	41.24667	-	25.36717	-	7.57155	-	9.81461	-	84.00

Sl. No	Particulars	Siejlich		Mawkhlam		Mawtynrong		Mawthoh		Total	
		PHY	FIN	PHY	FIN	PHY	FIN	PHY	FIN	PHY	FIN
D	LIVELIHOOD										
1	Carpentry @RS.5000/Unit	19 Ha	0.95	12 Ha	0.6	4 Ha	0.20	1 Ha	0.1	37 Ha	1.85
2	Pisciculture @RS.10000/Unit	2 Ha	0.20	1 Ha	0.1	1 Ha	0.10	2 Ha	0.20	5 Ha	0.50
3	Tailoring/Knitting @RS.8000/Unit	26 Ha	2.08	17 Ha	1.36	5 Ha	0.40	2 Ha	0.16	50 Ha	4.00
4	Apiculters @RS.8000/Unit	4 Ha	0.32	3 Ha	0.24	2 Ha	0.16	1 Ha	0.08	10 Ha	0.80
5	Piggery/ Poultry @RS.8000/Unit	16 Ha	1.28	10 Ha	0.8	3 Ha	0.24	1 Ha	0.08	30 Ha	2.40
6	Vermi Compose @RS.12500/Unit	4 Ha	0.50	3 Ha	0.375	1 Ha	0.125	1 Ha	0.025	9 Ha	1.125
7	Kitchen Garden @RS.2500/Unit	49 Ha	1.225	30 Ha	0.75	5 Ha	0.125	3 Ha	0.075	87 Ha	2.175
8.	Hollow Block Making@5000	6 Ha	0.30	4 Ha	0.2	2 Ha	0.10	1 Ha	0.05	13 Ha	0.65
	TOTAL of (D)		6.855		4.425		1.450		0.77	9%	13.50
E	PRODUCTION SYSTEM										
1	Gravery Shop @RS.30000/Unit	3 Ha	0.90	2 Ha	0.6	1 Ha	0.30	-	-	6 Ha	1.80
2	Mud block making@RS.30000/Unit	2 Ha	0.60	2 Ha	0.6	1 Ha	0.30	1 Ha	0.30	6 Ha	1.80
3	Pisciculture @RS.30000/Unit	2 Ha	0.60	1 Ha	0.3	1 Ha	0.30	1 Ha	0.30	5 Ha	1.50
4	Piggery/ Poultry @RS.30000/Unit	13 Ha	3.90	8 Ha	2.4	2 Ha	0.60	1 Ha	0.30	24 Ha	7.20
5	Vegetative cultivation@Rs.15000/Unit	9 Ha	1.35	6 Ha	0.90	2 Ha	0.30	1 Ha	0.15	18 Ha	10.80
	Total of (E)		7.35		4.80		1.80		1.050	10%	15.00
	Grand Total of A,B,C,D, & E		55.45167		34.59217		10.82155		11.63461		112.50

*WDT Member
Community Organizer*

*Chairman
Ummawiong Micro Watershed*

*WDT Member
(Forestry)*

*WDT Member
(Civil Engineering)*

*WDT Member
(Forestry)*

*Project Leader
Ummawiong Watershed Committee
IWMP-VIII*

Detail of types of areas covered under the IWMP Programme:

1	2	3	4	5	6		7	8	9	10				11				
Sl no	Name of state	Name of Districts	Names of Projects	Year of Sanction	Project Duration (dd/mm/yyyy)		Area of the Projects	Project cost (Rs.In Lakh)	Names of Micro watersheds & Code Nos.(As per Dolr's unique Codification)	Area(Ha) of the Projects				Area details (ha) (falling within the Projects)				
					From	To				Cultivated rainfed area	Cultivated irrigated area	Uncultivated wasteland		Pvt. Agri. Land	Forest land	Community Land	Others (pl. Specify)	Total Area (ha)
											a) Temporary fallow	b) permanent						
1	Meghalaya	West Khasi Hills	West Khasi Hills – IWMP VIII	2011-2012	2011-2012	2015-2016	1000 Ha	150.00 Lakhs	Ummawiong Micro Watershed 3C1B2b3d, 3C1B2b2g , 3C1B2b4b	170Ha	-	464Ha	-	170Ha	111Ha	168Ha	310	1223

Fund provision for the IWMP projects from all sources:

(Rs in Lakhs)

1	2	3		4										5
District	Name of projects	IWMP Fund		Funds from other sources in addition to IWMP funds										Total
				Convergence funds		PPP		Community		Institutional finance		Others (Pl. specify)		
		Central share	State share	Name of Scheme	Amount	Name of Private sector	Financial contribution	Name	Financial Contribution	Name	Financial Contribution	Name	Financial Contribution	
West Khasi Hills	WKH – IWMP VIII	135.00	15.00	MGNREGS	9.46401	nil	nil	nil	nil	nil	nil	nil	nil	159.46401

Details of Project Fund Accounts of Distt. Agency and Watershed Committees:

1	2	3	4	5				6				
Sl No.	Names of States	Name of Districts	Name of Projects	Distt. Agency 's Project Account details				Watershed Committee (WC) account details:				
				Name of the Bank and Branch Where Project account has been opened	Account No. (to be obtained confidentially)	Account type (Savings/ Current/ Others)	Name & Designation of authorized Persons who operate the Account.	Name of Watershed committee	Name of the Bank and Branch Where project account has been opened	Account number (to be obtained confidentially)	Account type (savings/ current others)	Name & Designation of authorized persons who operate the account.
1.	Meghalaya	West Khasi Hills	WKH – IWMP VIII	State Bank of India, Nongstoin Branch	31150653956	Savings	Shri.D.K.Khonglah D.S. & W.C.O.	Ummawiong Micro Watershed Committee	SBI, Nongstoin	-	Savings	Chairman, W.C., Secretary, W.C., Project Leader

Details of convergence of IWMP with other Schemes:

1	2	3	4	5	6	7
District	Name of Projects	Name of Department with scheme converging with IWMP	Fund made available to IWMP due to convergence (Rs. In lakh)	Name of activity / task/ structure undertaken with converged funds	Reference no.of activity / task/ structure in DPR [@]	Level at which decision for convergence was taken ^s
				(a) Structures (b) Livelihood. (c) any others (pl. specify)		
West Khasi Hills	W.K.H- IWMP VIII	C&RD Deptt. (MGNREGS)	6.30934	CC Dam cum Washing Place		District Level & Block Level
				Run off Disposal Channel/ Diversion Drain		
				Foot Bridge		
				Small Dug Out Pond/ Farm Pond		
				Afforestation		

**OFFICE OF THE
DISTRICT RURAL DEVELOPMENT AGENCY
WEST KHASI HILLS DISTRICT
NONGSTOIN**

No.DRDAING-63/Con/NREGA/09/ 84

Dated Nongstoin the 15th April, 2011

CERTIFICATE OF APPROVAL

In pursuance to the Provision of Convergence/Dovetailing of Mahatma Gandhi NREGA Operational Guidelines, the below mentioned projects are hereby approved to be taken up under convergence of IWMP during the financial year 2011-12, 2012-13 and 2013-14 with Soil and Water Conservation Department, Nongstoin Vide proposal No.ND/IWMP/Genl/2010-11/81-83 dt 8th April, 2011.

Block	Name of Project	Unit of Measur ement	Name of Village	Fin. Year	Wages MGNRE GS (60%)	Materials Soil & WC Deptt (40%)	Total (100%)	Phy. target
	Afforestation	ha	1.Punphreit 2.Mawrok 3.Mawrok,Nongnah 4.Thiepkseh 5.Shiliangktieh 6.Mawlangbah 7.Mawkohiang	2 nd 2011-12 3 rd 2012-13 4 th 2013-14	4.968 9.936 6.003	3.312 6.624 4.002	8.28 16.56 10.005	345ha
	Total of 1				20.907	13.938	34.845	345h a
Nongstoin C&RD Block	Farin Pond	cum	1.Punphreit	2 nd 2011-12 3 rd 2012-13 4 th 2013-14	1.02114 - -	0.68076 - -	1.7019 - -	1no
	Total of 2				1.02114	0.68076	1.7019	1no
	Footbridge	cum	1. Mawkohiang	2 nd 2011-12 3 rd 2012-13 4 th 2013-14	0.59148 - -	0.39432 - -	0.9858 - -	1no
	Total of 3				0.59148	0.39432	0.9858	1no
	Diversion Dam	cum	1.Photmawlieh (Punphreit) 2.TbanThiep (Mawrok) 3.Pangsniang (Mawrok,Nongnah)	2 nd 2011-12 3 rd 2012-13 4 th 2013-14	- 0.94104 0.35778	- 0.62736 0.23652	- 1.5684 0.5963	- 2nos 1no
	Total of 4				1.29882	0.86588	2.1647	3nos
	Grand Total				23.81844	15.87896	39.6974	7nos

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District Programme Coordinator
MGNREGA/MGNREGS
West Khasi Hills District
Nongstoin

DETAILED ACTION PLAN FOR CONVERGENCE OF IWMP WITH MGNREGA UNDER UMMAWIONG MICRO WATERSHED IWMP-VIII.

Sl No.	Name of Villages	No of Items	Name of Works	Year of Project	IWMP 40%	MGNREGA 60%	Phy Target	Amount
1.	Siejlieh	2	Construction of Diversion Dam	2 nd 2012-13 3 rd 2013-14	27896 38244	41844 57366	2	69740 95610
	Total of 1	2			66140	99210	2	165350
2.	Siejlieh Mawthoh Siejlilh Mawthoh	1 1 1 2	Construction of Farm Pond / Water Harvesting Structure	2 nd 2012-13 2 nd 2012-13 3 rd 2013-14 3 rd 2013-14 4 th 2014-15	117820 86592 11782 98138 98040	176730 129888 176730 147207 147060	1 1 1 1 1	294550 216480 294550 245345 245100
	Total of 2	5			518410	777615	5	1296025
3.	Siejlieh	1	Construction of Check Dam Cum Washing Place	2 nd 2012-13	46384	69576	1	115960
	Total of 3	1			46384	69576	1	115960
	Grand Total (1,2 & 3)	8			630934	946401	8	11577335

*Divisional Officer, Cum
Project Leader
Project Implementation Agency (IWMP)
Soil & Water Conservation Division, Nongstoin*

CHAPTER VI
CAPACITY BUILDING

**CHAPTER VI
CAPACITY BUILDING**

Capacity Building is a process to systematically upgrade the skill of individuals or groups for achieving a specific target. Capacity building in the project has been planned for all the stake holders involved i.e. State Level, District Level, Project Level and Village Level. The relevant details pertaining to Capacity Building has been shown below.

Capacity Building:

Table 6.1 List of Approved Training Institutes[@] for Capacity Building:

1	2	3	4	5	6	7
SI No.	State	Name of the Training Institute	Full address with contact no, website & email	Name & Designation of the head of the Institute	Type of Institute	Area (s) of specialization ^s
	Meghalaya	NIRD (NER)	Guwahati	Director	Central Govt. (Training)	Remote Sensing, Rural Devopment, Capacity & Building
		SIRD	Nongsder	Director	State Govt. (Training)	Capacity Biulding & Training
		RRTC	Umran	Director	Don Bosco (Production & Training)	Agri-Horti, Animal Husbandary, Entrepreneurship
P		ICAR	Umiam	Director	Central Govt. (Reseach & Development)	Agri-Horti, Animal Husbandary, Entrepreneurship, Integrated Farming
		VTC	Kyrdem Kulai	Director	State Govt. (Production, Training & Research)	Animal Husbandary
		Fruit Garden	Shillong	Director	State Govt. (Training & Research)	Agri-Horti, Fruit Processing

* From column no. 2, total no. of States implementing the programme, from column no.3, no. of Training institute, from, column no.9 total no. of category –wise training and trainees may be given at the end of the table for the entire country.

Central Govt. Dept/ State Govt. Dept/ autonomous body/ Research Institute/ Universities/ others (pl. specify)

\$ Capacity Building / Agriculture/ Horticulture/ Animal Husbandry/ Pisciculture/ remote sensing/ Water Conservation/ Ground water/ Forestry/ Livelihood/Entrepreneurship Development/ Others (pl. specify)

@ The Training institute must fulfill the conditions mention in the operation guideline.

1. Technical experts in field required by IWMP.
2. Past experience.
3. Annual turnover.
4. Receives Fund either from the Central or State Govt.
5. Publication.
6. Not blacklisted by any Govt. Organisation.
7. Audited account.
8. Organizational structure

Table 6.2: Capacity Building activities for the Year 2010-11 to 2014-15 as on 31.03.2011 (dd/mm/yyyy)*

1	2	3	4					5
Project	Type of Training/ Capacity Building	Agency/Institution to provide training	No. of Trainings targeted during each financial year					Total
			1st Year	2nd Year	3rd Year	4th Year	5th Year	
PIAs	Capacity Building	NIRD, SIRD	1	2	1	1		4
WDTs	Capacity Building	RRTC, ICAR	2	2	1	1		6
UGs	Capacity Building	RRTC, ICAR	1	2	1	1		4
SHGs	Capacity Building	Phrang Jingshai Society, SiejliehSocial Service Society, NongstoinVTC, Kyrdemkulai	2	3	2	1		8
WCs	Capacity Building	RRTC, ICAR	1	2	1	1		4
GPs		NIRD, SIRD	1	1	1			3
Community	Awareness Programmes, Capacity Building and Exposure visits	RRTC, VTC, ICAR	1	2	1	1		4
Others Pl. specify)		Old Watershed IWDP for Exposure Visit	-	1	1	-		2

Table 6.3: Information, Education & Communication (IEC) activities for the year 2010-2011 as on 31-03-2011 (dd/mm/yyyy)*

Sl No	1	2	3
	Activity	Executing agency	Estimated expenditure (Rs.)
1	Awareness	S&WC (T) Division, Nongstoin	12.00
2	PRA Exercises	S&WC (T) Division	
3	Exposure Visits	S&WC (T) Division	
4	Capacity Building	S&WC (T) Division	
5	Preparation of Pamphlets, Booklet & Banner & Posters	S&WC (T) Division	

CHAPTER VII
EXPECTED OUTCOME

**CHAPTER VII
EXPECTED OUTCOME**

Table 7.1 Employment related outcomes:

Sl No	Name of Village	1										2				
		Wage employment										Self employment				
		No. of mandays					No. of beneficiaries					No. of beneficiaries				
		SC	ST	Others	Women	Total	SC	ST	Others	Women	Total	SC	ST	Others	Women	Total
1.	Siejlieh		32400		16200	48600		5566		2738	8349		64		34	98
2.	Mawkhlam															
3.	Mawtynrong															
4.	Mawthoh															

Table 7.2 Migration Details:

1	2	3	4	5	6	7	8	9	10	
Names of the Districts	Names of projects	Name of Village	No. of persons migrating	No. of days per year of migration	Major reason (s) for migrating	Distance of destination of migration from the village (Km)	Occupation during migration	Income from such occupation (Rs. In lakh)	For reduced migration identify major activities of IWMP responsible	
									Structures	Livelihoods
					N	I	L			

*From column no.2, total number of States, from column no.3, total no. of Districts; from column no.4, total no. of project; from column no.5, total no. of villages; from column no.6, total no. of persons migrating; from column no.7, average no. of days for annual migration; from column no.9, average distance of migration from the village and from column no.11, average income from occupation during migration, for the entire country may be given at the end of the Table.

Table 7.3.1 Status of Drinking Water:

1	2	3			4			5
District	Name of Project	Availability of Drinking water (no. of month in a year)			Quality of Drinking water			Comments
		Pre- project	Post- project	Change in availability	Pre-project	Post-project	Change in availability	
West Khasi Hills	WKH-IWMP VIII	10 months	12 months	10 – 12 months	Moderate	Improved	Improved	

From column no. 2 total no. of states implementing the programme, from, column no.3 total no. of District, from column no. 4 category – wise no. of project, from column no. 5 average no. of month may be given at the end of the table for the entire country.

Table 7.3.2 Water Use efficiency:

The over water availability in the project area will improve due to the soil and water conservation measures. Water use efficiency and management will also be better with the active involvement of the people and formation of user groups to maintain the assets created.

Table 7.4: Vegetation/ crop related outcomes:

Table 7.4.1 Details of Karif crop area and yield in the project areas:

1	2	3	4						5						6					
			Pre-Project		Mid-Term		Post-Project		Pre-Project		Mid-Term		Post-Project		Pre-Project		Mid-Term		Post-Project	
Names of the District	Name of Project	Name of Crops	Area (ha)		Average yield (Qtl) /ha		Total production (Qtl)		Area (ha)		Average yield (Qtl) /ha		Total production (Qtl)		Area (ha)		Average yield (Qtl) /ha		Total production (Qtl)	
			Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf
West Khasi Hills	WKH-IWMP VIII	Paddy		250		18		4500												
		Maize		145		11		1595												
		Ginger		40		80		3200												
		Potato		140		90		12600												
		Sweet Potato		70		37		2590												

* * From column no. 2 total no. of states, from column no.3 total no. of District, from column no. 4 total no. of project, from column no.5 total no. of crop from column no.6 to 8 the total for the area average yield per ha and total production category-wise entire country may be given at the end of the table for the -: Irri – Irrigated, Rf- Rainfed.

Table 7.4.2 Details of Rabi crop area and yield in the project areas:

1	2	3	4	5	6						7						8							
					Pre-Project						Mid-Term						Post-Project							
					Area (ha)		Average yield (Qtl) /ha		Total production (Qtl)		Area (ha)		Average yield (Qtl) /ha		Total production (Qtl)		Area (ha)		Average yield (Qtl) /ha		Total production (Qtl)			
					Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf
1.	Meghalaya	West Khasi Hills	WKH – IWMP VIII																					
			Total for the District																					

** From column no. 2 total no. of states, from column no.3 total no. of District, from column no. 4 total no. of project, from column no.5 total no. of crop from column no.6 to 8 the total for the area average yield per ha and total production category-wise entire country may be given at the end of the table for the :- Irri – Irrigated, Rf- Rainfed.

Table 7.4.3 Details of Zaid crop area and yield in the project areas of the Country: State-wise:

1	2	3	4	5	6						7						8							
					Pre-Project						Mid-Term						Post-Project							
					Area (ha)		Average yield (Qtl) /ha		Total production (Qtl)		Area (ha)		Average yield (Qtl) /ha		Total production (Qtl)		Area (ha)		Average yield (Qtl) /ha		Total production (Qtl)			
					Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf	Irri	Rf
1.	Meghalaya	West Khasi Hills	WKH – IWMP VIII																					
			Total for the District																					

** From column no. 2 total no. of states, from column no.3 total no. of District, from column no. 4 total no. of project, from column no.5 total no. of crop from column no.6 to 8 the total for the area average yield per ha and total production category-wise entire country may be given at the end of the table for the :- Irri – Irrigated, Rf- Rainfed.

Table 7.4.4 Increase/ Decrease in area under fodder:

3	4	5	6			7		
District	Name of Project	Duration of Project	Existing area under fodder (ha)			Achievement (ha)		
			Source/ Name of report	Year of reference	Area already under fodder	Area under fodder proposed to be covered through IWMP	Area under fodder actually covered through IWMP	Change in area under fodder
West Khasi Hills	WKH – IWMP VIII	5 Years	NA	NA	NA	nil	nil	nil

*From Column no.2, total no. of States implementing the programme; from Column no.3, total no. of Districts; from column no.4, total no. of projects, from column no.6 & 7 total area in ha may be given at the end of the table for the entire Country.

Table 7.4.5 Increase/ Decrease in Forest/vegetation cover:

1	2	3	4			5		
District	Name of Project	Duration of Project	Existing tree cover (ha)			Achievement (ha)		
			Source/ Name of report	Year of reference	Area already under forest/ vegetative cover	Forest/ vegetative cover area proposed to be covered under IWMP	Forest/ vegetative cover area actually covered under IWMP	Change in Forest/ vegetative cover area
West Khasi Hills	WKH – IWMP VIII	5 Years (2011 – 12 to 2015 – 16)	LULC Map (NESAC, Umiam)	2006	111.00Ha	260.00 Ha	Yet to be covered	

*From Column no.2, total no. of States implementing the programme; from Column no.3, total no. of Districts; from column no.4, total no. of projects, from column no.6 & 7 total area in ha may be given at the end of the table for the entire Country.

Table 7.4.6 Increase/ Decrease in area under horticulture:

1	2	3	4			5		
District	Name of Project	Duration of Project	Existing area under horticulture (ha)			Achievement (ha)		
			Source/ Name of report	Year of reference	Area already under horticulture	Area under horticulture proposed to be covered through IWMP	Area under horticulture actually covered through IWMP	Change in area under horticulture
West Khasi Hills	WKH – IWMP VIII	5 Years				30 Ha	Yet to be covered	

*From Column no.2, total no. of States implementing the programme; from Column no.3, total no. of Districts; from column no.4, total no. of projects, from column no.6 & 7 total area in ha may be given at the end of the table for the entire Country.

Table 7.4.7 Increase/ Decrease in area under fuel-wood:

1	2	3	4			5		
District	Name of Project	Duration of Project	Existing area under fuel-wood (ha)			Achievement (ha)		
			Source/ Name of report	Year of reference	Area already under fuel-wood	Area under fuel-wood proposed to be covered through IWMP	Area under fuel-wood actually covered through IWMP	Change in area under fuel-wood
West Khasi Hills	WKH – IWMP VIII	5 Years				115 Ha		

*From Column no.2, total no. of States implementing the programme; from Column no.3, total no. of Districts; from column no.4, total no. of projects, from column no.6 & 7 total area in ha may be given at the end of the table for the entire Country.

Table 7.5 Livelihood related outcomes:**Table 7.5.1 Details of livestock in the project areas (for fluids please mention in litres, for solids please mention in kgs. and income in Rs.):**

1	2	3	4			5			6			7
Name of the District	Name of the Project	Type of Animal	Pre-Project			Mid-term			Post-project			Remarks
			No.	Yield	Income (in Lakhs)	No.	Yield	Income	No.	Yield	Income	
West Khasi Hills	WKH – IWMP VIII	Cattles	182		2.930							
		Goats	38		1.169							
		Piggery	202		1.518							
		Poultry	1128		2.873							
	Total for all projects		1550		11.363							
Total for all Districts												

*From Column no.2, total number of States, from Column no.3, total no. of Districts; from column no.4, total no. of projects, from column no.5 to 8, the total nos. of animals and the average yield and incomes, category-wise, for the entire Country may be given at the end of the Table.

Table 7.6 Cost effectiveness of structures/ activities*

1	2	3	4	5	6	7	8	9	10
District	Name of project	Name of WC	Name of structure/activity	Estimated cost (Rs.)	Expected quantifiable benefits (Rs.)	Expenditure incurred (Rs.)	Actual quantifiable benefit (Rs.)	Benefit Cost ratio [#]	IRR
West Khasi Hills	WKH – IWMP VIII	Ummawiong Micro Water Committee	As per Action Plan	150.00 Lakhs	2920.738 Lakhs	150.00 Lakhs	1111.268 Lakhs	1.34:1	

*From column no.2, total no. of State implementing the Programme, from column no.3, total no. of District; from column no. 4, no. of projects; from column no. 5, no. of WCs, from column 6, no. of structures/ activities, from column no. 7 to 10, category-wise# totals may be mentioned at the end of the table for the entire country.

B:C ratio more than 1 – cost effective

Less than 1- Not cost effective

BENEFIT COST RATIO OF UMMAWIONG MICRO MICRO WATERSHED UNDER IWMP – WEST KHASI HILLS PROJECT - VIII

YEAR	TOTAL PROJECT COST (A)	INPUT/RUNNING COSTS TO BE BORNE BY FARMERS (B)	TOTAL COSTS (A+B)	TOTAL BENEFITS	DISCOUNT FACTOR (15%)	DISCOUNTED COSTS	DISCOUNTED BENEFITS	INTERNAL RATE OF RETURN
1	8.00	0	8.00	0	0.870	6.960	0	
2	21.00	71.840	92.840	101.428	0.756	70/187	76.679	
3	75.00	127.708	202.708	182.455	0.658	133.382	120.055	
4	40.50	187.344	227.844	287.608	0.372	130.327	164.512	
5	4.50	188.334	192.834	287.608	0.497	95.833	142.941	
6		188.934	188.934	289.143	0.432	81.619	124.909	
7		188.934	188.934	290.296	0.376	71.039	109.151	
8		188.934	188.934	292.216	0.327	61.781	95.555	
9		188.934	188.934	296.056	0.284	53.657	84.079	
10		188.934	188.934	297.976	0.247	46.667	73.600	
11		188.934	188.934	297.976	0.215	40.621	64.065	
12		188.934	188.934	297.976	0.187	35.331	55.722	
	375.00		2046.764	2920.673		827.409	1111.268	

$$\text{Benefit Cost Ratio} = \frac{\text{Discounted Benefits}}{\text{Discounted Costs}}$$

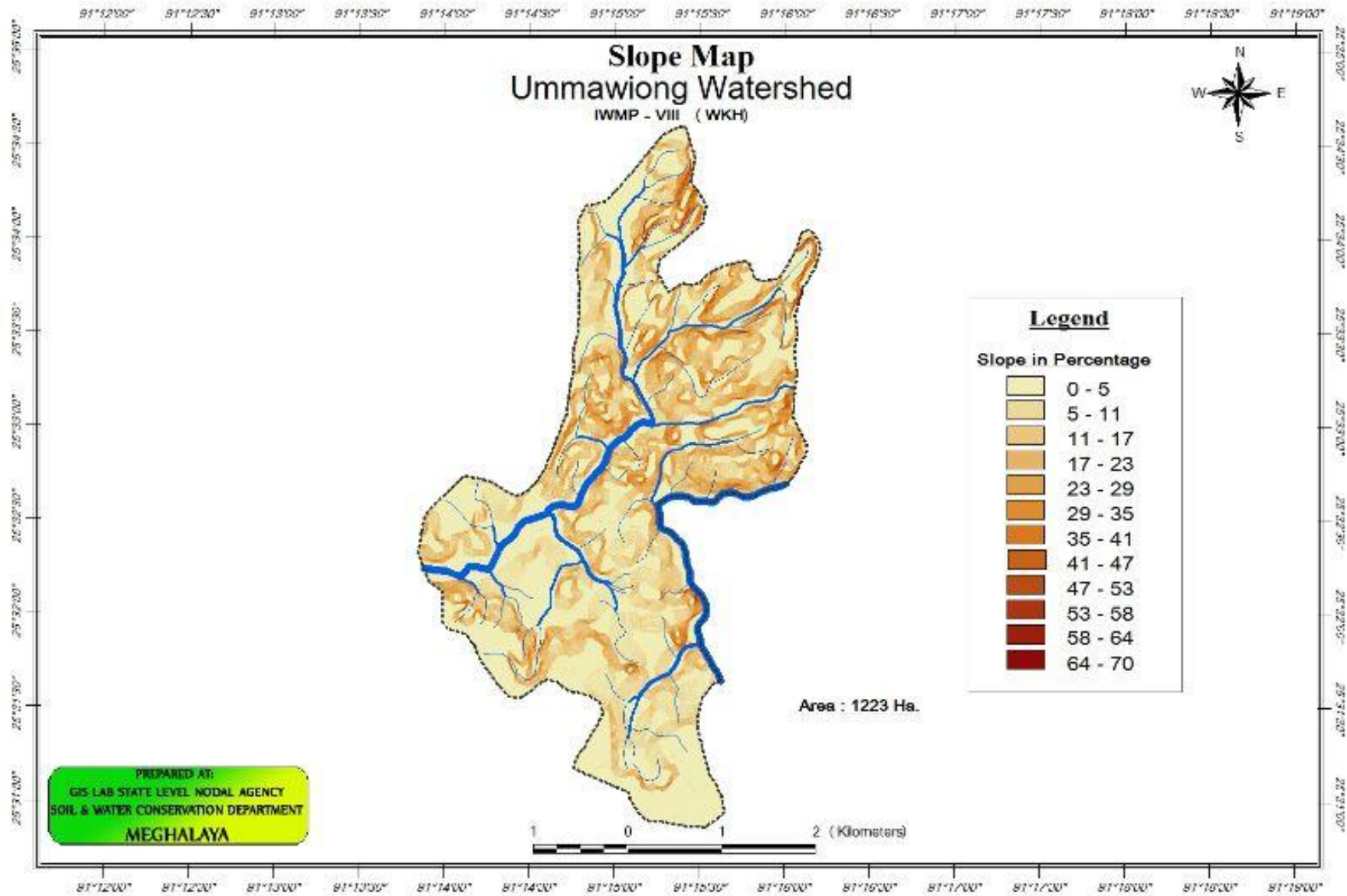
$$= \frac{\mathbf{1111.268}}{\mathbf{827.409}}$$

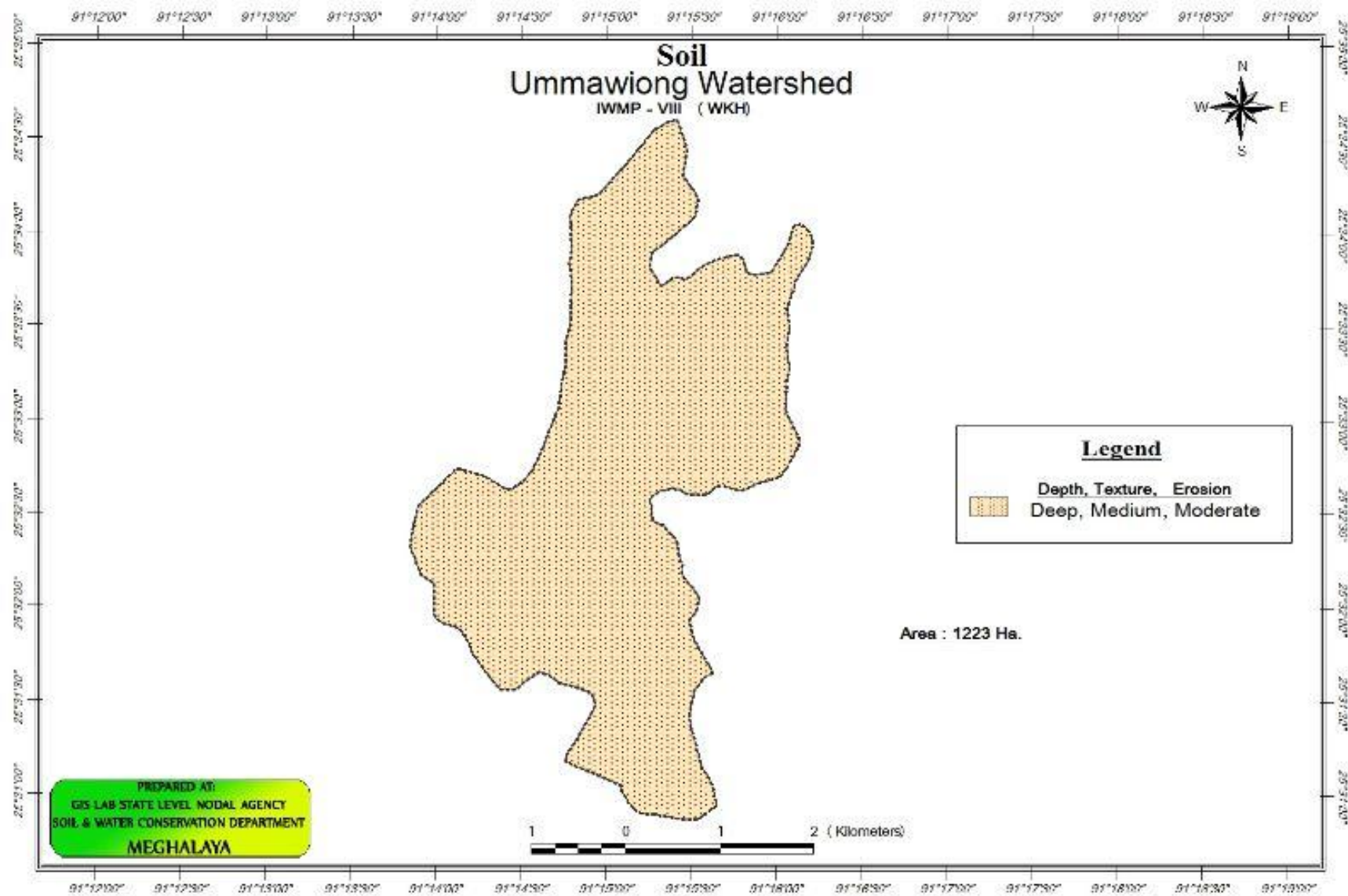
$$= 1.34$$

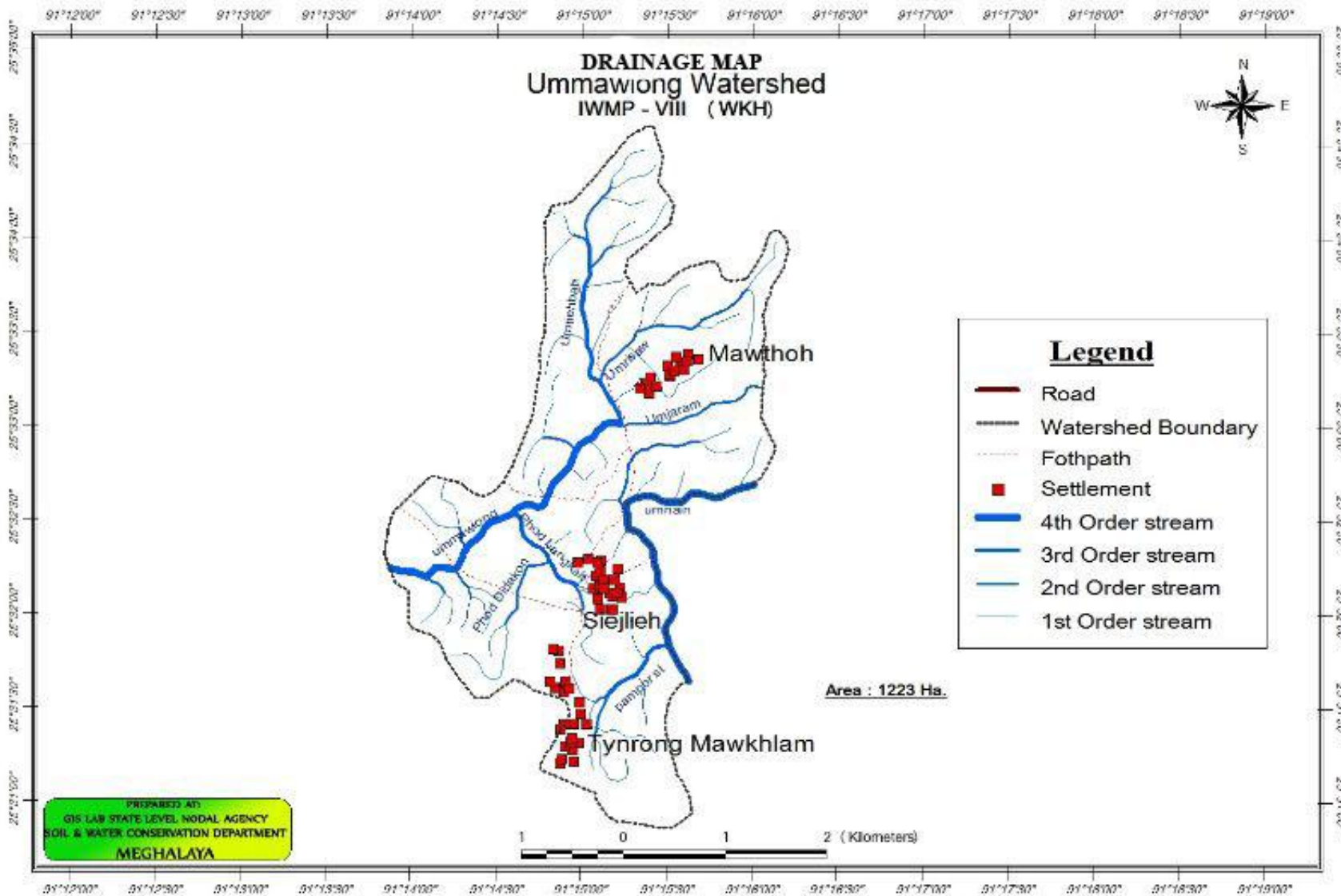
$$\mathbf{B.C. Ratio} = \mathbf{1.34: 1}$$

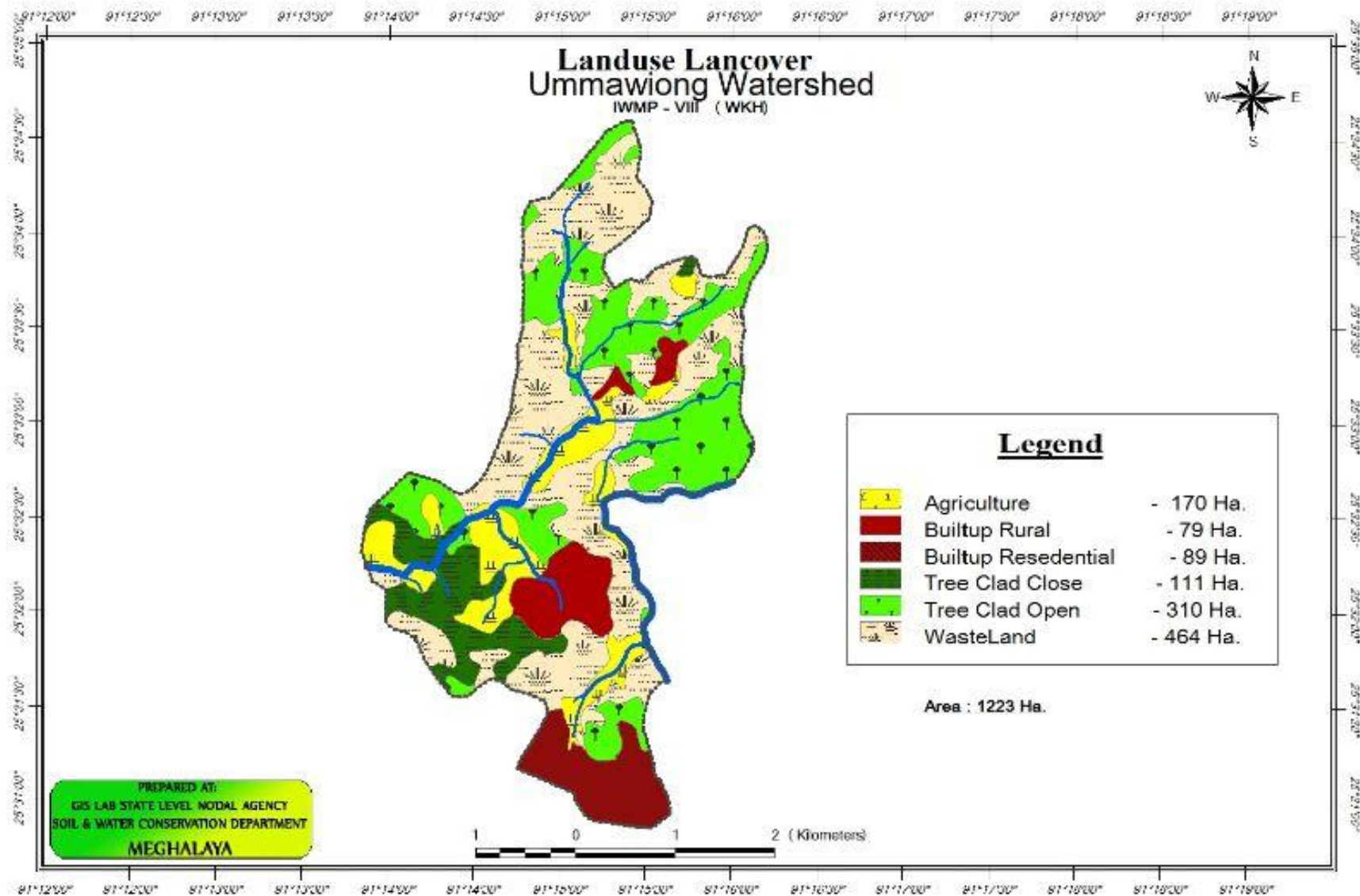
ANNEXURE I

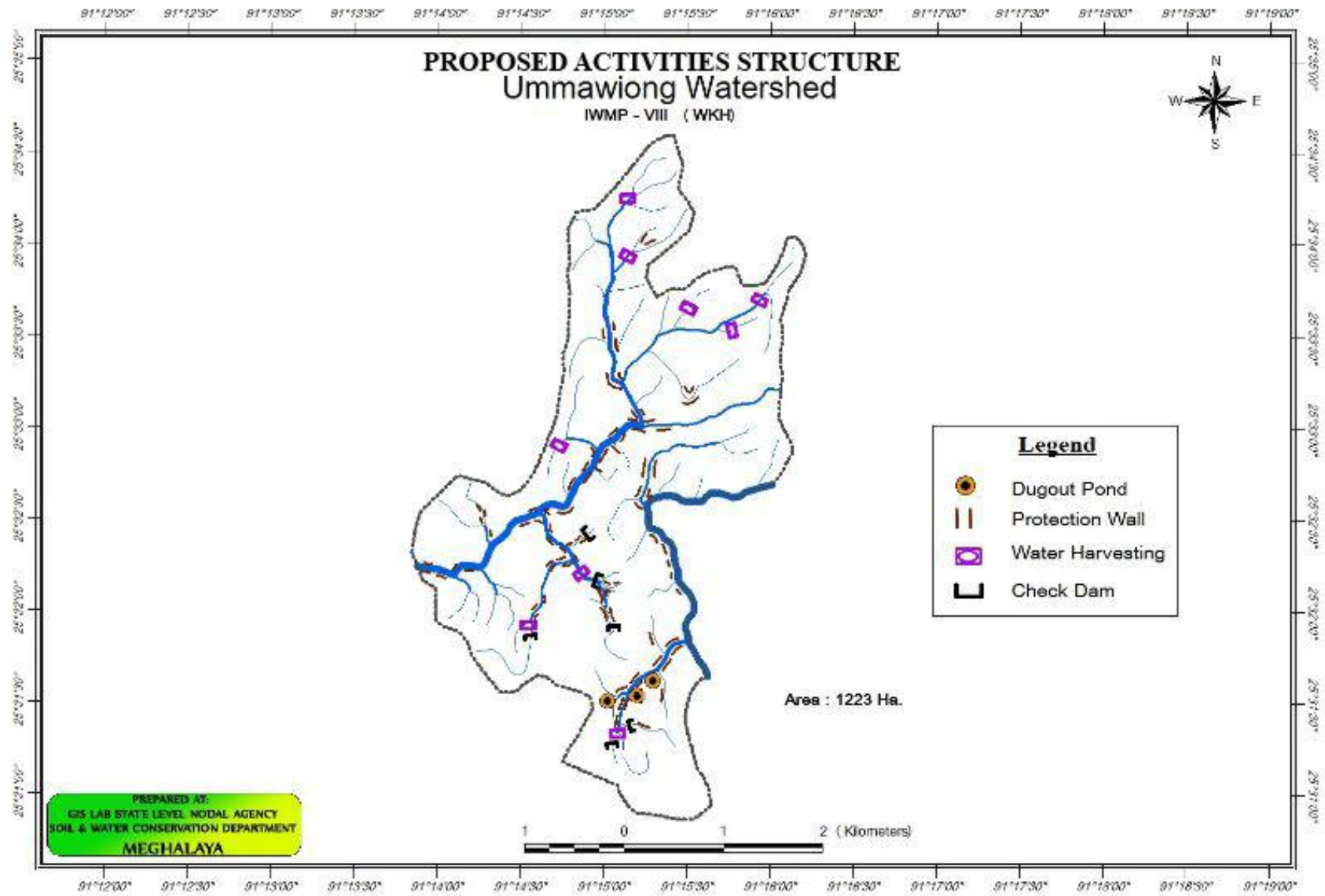
MAP

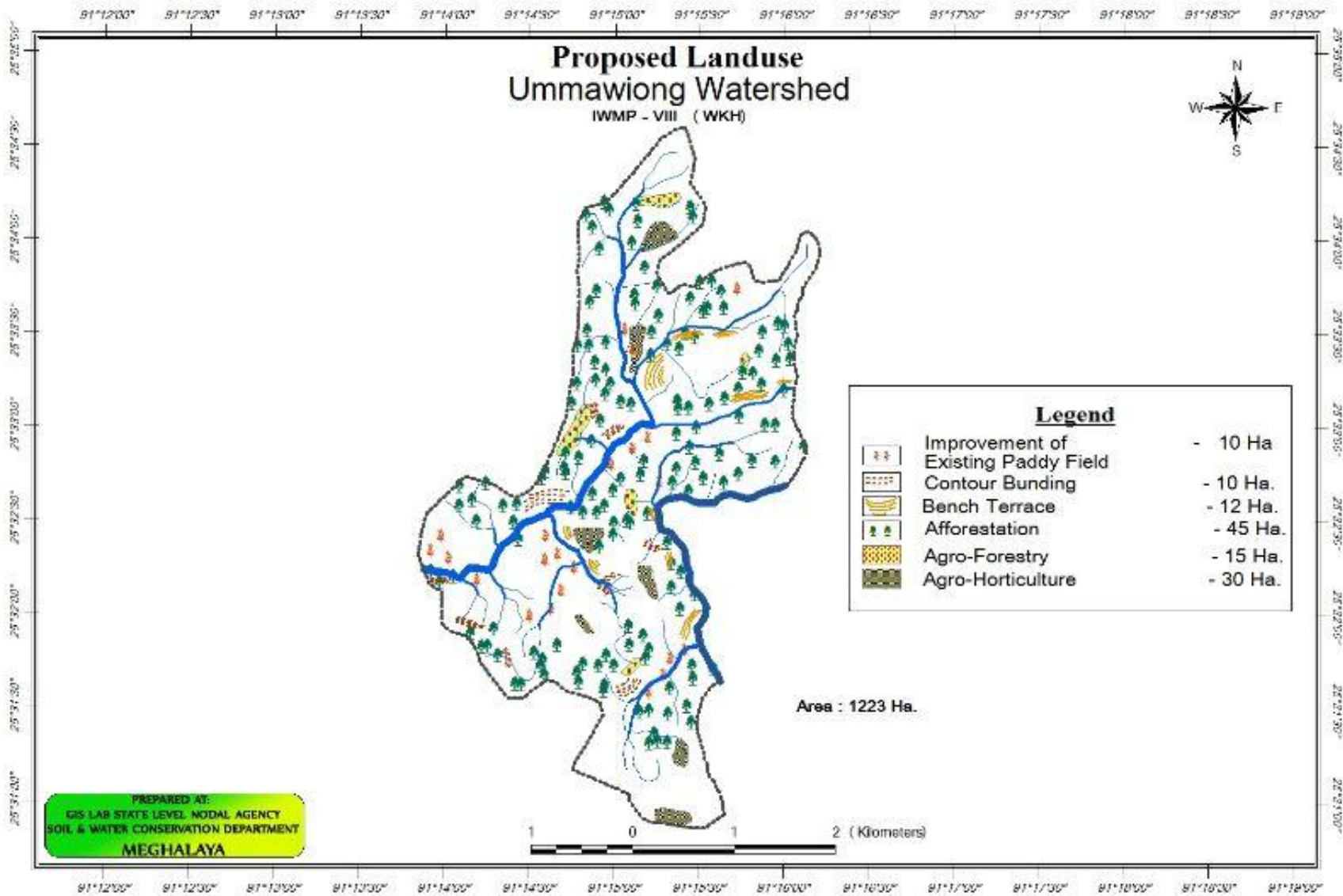












ANNEXURE II

SOCIO-ECONOMIC SURVEY REPORT

ABSTRACT OF STATEMENT SHOWING SOCIO-ECONOMIC SYRVEY

Name of the Watershed : Ummawiong Micro watershed
 Name of C&RD Block : Nongstoin C&RD Block
 Name of District : West khasi Hills Districts

S L N o	Name of Villages	No of House hold	Nos of Population			Total of child below 12yrs both male & female	Occupation	literacy		Land holding in Ha/Person		Total	Name of Crops grown	Averag es yield of each crop grown	Livestock in Nos				Total income of each family anum
			Male	Female	Total			Literate	Illiterate	Arable	Non-arable				cattle	goat	piggery	Poultry	
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>	<i>16</i>	<i>17</i>	<i>18</i>	<i>19</i>	<i>20</i>
1	SIEJLIEH	329	1034	1016	2050	808	Farmer= Labor= Business= teacher= govt servent= Other=	1377	673	270	170	440	Paddy, Maize, potato, vegetable,		55	12	107	461	Rs.8241450
2	MAWTYNRO NG	38	120	120	240	110	Farmer= Labor= Business= teacher= Other=	162	78	175	72	247	Paddy, Maize, potato, vegetable,		69	-	60	197	Rs.761900
3	MAWKHLAM	209	634	718	1352	313	Farmer= Labor= Business= teacher= Other=	909	443	225	151	376	Paddy, Maize, potato, vegetable,		20	2	34	347	Rs.5454900
4	MAWTHOH	26	96	75	171	83	Farmer= Labor= Business= teacher= Other=	61	110	110	50	160	Paddy, Maize, potato, vegetable,		38	24	1	123	Rs.325000
	TOTAL	602	1884	1929	3813	1314		2509	1304	780	443	1223			182	38	202	1128	Rs.14783250

ANNEXURE III

ESTIMATE COST

**ANNEXTURE III
ESTIMATE COST**

**ESTIMATE CONSTRUCTION OF WASHING PLACE
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011**

**(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

1/2.2(a) Earthwork in excavation below the lowest bed level including dewatering and bailing out water etc including leveling the foundation etc as directed complete.

6.00 x 0.70 x 0.90	=	3.78 m ³
2 x 2.00 x 0.80 x 0.90	=	2.88 m ³
2 x 3.00 x 2.00 x 0.40	=	4.80 m ³
1.00 x 1.15 x 0.30	=	0.35 m ³
2 x 3.00 x 0.80 x 0.90	=	<u>4.32 m³</u>
	=	16.13 m ³

@ ` . 194.00/- m³ ` . 3129.22

2/4.5 Providing stone pitching including filling the Interstices and carriage of stone filling within 200m complete as directed.

6.00 x 0.70 x 0.10	=	0.42 m ³
2 x 2.00 x 0.80 x 0.10	=	0.32 m ³
3.00 x 1.00 x 0.15	=	0.45 m ³
2 x 3.00 x 0.80 x 0.10	=	0.48 m ³
1.00 x 1.15 x 0.15	=	<u>0.17 m³</u>
	=	1.84 m ³

@ ` . 559.00/- m³ ` . 1028.56

3/4.8 Providing C.C. work in proportion 1:4:8 with hard broken stone aggregate 40 mm and dawn graded etc complete and as directed.

6.00 x 0.70 x 0.10	=	0.42 m ³
2 x 2.00 x 0.70 x 0.10	=	0.28 m ³
2 x 3.00 x 0.70 x 0.10	=	<u>0.42 m³</u>
	=	1.12 m ³

@ ` . 2823.00/- m³ ` . 3161.76

4/6.1 Providing cement concrete work in abut man, wing wall, and return wall in proportion 1:3:6 with hard broken stone aggregates 40mm down graded including necessary local carriage of stone aggregates, sand within 200m and complete as directed.

6.00 x 0.70 x 0.70	=	2.94 m ³
6.00 x $\frac{0.70 + 0.50}{2}$ x 1.20	=	4.32 m ³
2 x 5.00 x 0.40 x 0.30	=	1.20 m ³
3.00 x 1.00 x 0.15	=	0.45 m ³
1.00 x 1.15 x 0.30	=	<u>0.35 m³</u>
	=	9.26 m ³

@ ` . 3216.00/- m³ ` . 29780.16

5/4.2 Providing regular stone masonry with hammer dressed Or blunt chisel dressed in cement mortar 1:6 including

carriage of stone within 200m complete as directed.

2 x 2.00 x 0.80 x 0.70	=	2.24 m ³	
2 x 2.00 x $\frac{0.80 + 0.50}{2}$ x 1.50	=	3.90 m ³	
2 x 3.00 x 0.80 x 0.70	=	3.36 m ³	
2 x 3.00 x $\frac{0.80 + 0.50}{2}$ x 1.50	=	5.85 m ³	
2 x 3.00 x 2.00 x 1.05	=	<u>12.60 m³</u>	
	=	27.95 m ³	
@ ` . 1479.00/- m ³			` . 41338.05

6/6.12 Providing shuttering with dressed plank not less than 25mm thick properly joined etc and removing the same after the concrete hardens complete as directed.

6.00 x 1.50 x 2 sides	=	18.00 m ²	
1.00 x 1.15 x 2 sides	=	<u>2.30 m²</u>	
	=	20.30 m ²	
@ ` . 308.00/- m ²			` . 6252.40

7/7.2 Providing 12mm thick cement plastering in propn. 1:4 Including clearing the surface and carriage of sand within 200 m complete as directed.

6.00 x 1.50 x 2 sides	=	18.00 m ²	
6.00 x 0.50 x 1 sides	=	3.00 m ²	
2 x 3.00 x 1.45	=	8.70 m ²	
2 x 3.00 x 2.00	=	<u>12.00 m²</u>	
	=	41.70 m ²	
@ ` . 121.00/- m ²			` . <u>5045.70</u>

TOTAL ` . **89735.85**

SAY, ` . **89735.00**

(Rupees Eighty Nine Thousand Seven Hundred Thirty Five) only

ESTIMATE CONSTRUCTION OF WASHING PLACE

UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011

(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya, for 2010-2011)

1/2.1(a) Earthwork in excavation below the lowest bed level including dewatering and bailing out water etc including leveling the foundation etc as directed complete.

3.00 x 0.70 x 0.90	=	2.00 m ³
2 x 2.00 x 0.80 x 0.90	=	2.88 m ³
2 x 3.00 x 2.00 x 0.40	=	4.80 m ³
1.00 x 1.15 x 0.30	=	0.35 m ³
2 x 3.00 x 0.80 x 0.90	=	<u>4.32 m³</u>
	=	14.00 m ³

@ ` 78.00/m³ ` .1092.00

2/4.5 Providing stone pitching including filling the Interstices and carriage of stone filling within 200m complete as directed.

3.00 x 0.70 x 0.10	=	0.21 m ³
2 x 2.00 x 0.80 x 0.10	=	0.32 m ³
3.00 x 1.00 x 0.15	=	0.45 m ³
2 x 3.00 x 0.80 x 0.10	=	0.48 m ³
1.00 x 1.15 x 0.15	=	<u>0.17 m³</u>
	=	1.63 m ³

@ ` 559.00/- m³ ` .911.17

3/4.8 Providing C.C. work in proportion 1:4:8 with hard broken stone aggregate 40 mm and dawn graded etc complete and as directed.

3.00 x 0.70 x 0.10	=	0.21 m ³
2 x 2.00 x 0.70 x 0.10	=	0.28 m ³
2 x 3.00 x 0.70 x 0.10	=	<u>0.42 m³</u>
	=	0.91 m ³

@ ` 2823.00/- m³ ` .2568.93

4/6.1 Providing cement concrete work in abut man, wing wall, and return wall in proportion 1:3:6 with hard broken stone aggregates 40mm down graded including necessary local carriage of stone aggregates, sand within 200m and complete as directed.

3.00 x 0.70 x 0.70	=	1.47 m ³
3.00 x $\frac{0.70 + 0.50}{2}$ x 1.20	=	2.16 m ³
2 x 5.00 x 0.40 x 0.30	=	1.20 m ³
3.00 x 1.00 x 0.15	=	0.45 m ³

$$1.00 \times 1.15 \times 0.30 = \underline{0.35 \text{ m}^3}$$

$$= 5.63 \text{ m}^3$$

$$@ \text{ ` } . 3216.00/- \text{ m}^3 \dots\dots\dots \text{ ` } . 18106.08$$

5/4.2 Providing regular stone masonry with hammer dressed
Or blunt chisel dressed in cement mortar 1:6 including
carriage of stone within 200m complete as directed.

$$2 \times 2.00 \times 0.80 \times 0.70 = 2.24 \text{ m}^3$$

$$2 \times 2.00 \times \frac{0.80 + 0.50}{2} \times 1.50 = 3.90 \text{ m}^3$$

$$2 \times 3.00 \times 0.80 \times 0.70 = 3.36 \text{ m}^3$$

$$2 \times 3.00 \times \frac{0.80 + 0.50}{2} \times 1.50 = 5.85 \text{ m}^3$$

$$2 \times 3.00 \times 2.00 \times 1.05 = \underline{12.60 \text{ m}^3}$$

$$= 27.95 \text{ m}^3$$

$$@ \text{ ` } . 1479.00/- \text{ m}^3 \dots\dots\dots \text{ ` } . 41338.05$$

6/6.12 Providing shuttering with dressed plank not less than
25mm thick properly joined etc and removing the same
after the concrete hardens complete as directed.

$$3.00 \times 1.50 \times 2 \text{ sides} = 9.00 \text{ m}^2$$

$$1.00 \times 1.15 \times 2 \text{ sides} = \underline{2.30 \text{ m}^2}$$

$$= 11.30 \text{ m}^2$$

$$@ \text{ ` } . 308.00/- \text{ m}^2 \dots\dots\dots \text{ ` } . 3480.40$$

7/7.2 Providing 12mm thick cement plastering in propn. 1:4
Including clearing the surface and carriage of sand within
200 m complete as directed.

$$3.00 \times 1.50 \times 2 \text{ sides} = 9.00 \text{ m}^2$$

$$3.00 \times 0.50 \times 1 \text{ sides} = 1.50 \text{ m}^2$$

$$2 \times 3.00 \times 1.45 = 8.70 \text{ m}^2$$

$$2 \times 3.00 \times 2.00 = \underline{12.00 \text{ m}^2}$$

$$= 31.20 \text{ m}^2$$

$$@ \text{ ` } . 121.00/- \text{ m}^2 \dots\dots\dots \text{ ` } . \underline{3775.20}$$

TOTAL **` . 71271.83**

SAY, **` . 71270.00**

(Rupees Seventy One Thousand Two Hundred Seventy) only

**ESTIMATE CONSTRUCTION OF CHECK DAM CUM WASHING PLACE
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

1/2.2(a) Earthwork in excavation for bridges and culvert below the lowest bed level including dewatering and bailing out water in order to keep the foundation trenches dry of water and protecting the sides of foundation etc.complete as directed.

7.00 x 0.70 x 0.90	=	4.41 m ³
1.00 x 1.15 x 0.30	=	<u>0.35 m³</u>
	=	4.76 m ³

@ ` . 194.00/-m³ ` . 923.44

2/2.1(a) Earthwork in excavation to the proper grade including light dressing, complete as directed.

2 x 2.000 x 0.80 x 0.90	=	2.88 m ³
2 x 3.00 x 0.80 x 0.90	=	4.32 m ³
2 x 3.00 x 2.00 x 0.40	=	<u>4.80 m³</u>
	=	12.00 m ³

@ ` . 78.00/m³ ` . 936.00

3/4.6 Providing stone soling including filling the interstices with spoil and carriage of stone within a distance of 200m complete as directed.

7.00 x 0.70 x 0.10	=	0.49 m ³
2 x 2.00 x 0.80 x 0.10	=	0.32 m ³
3.00 x 1.00 x 0.15	=	0.45 m ³
2 x 3.00 x 0.80 x 0.10	=	0.48 m ³
1 x 1.00 x 0.15 x 1.15	=	<u>0.17 m³</u>
	=	1.91 m ³

@ ` . 576.00/-m³ ` . 1100.16

4/4.8 Providing cement concrete work proportion 1:4:8 with hard broken stone aggregate etc completed as directed.

7.00 x 0.70 x 0.10	=	0.49 m ³
2 x 2.00 x 0.70 x 0.10	=	0.28 m ³
2 x 3.00 x 0.70 x 0.10	=	<u>0.42 m³</u>
	=	1.19 m ³

@ ` . 2823.00 / m³ ` . 3359.37

5/6.1 Providing cement concrete work in proportion 1:3:6 with hard broken stone etc complete as directed. (Excluding Shuttering)

7.00 x 0.70 x 0.70	=	3.43 m ³
7.00 x <u>0.70 + 0.40</u> x 1.20	=	4.62 m ³
2		
2 x 5.00 x 0.40 x 0.30	=	1.20 m ³
3.00 x 1.00 x 0.15	=	0.45 m ³
1.00 x 1.15 x 0.30	=	<u>0.35 m³</u>
	=	10.05 m ³

@ ` . 3216.00/-m³ ` . 32320.80

6/4.2

Providing regular stone masonry work in and wing wall with hammer dressed or blunt chisel dressed stones in cement mortar 1: 6 etc complete.

$$2 \times 2.00 \times 0.70 \times 0.70 = 1.96 \text{ m}^3$$

$$2 \times 2.00 \times \frac{0.70 + 0.50}{2} \times 1.50 = 3.90 \text{ m}^3$$

2

$$2 \times 3.00 \times 0.80 \times 0.70 = 3.36 \text{ m}^3$$

$$2 \times 3.00 \times \frac{0.50 + 0.80}{2} \times 1.50 = 5.85 \text{ m}^3$$

2

$$2 \times 3.00 \times 2.00 \times 1.05 = \underline{12.60 \text{ m}^3}$$

$$= 27.67 \text{ m}^3$$

$$@ \text{ ` } . 1479.00/-\text{m}^3 \dots\dots\dots \text{ ` } . 40923.93$$

7/6.12

Providing shuttering with dressed planks not less than 25mm thick properly joined with battens proper level and removing the same after the concrete hardens complete as directed.

$$2 \times 7.00 \times 1.50 = 21.00 \text{ m}^2$$

$$2 \times 1.00 \times 1.15 = \underline{2.30 \text{ m}^2}$$

$$= 23.30 \text{ m}^2$$

$$@ \text{ ` } . 308.00/-\text{m}^2 \dots\dots\dots \text{ ` } . 7176.40$$

8/7.2

Providing 12mm thick cement plaster including clearing the surface, curing carriage of sand within 200m, complete as directed.

$$2 \times 7.00 \times 1.50 = 21.00 \text{ m}^2$$

$$1 \times 7.00 \times 0.50 = 3.50 \text{ m}^2$$

$$2 \times 3.00 \times 1.45 = 8.70 \text{ m}^2$$

$$2 \times 3.00 \times 2.00 = \underline{12.00 \text{ m}^2}$$

$$= 45.20 \text{ m}^2$$

$$@ \text{ ` } . 121.00/-\text{m}^2 \dots\dots\dots \text{ ` } . 5469.20$$

9/3.2(a)

Cutting drain including dressing etc. complete

$$\text{Length of drain} = 10.00 \text{ m}$$

$$@ \text{ ` } . 49.000/- \text{ Rm} \dots\dots\dots \text{ ` } . \underline{490.00}$$

TOTAL ` . 92699.28

SAY, ` . 92700.00

(Rupees Ninety Two Thousand Seven Hundred) only

**ESTIMATE CONSTRUCTION CHECK DAM CUM WASHING PLACE
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011**

(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)

- 1/ 2.2(a) Earthwork in excavation for bridges and culvert below the lowest bed level including dewatering and bailing out water in order to keep the foundation trenches dry of water and protecting the sides of foundation etc.complete as directed.
- | | | |
|--------------------|---|---------------------------|
| 6.00 x 0.70 x 0.90 | = | 3.78 m ³ |
| 1.00 x 1.15 x 0.30 | = | <u>0.35 m³</u> |
| | = | 4.13 m ³ |
- @ ` . 194/-m³..... ` . 801.22
- 2/2.1(a) Earthwork in excavation to the proper grade including light dressing, complete as directed.
- | | | |
|-------------------------|---|---------------------------|
| 2 x 2.000 x 0.80 x 0.90 | = | 2.88 m ³ |
| 2 x 3.00 x 0.80 x 0.90 | = | 4.32 m ³ |
| 2 x 3.00 x 2.00 x 0.40 | = | <u>4.80 m³</u> |
| | = | 12.00 m ³ |
- @ ` . 78.00/m³..... ` . 936.00
- 3/4.6 Providing stone soling including filling the interstices with spoil and carriage of stone within a distance of 200m complete as directed.
- | | | |
|------------------------|---|---------------------------|
| 6.00 x 0.70 x 0.10 | = | 0.42 m ³ |
| 2 x 2.00 x 0.80 x 0.10 | = | 0.32 m ³ |
| 3.00 x 1.00 x 0.15 | = | 0.45 m ³ |
| 2 x 3.00 x 0.80 x 0.10 | = | 0.48 m ³ |
| 1 x 1.00 x 0.15 x 1.15 | = | <u>0.17 m³</u> |
| | = | 1.84 m ³ |
- @ ` . 576.00/-m³..... ` . 1059.84
- 4/4.8 Providing cement concrete work proportion 1:4:8 with hard broken stone aggregate etc completed as directed.
- | | | |
|------------------------|---|---------------------------|
| 6.00 x 0.70 x 0.10 | = | 0.42 m ³ |
| 2 x 2.00 x 0.70 x 0.10 | = | 0.28 m ³ |
| 2 x 3.00 x 0.70 x 0.10 | = | <u>0.42 m³</u> |
| | = | 1.12 m ³ |
- @ ` . 2823.00 / m³ ` . 3161.76
- 5/6.1 Providing cement concrete work in proportion 1:3:6 with hard broken stone etc complete as directed. (Excluding Shuttering)
- | | | |
|---------------------------------------|---|---------------------------|
| 6.00 x 0.70 x 0.70 | = | 2.94 m ³ |
| 6.00 x $\frac{0.70 + 0.40}{2}$ x 1.20 | = | 3.96 m ³ |
| 2 x 5.00 x 0.40 x 0.30 | = | 1.20 m ³ |
| 3.00 x 1.00 x 0.15 | = | 0.45 m ³ |
| 1.00 x 1.15 x 0.30 | = | <u>0.35 m³</u> |
| | = | 8.90 m ³ |
- @ ` . 3216.00/-m³..... ` . 28622.40
- 6/4.2 Providing regular stone masonry work in and wing wall with hammer dressed or blunt chisel dressed stones in cement mortar 1: 6 etc complete.

$$\begin{aligned}
2 \times 2.00 \times 0.70 \times 0.70 &= 1.96 \text{ m}^3 \\
2 \times 2.00 \times \frac{0.70 + 0.50}{2} \times 1.50 &= 3.90 \text{ m}^3 \\
2 \times 3.00 \times 0.80 \times 0.70 &= 3.36 \text{ m}^3 \\
2 \times 3.00 \times \frac{0.50 + 0.80}{2} \times 1.50 &= 5.85 \text{ m}^3 \\
2 \times 3.00 \times 2.00 \times 1.05 &= \frac{12.60 \text{ m}^3}{27.67 \text{ m}^3}
\end{aligned}$$

@ ` 1479.00/-m³ ` 40923.93

7/6.12 Providing shuttering with dressed planks not less than 25mm thick properly joined with battens proper level and removing the same after the concrete hardens complete as directed.

$$\begin{aligned}
2 \times 6.00 \times 1.50 &= 14.40 \text{ m}^2 \\
2 \times 1.00 \times 1.15 &= \frac{2.30 \text{ m}^2}{20.30 \text{ m}^2}
\end{aligned}$$

@ ` 308.00/-m² ` 6252.40

8/7.2 Providing 12mm thick cement plaster including clearing the surface, curing carriage of sand within 200m, complete as directed.

$$\begin{aligned}
2 \times 6.00 \times 1.50 &= 3.00 \text{ m}^2 \\
1 \times 6.00 \times 0.50 &= 18.00 \text{ m}^2 \\
2 \times 3.00 \times 1.45 &= 8.70 \text{ m}^2 \\
2 \times 3.00 \times 2.00 &= \frac{12.00 \text{ m}^2}{41.70 \text{ m}^2}
\end{aligned}$$

@ ` 121.00/-m² ` 5045.70

9/3.2(a)i Cutting drain including dressing etc. complete

Length of drain = 10.00 m

@ ` 49.00/- Rm ` 490.00

TOTAL ` **87293.25**

SAY, ` **87290.00**

(Rupees Eighty Seven Thousand Two Hundred Ninety) only

**ESTIMATE CONSTRUCTION OF DRINKING WELL
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

1/2.1 (a)	Earthwork in excavation below the lowest bed level including dewatering and bailing out water etc including leveling the foundation etc as directed complete.	$3.00 \times 3.00 \times 1.80 = 16.20 \text{ m}^3$
		$\text{@ ` . 78.00/- m}^3 \text{ ` .1263.60}$
2/4.8	Providing C.C. work in proportion 1:4:8 with hard broken stone aggregate 40 mm and dawn graded etc complete and as directed.	$3.00 \times 0.20 \times 0.20 = 0.12 \text{ m}^3$ $3.00 \times 0.20 \times 0.20 = \underline{0.12 \text{ m}^3}$ $= 0.24 \text{ m}^3$
		$\text{@ ` . 2823.00/- m}^3 \text{ ` .677.52}$
3/4.5	Providing stone pitching including filling the Interstices and carriage of stone filling within 200m complete as directed.	$2.80 \times 2.80 \times 0.20 = 1.57 \text{ m}^3$ $3.00 \times 4.50 \times 0.20 = \underline{2.70 \text{ m}^3}$ $= 4.27 \text{ m}^3$
		$\text{@ ` . 559.00/- m}^3 \text{ ` .2386.93}$
4/4.2(a)	Providing regular stone masonry with hammer dressed Or blunt chisel dressed in cement mortar 1:6 including carriage of stone within 200m complete as directed.	$2.80 \times 3.00 \times 0.20 = 1.68 \text{ m}^3$ $2.80 \times 2.60 \times 0.20 = 1.46 \text{ m}^3$ $2 \times 2.60 \times \frac{3.00 + 2.60}{2} \times 0.20 = \underline{2.91 \text{ m}^3}$ $= 6.05 \text{ m}^3$
		$\text{@ ` . 1479.00/- m}^3 \text{ ` . 8947.95}$
5/6.15(b)	Providing steel reinforcement of R.C.C work including Bending, binding and placing in position etc complete as directed.	$2 \times 37 \times 3.60 = 266.40 \text{ Rm} \times 0.62 = 1.65 \text{ Qntl}$
		$\text{@ ` . 5945.00/- Qntl ` .9809.25}$
6/6.12	Providing shuttering with dressed plank not less than 25mm thick properly joined etc and removing the same after the concrete hardens complete as directed.	$3.60 \times 3.60 = 12.96 \text{ m}^2$

@ ` 308.00/- m² ` 3991.68

7/6.3 Providing C.C. work in proportion 1:2:4 with hard granular Stone of 20 mm down graded including curing and necessary Local carriage of stones within 200m etc complete as directed.

$$\begin{aligned} 3.60 \times 3.60 \times 0.10 &= 1.30 \text{ m}^3 \\ 3.00 \times 4.50 \times 0.10 &= \underline{1.35 \text{ m}^3} \\ &= 2.65 \text{ m}^3 \end{aligned}$$

@ ` 4074.00/- m³ ` 10796.10

8/7.2 Providing 12mm thick cement plastering in propn. 1:4 Including clearing the surface and carriage of sand within 200 m complete as directed.

$$\begin{aligned} 2.80 \times 3.00 &= 8.40 \text{ m}^2 \\ 2.80 \times 2.60 &= 7.28 \text{ m}^2 \\ 2 \times 2.60 \times \frac{3.00 + 2.60}{2} &= 14.56 \text{ m}^2 \\ 3.00 \times 0.60 &= 1.80 \text{ m}^2 \\ 2 \times 3.00 \times \frac{1.60 + 1.20}{2} &= 8.40 \text{ m}^2 \\ 3.60 \times 3.60 &= 12.96 \text{ m}^2 \\ 2 \times 2 \times 3.60 \times 0.10 &= 1.44 \text{ m}^2 \\ 3.00 \times 4.50 &= \underline{13.50 \text{ m}^2} \\ &= 68.34 \text{ m}^2 \end{aligned}$$

@ ` 121.00/- m² ` 8269.14

TOTAL ` **46142.17**

SAY, ` **46140.00**

(Rupees Forty Six Thousand One Hundred Forty) only

**ESTIMATE CONSTRUCTION CHECK DAM CUM WASHING PLACE
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

1/2.2 (a) Earthwork in excavation for bridges and culvert below the lowest bed level including dewatering and bailing out water in order to keep the foundation trenches dry of water and protecting the sides of foundation etc.complete as directed.

5.00 x 0.70 x 0.90	=	3.15 m ³
1.00 x 1.15 x 0.30	=	<u>0.35 m³</u>
	=	3.50 m ³

@ ` . 194.00/-m³ ` . 679.00

2/2.1 (a) Earthwork in excavation to the proper grade including light dressing, complete as directed.

2 x 2.000 x 0.80 x 0.90	=	2.88 m ³
2 x 3.00 x 0.80 x 0.90	=	4.32 m ³
2 x 3.00 x 2.00 x 0.40	=	<u>4.80 m³</u>
	=	12.00 m ³

@ ` . 78.00/m³ ` . 936.00

3/4.6 Providing stone soling including filling the interstices with spoil and carriage of stone within a distance of 200m complete as directed.

5.00 x 0.70 x 0.10	=	0.35 m ³
2 x 2.00 x 0.80 x 0.10	=	0.32 m ³
3.00 x 1.00 x 0.15	=	0.45 m ³
2 x 3.00 x 0.80 x 0.10	=	0.48 m ³
1 x 1.00 x 0.15 x 1.15	=	<u>0.17 m³</u>
	=	1.77 m ³

@ ` . 576.00/-m³ ` . 1019.52

4/4.8 Providing cement concrete work proportion 1:4:8 with hard broken stone aggregate etc completed as directed.

5.00 x 0.70 x 0.10	=	0.35 m ³
2 x 2.00 x 0.70 x 0.10	=	0.28 m ³
2 x 3.00 x 0.70 x 0.10	=	<u>0.42 m³</u>
	=	1.05 m ³

@ ` . 2823.00 / m³ ` . 2964.15

5/6.1 Providing cement concrete work in proportion 1:3:6 with hard broken stone etc complete as directed. (Excluding Shuttering)

5.00 x 0.70 x 0.70	=	2.45 m ³
5.00 x $\frac{0.70 + 0.40}{2}$ x 1.20	=	3.30 m ³
2 x 5.00 x 0.40 x 0.30	=	1.20 m ³
3.00 x 1.00 x 0.15	=	0.45 m ³
1.00 x 1.15 x 0.30	=	<u>0.35 m³</u>
	=	7.75 m ³

@ ` . 3216.00/-m³ ` . 24924.00

6/4.2 Providing regular stone masonry work in and wing wall with hammer dressed or blunt chisel dressed stones in cement mortar 1: 6 etc complete.

2 x 2.00 x 0.70 x 0.70	=	1.96 m ³
2 x 2.00 x $\frac{0.70 + 0.50}{2}$ x 1.50	=	3.90m ³
2 x 3.00 x 0.80 x 0.70	=	3.36 m ³

$$2 \times 3.00 \times \frac{0.50 + 0.80}{2} \times 1.50 = 5.85 \text{m}^3$$

$$2 \times 3.00 \times 2.00 \times 1.05 = \frac{12.60 \text{m}^3}{27.67 \text{m}^3}$$

@ ` 1479.00/-m³ ` 40923.93

7/6.12 Providing shuttering with dressed planks not less than 25mm thick properly joined with battens proper level and removing the same after the concrete hardens complete as directed.

$$2 \times 5.00 \times 1.50 = 15.00 \text{m}^2$$

$$2 \times 1.00 \times 1.15 = \frac{2.30 \text{m}^2}{17.30 \text{m}^2}$$

@ ` 308.00/-m² ` 5328.40

8/7.2 Providing 12mm thick cement plaster including clearing the surface, curing carriage of sand within 200m, complete as directed.

$$2 \times 5.00 \times 1.50 = 15.00 \text{m}^2$$

$$1 \times 5.00 \times 0.50 = 2.50 \text{m}^2$$

$$2 \times 3.00 \times 1.45 = 8.70 \text{m}^2$$

$$2 \times 3.00 \times 2.00 = \frac{12.00 \text{m}^2}{38.20 \text{m}^2}$$

@ ` 121.00/-m² ` 4622.20

9/3.2(a) Cutting drain including dressing etc. complete

Length of drain = 6.6 m

@ ` 49.00/- Rm ` 323.60

TOTAL ` 81720.80

SAY, ` 81720.00

(Rupees Eighty One Thousand Seven Hundred Twenty) only

**ESTIMATE CONSTRUCTION OF CHECK DAM CUM WASHING PLACE
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011**

As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya, for
2010-2011)

1/2.2(a) Earthwork in excavation for bridges and culvert below the lowest bed level including dewatering and bailing out water in order to keep the foundation trenches dry of water and protecting the sides of foundation etc.complete as directed.

$$\begin{aligned} 4.00 \times 0.60 \times 0.80 &= 1.92 \text{ m}^3 \\ 1.00 \times 1.15 \times 0.30 &= \underline{0.35 \text{ m}^3} \\ &= 2.27 \text{ m}^3 \end{aligned}$$

@ ` . 194.00/-m³ ` . 440.38

2/2.1 (a) Earthwork in excavation to the proper grade including light dressing, complete as directed.

$$\begin{aligned} 2 \times 2.00 \times 0.70 \times 0.80 &= 2.24 \text{ m}^3 \\ 2 \times 3.00 \times 0.70 \times 0.80 &= 3.36 \text{ m}^3 \\ 2 \times 3.00 \times 2.00 \times 0.40 &= \underline{4.80 \text{ m}^3} \\ &= 10.56 \text{ m}^3 \end{aligned}$$

@ ` . 78.00/m³ ` . 823.68

3/4.6 Providing stone soling including filling the interstices with spoil and carriage of stone within a distance of 200m complete as directed.

$$\begin{aligned} 4.00 \times 0.70 \times 0.10 &= 0.28 \text{ m}^3 \\ 2 \times 2.00 \times 0.80 \times 0.10 &= 0.32 \text{ m}^3 \\ 3.00 \times 1.00 \times 0.15 &= 0.45 \text{ m}^3 \\ 2 \times 3.00 \times 0.80 \times 0.10 &= 0.48 \text{ m}^3 \\ 1 \times 1.00 \times 0.15 \times 1.15 &= \underline{0.17 \text{ m}^3} \\ &= 1.70 \text{ m}^3 \end{aligned}$$

@ ` . 576.00/-m³ ` . 979.20

4/4.8 Providing cement concrete work proportion 1:4:8 with hard broken stone aggregate etc completed as directed.

$$\begin{aligned} 4.00 \times 0.70 \times 0.10 &= 0.28 \text{ m}^3 \\ 2 \times 2.00 \times 0.70 \times 0.10 &= 0.28 \text{ m}^3 \\ 2 \times 3.00 \times 0.70 \times 0.10 &= \underline{0.42 \text{ m}^3} \\ &= 0.98 \text{ m}^3 \end{aligned}$$

@ ` . 2823.00/ m³ ` . 2766.54

5/6.1 Providing cement concrete work in proportion 1:3:6 with hard broken stone etc complete as directed. (Excluding Shuttering)

$$\begin{aligned} 4.00 \times 0.60 \times 0.70 &= 1.68 \text{ m}^3 \\ 4.00 \times \frac{0.70 + 0.40}{2} \times 1.00 &= 2.20 \text{ m}^3 \\ 2 \times 5.00 \times 0.40 \times 0.30 &= 1.20 \text{ m}^3 \\ 3.00 \times 1.00 \times 0.15 &= 0.45 \text{ m}^3 \\ 1.00 \times 1.15 \times 0.30 &= \underline{0.35 \text{ m}^3} \\ &= 4.88 \text{ m}^3 \end{aligned}$$

@ ` . 3216.00/-m³ ` . 15694.08

6/4.2 Providing regular stone masonry work in and wing wall with hammer dressed or blunt chisel dressed stones in cement mortar 1: 6 etc complete.

$$2 \times 2.00 \times 0.70 \times 0.70 = 1.96 \text{ m}^3$$

$$\begin{aligned}
2 \times 2.00 \times \frac{0.70 + 0.50}{2} \times 1.20 &= 3.12 \text{m}^3 \\
2 \times 3.00 \times 0.80 \times 0.70 &= 3.36 \text{m}^3 \\
2 \times 3.00 \times \frac{0.50 + 0.80}{2} \times 1.20 &= 4.68 \text{m}^3 \\
2 \times 3.00 \times 2.00 \times 1.05 &= \frac{12.60 \text{m}^3}{=} \\
&= 25.72 \text{m}^3
\end{aligned}$$

@ ` . 1479.00/-m³ ` . 38039.88

7/6.12 Providing shuttering with dressed planks not less than 25mm thick properly joined with battens proper level and removing the same after the concrete hardens complete as directed.

$$\begin{aligned}
2 \times 4.00 \times 1.20 &= 9.60 \text{m}^2 \\
2 \times 1.00 \times 1.15 &= \frac{2.30 \text{m}^2}{=} \\
&= 11.90 \text{m}^2
\end{aligned}$$

@ ` . 308.00/-m² ` . 3665.20

8/7.20 Providing 12mm thick cement plaster including clearing the surface, curing carriage of sand within 200m, complete as directed.

$$\begin{aligned}
2 \times 4.00 \times 1.20 &= 9.60 \text{m}^2 \\
1 \times 4.00 \times 0.50 &= 2.00 \text{m}^2 \\
2 \times 3.00 \times 1.45 &= 8.70 \text{m}^2 \\
2 \times 3.00 \times 2.00 &= \frac{12.00 \text{m}^2}{=} \\
&= 3.23 \text{m}^2
\end{aligned}$$

@ ` . 121.00/-m² ` . 3908.30

9/3.2(a) Cutting drain including dressing etc. complete

Length of drain = 98.50 m

@ ` . 49.00/- Rm ` . 4826.50

TOTAL ` . **71143.76**

SAY, ` . **71145.00**

(Rupees Seventy One Thousand One Hundred Forty Five) only

**ESTIMATE CONSTRUCTION OF FOOTBRIDGE AT
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011**

(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)

1/2.2(a)	Earthwork in excavation for bridges and culvert below the lowest bed level etc. including leveling the foundation etc as directed as complete.		
	4 x 0.90 x 0.90x 1.20	=	3.888 m ³
	2 x 1.50 x 0.90 x 0.90	=	<u>2.43 m³</u>
		=	6.318 m ³
	@` . 194.00/ m ³		` . 1225.69
2/4.8	Providing C.C. 1:4:8 etccomplete as directed		
	4 x 0.90 x 0.90x 0.10	=	0.324 m ³
	2 x 1.50 x 0.90 x 0.10	=	<u>0.27 m³</u>
		=	0.594 m ³
	@` . 2823.00/ m ³		` . 1676.86
3/4.2 (a)	Regular Stone Masonryetc complete as directed.		
	2 x 1.50 x 0.90 x 0.90	=	2.43 m ³
	2 x 1.50 x <u>0.90 + 0.50</u> x 2.65	=	<u>5.565 m³</u>
	2	=	7.995 m ³
	@` . 1479.00/ m ³		` . 11824.61
5/6.15(b)	Steel reinforcement..... etc complete as directed		
	4 x 4 x 3.90 x 1.58	=	0.99 Qntl
	4 x 4 x 1.30 x 0.89	=	0.18 Qntl
	1 x 4 x 5.50 x 1.58	=	0.34 Qntl
	2 x 4 x 4 x 0.90 x 0.62	=	0.17 Qntl
	11 x 5.00 x 0.62	=	0.34 Qntl
	40 x 1.30 x 0.62	=	0.32 Qntl
	4 x 26 x 1.05 x 0.22	=	0.24 Qntl
	4 x 9 x 1.05 x 0.22	=	0.08 Qntl
	1 x 34 x 1.05 x 0.22	=	0.07 Qntl
	2 x 4 x 7 x 0.22	=	<u>0.12 Qntl</u>
		=	2.85 Qntl
	@` . 5945.00/Qntl.....		` . 16943.25
5/6.12	Providing Shutteringetc complete as directed.		
	4 x 2 x 0.25	=	2.00 Rm
	4 x 2 x 0.30	=	<u>2.40 Rm</u>
		=	4.40 Rm x 3.00 = 13.20 m ²
	4 x 2 x 0.25 x 1.30		= 2.60 m ²
	1 x 2 x 0.25 x 5.00		= 2.50 m ²
	5.00 x 1.30		= 6.50 m ²
	2 x 4 x 2 x 0.20 =		3.20 Rm
	2 x 4 x 2 x 0.25 =		<u>4.00 Rm</u>
		=	7.20 Rm x 0.90 = <u>6.48 m²</u>

$$= 31.28 \text{ m}^2$$

$$\text{@ } \text{₹ } 308.00/\text{m}^2 \dots\dots\dots \text{₹ } 9634.24$$

6/6.2 Providing cement concrete in propn. 1:2:4 ...etc. complete

$$\begin{aligned} 4 \times 0.90 \times 0.90 \times 0.45 &= 1.458 \text{ m}^3 \\ 4 \times 0.25 \times 0.25 \times 3.00 &= 0.75 \text{ m}^3 \\ 4 \times 0.25 \times 0.25 \times 1.30 &= 0.32 \text{ m}^3 \\ 5.00 \times 1.40 \times 0.10 &= 0.70 \text{ m}^3 \\ 2 \times 4 \times 0.20 \times 0.20 \times 0.90 &= 0.288 \text{ m}^3 \\ 1 \times 0.25 \times 0.30 \times 5.00 &= \underline{0.31 \text{ m}^3} \\ &= 3.826 \text{ m}^3 \end{aligned}$$

$$\text{@ } \text{₹ } 4074.00/\text{m}^3 \dots\dots\dots \text{₹ } 15587.12$$

7/4.5 Providing stone pitching including filling the Interstices and carriage of stone filling within 200m complete as directed.

$$4 \times 0.90 \times 0.90 \times 0.20 = 0.648 \text{ m}^3$$

$$\text{@ } \text{₹ } 559.00/\text{m}^3 \dots\dots\dots \text{₹ } 362.23$$

8/7.2 Providing plasteringetc complete as directed.

$$\begin{aligned} 4 \times 4 \times 0.25 \times 2.65 &= 10.60 \text{ m}^2 \\ 1 \times 5.00 \times 1.30 &= 6.50 \text{ m}^2 \\ 2 \times 5.00 \times 0.10 &= 1.00 \text{ m}^2 \\ 2 \times 4 \times 4 \times 0.15 \times 0.90 &= 4.32 \text{ m}^2 \\ 2 \times 4 \times 1 \times 0.20 \times 0.20 &= \underline{0.32 \text{ m}^2} \\ &= 22.74 \text{ m}^2 \end{aligned}$$

$$\text{@ } \text{₹ } 121.00/\text{m}^2 \dots\dots\dots \text{₹ } 2751.54$$

Total: ₹ 60005.54

Say, ₹ 60000.00

(Rupees Sixty Thousand) only

MODEL NORMS PER HECTARE FOR AGRO - FORESTRY (INTEGRATED WATERSHED
MANAGEMENT PROGRAMME)

Spacing 6m x 5.5m

Plant Density – 300 Nos.

Preliminary works

I. Cost of planting materials		
300 Nos. @ Rs.8/- each	-	Rs. 2400.00
B. First year Planting		
Jungle clearance etc.		
5 mandays @ Rs.100/- per manday	-	Rs. 500.00
II. Pit digging (pit size 0.30m x 0.30m x 0.30m)		
300 Nos. @ Rs.4/- each	-	Rs. 1200.00
III. Cost of planting 300 Nos. @ Rs. 2/- each	-	Rs. 600.00
IV. Weeding two times 20 mandays		
@ Rs.100/- per manday	-	Rs. 2000.00
V. Fire protection measures		
5 mandays @ Rs.100/- per manday	-	Rs. 500.00
Total	-	Rs. 4800.00
C. Second year Planting		
I. Vacancy refilling (10%)	-	Rs. 400.00
II. Weeding two times 20 mandays		
@ Rs.100/- per manday	-	Rs. 2000.00
III. Fire protection measures		
5 mandays @ Rs.100/- per manday	-	Rs. 500.00
Total	-	Rs. 2900.00

Grand Total A+B+C = Rs.2400.00 + Rs.4800.00 + Rs.2900.00 = Rs.10100.00

(Rupees Ten thousand one hundred) only.

COST NORMS FOR EARTHEN CONTOUR BUND (INTEGRATED WATERSHED MANAGEMENT PROGRAMME)
(Rate as per PWD, SOR for R&B 2008 – 2009)

CONTOUR BUNDS SPECIFICATION & COSTS

Top Width	=	0.5 m	
Bottom Width	=	1.0 m	
Height	=	0.77 m	
Spacing	=	20 m	
Total Length	=	5 x 100	= 500 m

1/3 (a) Earthwork in excavation etc. in ordinary soil etc.

$$500\text{m} \times \frac{0.5 + 1.0}{2} \text{m} \times 0.77 = 288.5\text{m}^3$$

@ Rs.26.00/ m³ = Rs.7500.00

Total = Rs.7500.00

(Rupees Seven Thousand Five Hundred) only

COST NORMS FOR IMPROVEMENT OF EXISTING PADDY FIELD (INTEGRATED WATERSHED
MANAGEMENT PROGRAMME)
(Rate as per PWD, SOR for R&B 2008 – 2009)

MARGINAL BUND

$$50 \times \frac{0.40 + 0.70}{2} \times 0.60 = 16.5 \text{ m}^3$$

SHOULDER BUND

1/3 (a) Earthwork in excavation etc. in ordinary soil.

$$10 \text{ Nos.} \times 50 \times \frac{0.50 + 0.30}{2} \times 0.50 = 100.00 \text{ m}^3$$

$$\text{Land leveling L.S} = 50.00 \text{ m}^3$$

$$@ \text{ Rs.}26.00/- \text{ per m}^3 = 166.5 \text{ m}^3$$

$$= \text{Rs.}4329.00$$

$$\text{Total} = \text{Rs.}4329.00$$

$$\text{Say} \quad \text{Rs.}4,300.00$$

(Rupees Four thousand three hundred) only.

COST NORMS FOR PERIPHERAL BUNDING/EARTHEN PERIPHERAL BUND
WITH LIVE VEGETATION PER METRE
(INTEGRATED WATERSHED MANAGEMENT PROGRAMME)
(Rate as per PWD, SOR for R&B 2008 – 2009)

PERIPHERAL BUNDS SPECIFICATION & COSTS

Top Width = 1.0 m
Bottom Width = 1.2 m
Height = 1.0 m

1/3 (a) Earthwork in excavation etc. in ordinary soil etc.

$$1.0\text{m} \times \frac{1.0+1.2}{2} \text{m} \times 1.0\text{m} = 1.10\text{m}^3$$

@ Rs.39.00/ m³ = Rs.43.00

2. Supplying and planting of live hedges on toe of bunds
with local shrubs/cutting etc.
per Running metre in L.S

= Rs. 7.00
Total = **Rs.50.00**

(Rupees Fifty) only

**COST NORMS FOR RUN – OFF DISPOSAL CHANNEL/DIVERSION DRAIN
(INTEGRATED WATERSHED MANAGEMENT PROGRAMME)
(Rate as per PWD, SOR for R&B 2008 – 2009)**

Specification - Top Width - 1.00m
Bottom Width - 0.70m
Depth - 1.2m

1/3 (a) Earthwork in excavation etc. in ordinary soil.

$1\text{m} \times \frac{1.00 + 0.7}{2} \times 1.2\text{m}$	= 1.02 m ³	
@ Rs.26.00/- per m ³		= <u>Rs.26.52</u>
	Total	= Rs.26.52
	Say	Rs.26.00

(Rupees Twenty six) only.

COST NORMS FOR CROP DEMONSTRATION.(INTEGRATED WATERSHED MANAGEMENT PROGRAMME).

Crop Demonstration

Sl. No	Items of Works	Amount
1.	Soil working and cost of sowing -5Mandays @Rs.100/Mdays	Rs. 500.00
2.	Cost of seed for 4 varieties @RS.300/Variety/Kg	Rs. 1200.00
3.	Organic manure	Rs. 500.00
4.	Watering including implements (pipe etc)	Rs. 1500.00
5.	Plant protection including hand sprayers	Rs. 800.00
6.	Mulching (winter crop to conserve moisture)/ weeding / intercultural operation	<u>Rs. 500.00</u>
Total		Rs. 5000.00

MODEL NORMS PER HECTARE FOR AFFORESTATION WITH PINE/NON PINE (INTEGRATED WATERSHED MANAGEMENT PROGRAMME).

Spacing 6m x 5.5m

Plant Density = 300 Nos

Preliminary Works

Cost of Planting materials. 300 Nos @Rs.8/- each	-	<u>Rs.2400.00</u>
		Rs 2400.00

First Year Planting

Jungle Clearance etc.Mandays @Rs.100 /per manday	-	<u>Rs. 500.00</u>
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Pit digging (pit size 0.3m x 0.30 m x 0.30s @Rs.4/- each	-	Rs.1200.00
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Cost of planting 300 Nos @Rs.2/each	-	Rs. 600.00
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Weeding two times 20 mandays@Rs.100/- Manday	-	Rs.2000.00
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Fire protection measures 5 manday @Rs.100/- Manday	-	<u>Rs. 500.00</u>
	-	Rs.4800.00

Second Year Planting

Vacancy filling (10%)	-	Rs. 400.00
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Weeding two times 20 mandays@Rs.100/- per manday	-	Rs.2000.00
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Fire protection measures

5 manday @Rs.100/- Manday	-	Rs. 500.00
	-	Rs.2900.00

Grand Total of A+B+C	= Rs.2400 + Rs.4800 + Rs.2900)	=	Rs.10100.00
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(Rupees Ten Thousand One hundred) only

**MODEL NORMS PER HECTARE FOR AGRO – HORTICULTURE WITH TEMPERATE FRUIT
(INTEGRATED WATERSHED MANAGEMENT PROGRAMME).**

A. Preliminary Works

Cost of Planting materials.

160 Nos @Rs.8/- each	-	<u>Rs.2400.00</u>
		Rs.2400.00

First Year Planting

a. Site Clearance etc.

Mandays @Rs.100/per manday	-	Rs. 300.00
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b. Pit digging (pit size 0.30m x 0.30 m x 0.30

160 Nos @Rs.4/- each	-	Rs. 800.00
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c. Cost of planting 160 Nos @Rs.2/each

	-	Rs. 480.00
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d. Weeding two times 20 mandays

@Rs.100/- Manday	-	<u>Rs.2000.00</u>
	-	Rs.3580.00

Second Year Planting

Refilling vacancy (10%)

	-	Rs. 370.00
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Weeding two times

20 mandays @Rs.100/- Manday	-	<u>Rs.2000.00</u>
	-	Rs.2370.00

Grand Total of A+B+C = Rs.2400 + Rs.3580 + Rs.2370) = Rs.8350.00

(Rupees Eighty Thousand Three Hundred Fifty) only

**MODEL NORMS PER HECTARE FOR IMPROVEMENT OF DEGRADED FOREST
(INTEGRATED WATERSHED MANAGEMENT PROGRAMME).**

A. Preliminary Works

	Cost of Planting materials.
100 nos seedlings @Rs.8/- each	- <u>Rs. 800.00</u>
	Rs. 800.00

B. First Year Planting

a. Site Clearance etc.	
Mandays @Rs.100/per manday	- Rs. 300.00
b. Pit digging (pit size 0.30m x 0.30 m x 0.30 100 Nos @Rs.4/- each	- Rs. 400.00
c. Cost of planting 100 Nos @Rs.2/each	- Rs. 200.00
d. Round Weeding around the plant four times mandays @Rs.100/- Manday	- Rs. 500.00
e. Fire protection measures	
4 manday @Rs.100/- Manday	- <u>Rs. 400.00</u>
	- Rs.1800.00

C. Second Year Planting

Refilling vacancy (10%)	- <u>Rs. 100.00</u>
Round Weeding around the plant four times 5 mandays @Rs.100/- Manday	- Rs. 500.00
Fire protection measures	
4 manday @Rs.100/- Manday	- <u>Rs. 400.00</u>
	- Rs.1000.00

Grand Total of A+B+C = Rs.800 + Rs.1800 + Rs.1000) = Rs.3600.00

(Rupees Three Thousand Six Hundred) only

**MODEL NORMS PER HECTARE FOR STRIP PLANTATION TWO ROWS ALONG THE BOUNDARY
WITH FAST GROWING SPECIES**

(INTEGRATED WATERSHED MANAGEMENT PROGRAMME).

Preliminary Works

Cost of Planting materials.

134 Nos @Rs.8/- each	-	` 1072.00
		` 1072.00

First Year Planting

a. Site Clearance etc.

Mandays @`.100/per manday	-	` 200.00
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b. Pit digging (pit size 0.30m x 0.30 m x 0.30

134 Nos @`.4/- each	-	` 536.00
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c. Cost of planting 134 Nos @`.2/each

	-	` 268.00
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d. Round Weeding around the plant two times

6 mandays @`.100/- Manday	-	` 600.00
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e. Fire protection measures

4 manday @`.100/- Manday	-	` 400.00
		` 2004.00

Second Year Planting

Refilling vacancy (10%)	-	` 190.00
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Round Weeding around the plant two times 6 mandays @`.100/- Manday	-	` 600.00
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Fire protection measures

4 manday @`.100/- Manday	-	` 400.00
		` 1190.00

Grand Total of A+B+C = (` .1072.00 + ` .2004.00 + ` .1190.00) = ` 4266.00

(Rupees Four Thousand Two Hundred Sixty Six) only

**ESTIMATE CONSTRUCTION OF RETAINING WALL
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

1/ 2.2(a)	Earthwork in excavation to the proper grade including light dressing etc. as directed and removal of spoils upto 30m lead and all lift.		
	70.00 x 0.40 x 0.70m	=	19.60 m ³
	@ ` . 194 / m ³		` . 3802.40
2/4.3	Providing regular coursed stone masonry only in abutment walls with hammer dressed stone of heavy section (size not less than 25cm x 25cm x30cm long) with proper key stones each not less than 25 x25 x75 cm long in cement mortar 1:4 including carriage of stone within 200m complete as directed.		
	70.00 x 0.40 x 0.70	=	19.60 m ³
	70.00 x $\frac{0.70+0.40}{2}$ x 1.00m	=	<u>38.50 m³</u>
		=	58.10 m ³
	@ ` . 1574.00/-m ³		` . <u>91449.40</u>
		TOTAL:	` . 95251.80
		SAY:	` . 95250.00

Rupees(Ninety Five Thousand Two Hundred Fifty) Only

**ESTIMATE CONSTRUCTION OF RETAINING WALL
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

1/ 2.2(a)	Earthwork in excavation to the proper grade including light dressing etc. as directed and removal of spoils upto 30m lead and all lift.		
	20.00 x 0.40 x 0.70m	=	5.60 m ³
	@ ` . 194 / m ³		` . 1086.40
2/4.3	Providing regular coursed stone masonry only in abutment walls with hammer dressed stone of heavy section (size not less than 25cm x 25cm x30cm long) with proper key stones each not less than 25 x25 x75 cm long in cement mortar 1:4 including carriage of stone within 200m complete as directed.		

$$20.00 \times 0.40 \times 0.70 = 5.60 \text{ m}^3$$

$$20.00 \times \frac{0.70 + 0.40}{2} \times 1.00\text{m} = \frac{11.00 \text{ m}^3}{2}$$

$$= 16.60 \text{ m}^3$$

@ ` . 1574.00/-m³..... ` . 26128.40
TOTAL: ` . 27214.80
SAY: ` . 27215.00

For 14 Nos = ` . 27215.00x 4= ` . 381010.00

Rupees(Three Lakhs Eighty One Thousand Ten) Only

**ESTIMATE CONSTRUCTION OF RETAINING WALL WORKS
 UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
 (As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
 for 2010-2011)**

1/ 2.2(a) Earthwork in excavation to the proper grade including light dressing etc. as directed and removal of spoils upto 30m lead and all lift.

$$40.00 \times 0.40 \times 0.70\text{m} = 11.20\text{m}^3$$

@ ` . 194 / m³ ` . 2172.80

2/4.3 Providing regular coursed stone masonry only in abutment walls with hammer dressed stone of heavy section (size not less than 25cm x 25cm x30cm long) with proper key stones each not less than 25 x25 x75 cm long in cement mortar 1:4 including carriage of stone within 200m complete as directed.

$$40.00 \times 0.40 \times 0.70 = 11.20\text{m}^3$$

$$40.00 \times \frac{0.70 + 0.40}{2} \times 1.00\text{m} = \frac{19.80 \text{ m}^3}{2}$$

$$= 31.00 \text{ m}^3$$

@ ` . 1574.00/-m³..... ` . 48749.00
TOTAL: ` . 50966.80
SAY: ` .50965.00

For 5 Nos = ` . 50956.00x 5= ` . 254825.00

Rupees(Two Lakhs Fifty Four Thousand Eight Hundred Twenty Five) Only

**ESTIMATE CONSTRUCTION OF RETAINING WALL WORKS
 UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
 (As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
 for 2010-2011)**

1/ 2.2(a) Earthwork in excavation to the proper grade including light dressing etc. as directed and removal of spoils upto 30m lead and all lift.

$$50.00 \times 0.40 \times 0.70\text{m} = 14.00\text{m}^3$$

@ ` . 194 / m³ ` . 2716.00

2/4.3 Providing regular coursed stone masonry only in abutment walls with hammer dressed stone of heavy section (size not less than 25cm x 25cm x30cm long) with proper key stones each not less than 25 x25 x75 cm long in cement mortar 1:4

including carriage of stone within 200m complete as directed.

$$50.00 \times 0.40 \times 0.70 = 14.00\text{m}^3$$

$$50.00 \times \frac{0.70+0.40}{2} \times 1.00\text{m} = \frac{24.75\text{m}^3}{}$$

$$= 38.75 \text{ m}^3$$

@ ` . 1574.00/-m³ ` . 60992.50

TOTAL: ` . 63708.50

SAY: ` . 63705.00

For 5 Nos = ` . 63705.00x 5 = ` . 318525.00

Rupees(Three Lakhs Eighteen Thousand Five Hundred Twenty Five) Only

**ESTIMATE CONSTRUCTION OF RETAINING WALL WORKS
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

1/ 2.2(a) Earthwork in excavation to the proper grade including light dressing etc. as directed and removal of spoils upto 30m lead and all lift.

$$60.00 \times 0.40 \times 0.70\text{m} = 16.80\text{m}^3$$

@ ` . 194 / m³ ` . 3259.20

2/4.3 Providing regular coursed stone masonry only in abutment walls with hammer dressed stone of heavy section (size not less than 25cm x 25cm x30cm long) with proper key stones each not less than 25 x25 x75 cm long in cement mortar 1:4 including carriage of stone within 200m complete as directed.

$$60.00 \times 0.40 \times 0.70 = 16.80\text{m}^3$$

$$60.00 \times \frac{0.70+0.40}{2} \times 0.90\text{m} = \frac{29.70 \text{ m}^3}{}$$

$$= 46.50 \text{ m}^3$$

@ ` . .1574.00/-m³ ` . 73191.00

TOTAL: ` . 76450.20

SAY: ` . 76450.00

For 5 Nos = ` . 76450.00x 4= ` .382250.00

Rupees(Three Lakhs Eighty Two Thousand Two Hundred Fifty) Only

**ESTIMATE CONSTRUCTION OF RETAINING WALL WORKS
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

1/ 2.2(a) Earthwork in excavation to the proper grade including light dressing etc. as directed and removal of spoils upto 30m lead and all lift.

$$15.00 \times 0.40 \times 0.70\text{m} = 4.20\text{m}^3$$

@ ` . 194 / m³ ` . 814.20

2/4.3 Providing regular coursed stone masonry only in abutment walls with hammer dressed stone of heavy section (size not less than 25cm x 25cm x30cm long) with proper key stones each not less than 25 x25 x75 cm long in cement mortar 1:4 including carriage of stone within 200m complete as directed.

$$15.00 \times 0.40 \times 0.70 = 4.20\text{m}^3$$

$$15.00 \times \frac{0.70+0.40}{2} \times 1.00\text{m} = \frac{8.25 \text{ m}^3}{2}$$

$$= 12.45\text{m}^3$$

@ ` . 1574.00/-m³ ` . 19596.30

TOTAL: ` . 20410.50

SAY: ` . 20410.00

Rupees(Twenty Thousand Four Hundred Ten) Only

**ESTIMATE CONSTRUCTION OF RETAINING WALL WORKS
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

1/ 2.2(a) Earthwork in excavation to the proper grade including light dressing etc. as directed and removal of spoils up to 30m lead and all lift.

$$45.00 \times 0.40 \times 0.70\text{m} = 12.60\text{m}^3$$

@ ` . 194 / m³ ` . 2444.40

2/4.3 Providing regular coursed stone masonry only in abutment walls with hammer dressed stone of heavy section (size not less than 25cm x 25cm x30cm long) with proper key stones each not less than 25 x25 x75 cm long in cement mortar 1:4 including carriage of stone within 200m complete as directed.

$$45.00 \times 0.40 \times 0.70\text{m} = 12.60\text{m}^3$$

$$45.00 \times \frac{0.70+0.40}{2} \times 0.90\text{m} = \frac{22.275\text{m}^3}{2}$$

$$= 34.875\text{m}^3$$

@ ` . 1574.00/-m³ ` . 54893.25

TOTAL: ` . 57337.65

SAY: ` . 57335.00

For 4 Nos = ` . 57335.00x 4= ` . 229340.00

Rupees(Two Lakhs Twenty Nine Thousand Three Hundred Forty) Only

**ESTIMATE CONSTRUCTION OF RETAINING WALL WORKS
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

1/ 2.2(a) Earthwork in excavation to the proper grade including light dressing etc. as directed and removal of spoils upto 30m lead and all lift.

$$25.00 \times 0.40 \times 0.70 = 7.00\text{m}^3$$

@ ` 194 / m³ ` 1358.00

2/4.3 Providing regular coursed stone masonry only in abutment walls with hammer dressed stone of heavy section (size not less than 25cm x 25cm x30cm long) with proper key stones each not less than 25 x25 x75 cm long in cement mortar 1:4 including carriage of stone within 200m complete as directed.

$$\begin{aligned} 25.00 \times 0.40 \times 0.70 &= 7.00\text{m}^3 \\ 25.00 \times \frac{0.70+0.40}{2} \times 1.00 &= \frac{12.375 \text{m}^3}{2} \\ &= 19.375 \text{m}^3 \end{aligned}$$

@ ` 1574.00/-m³ ` 30496.25

TOTAL: ` 31859.25

SAY: ` 31850.00

For 6 Nos = ` 31850.00x 6= ` 191100.00

Rupees(One Lakhs Ninety One Thousand One Hundred) Only
ESTIMATE CONSTRUCTION OF RETAINING WALL WORKS
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya, for 2010-2011)

1/ 2.2(a) Earthwork in excavation to the proper grade including light dressing etc. as directed and removal of spoils upto 30m lead and all lift.

$$35.00 \times 0.40 \times 0.70\text{m} = 9.80\text{m}^3$$

@ ` 194 / m³ ` 1901.20

2/4.3 Providing regular coursed stone masonry only in abutment walls with hammer dressed stone of heavy section (size not less than 25cm x 25cm x30cm long) with proper key stones each not less than 25 x25 x75 cm long in cement mortar 1:4 including carriage of stone within 200m complete as directed.

$$\begin{aligned} 35.00 \times 0.40 \times 0.70 &= 9.80\text{m}^3 \\ 35.00 \times \frac{0.70+0.40}{2} \times 1.00\text{m} &= \frac{17.325\text{m}^3}{2} \\ &= 27.125 \text{m}^3 \end{aligned}$$

@ ` 1574.00/-m³ ` 42694.75

TOTAL: ` 44595.95

SAY: ` 44595.00

For 5 Nos = ` 44595.00x 5 = ` 222975.00

Rupees(Two Lakhs Twenty Two Thousand Nine Hundred Seventy Five) Only

ESTIMATE CONSTRUCTION OF RETAINING WALL WORKS
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya, for 2010-2011)

1/ 2.2(a) Earthwork in excavation to the proper grade including light dressing etc. as directed and removal of spoils upto 30m lead and all lift.

$$30.00 \times 0.40 \times 0.70\text{m} = 8.40\text{m}^3$$

@ ` 194 / m³ ` 1629.60

2/4.3 Providing regular coursed stone masonry only in abutment

walls with hammer dressed stone of heavy section (size not less than 25cm x 25cm x30cm long) with proper key stones each not less than 25 x25 x75 cm long in cement mortar 1:4 including carriage of stone within 200m complete as directed.

$$\begin{aligned} 30.00 \times 0.40 \times 0.70 &= 8.40\text{m}^3 \\ 30.00 \times \frac{0.70+0.40}{2} \times 1.00\text{m} &= \frac{14.84\text{m}^3}{2} \\ &= 23.25 \text{ m}^3 \end{aligned}$$

$$\text{@ ` 1574.00/-m}^3 \text{..... ` 36595.50}$$

TOTAL: ` 38225.10

SAY: ` 38225.00

$$\text{For 5 Nos = ` 38225.00x 5 = ` 191125.00}$$

Rupees(One Lakhs Ninety One Thousand One Hundred Twenty Five) Only

**ESTIMATE CONSTRUCTION OF C.C HEAD CHECK DAM CUM WASHING PLACE
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011**

(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya, for 2010-2011)

1/2.2(a) Earthwork in excavation for bridges and culvert below the lowest bed level including dewatering and bailing out water in order to keep the foundation trenches dry of water and protecting the sides of foundation etc.complete as directed.

$$\begin{aligned} 11.00 \times 0.70 \times 0.90 &= 6.93 \text{ m}^3 \\ 1.00 \times 1.15 \times 0.30 &= \frac{0.35 \text{ m}^3}{2} \\ &= 7.28 \text{ m}^3 \end{aligned}$$

$$\text{@ ` 194.00/-m}^3 \text{..... ` 1412.32}$$

2/2.1 (a) Earthwork in excavation to the proper grade including light dressing, complete as directed.

$$\begin{aligned} 2 \times 2.000 \times 0.80 \times 0.90 &= 2.88 \text{ m}^3 \\ 2 \times 3.00 \times 0.80 \times 0.90 &= 4.32 \text{ m}^3 \\ 2 \times 3.00 \times 2.00 \times 0.40 &= \frac{4.80 \text{ m}^3}{2} \\ &= 12.00 \text{ m}^3 \end{aligned}$$

$$\text{@ ` 78.00/m}^3 \text{..... ` 936.00}$$

3/4.6 Providing stone soling including filling the interstices with spoil and carriage of stone within a distance of 200m complete as directed.

$$\begin{aligned} 11.00 \times 0.70 \times 0.10 &= 0.77 \text{ m}^3 \\ 2 \times 2.00 \times 0.80 \times 0.10 &= 0.32 \text{ m}^3 \\ 3.00 \times 1.00 \times 0.15 &= 0.45 \text{ m}^3 \\ 2 \times 3.00 \times 0.80 \times 0.10 &= 0.48 \text{ m}^3 \\ 1 \times 1.00 \times 0.15 \times 1.15 &= \frac{0.17 \text{ m}^3}{2} \\ &= 2.19 \text{ m}^3 \end{aligned}$$

$$\text{@ ` 576.00/-m}^3 \text{..... ` 1261.44}$$

4/4.8 Providing cement concrete work proportion 1:4:8 with hard broken stone aggregate etc completed as directed.

$$\begin{aligned} 11.00 \times 0.70 \times 0.10 &= 0.77 \text{ m}^3 \\ 2 \times 2.00 \times 0.70 \times 0.10 &= 0.28 \text{ m}^3 \\ 2 \times 3.00 \times 0.70 \times 0.10 &= \frac{0.42 \text{ m}^3}{2} \\ &= 1.47 \text{ m}^3 \end{aligned}$$

@ ` . 2823.00. / m³ ` . 4149.81

5/6.1 Providing cement concrete work in proportion 1:3:6 with hard broken stone etc complete as directed. (Excluding Shuttering)

$$\begin{aligned} 11.00 \times 0.70 \times 0.70 &= 5.39 \text{ m}^3 \\ 11.00 \times \frac{0.70 + 0.40}{2} \times 1.20 &= 7.26 \text{ m}^3 \\ 2 \times 5.00 \times 0.40 \times 0.30 &= 1.20 \text{ m}^3 \\ 3.00 \times 1.00 \times 0.15 &= 0.45 \text{ m}^3 \\ 1.00 \times 1.15 \times 0.30 &= 0.35 \text{ m}^3 \\ &= 15.16 \text{ m}^3 \end{aligned}$$

@ ` . 3216.00/-m³ ` . 48754.56

6/4.2 Providing regular stone masonry work in and wing wall with hammer dressed or blunt chisel dressed stones in cement mortar 1: 6 etc complete.

$$\begin{aligned} 2 \times 2.00 \times 0.70 \times 0.70 &= 1.96 \text{ m}^3 \\ 2 \times 2.00 \times \frac{0.70 + 0.50}{2} \times 1.50 &= 3.90 \text{ m}^3 \\ 2 \times 3.00 \times 0.80 \times 0.70 &= 3.36 \text{ m}^3 \\ 2 \times 3.00 \times \frac{0.50 + 0.80}{2} \times 1.50 &= 5.85 \text{ m}^3 \\ 2 \times 3.00 \times 2.00 \times 1.05 &= 12.60 \text{ m}^3 \\ &= 27.67 \text{ m}^3 \end{aligned}$$

@ ` . 1479.00/-m³ ` . 40923.93

7/6.12 Providing shuttering with dressed planks not less than 25mm thick properly joined with battens proper level and removing the same after the concrete hardens complete as directed.

$$\begin{aligned} 2 \times 11.00 \times 1.50 &= 33.00 \text{ m}^2 \\ 2 \times 1.00 \times 1.15 &= 2.30 \text{ m}^2 \\ &= 35.30 \text{ m}^2 \end{aligned}$$

@ ` . 308.00/-m² ` . 10872.40

8/7.2 Providing 12mm thick cement plaster including clearing the surface, curing carriage of sand within 200m, complete as directed.

$$\begin{aligned} 2 \times 11.00 \times 1.50 &= 33.00 \text{ m}^2 \\ 1 \times 11.00 \times 0.50 &= 5.50 \text{ m}^2 \\ 2 \times 3.00 \times 1.45 &= 8.70 \text{ m}^2 \\ 2 \times 3.00 \times 2.00 &= 12.00 \text{ m}^2 \\ &= 59.20 \text{ m}^2 \end{aligned}$$

@ ` . 121/-m² ` . 7163.20

9/3.20 (a) Cutting drain including dressing etc. complete

Length of drain = 10.00 m

@ ` . 49.00/- Rm ` . 490.00

TOTAL ` . 115963.66

SAY, ` . 115960.00

(Rupees One Lakh Fifteen Thousand Nine Hundred Sixty) only

**ESTIMATE CONSTRUCTION OF DIVERSION DAM
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

1/2.2(a) Earthwork in excavation for bridges and culvert below the lowest bed level including dewatering and bailing out water in order to keep the foundation trenches dry of water and protecting the sides of foundation etc.complete as directed.

$$15.00 \times 0.60 \times 1.00 = 9.00 \text{ m}^3$$

@ ` .194.00/-m³ ` . 1746.00

2/2.1 (a) Earthwork in excavation to the proper grade including light dressing, complete as directed.

$$2 \times 1.00 \times 0.80 \times 0.40 = 0.64 \text{ m}^3$$

@ ` .78.00/m³ ` . 49.92

3/4.8 Providing cement concrete work proportion 1:4:8 with hard broken stone aggregate etc completed as directed.

$$\begin{aligned} 15.00 \times 1.00 \times 0.10 &= 1.50 \text{ m}^3 \\ 2 \times 1.00 \times 0.80 \times 0.10 &= \underline{0.16 \text{ m}^3} \\ &= 1.66 \text{ m}^3 \end{aligned}$$

@ ` . 2823.00/ m³ ` .4686.18

4/26 Providing cement concrete work in proportion 1:3:6 with hard broken stone etc complete as directed. (Excluding Shuttering)

$$1 \times 15.00 \times 2.00 \times 0.10 = 3.00 \text{ m}^3$$

@ ` .2281/-m³ ` .6843.00

5/4.2(a) Providing regular stone masonry work in and wing wall with hammer dressed or blunt chisel dressed stones in cement mortar 1: 6 etc complete.

$$\begin{aligned} 1 \times 15.00 \times 1.90 \times 0.50 &= 14.25 \text{ m}^3 \\ 1 \times 15.00 \times \frac{0.90 + 0.40}{2} \times 1.50 &= 14.625 \text{ m}^3 \\ 2 \times 1.00 \times 0.30 \times 0.80 &= 0.48 \text{ m}^3 \\ 2 \times 1.00 \times \frac{0.90 + 0.30}{2} \times 1.50 &= \underline{1.65 \text{ m}^3} \\ &= 31.005 \text{ m}^3 \end{aligned}$$

@ ` .1479.00/-m³ ` .45856.395

6/6.12 Providing shuttering with dressed planks not less than 25mm thick properly joined with battens proper level and removing the same after the concrete hardens complete as directed.

$$1 \times 15.00 \times 1.50 = 22.50 \text{ m}^2$$

@ ` .308.00/-m² ` .6930.00

7/7.2

Providing 12mm thick cement plaster including clearing the surface, curing carriage of sand within 200m, complete as directed.

$$\begin{array}{rcl} 1 \times 15.00 \times 1.50 & = & 22.50 \text{ m}^2 \\ 1 \times 15.00 \times 0.50 & = & \underline{7.50 \text{ m}^2} \\ & = & 30.00 \text{ m}^2 \end{array}$$

@ ` .121/-m² ` .3630.00

TOTAL **` .69741.50**

SAY, **` .69740.00**

(Rupees Sixty Nine Thousand Seven Hundred Forty) only

**ESTIMATE CONSTRUCTION OF DIVERSION DAM
 UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
 (As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
 for 2010-2011)**

1/2.2(a) Earthwork in excavation for bridges and culvert below the lowest bed level including dewatering and bailing out water in order to keep the foundation trenches dry of water and protecting the sides of foundation etc. complete as directed.

$$20.00 \times 0.60 \times 1.00 = 12.00 \text{ m}^3$$

$$@ \text{ `}.194.00/\text{-m}^3 \text{ `}.2328.00$$

2/2.1(a) Earthwork in excavation to the proper grade including light dressing, complete as directed.

$$2 \times 1.00 \times 0.80 \times 0.40 = 0.64 \text{ m}^3$$

$$@ \text{ `}.78.00/\text{m}^3 \text{ `}.49.92$$

3/4.8 Providing cement concrete work proportion 1:4:8 with hard broken stone aggregate etc completed as directed.

$$20.00 \times 1.00 \times 0.10 = 2.00 \text{ m}^3$$

$$2 \times 1.00 \times 0.80 \times 0.10 = \underline{0.16 \text{ m}^3}$$

$$= 2.16 \text{ m}^3$$

$$@ \text{ `}.2823.00 / \text{m}^3 \text{ `}.6097.68$$

4/6.1 Providing cement concrete work in proportion 1:3:6 with hard broken stone etc complete as directed. (Excluding Shuttering)

$$1 \times 20.00 \times 2.00 \times 0.10 = 4.00 \text{ m}^3$$

$$@ \text{ `}.3216/\text{-m}^3 \text{ `}.12964.00$$

5/4.2 Providing regular stone masonry work in and wing wall with hammer dressed or blunt chisel dressed stones in cement mortar 1: 6 etc complete.

$$1 \times 20.00 \times 1.90 \times 0.50 = 19.00 \text{ m}^3$$

$$1 \times 20.00 \times \underline{0.90 + 0.40} \times 1.50 = 19.50 \text{ m}^3$$

$$2 \times 1.00 \times 0.30 \times 0.80 = 0.48 \text{ m}^3$$

$$2 \times 1.00 \times \frac{0.90 + 0.30}{2} \times 1.50 = \underline{1.65 \text{ m}^3}$$

$$= 40.63 \text{ m}^3$$

@ ` .1479.00/-m³ ` .60091.77

6/6.12 Providing shuttering with dressed planks not less than 25mm thick properly joined with battens proper level and removing the same after the concrete hardens complete as directed.

$$1 \times 20.00 \times 1.50 = 30.00 \text{ m}^2$$

@ ` .308.00/-m² ` .9240.00

7/7.2 Providing 12mm thick cement plaster including clearing the surface, curing carriage of sand within 200m, complete as directed.

$$1 \times 20.00 \times 1.50 = 30.00 \text{ m}^2$$

$$1 \times 20.00 \times 0.50 = \underline{10.00 \text{ m}^2}$$

$$= 40.00 \text{ m}^2$$

@ ` .121.00/-m² ` .4840.00

TOTAL ` .95611.37

SAY, ` .95610.00

(Rupees Ninety Five Thousand Six Hundred Ten) only

**ESTIMATE CONSTRUCTION OF DUG-OUT POND
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII**

**(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

- 1/2.2(a) Earthwork in excavation to the proper level and grade including light dressing as directed and removal of spoils up to 30m lead and all lift completed as directed.
(d) Soft or laminated rock or medium shale.

$$\begin{aligned} V &= \frac{1.5}{6} [(12.00 \times 10.00) + (9.00 \times 7.00) + 4(10.50 \times 8.50)] \\ &= \frac{1.5}{6} [(120.00 + 63.00 + 357.00)] \\ &= 135.00\text{m}^3 \end{aligned}$$

@`.194.00/m³..... = `.26190.00

- 2/3.2(a)(i) Cutting side drain 60cm wide 60cm deep including dressing and removal of spoil etc. complete as directed

Length of the Disposal Channel= 10.00 Rm

@`.490.00/Rm..... = `.490.00

TOTAL = `.26680.00

SAY = `.26680.00

Rupees (Twenty Six Thousand Six Hundred Eighty) Only

**ESTIMATE CONSTRUCTION OF DUG-OUT POND
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII**

(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)

- 1/2.1(a) Earthwork in excavation for bridges and culvert below the lowest bed level including dewatering and bailing out water in order to keep the foundation trenches of water and protecting sides of foundation by adequate shoring, scaffolding including labeling the foundation longitudinally and transversely etc. as directed by the engineer in-charge.

$$V = \frac{2.00(20.00 \times 20.00) + 4(18.00 \times 18.00) + (16.00 \times 16.00)}{6}$$

$$= \frac{2.00(400.00 + 1296.00 + 256.00)}{6}$$

$$= 650.67 \text{ m}^3$$

@ ` .78.00/m³ ` .50752.26

Total	` . 50752.26
Say	` . 50750.00

For 2Nos = 2x 50750.00 = ` .101500.00

Rupees (One Lakh One Thousand Five Hundred) only

**ESTIMATE CONSTRUCTION OF C.C HEAD WATER DAM
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2007-2008)**

1/2.2(a) Earthwork in excavation for bridges and culvert below the lowest bed level including dewatering and bailing out water in order to keep the foundation trenches dry of water and protecting the sides of foundation etc.complete as directed.

Dam :	6.00 x 0.80 x 0.60	=	2.88 m ³
W/Wall:	2 Nos x 3.00 x 0.80 x 0.60	=	2.88 m ³
Apron :	6.00 x 2.00 x 0.15	=	1.80 m ³
Curtain Wall:	6.00 x 0.25 x 0.15	=	<u>0.23 m³</u>
		=	7.79 m ³

@ ` .194.00/-m³ ` . 1511.26

2/2.1 (a) Earthwork in excavation to the proper grade including light dressing, complete as directed.

C.C. Channel:	1 x 10.00 x 0.80 x 0.70	=	5.60 m ³
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@ ` .78.00/m³ ` . 436.80

3/4.6 Providing stone soling including filling the interstices with spoil and carriage of stone within a distance of 200m complete as directed.

1 x 6.00 x 0.80 x 0.15		=	0.72 m ³
2 x 3.00 x 0.80 x 0.15		=	0.72 m ³
6.00 x 2.00 x 0.15		=	<u>1.80 m³</u>
		=	3.24 m ³

@ ` .576.00/-m³ ` .1866.24

4/4.8 Providing cement concrete work proportion 1:4:8 with hard broken stone aggregate etc completed as directed.

6.00 x 0.80 x 0.10		=	0.48 m ³
2 Nos x 3.00 x 0.80 x 0.10		=	<u>0.48 m³</u>
		=	0.96 m ³

@ ` .2823.00 / m³ ` .2710.08

5/4.2 Providing regular stone masonry work in and wing wall with hammer dressed or blunt chisel dressed stones in cement mortar 1: 6 etc complete.

W/Wall:2 Nos x 3.00 x 0.80 x 0.35		=	1.68 m ³
2 Nos x 3.00 x $\frac{0.80 + 0.50}{2}$ x 1.20		=	<u>4.68 m³</u>
		=	6.36 m ³

@ ` .1479.00/-m³ ` .9406.44

6/6.1 Providing cement concrete work in proportion 1:3:6 with hard broken stone etc complete as directed. (Excluding Shuttering)

$$\begin{aligned}
 6.00 \times 0.80 \times 0.35 &= 1.68 \text{ m}^3 \\
 6.00 \times \frac{0.80 + 0.40}{2} \times 0.90 &= 3.24 \text{ m}^3 \\
 2 \times 2.00 \times 0.40 \times 0.30 &= 0.48 \text{ m}^3 \\
 10.00 \times 0.80 \times 0.10 &= 0.80 \text{ m}^3 \\
 2 \times 10.00 \times 0.60 \times 0.10 &= 1.20 \text{ m}^3 \\
 6.00 \times 2.00 \times 0.10 &= 1.20 \text{ m}^3 \\
 6.00 \times 0.25 \times 0.15 &= \underline{0.23 \text{ m}^3} \\
 &= 8.83 \text{ m}^3
 \end{aligned}$$

@ ` .3216.00/-m³ ` .28397.28

7/6.12 Providing shuttering with dressed planks not less than 25mm thick properly joined with battens proper level and removing the same after the concrete hardens complete as directed.

$$\begin{aligned}
 2 \times 6.00 \times 1.20 &= 14.40 \text{ m}^2 \\
 2 \times 10.00 \times 0.60 &= 12.00 \text{ m}^2 \\
 \text{Deduction for} & \\
 \text{Spillway: } 2 \times 2.00 \times 0.30 &= (-) \underline{1.20 \text{ m}^2} \\
 &= 25.20 \text{ m}^2
 \end{aligned}$$

@ ` .308/-m² ` .7761.60

8/7.2 Providing 12mm thick cement plaster including clearing the surface, curing carriage of sand within 200m, complete as directed.

$$\begin{aligned}
 2 \times 6.00 \times 0.90 &= 10.80 \text{ m}^2 \\
 2 \times 2 \times 2.00 \times 0.30 &= 2.40 \text{ m}^2 \\
 2 \times 2.00 \times 0.40 &= 1.60 \text{ m}^2 \\
 2 \times 0.40 \times 0.30 &= 0.24 \text{ m}^2 \\
 2 \times 10.00 \times 0.60 &= 12.00 \text{ m}^2 \\
 1 \times 10.00 \times 0.60 &= 6.00 \text{ m}^2 \\
 1 \times 6.00 \times 2.00 &= \underline{12.00 \text{ m}^2} \\
 &= 45.04 \text{ m}^2
 \end{aligned}$$

@ ` .121.00/-m² ` .5449.84

9/3.2(a)(i) Cutting drain including dressing etc. complete

Length of drain = 100.00 m

@ ` .49.00/- Rm ` .4900.00

TOTAL= ` .62439.54

SAY, ` .62440.00

For 2Nos = 2x62440.00 = ` .124880.00

Rupees (One Lakh Twenty Two Sixty Thousand Eight Hundred Eighty) only

**ESTIMATE CONSTRUCTION OF WATER HARVESTING STRUCTURE
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII**

**(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

1/2.2(a) Earth work in excavation for Proper grade including light dressing and removal of spoils up to 30m level and all lift.

18.00 x 1.00 x 1.20	=	21.60 m ³
18.00 x 1.50 x 0.20	=	5.40 m ³
2 x 2.30 x 1.00 x 0.90	=	<u>4.14 m³</u>
	=	31.14 m ³

@ ` . 194.00 / m³ ` .6041.16

2/4.6 (a) Providing stone soling with one man size boulders etc. completed as directed.

18.00 x 1.50 x 0.20 m	=	5.40 m ³
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@ ` .576.00/m³ ` .3110.40

3/4.2(a) Providing stone masonry work in wing wall/guide wall with hammer dresses or blunt chisel dressed stone of heavy section (size not less than 25 x 25 x 30cm long) with proper key stones each not less than 25 x 25 x 75cm long in cement mortar 1:6 including carriage of stone within 200m complete filling in trenches etc.

18.00 x 1.05 x 0.85	=	16.06 m ³
18.00 x $\frac{1.05 + 0.60}{2}$ x 2.20	=	32.67 m ³
18.00 x 0.30 x 0.60	=	3.24 m ³
2 x 2.30 x 1.00 x 0.90	=	4.14 m ³
2 x 2.30 x $\frac{1.00 + 0.60}{2}$ x 2.50	=	<u>9.20 m³</u>
	=	65.31 m ³

@ ` . 1479.00 / m³ ` .96593.49

4/6.1 Providing concrete in prop 1: 3: 6 with hard broken stone aggregate 40mm down graded including necessary local carriage of stone aggregates, sand within 200meters and curing (Excluding shuttering) complete as directed.

18.00 x 1.20 x 0.15	=	3.24 m ³
18.00 x 3.35 x 0.15	=	9.04 m ³
18.00 x 1.50 x 0.10	=	<u>2.70 m³</u>
	=	14.98 m ³

@ ` . 3216.00 / m² ` .48175.68

5/6.12 Providing shuttering for dam wall with dressed planks not less than 25mm thick properly joined with battens of minimum sizes 75mm x 100mm at a spacing of not more than 600mm centre to centre complete as directed.

18.00 x 2.50	=	45.00 m ²
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@ ` .308.00/-m² ` .13860.00

6/7.2 Providing 12mm thick cement plaster in proportion 1:4 Including screening sand clearing the surface and carriage of sand within 200mm complete and as directed.

1 x 18.00 x 2.50	=	45.00 m ²
1 x 18.00 x 0.75	=	13.50 m ²
1 x 18.00 x 0.30	=	5.40 m ²
1 x 18.00 x 2.55	=	45.90 m ²
1 x 18.00 x 1.50	=	<u>27.00 m²</u>
	=	136.80 m ²

@ ` .121.00/m²..... ` .16552.80

7/3.2(a)(i) Cutting drainetc. complete

Length of drain = 25.00 Rm

@ ` .49.00/- Rm ` . 1225.00

TOTAL = ` .185558.50

SAY, = ` .185555.00

For 3Nos = 3x 185555.00 = ` .556665.00

Rupees (Five Lakh Fifty Six Thousand Six Hundred Six Five) only

**ESTIMATE CONSTRUCTION OF WATER HARVESTING STRUCTURE
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII**

**(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

1/2.2(a)	Earth work in excavation for Proper grade including light dressing and removal of spoils up to 30m level and all lift.		
		28.00 x 1.00 x 1.20	= 33.60 m ³
		28.00 x 1.50 x 0.20	= 8.40 m ³
		2 x 2.00 x 1.00 x 0.90	= <u>3.60 m³</u>
			= 45.60 m ³
		@ ` .194.00 / m ³	` .8846.40
2/4.6	Providing stone soling with one man size boulders etc. as directed.		
		28.00 x 1.50 x 0.20 m	= 8.40 m ³
		@ ` .576.00/m ³	` .4838.40
3/4.2(a)	Providing stone masonry work in wing wall/guide wall with hammer dresses or blunt chisel dressed stone of heavy section (size not less than 25 x 25 x 30cm long) with proper key stones each not less than 25 x 25 x 75cm long cement mortar 1:6 including carriage of stone within 200m complete filling in trenches etc.		
		28.00 x 1.05 x 0.85	= 24.99 m ³
		28.00 x $\frac{1.05 + 0.60}{2}$ x 2.20	= 50.82 m ³
		28.00 x 0.30 x 0.60	= 5.04 m ³
		2 x 2.00 x 1.00 x 0.90	= 3.60 m ³
		2 x 2.00 x $\frac{1.00 + 0.60}{2}$ x 2.50	= <u>8.00 m³</u>
			= 92.45 m ³
		@ ` .1479.00 / m ³	` .136733.55
4/6.1	Providing concrete in prop 1: 3: 6 with hard broken stone aggregate 40mm down graded including necessary local carriage of stone aggregates, sand within 200meters and curing (Excluding shuttering) complete as directed.		
		28.00 x 1.20 x 0.15	= 5.04 m ³
		28.00 x 3.35 x 0.15	= 14.07 m ³
		28.00 x 1.50 x 0.10	= <u>4.20 m³</u>
			= 23.31 m ³
		@ ` . 3216.00 / m ²	` .72867.06
5/6.12	Providing shuttering for dam wall with dressed planks not less than 25mm thick properly joined with battens of minimum sizes 75mm x 100mm at a spacing of not more than 600mm centre to centre complete as directed.		
		28.00 x 2.50	= 70.00 m ²
		@ ` .308.00/-m ²	` .21560.00
6/6.15(b)	Providing Tor Steel reinforcement including bending etc. as directed complete.		
		63 Nos x 3.65 x 0.89	= 204.66 Kg

$$\begin{aligned}
10 \text{ Nos} \times 30.00 \times 0.62 &= \underline{186.00 \text{ Kg}} \\
&= 390.66 \text{ Kg} \\
&= 3.906 \text{ Qntl}
\end{aligned}$$

@ ` .5945.00/-Qntl..... ` .23221.17

7/7.2 Providing 12mm thick cement plaster in proportion 1:4
Including screening sand clearing the surface and carriage
of sand within 200mm complete and as directed.

$$\begin{aligned}
1 \times 28.00 \times 2.50 &= 70.00 \text{ m}^2 \\
1 \times 28.00 \times 0.75 &= 21.00 \text{ m}^2 \\
1 \times 28.00 \times 0.30 &= 8.40 \text{ m}^2 \\
1 \times 28.00 \times 2.55 &= 71.40 \text{ m}^2 \\
1 \times 28.00 \times 1.50 &= \underline{42.00 \text{ m}^2} \\
&= 212.80 \text{ m}^2
\end{aligned}$$

@ Rs.121.00/-m²..... ` .25748.80

8/3.2(a)(i) Cutting drainetc. complete

Length of drain = 15.00 Rm

@ ` . 49.00/- Rm735.00

TOTAL ` .294550.40

SAY, ` .294550.00

For 2Nos = 2x 294550.00= ` .589100.00

Rupees (Five Lakhs Eighty Nine Thousand One Hundred) only

**ESTIMATE CONSTRUCTION OF WATER HARVESTING STRUCTURE
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII**

**(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

1/2.2(a) Earth work in excavation for Proper grade including light dressing and removal of spoils up to 30m level and all lift.

20.00 x 1.00 x 1.20	=	24.00 m ³
20.00 x 1.50 x 0.20	=	6.00 m ³
2 x 2.00 x 1.00 x 0.90	=	<u>3.60 m³</u>
	=	33.60 m ³

@ ` .194.00 / m³ ` .6518.40

2/4.6 Providing stone soling with one man size boulders etc. as directed.

20.00 x 1.50 x 0.20 m	=	6.00 m ³
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@ ` .576.00/m³ ` .3456.00

3/4.2(a) Providing stone masonry work in wing wall/guide wall with hammer dresses or blunt chisel dressed stone of heavy section (size not less than 25 x 25 x 30cm long) with proper key stones each not less than 25 x 25 x 75cm long cement mortar 1:6 including carriage of stone within 200m complete filling in trenches etc.

20.00 x 1.05 x 0.85	=	17.85 m ³
20.00 x $\frac{1.05 + 0.60}{2}$ x 2.20	=	36.30 m ³
20.00 x 0.30 x 0.60	=	3.60 m ³
2 x 2.00 x 1.00 x 0.90	=	3.60 m ³
2 x 2.00 x $\frac{1.00 + 0.60}{2}$ x 2.50	=	<u>8.00 m³</u>
	=	69.05 m ³

@ ` .1479.00 / m³ ` .102124.95

4/6.1 Providing concrete in prop 1: 3: 6 with hard broken stone aggregate 40mm down graded including necessary local carriage of stone aggregates, sand within 200meters and curing (Excluding shuttering) complete as directed.

20.00 x 1.20 x 0.15	=	3.60 m ³
20.00 x 3.35 x 0.15	=	10.50 m ³
20.00 x 1.50 x 0.10	=	<u>3.00 m³</u>
	=	16.65 m ³

@ ` .3216.00 / m² ` .53546.40

5/6.12 Providing shuttering for dam wall with dressed planks not less than 25mm thick properly joined with battens of minimum sizes 75mm x 100mm at a spacing of not more than 600mm centre to centre complete as directed.

20.00 x 2.50	=	50.00 m ²
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@ ` .308.00/-m² ` .15400.00

6/6.15(b) Providing Tor Steel reinforcement including bending
etc. as directed complete.

45 Nos x 3.65 x 0.89	=	146.18 Kg
10 Nos x 20.00 x 0.62	=	<u>124.00 Kg</u>
	=	270.18 Kg
	=	2.702 Qntl

@ ` .5945.00/-Qntl..... ` .16063.39

7/7.2 Providing 12mm thick cement plaster in proportion 1:4
Including screening sand clearing the surface and carriage
of sand within 200mm complete and as directed.

1 x 20.00 x 2.50=	50.00 m ²
1 x 20.00 x 0.75	= 15.00 m ²
1 x 20.00 x 0.30=	6.00 m ²
1 x 20.00 x 2.55=	51.00 m ²
1 x 20.00 x 1.50=	<u>30.00 m²</u>
	= 152.00 m ²

@ ` .121.00/-m² ` .18392.00

8/3.2(a)(i) Cutting drainetc. complete

Length of drain = 20.00 Rm

@ ` . 49.00/- Rm ` . 980.00

TOTAL ` .**216481.10**

SAY, ` .**216480.00**

For 2Nos = 3x 216480.00= ` .432960.00

Rupees (Four Lakhs Thirty Two Thousand Nine Hundred Sixty) only

**ESTIMATE CONSTRUCTION OF WATER HARVESTING STRUCTURE
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII**

**(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

1/2.2(a)	Earth work in excavation for Proper grade including light dressing and removal of spoils up to 30m level and all lift.		
		20.00 x 1.20 x 1.30m	= 31.20 m ³
		20.00 x 1.50 x 0.20 m	= 6.00 m ³
		2 x 2.00 x 1.00 x 1.10 m	= <u>4.40 m³</u>
			= 41.60 m ³
		@ ` .194.00 / m ³	` .8070.40
2/4.6	Providing stone soling with one man size boulders etc. as directed.		
		20.00 x 1.50 x 0.20 m	= 6.00 m ³
		@ ` .576.00/m ³	` .3456.00
3/4.2(a)	Providing stone masonry work in wing wall/guide wall with hammer dresses or blunt chisel dressed stone of heavy section (size not less than 25 x 25 x 30cm long) with proper key stones each not less than 25 x 25 x 75cm long including carriage of stone within 200m complete filling in trenches etc.		
		20.00 x 1.15 x 1.05	= 24.15 m ³
		20.00 x $\frac{1.15 + 0.60}{2}$ x 2.70	= 47.25 m ³
		20.00 x 0.30 x 0.60	= 3.60 m ³
		2 x 2.00 x 1.00 x 1.10	= 4.40 m ³
		2 x 2.00 x $\frac{1.10 + 0.60}{2}$ x 3.00	= <u>10.20 m³</u>
			= 89.60 m ³
		@ ` .1479.00 / m ³	` .132518.40
4/6.1	Providing concrete in prop 1: 3: 6 with hard broken stone aggregate 40mm down graded including necessary local carriage of stone aggregates, sand within 200meters and curing (Excluding shuttering) complete as directed.		
		20.00 x 1.30 x 0.15	= 3.90 m ³
		20.00 x 4.05 x 0.15	= 12.15 m ³
		20.00 x 1.50 x 0.10	= <u>3.00 m³</u>
			= 19.05 m ³
		@ ` . 3216.00/ m ²	` .61264.80
5/6.12	Providing shuttering for dam wall with dressed planks not less than 25mm thick properly joined with battens of minimum sizes 75mm x 100mm at a spacing of not more than 600mm centre to centre complete as directed.		
		20.00 x 3.00	= 60.00 m ²
		@ ` .308.00/-m ²	` .18480.00
6/7.2	Providing 12mm thick cement plaster in proportion 1:4 Including screening sand clearing the surface and carriage of sand within 200mm complete and as directed.		

1 x 20.00 x 3.00	=	60.00 m ²
1 x 20.00 x 0.75	=	15.00 m ²
1 x 20.00 x 0.30	=	6.00 m ²
1 x 20.00 x 2.75	=	55.00 m ²
1 x 20.00 x 1.50	=	<u>30.00 m²</u>
	=	166.00 m ²

@ ` .121.00/-m² ` .20086.00

7/3.2(a)(i) Cutting drainetc. complete

Length of drain = 30.00 Rm

@ ` .49.00/- Rm ` .1470.00

TOTAL= ` .245345.60

SAY, = ` .245345.00

Rupees (Two Lakhs Forty Five Thousand Three Hundred Forty Five) only

**ESTIMATE CONSTRUCTION OF WATER HARVESTING STRUCTURE
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII**

**(As per P.W.D schedule of rate for Road, Bridges and E&D National Highway Circle P.W.D Road Meghalaya,
for 2010-2011)**

1/2.2(a) Earth work in excavation for Proper grade including light dressing and removal of spoils up to 30m level and all lift.

20.00 x 1.20 x 1.30m	=	31.20 m ³
20.00 x 1.50 x 0.20 m	=	6.00 m ³
2 x 2.00 x 1.00 x 1.10 m	=	<u>4.40 m³</u>
	=	41.60 m ³

@ ` .194.00 / m³ ` .8070.40

2/4.6 Providing stone soling with one man size boulders etc. as directed.

20.00 x 1.50 x 0.20 m	=	6.00 m ³
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@ ` .576.00/m³ ` .3456.00

3/4.2(a) Providing stone masonry work in wing wall/guide wall with hammer dresses or blunt chisel dressed stone of heavy section (size not less than 25 x 25 x 30cm long) with proper key stones each not less than 25 x 25 x 75cm long in cement mortar 1:6 including carriage of stone within 200m complete filling in trenches etc.

20.00 x 1.15 x 1.05	=	24.15 m ³
20.00 x $\frac{1.15 + 0.60}{2}$ x 2.70	=	47.25 m ³
20.00 x 0.30 x 0.60	=	3.60 m ³
2 x 2.00 x 1.00 x 1.10	=	4.40 m ³
2 x 2.00 x $\frac{1.10 + 0.60}{2}$ x 3.00	=	<u>10.20 m³</u>
	=	89.60 m ³

@ ` . 1479.00 / m³ ` .132518.40

4/6.1 Providing concrete in prop 1: 3: 6 with hard broken stone aggregate 40mm down graded including necessary local carriage of stone aggregates, sand within 200meters and curing (Excluding shuttering) complete as directed.

20.00 x 1.30 x 0.15	=	3.90 m ³
20.00 x 4.05 x 0.15	=	12.15 m ³
20.00 x 1.50 x 0.10	=	<u>3.00 m³</u>
	=	19.05 m ³

@ ` .3216.00 / m² ` . 61264.80

5/6.12 Providing shuttering for dam wall with dressed planks not less than 25mm thick properly joined with battens of minimum sizes 75mm x 100mm at a spacing of not more than 600mm centre to centre complete as directed.

20.00 x 3.00	=	60.00 m ²
--------------	---	----------------------

@ ` .308.00/-m² ` .18480.00

6/7.2 Providing 12mm thick cement plaster in proportion 1:4 Including screening sand clearing the surface and carriage of sand within 200mm complete and as directed.

1 x 20.00 x 3.00	=	60.00 m ²
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1 x 20.00 x 0.75	=	15.00 m ²
1 x 20.00 x 0.30	=	6.00 m ²
1 x 20.00 x 2.75	=	55.00 m ²
1 x 20.00 x 1.50	=	<u>30.00 m²</u>
	=	166.00 m ²

@ `121.00/-m² `20086.00

7/3.2(a)(i) Cutting drainetc. complete

Length of drain = 25.00 Rm

@`.49.00/- Rm `1225.00

TOTAL= `245100.60

SAY, = `245100.00

Rupees (Two Lakhs Forty Five Thousand One Hundred) only

ANNEXURE IV
MoA, SUB-COMMITTEE DETAILS ETC

**OFFICE OF THE
VILLAGE DURBAR
MAWKHLAM, MAWTYNRONG, SIEJLIEH, MAWTHOH
WESTKHASI HILLS DISTRICT - 793119.**

Dated Mawkhlam, the.....

To,

The Divisional Officer
Soil & Water Conservation,
Nongstoin


Subject :- Application for I.W.M.P Watershed Project.

Sir,

With reference to the subject cited above, I the undersigned request on your honour to kindly include our village to the Ummawiong Micro Watershed I.W.M.P Project.

For which act of your kindness, I shall be grateful to you.


Headman
Nongmawthoh-Mawthoh
Nongstoin Sylemship


Yours faithfully,

Mr. P. Nongsiejj
Headman
Dorbar Shnong Siejlier
Nongstoin Sylemship


RESOLUTION OF THE VILLAGES COMMITTEE/DORBAR SHNONG

A General meeting the 4 Villages falling under Ummawiong Micro Watershed IWMP (Siejlieh, Mawkhlam, Mawtyriong, Mawthoh) was held 28th November 2011 and the following resolution were adopted unanimously by the Committee.


1. That the villages posses land more than 1000 Ha to treated under various soil and watershed works.
2. That we will extend all help possible to the Soil & Water Conservation Department while implementing the Integrated Water Management Programme (IWMP) in the degraded wasteland of the villages.
3. That we will render all help possible to the survey team and co-operate with the Officers the State/Central Government whenever they come to our village.
4. That the Secretary of the Watershed Committee will be from the Office of Soil & Water Conservation Department, Nongstoin Soil & Water Conservation Division, Nongstoin and the Chairman of the Watershed Committee will be elected from the member of the Villages.
5. That the Villages will be take over all assets created by the Department when they will be handed over after complication of the Project and device means to maintain and improve their sustainability.
6. That the common benefits will be shared amongst the villages including the weaker section, women and the landless.


1. Siejlieh


Mr. P. Nongsiejj
Headman
Dorbar Shnong Siejlier
Nongstoin Sylemship


(Mr. S.K. Thongni)
Secretary
Dorbar Shnong Siejlier.
Nongstoin Sylemship

2. Mawkhlam


Mawkhlam Nongpyndeng
Secretary Dong
Mawkhlam - Nongpyndeng.



Secretary
Dong No-2
Mawkhlam - Nongpyndeng.

3. Mawtyriong


Secretary Dong
Mawtyriong No. -1
(Mawkhlam)


Rangban Dong
Mawtyriong.

4. Mawthoh


Secretary
Shnong Mawthoh.


Secretary
Shnong Mawthoh.

This is to certify that WKH -IWMP - VIII has been selected based on the following criteria :-


1. That the Watershed has a population of Schedule Tribes only.
2. That it has acute shortage of drinking of water.
3. That it had preponderance of Wastelands and Degraded lands
4. That is has productivity potential of the lands
5. That the area of the project not covered under Assured Irrigation.
6. That the people of the Watershed has assured of their full participation during the implementation of the Programme as well as the operation and maintenance of the asset created after the handing over the lands.
7. That the common profit will be shared among all within the villages , including the weaker section, women and the landless.
8. That the people of the villages are willing to make voluntary contributions for the betterment.

1. Mawkhlam


Mawkhlam Nongpyndeng
Rangbah Dong. No. 2.



Secretary
Dong No-2
Mawkhlam - Nongpyndeng.

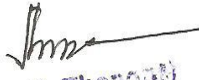
2. Mawtyriong


Secretary Dong,
Mawtyriong No. -I
(Mawkhlam)


Rangbah Dong,
Mawtyriong.

3. Siejlich


(Mr. P. Nongsiej)
Headman
Dorbar Shnong Siejlich
Nongstoin Sylemship


(Mr. S.K. Thong)
Secretary
Dorbar Shnong Siejlich
Nongstoin Sylemship

4. Mawthoh


Headman
Mawthoh-Mawthoh
Nongstoin Sylemship

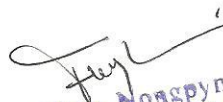

Secretary
Mawthoh.


**OFFICE OF THE VILLAGES COMMITTEE/DORBAR SHNONG
MAWKHLAM, MAWTYNRONG, SIEJLIEH, MAWTHOH VILLAGES
WEST KHASI HILLS DISTRICT**

NO OBJECTION CERTIFICATE

This is to certify that the Dorbar Shnong Mawkhlam Mawtyrnong, Siejlieh, Mawthoh welcome the implementation of the project and has NO OBJECTION to the Soil & Water Conservation Department Government of Meghalaya to implement the WKH-IWMP Project (Ummawiong Micro Watershed) within the area mentioned villages.

1. Mawkhlam


Mawkhlam Nongpyndeng
Rangbah Dong. No. 2.



Secretary
Dong No-2
Mawkhlam - Nongpyndeng


2. Mawtyrnong


Secretary Dong,
Mawtyrnong No. -1
(Mawkhlam)



Rangbah Dong
Mawtyrnong.

3. Siejlieh


(Mr. P. Nongsie)
Headman
Dorbar Shnong Siejlieh
Nongstoin Sylemship


(Mr. S.K. Thong)
Secretary
Dorbar Shnong Siejlieh
Nongstoin Sylemship

4. Mawthoh


Headman
Nongstoin Sylemship
Mawthoh


Secretary
Shnong Mawthoh.

Ka Office jong
KA DORBAR SHNONG MAWKHLAM
NONGSTOIN SYIEMSHIP
WESTKHASI HILLS DISTRICT
MEGHALAYA – 793119.

Ref No.....

Date.....

To,

The Secretary
Ummawiong Micro Watershed Committee.

Sub :- "Members of the Ummawiong Micro Watershed Sub-Committee Mawkhlam,"

Sir,

I am please to send the selected members of the Ummawiong Watershed Sub-Committee Mawkhlam, as follows :

1. Chairman > SHRI . F. K. BANI
2. Secretary > SHRI . A. Thongni
3. Member > SHRI . A. Rymbai
4. - " - > SMT. Twelty K. Bani
5. - " - > SHRI. Jingsingh Rmen

Thanks You.

Yours faithfully,


Secretary
Dong No-2
Mawkhlam - Nongpyndang.

Ka Office jong
KA DORBAR SHNONG MAWTHOH
NONGSTOIN SYIEMSHIP
WESTKHASI HILLS DISTRICT
MEGHALAYA – 793119.

Ref No.....

Date.....

To,

The Secretary
Ummawiong Micro Watershed Committee.

Sub :- "Members of the Ummawiong Micro Watershed Sub-Committee Mawthoh"

Sir,

I am please to send the selected members of the Ummawiong Watershed Sub-Committee Mawthoh as follows :

Chairman > *Shri. Powell Tamblaniaw*
Secretary > *Shri. Fullgen Marngar.*
Member > 1) *Shri. Tlingdaniut Marngar*
 2) *Shri. Teren Pariong*
 3) *Smt. Meristela Marngar.*

Thanks You.

Yours faithfully,


Secretary
Shnong Mawthoh.


Chairman
Nongravthoh-Mawthoh
Shnong Mawthoh

Ka Office jong
KA DORBAR SHNONG SIEJLIEH
NONGSTOIN SYIEMSHIP
WESTKHASHI HILLS DISTRICT
MEGHALAYA – 793119.

Ref No.....

Date.....

To,

The Secretary
Ummawiong Micro Watershed Committee.

Sub :- *“Members of the Ummawiong Micro Watershed Sub-Committee Siejlieh.”*

Sir,

I am please to send the selected members of the Ummawiong Watershed Sub-Committee Siejlieh as follows :

Chairman > MR. PERO NONGSIEJ
Secretary > MR. S.K. THONGNI
Member > MR. ONESSIMUS NONGSIEJ
MR. GROSSWEL NONGLANG
MRS. CHRISTINA WANNIANG

Thanks You.

Yours faithfully,

(CHAIRMAN)

Mr P. Nongsiejj
Headman
Dorbar Shnong Siejlieh
Nongstoin Syiemship

(Mr. S.K. Thongni)
Secretary
Dorbar Shnong Siejlieh
Nongstoin Syiemship

Ka Office jong
KA DORBAR SHNONG MAWTYNRONG
NONGSTOIN SYIEMSHIP
WESTKHASHI HILLS DISTRICT
MEGHALAYA – 793119.

Ref No.....

Date.....

To,

The Secretary
Ummawiong Micro Watershed Committee.


Sub :- "Members of the Ummawiong Micro Watershed Sub-Committee Mawtynrong"

Sir,

I am please to send the selected members of the Ummawiong Watershed Sub-Committee Mawtynrong as follows :

- 1 Chairman > Mr S. Jhangwi
- 2 Secretary > Mr N. Shangpliang
- 3 Member > Mr E. Murthang
- 4 " Kay Littleo K. Bani
- 5 " Mr. W. Langris.

Thanks You.


Yours faithfully,
Secretary Dong.
Mawtynrong No. - I
(Mawkhlan)