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, Mawkhlam, 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.
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CHAPTER I
INTRODUCTION AND BACKGROUND
CHAPTER I
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 Nanbah 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-watersheds 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. ICDS
2. MGNREGS
CHAPTER II

BASIC INFORMATION OF THE PROJECT AREA
CHAPTER II
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 91°14’00” to 91°16’15”E Longitude and 25°30’45” to 25°34’30”N Latitude.

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

1. Siejlieh    2. Mawkham
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

<table>
<thead>
<tr>
<th>Elevation (metres)</th>
<th>Slope Range (%)</th>
<th>Order of watershed Sub/Micro-watershed</th>
<th>Major streams</th>
<th>Topography</th>
</tr>
</thead>
<tbody>
<tr>
<td>1319m to 1500m</td>
<td>&lt; 1% to &gt; 70 %</td>
<td>Micro Watershed</td>
<td>Ummawiong</td>
<td>Gentle to moderately Sloping</td>
</tr>
</tbody>
</table>

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 IVˢᵗ 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:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Names of State</th>
<th>Names of District</th>
<th>Names of Projects</th>
<th>Cause</th>
<th>Types of erosion</th>
<th>Area affected (ha)</th>
<th>Run-off (mm/ year)</th>
<th>Average soil loss (Tonnes/ ha/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Meghalaya</td>
<td>West Khasi Hills</td>
<td>West Khasi Hills – IWMP VIII</td>
<td>Water erosion:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>a) Sheet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>b) Rill</td>
<td>1223</td>
<td>2700 - 3200</td>
<td>10.50 – 32.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>c) Gully</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sub total</td>
<td>1223</td>
<td>2700 - 3200</td>
<td>10.50 – 32.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Wind erosion</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

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 3070.83 mm 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.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of State</th>
<th>Name of the Agro-climatic zone</th>
<th>Area (in ha)</th>
<th>Name of the Districts</th>
<th>Name of the Projects</th>
<th>Major soil types</th>
<th>Average rainfall in mm (preceding 5 years average)</th>
<th>Major crops</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Meghalaya</td>
<td>Cold Moisture</td>
<td>1223</td>
<td>West Khasi Hills</td>
<td>WKH – IWMP VIII</td>
<td>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.</td>
<td>2960 mm</td>
<td>Paddy Potato 35, Maize 15, Sweet Potato 20, Ginger 10</td>
</tr>
</tbody>
</table>
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**

<table>
<thead>
<tr>
<th>Crops</th>
<th>Area (ha)</th>
<th>Average Yield (Qtl) per ha.</th>
<th>Total Production (Qtl.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>35</td>
<td>120</td>
<td>4200</td>
</tr>
<tr>
<td>Maize</td>
<td>20</td>
<td>80</td>
<td>1600</td>
</tr>
<tr>
<td>Ginger</td>
<td>40</td>
<td>80</td>
<td>3200</td>
</tr>
<tr>
<td>Potato</td>
<td>15</td>
<td>90</td>
<td>1350</td>
</tr>
<tr>
<td>Sweet Potato</td>
<td>10</td>
<td>37</td>
<td>3700</td>
</tr>
</tbody>
</table>

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*), *Castanapsis* spp. (*Dingstap, Dieng sohot*), *Schima khasiana*, (*Dieng ngan*), *Myrica nagii*,*Myrica farquhariana*, *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:

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Villages</th>
<th>Nos of Households</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Siejlieh</td>
<td>329</td>
<td>1034</td>
<td>1016</td>
<td>1352</td>
</tr>
<tr>
<td>2</td>
<td>Mawkhlam</td>
<td>209</td>
<td>634</td>
<td>718</td>
<td>240</td>
</tr>
<tr>
<td>3</td>
<td>Mawtynrong</td>
<td>38</td>
<td>120</td>
<td>120</td>
<td>2050</td>
</tr>
<tr>
<td>4</td>
<td>Mawthoh</td>
<td>26</td>
<td>96</td>
<td>75</td>
<td>171</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>602</strong></td>
<td><strong>1884</strong></td>
<td><strong>1929</strong></td>
<td><strong>3813</strong></td>
</tr>
</tbody>
</table>

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 (kutcha).

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:

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

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

<table>
<thead>
<tr>
<th>Type of Animal</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle (Cows)</td>
<td>1050</td>
</tr>
<tr>
<td>Goats</td>
<td>282</td>
</tr>
<tr>
<td>Piggery</td>
<td>345</td>
</tr>
<tr>
<td>Poultry</td>
<td>3216</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Name of District</th>
<th>Name of projects</th>
<th>Types of Farmer</th>
<th>No. of households</th>
<th>No. of BPL household</th>
<th>Land holding (ha)</th>
<th>Irrigated</th>
<th>Rainfed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Khasi Hills</td>
<td>WKH-IWMP VIII</td>
<td>(i) Large</td>
<td>5 nos</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(ii) Small</td>
<td>150 nos</td>
<td>56</td>
<td>Nil</td>
<td>1223Ha</td>
<td>1223Ha</td>
<td>1223Ha</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(iii) Marginal</td>
<td>76 nos</td>
<td>51</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(iv) Landless</td>
<td>6 nos</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sub - Total</td>
<td>237</td>
<td>113</td>
<td>1223Ha</td>
<td>1223Ha</td>
<td>1223Ha</td>
<td>1223Ha</td>
</tr>
</tbody>
</table>

### 2.8 Details of Common property resources of the project areas:

<table>
<thead>
<tr>
<th>Name of District</th>
<th>Name of the Projects</th>
<th>CPR Particulars</th>
<th>Total Area (ha)</th>
<th>Area owned/ In possession of</th>
<th>Any other (PL specify)</th>
<th>Area available for treatment (ha)</th>
<th>Any other (PL specify)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pvt. Person</td>
<td>Govt. (specify deptt)</td>
<td>PRI Village community</td>
<td>Pvt. Person Govt. (specify Deptt.)</td>
<td>PRI Village community</td>
</tr>
<tr>
<td>West Khasi Hills</td>
<td>WKH – IWMP VIII</td>
<td>(i) Wasteland/ degraded land</td>
<td>464Ha</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(ii) Pastures</td>
<td>170 Ha</td>
<td>99</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(iii) Orchards/private agriculture</td>
<td>419 Ha</td>
<td>-</td>
<td>-</td>
<td>70</td>
<td>1 (Nongstoin)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(iv) Village woodlot</td>
<td>82 Ha</td>
<td>114</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(v) Forest (degraded)</td>
<td>2 Ha</td>
<td>1 (Nongstoin)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(vi) Village Ponds/ Tanks</td>
<td>114</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(vii) Community Buildings</td>
<td>79 Ha</td>
<td>5 Nos</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(viii) Weekly Markets</td>
<td>79 Ha</td>
<td>5 Nos</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(ix) Permanent Markets</td>
<td>1 (Nongstoin)</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(x) Temples/ Places of worship</td>
<td>7 Ha</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(xi) Others (PL specify)/ Build up</td>
<td>79 Ha</td>
<td>5 Nos</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(xii) Improvement of Existing Paddy Field</td>
<td>457</td>
<td>1000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(xiii) Construction of Terrace</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(xiv) Check Dam cum Washing place</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(xv) C.C. Check dam</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>(xvi) Protection Wall/ Retaining Wall</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>(xvii) Run off Disposal Channel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>1223Ha</td>
<td>-</td>
<td>-</td>
<td>1000</td>
<td>-</td>
</tr>
</tbody>
</table>
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 into 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 - 464.00 Ha

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.

~ 14 ~
CHAPTER III
PROJECT PLANNING & INSTITUTION BUILDING
CHAPTER III
PROJECT PLANNING & INSTITUTION BUILDING

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 used. 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:

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

### 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.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Names of Districts</td>
<td>Names of projects</td>
<td>Details of PIA</td>
</tr>
<tr>
<td>West Khasi Hills</td>
<td>West Khasi Hills – IWMP V</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type of organization#</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Government</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Name of organization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil &amp; Water Conservation Division, Nongstoin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Designation &amp; Address</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Divisional Soil &amp; Water Conservation Officer, Nongstoin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telephone</td>
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<tr>
<td></td>
<td></td>
<td>03654-280236</td>
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<td>Fax</td>
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<td></td>
<td></td>
<td>E-mail</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil &amp; Water <a href="mailto:Conservation_Ngs@Gmail.com">Conservation_Ngs@Gmail.com</a></td>
</tr>
</tbody>
</table>

#### 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):

<table>
<thead>
<tr>
<th>Sl No</th>
<th>States</th>
<th>Districts</th>
<th>Names of the Districts</th>
<th>Names of Watershed Committees</th>
<th>Designation</th>
<th>Name</th>
<th>M/F</th>
<th>SC</th>
<th>ST</th>
<th>SF</th>
<th>MF</th>
<th>LF</th>
<th>Landless</th>
<th>UG</th>
<th>SHG</th>
<th>GP</th>
<th>Any other</th>
<th>Educationa l qualifications</th>
<th>Function/s assigned#</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Meghalaya</td>
<td>West Khasi Hills</td>
<td>WKH-IWMP VIII</td>
<td>Ummawiong Micro Water Shed Committee</td>
<td>President</td>
<td>Shri. Pero Nongsiej</td>
<td>M</td>
<td></td>
<td>√</td>
<td>√</td>
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<tr>
<td>2</td>
<td>Meghalaya</td>
<td></td>
<td></td>
<td></td>
<td>Secretary</td>
<td>Shri. Gasparly Iawphaniaz</td>
<td>M</td>
<td>√</td>
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<tr>
<td>3</td>
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<td></td>
<td></td>
<td>Member</td>
<td>Shri. Micheal K.Dewsaw</td>
<td>M</td>
<td>√</td>
<td>√</td>
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<td>4</td>
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<td></td>
<td>Member</td>
<td>Shri. Tingsdarius Marwein</td>
<td>M</td>
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<td>Shri. Sparlin Thongni</td>
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<td>Shri. Kyrmen Puwein</td>
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<td>Shri. Phuljen Marngar</td>
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<td>Smt. Christina Wamniiang</td>
<td>F</td>
<td>√</td>
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<td></td>
<td>Member</td>
<td>Smt. Spinh Marngar</td>
<td>F</td>
<td>√</td>
<td>√</td>
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<td>Member</td>
<td>Shri. Roselanding Marngar</td>
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<td></td>
<td>Member</td>
<td>Shri. Grosswell Nonglang</td>
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<td>√</td>
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</tr>
</tbody>
</table>

*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 WC's 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).

### 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 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:

<table>
<thead>
<tr>
<th>Name of District</th>
<th>Name of project</th>
<th>Total no. of registered SHGs</th>
<th>No. of members</th>
<th>No. of SC/ST in each category</th>
<th>No. of BPL in each category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Categories</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>West Khasi hills</td>
<td>WKH-IWMP-VIII</td>
<td>6Nos</td>
<td>(i) Landless</td>
<td>6</td>
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<tr>
<td>Districts</td>
<td></td>
<td></td>
<td>(ii) SF</td>
<td>10</td>
<td>16</td>
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<td></td>
<td></td>
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<td>(iii) MF</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(iv) LF</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

*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.

### 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:

<table>
<thead>
<tr>
<th>Name of District</th>
<th>Name of Projects</th>
<th>Total no. of UGs</th>
<th>No. of Members</th>
<th>No. of SC/ ST in each category</th>
<th>No. of BPL in each category</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Khasi hills Districts</td>
<td>WKH-IWMP-VIII</td>
<td>Men</td>
<td>Women</td>
<td>both</td>
<td>Total</td>
</tr>
<tr>
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</tr>
</tbody>
</table>

Total

(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)**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Names of Project</strong></td>
<td><strong>Amount earmarked for EPA</strong></td>
<td><strong>Entry Point Activities planned</strong></td>
<td><strong>Geographical Location</strong></td>
</tr>
<tr>
<td>West Khasi Hills – IWMP-VIII</td>
<td>6.00</td>
<td>Washing Place</td>
<td>91°14’00” to 91°16’15”E Longitude and 25°30’45” to 25°34’30”N Latitude</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check Dam cum Washing Place</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Footbridge</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Drinking Well</td>
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</tr>
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</table>

**ii) Other activities of Preparatory Phase:**

<table>
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<tr>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initiation of village level institution</strong></td>
<td><strong>Capacity building</strong></td>
<td><strong>IEC activities</strong></td>
<td><strong>Baseline survey</strong></td>
<td><strong>Hydro-geological survey</strong></td>
<td><strong>Identifying technical support agencies</strong></td>
<td><strong>Resource agreements</strong></td>
</tr>
<tr>
<td>1 no. W/C And 13 no. of watershed association</td>
<td>3 nos.</td>
<td>8 nos.</td>
<td>Participatory Rural Appraisals</td>
<td>N.A</td>
<td>Done</td>
<td>Done</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GPS Survey</td>
<td></td>
<td></td>
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</table>
### 4.2 Watershed Works Phase:

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

<table>
<thead>
<tr>
<th>Name of Projects</th>
<th>Type of structures</th>
<th>Pre Project</th>
<th>Proposed Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Augmentation/ repair of existing structures</td>
<td>Construction of new structures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
<td>Area to be treated (ha)</td>
</tr>
<tr>
<td>(i) Tank</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(ii) Pond</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(iii) Lake</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(iv) Check Dam</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(v) Percolation Tank</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(vi) Diversion Channel</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(vii) Any others (please specify)</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(viii) Protection wall</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(ix) Water Harvesting structure</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(x) Well</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>West Khasi Hills – IWMP-VII</td>
<td></td>
<td>14 Nos &amp; 8366.20 Rm</td>
<td>76.75</td>
</tr>
</tbody>
</table>

~ 23 ~
### 4.2.2 Activities related to recharging ground water resources in the project areas:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Names of projects</strong></td>
<td><strong>Type of structures</strong></td>
<td><strong>Pre-project</strong></td>
<td><strong>Proposed target</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Area irrigated (ha)</strong></td>
<td><strong>Augmentation/ repair of existing recharging structures</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>Area to be irrigated (ha)</td>
</tr>
<tr>
<td>West Khasi Hills – IWMP-VIII</td>
<td>(i)Open wells</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(ii)Bore wells</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(iii)Any others (Pl. specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 Farm Pond</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 Water Harvesting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total for the project</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Names of projects**
  - West Khasi Hills – IWMP-VIII
- **Type of structures**
  - (i)Open wells
  - (ii)Bore wells
  - (iii)Any others (Pl. specify)
  - 1 Farm Pond
  - 2 Water Harvesting
- **Pre-project**
  - Augmentation/ repair of existing recharging structures
  - Construction of new recharging structures
- **Proposed target**
  - Total target

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Names of projects</td>
<td>Type of structures</td>
<td>Pre-project</td>
<td>Proposed target</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Augmentation/ repair of existing recharging structures</td>
<td>Construction of new recharging structures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total target</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>Area to be irrigated (ha)</td>
</tr>
<tr>
<td>West Khasi Hills – IWMP-VIII</td>
<td>(i)Open wells</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(ii)Bore wells</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(iii)Any others (Pl. specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 Farm Pond</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 Water Harvesting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total for the project</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Estimated costs**
  - Open wells: 0.4614
  - Bore wells: 2.1472
  - Farm Pond: 2.1472
  - Water Harvesting: 2.60912
  - Total: 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:

<table>
<thead>
<tr>
<th>Names of projects</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ridge area treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Land development</td>
<td></td>
<td>Crop demonstrations</td>
<td>Pasture development/Other Arable Land Treatment</td>
<td>Veterinary services</td>
<td>Fishery development</td>
<td>Non-conventional energy</td>
</tr>
<tr>
<td>Drainage line treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursery raising</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>(a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(a)</td>
<td>(b)</td>
<td>(a)</td>
<td>(b)</td>
<td></td>
<td></td>
<td>(a)</td>
</tr>
<tr>
<td>(b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(b)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>West Khasi Hills – IWMP-VIII</th>
<th>215 Ha</th>
<th>13.125 lakh</th>
<th>70 nos &amp; Rs 8366.20 Rm</th>
<th>41.998 lakh</th>
<th>70 ha.</th>
<th>7.52 lakh</th>
<th>150.02 Rm</th>
<th>10.717 lakh</th>
<th>70 nos</th>
<th>145 Ha</th>
<th>10.64 lakh</th>
<th>54 units</th>
<th>9.60 lakhs</th>
<th>10 Units</th>
<th>2.00 lakhs</th>
<th>17.025 Units</th>
<th>1.25 Lakhs</th>
<th>150.00 Lakhs</th>
</tr>
</thead>
</table>

~ 26 ~
4.2.6 Details of engineering structures in watershed works:

<table>
<thead>
<tr>
<th>Project</th>
<th>Name of structures</th>
<th>Type of treatment</th>
<th>Type of land</th>
<th>Target</th>
<th>No. of units (No./cum./rmt)</th>
<th>Estimated cost (Rs. in lakh)</th>
<th>Expected month &amp; year of completion (mm/yyyy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Khasi Hills – IWMP-VII</td>
<td>Peripheral Bunding</td>
<td>L</td>
<td>P</td>
<td>15002 Rm</td>
<td>-</td>
<td>7.501</td>
<td>3 Years</td>
</tr>
<tr>
<td></td>
<td>Loose Boulder Contour Bund</td>
<td>L</td>
<td>P</td>
<td>10 Ha</td>
<td>0.18554</td>
<td>0.2783</td>
<td>0.46384</td>
</tr>
<tr>
<td></td>
<td>CC Check Dam/Dam/HW Dam</td>
<td>D</td>
<td>C</td>
<td>4 Nos</td>
<td>0.76408</td>
<td>1.14612</td>
<td>1.9102</td>
</tr>
<tr>
<td></td>
<td>Protection Wall/R Wall</td>
<td>D</td>
<td>C</td>
<td>81 Nos</td>
<td>18.40096</td>
<td>27.60144</td>
<td>46.0024</td>
</tr>
<tr>
<td></td>
<td>Small Dug Out Pond/Farm Pond</td>
<td>D</td>
<td>P</td>
<td>4 Nos</td>
<td>-</td>
<td>2.14772</td>
<td>2.14772</td>
</tr>
<tr>
<td></td>
<td>Water Harvesting Structure</td>
<td>D</td>
<td>C</td>
<td>9 Nos</td>
<td>5.16622</td>
<td>7.74933</td>
<td>12.91555</td>
</tr>
<tr>
<td></td>
<td>Runoff Disposal Channel/D Drain</td>
<td>D</td>
<td>P</td>
<td>8366.20 Rm</td>
<td>0.87008</td>
<td>1.30513</td>
<td>2.17521</td>
</tr>
<tr>
<td></td>
<td>CC Dam Cum Washing Place</td>
<td>D</td>
<td>C</td>
<td>4 Nos</td>
<td>1.35276</td>
<td>2.02914</td>
<td>3.3819</td>
</tr>
<tr>
<td></td>
<td>Wells</td>
<td>D</td>
<td>C</td>
<td>1 No.</td>
<td>0.18456</td>
<td>0.27684</td>
<td>0.4641</td>
</tr>
<tr>
<td></td>
<td>Peripheral Bunding</td>
<td>L</td>
<td>P</td>
<td>15002 Rm</td>
<td>-</td>
<td>7.501</td>
<td>3 Years</td>
</tr>
</tbody>
</table>

~ 27 ~
### 4.2.7 Details of activities connected with vegetative cover in watershed works:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Project</td>
<td>Name of structure/ work</td>
<td>Type of treatment</td>
<td>Type of land</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(i) Ridge area (R)</td>
<td>(ii) Drainage line (D)</td>
</tr>
<tr>
<td>1</td>
<td>West Khasi Hills – IWMP-VIII</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Afforestation</td>
<td>R</td>
<td>C</td>
<td>145</td>
</tr>
<tr>
<td>3</td>
<td>Improvement of Degraded Forest</td>
<td>R</td>
<td>C</td>
<td>70</td>
</tr>
<tr>
<td>4</td>
<td>Fuel Wood</td>
<td>L</td>
<td>P</td>
<td>115</td>
</tr>
<tr>
<td>5</td>
<td>Agro-Forestry</td>
<td>L</td>
<td>P</td>
<td>30</td>
</tr>
<tr>
<td>6</td>
<td>Agro-Horticulture</td>
<td>L</td>
<td>P</td>
<td>360</td>
</tr>
<tr>
<td>7</td>
<td>Pasture dev.</td>
<td>C</td>
<td></td>
<td>145</td>
</tr>
<tr>
<td>8</td>
<td>Nursery raising</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Others (Coffee)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# 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:

<table>
<thead>
<tr>
<th>Project</th>
<th>Name of activity</th>
<th>Type of land</th>
<th>Estimated cost (Rs. in lakh)</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Khasi Hills – IWMP-VIII</td>
<td>Carpentry/Basketry/Black Smithy/Agri Implement</td>
<td>P</td>
<td>1.85</td>
<td>4 Years 2015-2016</td>
</tr>
<tr>
<td></td>
<td>Kitchen Garden</td>
<td>P</td>
<td>2.175</td>
<td>3 Years</td>
</tr>
<tr>
<td></td>
<td>Vermin composting</td>
<td>P</td>
<td>1.25</td>
<td>3 Years</td>
</tr>
<tr>
<td></td>
<td>Tailoring/knitting</td>
<td>P</td>
<td>4.00</td>
<td>3 Years</td>
</tr>
<tr>
<td></td>
<td>Backyard poultry</td>
<td>P</td>
<td>9.60</td>
<td>3 Years</td>
</tr>
<tr>
<td></td>
<td>Ginger / Turmeric cultivation</td>
<td>P</td>
<td>2.70</td>
<td>3 Years</td>
</tr>
<tr>
<td></td>
<td>Pisciculture</td>
<td>P</td>
<td>2.00</td>
<td>3 Years</td>
</tr>
<tr>
<td></td>
<td>Mushroom Cultivation</td>
<td>P</td>
<td>1.80</td>
<td>3 Years</td>
</tr>
<tr>
<td></td>
<td>Apiculture</td>
<td>P</td>
<td>0.80</td>
<td>3 Years</td>
</tr>
<tr>
<td></td>
<td>Weaving and handloom</td>
<td>P</td>
<td>1.80</td>
<td>3 Years</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total</th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>27.975</td>
</tr>
</tbody>
</table>

# 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:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Names of projects</td>
<td>Name(s) of the villages</td>
<td>CPR particulars</td>
<td>Activity proposed</td>
<td>Target area under the activity (ha)</td>
</tr>
</tbody>
</table>
| West Khasi Hills – IWMP-VIII | 1. Siejlieh  
2. Mawkhlam  
3. Mawtyrong  
4. Mawthoh | Degraded Forest/Wasteland  
Steams  
Steams  
Springs  
Footbridge  
C.C. Dam/Washing Place  
Wells | Improvement of Existing Degraded Forest  
Footbridge  
C.C. Dam/Washing Place  
Wells | 70 Ha | 2.52 | 70 Nos. | 0.126 |
| | | | | 1 No | 0.60 | 400 Nos. | 0.030 |
| | | | | 4 Nos | 3.32855 | 500 Nos. | 0.16643 |
| | | | | 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)

#### Particulars of Budget Component

<table>
<thead>
<tr>
<th>SL N O.</th>
<th>Prescribed Percentage (%)</th>
<th>PIA (%)</th>
<th>Watershed Committee (%)</th>
<th>Year wise Phasing &amp; Breakup of Prescribed Percentage under Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Phy</td>
<td>Fin</td>
<td>Phy</td>
<td>Fin</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Administration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i.</td>
<td>Administrative Cost</td>
<td>10%</td>
<td>37.50</td>
<td>10%</td>
</tr>
<tr>
<td>ii.</td>
<td>Monitoring</td>
<td>1%</td>
<td>3.75</td>
<td>0%</td>
</tr>
<tr>
<td>iii.</td>
<td>Evaluation</td>
<td>1%</td>
<td>3.75</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>12%</td>
<td>45.00</td>
<td>12%</td>
<td>45.00</td>
</tr>
<tr>
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<td>Preparatory Phase</td>
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</tr>
<tr>
<td>i.</td>
<td>Entry Point Activities</td>
<td>4%</td>
<td>15.40</td>
<td>4%</td>
</tr>
<tr>
<td>ii.</td>
<td>Institutional Capacity building</td>
<td>5%</td>
<td>18.75</td>
<td>5%</td>
</tr>
<tr>
<td>iii.</td>
<td>Preparation of DPR</td>
<td>1%</td>
<td>3.75</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>10%</td>
<td>37.50</td>
<td>10%</td>
<td>37.50</td>
</tr>
<tr>
<td>3</td>
<td>Watershed Work phase</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i.</td>
<td>Watershed Works Phase</td>
<td>56%</td>
<td>210.00</td>
<td>56%</td>
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<tr>
<td>ii.</td>
<td>Livelihood Activities</td>
<td>9%</td>
<td>33.75</td>
<td>9%</td>
</tr>
<tr>
<td>iii.</td>
<td>Production system</td>
<td>10%</td>
<td>37.50</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>75%</td>
<td>281.25</td>
<td>75%</td>
<td>281.25</td>
</tr>
<tr>
<td>4</td>
<td>Consolidation</td>
<td>3%</td>
<td>11.25</td>
<td>3%</td>
</tr>
<tr>
<td>Total</td>
<td>3%</td>
<td>11.25</td>
<td>3%</td>
<td>11.25</td>
</tr>
<tr>
<td>TOTAL OF 1 to 4</td>
<td>100%</td>
<td>375.00</td>
<td>25%</td>
<td>93.75</td>
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</table>

#### PROJECT FUNDING:

<table>
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<tr>
<th></th>
<th>CENTRAL SHARE</th>
<th>STATE SHARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>90% (337.50 Lakhs)</td>
<td>10% (37.50 Lakhs)</td>
</tr>
<tr>
<td>B.</td>
<td>TOTAL (A+B) = 100% (375.00 Lakhs)</td>
<td></td>
</tr>
</tbody>
</table>

---

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

Deputy Commissioner, 
West Khasi Hills District, Nongstoin

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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**

**TOTAL GEOGRAPHICAL AREA: 1223 Ha**

**AREA PROPOSED FOR TREATMENT: 1000 Ha**

**TOTAL PROJECT COST : Rs. 150LAKHS**

**NOS. OF VILLAGES : 4Nos**

**Central Share : 135.00**

**State Share : 15.00**

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

<table>
<thead>
<tr>
<th>Activities</th>
<th>TOTAL</th>
<th>1st Year</th>
<th>2nd Year</th>
<th>3rd Year</th>
<th>4th Year</th>
<th>5th Year</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Physical</td>
<td></td>
<td>Fin</td>
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<td>Physical</td>
</tr>
<tr>
<td>I</td>
<td></td>
<td></td>
<td></td>
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Divisional Officer, Cum Project Leader
Project Implementation Agency (IWMP)
Soil & Water Conservation Division, Nongstoin

Deputy Commissioner, West Khasi Hills District, Nongstoin

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**Project** IWMP-VIII

**Total Geographical Area** 2979 Ha.

**Total Project Cost** `375.00 Lakhs

**Total Population** 1715

**District** West Khasi Hills

**Treatable Area** 2500 Ha.

**Central Share** `337.50 Lakhs

**Nos. of Villages** 10 Nos.

**State Share** `37.50 Lakhs

**Total Household** 315

**No. of Micro-Watersheds** 4 No.
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~ 39 ~
<p>| 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 | 280.00 | 170.00 | 0.00 | 15.038 | 0.00 | 0.00 | 0.00 | 0.00 | 13.17 | 0.00 | 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 | 42.1443 | 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 / Renaising 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 | 1962.785 | 1.2672 |
| Sub Total of C (DLT) | 0.00 | 237.00 | 21020.23 | 116.49902 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 20.00 | 677.7450 | 11.8272 | 0.00 | 165.00 | 18379.70 | 81.7403 | 7 | 0.00 | 52.00 | 1962.785 | 22.3224 | 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 | 0.00 | 205.00 | 213.00 | 945.3650 | 28.125 | 803.00 | 783.00 | 33154.96 | 138.75 | 4.00 | 81.00 | 5239.885 | 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 |
| Carpenter / 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 |</p>
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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)

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<th>2\textsuperscript{nd} Year</th>
<th>3\textsuperscript{rd} Year</th>
<th>4\textsuperscript{th} Year</th>
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<td>14%</td>
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**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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Divisional Officer,  
Cum  
Project Leader  
Project Implementation Agency (IWMP)  
Soil & Water Conservation Division,  
Nongstoin

Deputy Commissioner,  
West Khasi Hills District,  
Nongstoin

~ 43 ~
UMMAWIONG MICRO WATERSHED IWMP-VIII
CHART FOR ENTRY POINT ACTIVITIES.

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<th>S.No</th>
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<th>ITEM OF WORK</th>
<th>MEASUREMENT</th>
<th>COST(RS)</th>
<th>LOCATION</th>
<th>REMARKS</th>
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TOTAL = Rs.600000/-
Say Rs.600000/-

Rupees (Six lakhs) only

/SUBMITTED/

**Name of District:** West Khasi Hills  
**Name of C & RD Block:** Nongstoin  
**Nos of villages:** 4nos  
**Project Area:** 1000Ha  
**Physical in Ha:** 145  
**Financial (Rs.in lakhs):**

### ARABLE LAND TREATMENT

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<th>Mawkhlam (FIN)</th>
<th>Mawtynrong (PHY)</th>
<th>Mawthoh (FIN)</th>
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**TOTAL of A**

- 12.934

### NON-ARABLE LAND TREATMENT

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**TOTAL of B**

- 7.104

### DRAINAGE LINE TREATMENT

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<th>particulars</th>
<th>Siejlieh</th>
<th>Mawkhlam</th>
<th>Mawtynrong</th>
<th>Mawthoh</th>
<th>Total</th>
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<td>Protection wall/Retaining wall</td>
<td>27 Nos</td>
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<td>Farm Pond/Small Dug-out pond</td>
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<td>4 Nos</td>
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**TOTAL of C**

- 21.20867

**Total A, B & C**

- 41.24667

~ 45 ~
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<th>SL No</th>
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<td>FIN</td>
<td>PHYS</td>
<td>FIN</td>
<td>PHYS</td>
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<tr>
<td>D</td>
<td>Carpentry @RS.5000/Unit</td>
<td>19 Ha</td>
<td>0.95</td>
<td>12 Ha</td>
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<td>Pisciculture @RS.10000/Unit</td>
<td>2 Ha</td>
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<td>2</td>
<td>Tailoring/Knitting @RS.8000/Unit</td>
<td>26 Ha</td>
<td>2.08</td>
<td>17 Ha</td>
<td>1.36</td>
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<td>3</td>
<td>Apiculters @RS.8000/Unit</td>
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<td>0.32</td>
<td>3 Ha</td>
<td>0.24</td>
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<td>4</td>
<td>Piggery/Poultry @RS.8000/Unit</td>
<td>16 Ha</td>
<td>1.28</td>
<td>10 Ha</td>
<td>0.8</td>
<td>3 Ha</td>
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<td>Vermi Compost @RS.12500/Unit</td>
<td>4 Ha</td>
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<td>3 Ha</td>
<td>0.375</td>
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<td>6</td>
<td>Kitchen Garden @RS.2500/Uni</td>
<td>49 Ha</td>
<td>1.225</td>
<td>30 Ha</td>
<td>0.75</td>
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<td>7</td>
<td>Hollow Block Making @5000</td>
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<td>0.30</td>
<td>4 Ha</td>
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<tr>
<td>E</td>
<td>GRAvity Shop @RS.30000/Unit</td>
<td>3 Ha</td>
<td>0.90</td>
<td>2 Ha</td>
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<td>1</td>
<td>Mud Block making @RS.30000/Unit</td>
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<td>0.60</td>
<td>2 Ha</td>
<td>0.6</td>
<td>1 Ha</td>
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<td>2</td>
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<td>0.60</td>
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<td>0.3</td>
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<td>3</td>
<td>Piggery/Poultry @RS.30000/Unit</td>
<td>13 Ha</td>
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<td>2.4</td>
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<td>4</td>
<td>Vegetative cultivation @RS.15000/Unit</td>
<td>9 Ha</td>
<td>1.35</td>
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<td>TOTAL of (E)</td>
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<td>Grand Total of A,B,C,D, &amp; E</td>
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## Detail of types of areas covered under the IWMP Programme:

<table>
<thead>
<tr>
<th>Sl no</th>
<th>Name of state</th>
<th>Name of Districts</th>
<th>Names of Projects</th>
<th>Year of Sanction</th>
<th>Area of the Projects</th>
<th>Names of Micro watersheds &amp; Code Nos.( As per DoI’s unique Codification)</th>
<th>Area (Ha) of the Projects</th>
<th>Area details (ha) (falling within the Projects)</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Meghalaya</td>
<td>West Khasi Hills</td>
<td>West Khasi Hills – IWMP VIII</td>
<td>2011-2012, 2011-2012, 2015-2016</td>
<td>1000 Ha, 150.00 Lakhs</td>
<td>Umawiong Micro Watershed 3C1B2b3d, 3C1B2b2g, 3C1B2b4b</td>
<td>170Ha, -</td>
<td>464Ha, -, 170Ha, 111Ha, 168Ha, 310, 1223</td>
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</table>

**Legend:**
- **a)** Temporary fallow
- **b)** Permanent
### Fund provision for the IWMP projects from all sources:

<table>
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<tr>
<th>District</th>
<th>Name of projects</th>
<th>IWMP Fund</th>
<th>Convergence funds</th>
<th>PPP</th>
<th>Community</th>
<th>Institutional finance</th>
<th>Others (Pl. specify)</th>
<th>Total</th>
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</thead>
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<td>WKH – IWMP VIII</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Central share</td>
<td>State share</td>
<td>Name of scheme</td>
<td>Amount</td>
<td>Name of Private sector</td>
<td>Financial contribution</td>
<td>Name</td>
</tr>
<tr>
<td></td>
<td></td>
<td>135.00</td>
<td>15.00</td>
<td>MGNREGS</td>
<td>9.46401</td>
<td>nil</td>
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</table>

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

<table>
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<tr>
<th>Sl No.</th>
<th>Names of States</th>
<th>Name of Districts</th>
<th>Name of Projects</th>
<th>Name of the Bank and Branch Where Project account has been opened</th>
<th>Account No. (to be obtained confidentially)</th>
<th>Account type</th>
<th>Name &amp; Designation of authorized Persons who operate the Account</th>
<th>Name of Watershed committee</th>
<th>Name of the Bank and Branch Where project account has been opened</th>
<th>Account number (to be obtained confidentially)</th>
<th>Account type</th>
<th>Name &amp; Designation of authorized persons who operate the account</th>
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</thead>
</table>
### Details of convergence of IWMP with other Schemes:

<table>
<thead>
<tr>
<th>District</th>
<th>Name of Projects</th>
<th>Name of Department with scheme converging with IWMP</th>
<th>Fund made available to IWMP due to convergence (Rs. In lakh)</th>
<th>Name of activity / task/ structure undertaken with converged funds</th>
<th>Reference no.of activity / task/ structure in DPR @</th>
<th>Level at which decision for convergence was taken</th>
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<tbody>
<tr>
<td>West Khasi Hills</td>
<td>W.K.H- IWMP VIII</td>
<td>C&amp;RD Deptt. (MGNREGS)</td>
<td>6.30934</td>
<td>CC Dam cum Washing Place</td>
<td></td>
<td>District Level &amp; Block Level</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td>Run off Disposal Channel/ Diversion Drain</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Foot Bridge</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Small Dug Out Pond/ Farm Pond</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Afforestation</td>
<td></td>
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</table>
OFFICE OF THE
DISTRICT RURAL DEVELOPMENT AGENCY
WEST KHASI HILLS DISTRICT
NONGSTOIN

No.DRDA/NG-83/Con/NREGA/09/ 84

Dated Nongstoin the 15th April, 2011

CERTIFICATE OF APPROVAL

In pursuance to the Provision of Convergence/Detailing 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)/Gen(2010-11)/81-83 dt 8th April, 2011.

<table>
<thead>
<tr>
<th>Block</th>
<th>Name of Project</th>
<th>Unit of Measurement</th>
<th>Name of Village</th>
<th>Fin. Year</th>
<th>Wages MGNREGA (60%)</th>
<th>Materials Soil &amp; WC Deptt (40%)</th>
<th>Total (100%)</th>
<th>Phy. Target</th>
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</thead>
<tbody>
<tr>
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<td>Afforestation</td>
<td>ha</td>
<td>1. Pungphreit</td>
<td>2011-12</td>
<td>4.968</td>
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<td>8.28</td>
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<td>4. Thilpikseh</td>
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<td>5. Shillangklikhe</td>
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<td>6. Mawliang</td>
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<td></td>
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</tr>
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<td></td>
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<td>7. Maw Kohiag</td>
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<td>20.907</td>
<td>13.938</td>
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<td>0.68076</td>
<td>1.7019</td>
<td>1no</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td>2012-13</td>
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<td>cum</td>
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<td>0.39432</td>
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<td>2013-14</td>
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<td>Diversion Dam</td>
<td>cum</td>
<td>1. Pungphreit (Pungphreit)</td>
<td>2011-12</td>
<td>0.94104</td>
<td>0.62736</td>
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<td>2012-13</td>
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<td>3. Maw Kohiag (Mawrok, Nongnah)</td>
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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.

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<th>SI No.</th>
<th>Name of Villages</th>
<th>No of Items</th>
<th>Name of Works</th>
<th>Year of Project</th>
<th>IWMP 40%</th>
<th>MGNREGA 60%</th>
<th>Phy Target</th>
<th>Amount</th>
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<tbody>
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<td>Construction of Diversion Dam</td>
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<td>41844</td>
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<td>3rd 2013-14</td>
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<td>Construction of Farm Pond / Water Harvesting Structure</td>
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<td>3rd 2013-14</td>
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<td>Siejlieh</td>
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<td>Construction of Check Dam Cum Washing Place</td>
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<td>11577335</td>
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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 stakeholders 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:

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>State</th>
<th>Name of the Training Institute</th>
<th>Full address with contact no, website &amp; email</th>
<th>Name &amp; Designation of the head of the Institute</th>
<th>Type of Institute</th>
<th>Area (s) of specialization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Meghalaya</td>
<td>NIRD (NER)</td>
<td>Guwahati</td>
<td>Director</td>
<td>Central Govt. (Training)</td>
<td>Remote Sensing, Rural Development, Capacity &amp; Building</td>
</tr>
<tr>
<td></td>
<td>Meghalaya</td>
<td>SIRD</td>
<td>Nongsdar</td>
<td>Director</td>
<td>State Govt. (Training)</td>
<td>Capacity Building &amp; Training</td>
</tr>
<tr>
<td></td>
<td>Meghalaya</td>
<td>RRTC</td>
<td>Umran</td>
<td>Director</td>
<td>Don Bosco (Production &amp; Training)</td>
<td>Agri-Horti, Animal Husbandry, Entrepreneurship</td>
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<td></td>
<td>Meghalaya</td>
<td>ICAR</td>
<td>Umiam</td>
<td>Director</td>
<td>Central Govt. (Research &amp; Development)</td>
<td>Agri-Horti, Animal Husbandry, Entrepreneurship, Integrated Farming</td>
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<td></td>
<td>Meghalaya</td>
<td>VTC</td>
<td>Kyrdem Kulai</td>
<td>Director</td>
<td>State Govt. (Production, Training &amp; Research)</td>
<td>Animal Husbandry</td>
</tr>
<tr>
<td></td>
<td>Meghalaya</td>
<td>Fruit Garden</td>
<td>Shillong</td>
<td>Director</td>
<td>State Govt. (Training &amp; Research)</td>
<td>Agri-Horti, Fruit Processing</td>
</tr>
</tbody>
</table>

* 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.
  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)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Project</td>
<td>Type of Training/ Capacity Building</td>
<td>Agency/Institution to provide training</td>
<td>No. of Trainings targeted during each financial year</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1st Year</td>
</tr>
<tr>
<td>1</td>
<td>PIAs</td>
<td>Capacity Building</td>
<td>NIRD, SIRD</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>WDTs</td>
<td>Capacity Building</td>
<td>RRTC, ICAR</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>UGs</td>
<td>Capacity Building</td>
<td>RRTC, ICAR</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>SHGs</td>
<td>Capacity Building</td>
<td>Phrang Jingshai Society, Siejlieh Social Service Society, Nongstoin VTC, Kyrdemkulai</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>WCs</td>
<td>Capacity Building</td>
<td>RRTC, ICAR</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>GPs</td>
<td></td>
<td>NIRD, SIRD</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Community</td>
<td>Awareness Programmes, Capacity Building and Exposure visits</td>
<td>RRTC, VTC, ICAR</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Others</td>
<td>Pl. specify)</td>
<td>Old Watershed IWDP for Exposure Visit</td>
<td>-</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Activity</th>
<th>Executing agency</th>
<th>Estimated expenditure (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Awareness</td>
<td>S&amp;WC (T) Division, Nongstoin</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>PRA Exercises</td>
<td>S&amp;WC (T) Division</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Exposure Visits</td>
<td>S&amp;WC (T) Division</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Capacity Building</td>
<td>S&amp;WC (T) Division</td>
<td>12.00</td>
</tr>
<tr>
<td>5</td>
<td>Preparation of Pamphlets, Booklet &amp; Banner &amp; Posters</td>
<td>S&amp;WC (T) Division</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER VII
EXPECTED OUTCOME
## CHAPTER VII
### EXPECTED OUTCOME

### Table 7.1 Employment related outcomes:

<table>
<thead>
<tr>
<th>SI No</th>
<th>Name of Village</th>
<th>Wage employment</th>
<th>Self employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of mandays</td>
<td>No. of beneficiaries</td>
<td>No. of beneficiaries</td>
</tr>
<tr>
<td></td>
<td>SC  ST Others</td>
<td>SC  ST Others</td>
<td>SC  ST Others</td>
</tr>
<tr>
<td>1.</td>
<td>Siejlieh</td>
<td>32400</td>
<td>16200</td>
</tr>
<tr>
<td>2.</td>
<td>Mawkhlan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Mawtyrnong</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Mawthoh</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 7.2 Migration Details:

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

*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.

~ 57 ~
Table 7.3.1 Status of Drinking Water:

<table>
<thead>
<tr>
<th>District</th>
<th>Name of Project</th>
<th>Availability of Drinking water (no. of month in a year)</th>
<th>Quality of Drinking water</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pre-project</td>
<td>Post-project</td>
<td>Change in availability</td>
</tr>
<tr>
<td>West Khasi Hills</td>
<td>WKH-IWMP VIII</td>
<td>10 months</td>
<td>12 months</td>
<td>10 – 12 months</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Names of the District</th>
<th>Name of Project</th>
<th>Name of Crops</th>
<th>Pre-Project</th>
<th>Mid-Term</th>
<th>Post-Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Area (ha)</td>
<td>Average yield (Qt/l)/ha</td>
<td>Total production (Qt/l)</td>
<td>Area (ha)</td>
</tr>
<tr>
<td>West Khasi Hills</td>
<td>WKH-IWMP VIII</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Irr</td>
<td>Ri</td>
<td>Irr</td>
<td>Ri</td>
</tr>
<tr>
<td>Paddy</td>
<td>250</td>
<td>18</td>
<td>4300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maize</td>
<td>145</td>
<td>11</td>
<td>1595</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ginger</td>
<td>40</td>
<td>80</td>
<td>3200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potato</td>
<td>140</td>
<td>90</td>
<td>12600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweet Potato</td>
<td>70</td>
<td>37</td>
<td>2590</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* 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 :
- Irr – Irrigated, Ri- Rainfed.
Table 7.4.2 Details of Rabi crop area and yield in the project areas:

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Names of States</th>
<th>Names of the District</th>
<th>Name of Project</th>
<th>Name of Crops</th>
<th>Pre-Project</th>
<th>Mid-Term</th>
<th>Post-Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Area (ha)</td>
<td>Average yield (Qtl) /ha</td>
<td>Total production (Qtl)</td>
</tr>
<tr>
<td>1.</td>
<td>Meghalaya</td>
<td>West Khasi Hills</td>
<td>WKH – IWMP VIII</td>
<td></td>
<td></td>
<td>Irri</td>
<td>Rf</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Names of States</th>
<th>Names of the District</th>
<th>Name of Project</th>
<th>Name of Crops</th>
<th>Pre-Project</th>
<th>Mid-Term</th>
<th>Post-Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Area (ha)</td>
<td>Average yield (Qtl) /ha</td>
<td>Total production (Qtl)</td>
</tr>
<tr>
<td>1.</td>
<td>Meghalaya</td>
<td>West Khasi Hills</td>
<td>WKH – IWMP VIII</td>
<td></td>
<td></td>
<td>Irri</td>
<td>Rf</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N</td>
<td>A</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>District</th>
<th>Name of Project</th>
<th>Duration of Project</th>
<th>Existing area under fodder (ha)</th>
<th>Achievement (ha)</th>
<th>Source/ Name of report</th>
<th>Year of reference</th>
<th>Area already under fodder</th>
<th>Area under fodder proposed to be covered through IWMP</th>
<th>Area under fodder actually covered through IWMP</th>
<th>Change in area under fodder</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Khasi Hills</td>
<td>WKH – IWMP VIII</td>
<td>5 Years</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>2006</td>
<td>111.00Ha</td>
<td>260.00 Ha</td>
<td>Yet to be covered</td>
<td></td>
</tr>
</tbody>
</table>

*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:

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

*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:

<table>
<thead>
<tr>
<th>District</th>
<th>Name of Project</th>
<th>Duration of Project</th>
<th>Existing area under horticulture (ha)</th>
<th>Achievement (ha)</th>
<th>Source/ Name of report</th>
<th>Year of reference</th>
<th>Area already under horticulture</th>
<th>Area under horticulture proposed to be covered through IWMP</th>
<th>Area under horticulture actually covered through IWMP</th>
<th>Change in area under horticulture</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Khasi Hills</td>
<td>WKH – IWMP VIII</td>
<td>5 Years</td>
<td>30 Ha</td>
<td>Yet to be covered</td>
<td>30 Ha</td>
<td>30 Ha</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*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.

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### Table 7.4 Increase/ Decrease in area under fuel-wood:

<table>
<thead>
<tr>
<th>District</th>
<th>Name of Project</th>
<th>Duration of Project</th>
<th>Existing area under fuel-wood (ha)</th>
<th>Achievement (ha)</th>
<th>Source/ Name of report</th>
<th>Year of reference</th>
<th>Area already under fuel-wood</th>
<th>Area under fuel-wood proposed to be covered through IWMP</th>
<th>Area under fuel-wood actually covered through IWMP</th>
<th>Change in area under fuel-wood</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Khasi Hills</td>
<td>WKH – IWMP VIII</td>
<td>5 Years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>115 Ha</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*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.): |

<table>
<thead>
<tr>
<th>Name of the District</th>
<th>Name of the Project</th>
<th>Type of Animal</th>
<th>Pre-Project</th>
<th>Mid-term</th>
<th>Post-project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>No. Yield</td>
<td>Income</td>
<td>No. Yield</td>
</tr>
<tr>
<td>West Khasi Hills</td>
<td>WKH – IWMP VIII</td>
<td>Cattles</td>
<td>182</td>
<td>2.930</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Goats</td>
<td>38</td>
<td>1.169</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Piggery</td>
<td>202</td>
<td>1.518</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poultry</td>
<td>1128</td>
<td>2.873</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total for all projects</td>
<td>1550</td>
<td>11.363</td>
<td></td>
</tr>
</tbody>
</table>

*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>
<thead>
<tr>
<th>District</th>
<th>Name of project</th>
<th>Name of WC</th>
<th>Name of structure/activity</th>
<th>Estimated cost (Rs.)</th>
<th>Expected quantifiable benefits (Rs.)</th>
<th>Expenditure incurred (Rs.)</th>
<th>Actual quantifiable benefit (Rs.)</th>
<th>Benefit Cost ratio *</th>
<th>IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Khasi Hills</td>
<td>WKH – IWMP VIII</td>
<td>Ummawiong Micro Water Committee</td>
<td>As per Action Plan</td>
<td>150.00 Lakhs</td>
<td>2920.738 Lakhs</td>
<td>150.00 Lakhs</td>
<td>1111.268 Lakhs</td>
<td>1.34:1</td>
<td></td>
</tr>
</tbody>
</table>

*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 Umawiong Micro Micro Watershed Under IWMP – West Khasi Hills Project - VIII

<table>
<thead>
<tr>
<th>YEAR</th>
<th>TOTAL PROJECT COST (A)</th>
<th>INPUT/RUNNING COSTS TO BE BORNE BY FARMERS (B)</th>
<th>TOTAL COSTS (A+B)</th>
<th>TOTAL BENEFITS</th>
<th>DISCOUNT FACTOR (15%)</th>
<th>DISCOUNTED COSTS</th>
<th>DISCOUNTED BENEFITS</th>
<th>INTERNAL RATE OF RETURN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8.00</td>
<td>0</td>
<td>8.00</td>
<td>0</td>
<td>0.870</td>
<td>6.960</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>21.00</td>
<td>71.840</td>
<td>92.840</td>
<td>101.428</td>
<td>0.756</td>
<td>70/187</td>
<td>76.679</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>75.00</td>
<td>127.708</td>
<td>202.708</td>
<td>182.455</td>
<td>0.658</td>
<td>133.382</td>
<td>120.055</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>40.50</td>
<td>187.344</td>
<td>227.844</td>
<td>287.608</td>
<td>0.372</td>
<td>130.327</td>
<td>164.512</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4.50</td>
<td>188.334</td>
<td>192.834</td>
<td>287.608</td>
<td>0.497</td>
<td>95.833</td>
<td>142.941</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>188.934</td>
<td>188.934</td>
<td>377.868</td>
<td>289.143</td>
<td>0.432</td>
<td>81.619</td>
<td>124.909</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>188.934</td>
<td>188.934</td>
<td>397.868</td>
<td>290.296</td>
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<td>188.934</td>
<td>392.216</td>
<td>292.216</td>
<td>0.327</td>
<td>61.781</td>
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<td>188.934</td>
<td>396.565</td>
<td>296.056</td>
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<td>188.934</td>
<td>397.976</td>
<td>297.976</td>
<td>0.247</td>
<td>46.667</td>
<td>73.600</td>
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<td>11</td>
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<td>188.934</td>
<td>397.976</td>
<td>297.976</td>
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<td>12</td>
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<td>188.934</td>
<td>397.976</td>
<td>297.976</td>
<td>0.187</td>
<td>35.331</td>
<td>55.722</td>
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| TOTAL | 375.00               | 2046.764                                      | 2920.673          | 827.409        | 1111.268             |

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

\[ \frac{1111.268}{827.409} = 1.34 \]

**B.C. Ratio** = 1.34: 1
ANNEXURE I
MAP
Soil
Ummawiong Watershed

Legend
- Depth, Texture, Erosion
- Deep, Medium, Moderate

Area: 1223 Ha.
Landuse Lancover
Ummawlong Watershed

Legend

<table>
<thead>
<tr>
<th>Landuse</th>
<th>Area</th>
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<tr>
<td>Agriculture</td>
<td>170 Ha</td>
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<tr>
<td>Builtup Rural</td>
<td>79 Ha</td>
</tr>
<tr>
<td>Builtup Residential</td>
<td>89 Ha</td>
</tr>
<tr>
<td>Tree Clad Close</td>
<td>111 Ha</td>
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<tr>
<td>Tree Clad Open</td>
<td>310 Ha</td>
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<tr>
<td>Wasteland</td>
<td>454 Ha</td>
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</table>

Area: 1223 Ha
ANNEXURE II

SOCIO-ECONOMIC SURVEY REPORT
ABSTRACT OF STATEMENT SHOWING SOCIO-ECONOMIC SURVEY

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

<table>
<thead>
<tr>
<th>S. No</th>
<th>Name of Villages</th>
<th>No of House hold</th>
<th>Nos of Population</th>
<th>Total of child below 12 yrs both male &amp; female</th>
<th>Occupation</th>
<th>literacy</th>
<th>Land holding in Ha/Perso n</th>
<th>Total</th>
<th>Name of Crops grown</th>
<th>Averages yield of each crop grown</th>
<th>Livestock in Nos</th>
<th>Total income of each family anum</th>
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<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
<td></td>
<td>Literate</td>
<td>Arable</td>
<td>Non-arable</td>
<td>Name of</td>
<td>of each crop</td>
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<td>goat</td>
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<td>329</td>
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<td>1016</td>
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<td>808</td>
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<td>120</td>
<td>240</td>
<td>110</td>
<td>162</td>
<td>78</td>
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<td>209</td>
<td>634</td>
<td>718</td>
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<td>313</td>
<td>909</td>
<td>443</td>
<td>225</td>
<td>151</td>
<td>376</td>
<td>Paddy, Maize, potato, vegetable,</td>
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<td>4</td>
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<td>75</td>
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<td>83</td>
<td>61</td>
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<td>110</td>
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<td>Paddy, Maize, potato, vegetable,</td>
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<td>1929</td>
<td>3813</td>
<td>1314</td>
<td>2509</td>
<td>1304</td>
<td>780</td>
<td>443</td>
<td>1223</td>
<td></td>
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</tbody>
</table>

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ANNEXURE III

ESTIMATE COST
ANNEXURE 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.

\[
\begin{align*}
6.00 \times 0.70 \times 0.90 & = 3.78 \text{ m}^3 \\
2 \times 2.00 \times 0.80 \times 0.90 & = 2.88 \text{ m}^3 \\
2 \times 3.00 \times 2.00 \times 0.40 & = 4.80 \text{ m}^3 \\
1.00 \times 1.15 \times 0.30 & = 0.35 \text{ m}^3 \\
2 \times 3.00 \times 0.80 \times 0.90 & = 4.32 \text{ m}^3 \\
& = 16.13 \text{ m}^3 \\
\end{align*}
\]

\@ ` .194.00/- m\(^3\) ........................................................................ ` .3129.22

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

\[
\begin{align*}
6.00 \times 0.70 \times 0.10 & = 0.42 \text{ m}^3 \\
2 \times 2.00 \times 0.80 \times 0.10 & = 0.32 \text{ m}^3 \\
3.00 \times 1.00 \times 0.15 & = 0.45 \text{ m}^3 \\
2 \times 3.00 \times 0.80 \times 0.10 & = 0.48 \text{ m}^3 \\
1.00 \times 1.15 \times 0.15 & = 0.17 \text{ m}^3 \\
& = 1.84 \text{ m}^3 \\
\end{align*}
\]

\@ ` .559.00/- m\(^3\) ........................................................................ ` .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.

\[
\begin{align*}
6.00 \times 0.70 \times 0.10 & = 0.42 \text{ m}^3 \\
2 \times 2.00 \times 0.70 \times 0.10 & = 0.28 \text{ m}^3 \\
2 \times 3.00 \times 0.70 \times 0.10 & = 0.42 \text{ m}^3 \\
& = 1.12 \text{ m}^3 \\
\end{align*}
\]

\@ ` .2823.00/- m\(^3\) ........................................................................ ` .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.

\[
\begin{align*}
6.00 \times 0.70 \times 0.70 & = 2.94 \text{ m}^3 \\
6.00 \times 0.70 + 0.50 \times 1.20 \times \frac{1}{2} & = 4.32 \text{ m}^3 \\
2 \times 5.00 \times 0.40 \times 0.30 & = 1.20 \text{ m}^3 \\
3.00 \times 1.00 \times 0.15 & = 0.45 \text{ m}^3 \\
1.00 \times 1.15 \times 0.30 & = 0.35 \text{ m}^3 \\
& = 9.26 \text{ m}^3 \\
\end{align*}
\]

\@ ` .3216.00/- m\(^3\) ........................................................................ ` .29780.16

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

~ 74 ~
carriage of stone within 200m complete as directed.

\[
\begin{align*}
2 \times 2.00 \times 0.80 \times 0.70 &= 2.24 \text{ m}^3 \\
2 \times 2.00 \times \frac{0.80 + 0.50}{2} \times 1.50 &= 3.90 \text{ m}^3 \\
2 \times 3.00 \times 0.80 \times 0.70 &= 3.36 \text{ m}^3 \\
2 \times 3.00 \times \frac{0.80 + 0.50}{2} \times 1.50 &= 5.85 \text{ m}^3 \\
2 \times 3.00 \times 2.00 \times 1.05 &= 12.60 \text{ m}^3 \\
&= 27.95 \text{ m}^3
\end{align*}
\]

\@ 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.

\[
\begin{align*}
6.00 \times 1.50 \times 2 \text{ sides} &= 18.00 \text{ m}^2 \\
1.00 \times 1.15 \times 2 \text{ sides} &= 2.30 \text{ m}^2 \\
&= 20.30 \text{ m}^2
\end{align*}
\]

\@ 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.

\[
\begin{align*}
6.00 \times 1.50 \times 2 \text{ sides} &= 18.00 \text{ m}^2 \\
6.00 \times 0.50 \times 1 \text{ sides} &= 3.00 \text{ m}^2 \\
2 \times 3.00 \times 1.45 &= 8.70 \text{ m}^2 \\
2 \times 3.00 \times 2.00 &= 12.00 \text{ m}^2 \\
&= 41.70 \text{ m}^2
\end{align*}
\]

\@ 121.00/- m\(^2\) .................................................. 5045.70

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.

\[
\begin{align*}
3.00 \times 0.70 \times 0.90 &= 2.00 \text{ m}^3 \\
2 \times 2.00 \times 0.80 \times 0.90 &= 2.88 \text{ m}^3 \\
2 \times 3.00 \times 2.00 \times 0.40 &= 4.80 \text{ m}^3 \\
1.00 \times 1.15 \times 0.30 &= 0.35 \text{ m}^3 \\
2 \times 3.00 \times 0.80 \times 0.90 &= 4.32 \text{ m}^3 \\
&= 14.00 \text{ m}^3 \\
\end{align*}
\]

@ `. 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.

\[
\begin{align*}
3.00 \times 0.70 \times 0.10 &= 0.21 \text{ m}^3 \\
2 \times 2.00 \times 0.80 \times 0.10 &= 0.32 \text{ m}^3 \\
3.00 \times 1.00 \times 0.15 &= 0.45 \text{ m}^3 \\
2 \times 3.00 \times 0.80 \times 0.10 &= 0.48 \text{ m}^3 \\
1.00 \times 1.15 \times 0.15 &= 0.17 \text{ m}^3 \\
&= 1.63 \text{ m}^3 \\
\end{align*}
\]

@ `. 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.

\[
\begin{align*}
3.00 \times 0.70 \times 0.10 &= 0.21 \text{ m}^3 \\
2 \times 2.00 \times 0.70 \times 0.10 &= 0.28 \text{ m}^3 \\
2 \times 3.00 \times 0.70 \times 0.10 &= 0.42 \text{ m}^3 \\
&= 0.91 \text{ m}^3 \\
\end{align*}
\]

@ `. 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.

\[
\begin{align*}
3.00 \times 0.70 \times 0.70 &= 1.47 \text{ m}^3 \\
3.00 \times 0.70 + 0.50 \times 1.20 &= 2.16 \text{ m}^3 \\
\frac{2}{2} \times 5.00 \times 0.40 \times 0.30 &= 1.20 \text{ m}^3 \\
3.00 \times 1.00 \times 0.15 &= 0.45 \text{ m}^3 \\
\end{align*}
\]
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.

\[
\begin{align*}
2 \times 2.00 \times 0.80 \times 0.70 &= 2.24 \text{ m}^3 \\
2 \times 2.00 \times 0.80 + 0.50 \times 1.50 &= 3.90 \text{ m}^3 \\
2 \times 3.00 \times 0.80 \times 0.70 &= 3.36 \text{ m}^3 \\
2 \times 3.00 \times 0.80 + 0.50 \times 1.50 &= 5.85 \text{ m}^3 \\
2 \times 3.00 \times 2.00 \times 1.05 &= 12.60 \text{ m}^3 \\
&= 27.95 \text{ m}^3 \\
\end{align*}
\]

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

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.

\[
\begin{align*}
3.00 \times 1.50 \times 2 & \text{ sides} &= 9.00 \text{ m}^2 \\
1.00 \times 1.15 \times 2 & \text{ sides} &= 2.30 \text{ m}^2 \\
&= 11.30 \text{ m}^2 \\
\end{align*}
\]

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

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.

\[
\begin{align*}
3.00 \times 1.50 \times 2 & \text{ sides} &= 9.00 \text{ m}^2 \\
3.00 \times 0.50 \times 1 & \text{ sides} &= 1.50 \text{ m}^2 \\
2 \times 3.00 \times 1.45 &= 8.70 \text{ m}^2 \\
2 \times 3.00 \times 2.00 &= 12.00 \text{ m}^2 \\
&= 31.20 \text{ m}^2 \\
\end{align*}
\]

\[
\text{@ `$ 121.00/- \text{ m}^2$ .................................................. `$ 3775.20}
\]

\[
\text{TOTA` $71271.83$
\]

\[
\text{SAY, $71270.00}
\]

(Rupees Seventy One Thousand Two Hundred Seventy) only

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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.

\[
\begin{align*}
7.00 \times 0.70 \times 0.90 &= 4.41 \text{ m}^3 \\
1.00 \times 1.15 \times 0.30 &= 0.35 \text{ m}^3 \\
&= 4.76 \text{ m}^3
\end{align*}
\]

\@ `. 194.00/-m\(^3\)…………………………………………… ` . 923.44

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

\[
\begin{align*}
2 \times 2.000 \times 0.80 \times 0.90 &= 2.88 \text{ m}^3 \\
2 \times 3.00 \times 0.80 \times 0.90 &= 4.32 \text{ m}^3 \\
2 \times 3.00 \times 2.00 \times 0.40 &= 4.80 \text{ m}^3 \\
&= 12.00 \text{ m}^3
\end{align*}
\]

\@ `. 78.00/m\(^3\)……………………………………………. ` . 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.

\[
\begin{align*}
7.00 \times 0.70 \times 0.10 &= 0.49 \text{ m}^3 \\
2 \times 2.00 \times 0.80 \times 0.10 &= 0.32 \text{ m}^3 \\
3.00 \times 1.00 \times 0.15 &= 0.45 \text{ m}^3 \\
2 \times 3.00 \times 0.80 \times 0.10 &= 0.48 \text{ m}^3 \\
1 \times 1.00 \times 0.15 \times 1.15 &= 0.17 \text{ m}^3 \\
&= 1.91 \text{ m}^3
\end{align*}
\]

\@ `. 576.00/-m\(^3\)……………………………………………. ` . 1100.16

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

\[
\begin{align*}
7.00 \times 0.70 \times 0.10 &= 0.49 \text{ m}^3 \\
2 \times 2.00 \times 0.70 \times 0.10 &= 0.28 \text{ m}^3 \\
2 \times 3.00 \times 0.70 \times 0.10 &= 0.42 \text{ m}^3 \\
&= 1.19 \text{ m}^3
\end{align*}
\]

\@ `. 2823.00 / m\(^3\) ………………………………………… ` . 3359.37

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

\[
\begin{align*}
7.00 \times 0.70 \times 0.70 &= 3.43 \text{ m}^3 \\
7.00 \times 0.70 + 0.40 \times 1.20 &= 4.62 \text{ m}^3 \\
2 \\
2 \times 5.00 \times 0.40 \times 0.30 &= 1.20 \text{ m}^3 \\
3.00 \times 1.00 \times 0.15 &= 0.45 \text{ m}^3 \\
1.00 \times 1.15 \times 0.30 &= 0.35 \text{ m}^3 \\
&= 10.05 \text{ m}^3
\end{align*}
\]

\@ `. 3216.00/-m\(^3\)……………………………………………. ` . 32320.80
Providing regular stone masonry work in and wing wall with hammer dressed or blunt chisel dressed stones in cement mortar 1:6 etc complete.

\[
\begin{align*}
2 \times 2.00 \times 0.70 \times 0.70 &= 1.96 \text{ m}^3 \\
2 \times 2.00 \times 0.70 + 0.50 \times 1.50 &= 3.90 \text{m}^3 \\
2 \times 3.00 \times 0.80 \times 0.70 &= 3.36 \text{m}^3 \\
2 \times 3.00 \times 0.50 + 0.80 \times 1.50 &= 5.85 \text{m}^3 \\
2 \times 3.00 \times 2.00 \times 1.05 &= 12.60 \text{m}^3 \\
&= 27.67 \text{m}^3
\end{align*}
\]

@ `.1479.00/-m$^3$………………………………………………………….. ` 40923.93

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.

\[
\begin{align*}
2 \times 7.00 \times 1.50 &= 21.00 \text{ m}^2 \\
2 \times 1.00 \times 1.15 &= 2.30 \text{m}^2 \\
&= 23.30 \text{m}^2
\end{align*}
\]

@ `.308.00/-m$^2$………………………………………………………….. ` 7176.40

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

\[
\begin{align*}
2 \times 7.00 \times 1.50 &= 21.00 \text{ m}^2 \\
1 \times 7.00 \times 0.50 &= 3.50 \text{ m}^2 \\
2 \times 3.00 \times 1.45 &= 8.70 \text{m}^2 \\
2 \times 3.00 \times 2.00 &= 12.00 \text{m}^2 \\
&= 45.20 \text{m}^2
\end{align*}
\]

@ `.121.00/-m$^2$………………………………………………………….. ` 5469.20

Cutting drain including dressing etc. complete

Length of drain = 10.00 m

@ `.49.000/- Rm ……………………………………………………… ` 490.00

TOTAL ` 92699.28

SAY, ` 92700.00
ESTIMATE CONSTRUCTION CHECK DAM CUM WASHING PLACE
UNDER UMMAWIONG MICRO WATERSHED IWMP -VIII DURING 2010-2011
(As per P.W.I.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.

\[
\begin{align*}
6.00 \times 0.70 \times 0.90 &= 3.78 \text{ m}^3 \\
1.00 \times 1.15 \times 0.30 &= 0.35 \text{ m}^3 \\
&= 4.13 \text{ m}^3
\end{align*}
\]

\( @ \ '.194/-\text{m}^3 \) ................................................................. \$ 801.22

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

\[
\begin{align*}
2 \times 2.000 \times 0.80 \times 0.90 &= 2.88 \text{ m}^3 \\
2 \times 3.00 \times 0.80 \times 0.90 &= 4.32 \text{ m}^3 \\
2 \times 3.00 \times 2.00 \times 0.40 &= 4.80 \text{ m}^3 \\
&= 12.00 \text{ m}^3
\end{align*}
\]

\( @ '\.78.00/\text{m}^3 \) ................................................................. \$ 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.

\[
\begin{align*}
6.00 \times 0.70 \times 0.10 &= 0.42 \text{ m}^3 \\
2 \times 2.00 \times 0.80 \times 0.10 &= 0.32 \text{ m}^3 \\
3.00 \times 1.00 \times 0.15 &= 0.45 \text{ m}^3 \\
2 \times 3.00 \times 0.80 \times 0.10 &= 0.48 \text{ m}^3 \\
1 \times 1.00 \times 0.15 \times 1.15 &= 0.17 \text{ m}^3 \\
&= 1.84 \text{ m}^3
\end{align*}
\]

\( @ '\.576.00/\text{m}^3 \) ................................................................. \$ 1059.84

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

\[
\begin{align*}
6.00 \times 0.70 \times 0.10 &= 0.42 \text{ m}^3 \\
2 \times 2.00 \times 0.70 \times 0.10 &= 0.28 \text{ m}^3 \\
2 \times 3.00 \times 0.70 \times 0.10 &= 0.42 \text{ m}^3 \\
&= 1.12 \text{ m}^3
\end{align*}
\]

\( @ '\.2823.00 / \text{m}^3 \) ................................................................. \$ 3161.76

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

\[
\begin{align*}
6.00 \times 0.70 \times 0.70 &= 2.94 \text{ m}^3 \\
6.00 \times 0.70 + 0.40 \times 1.20 &= 3.96 \text{ m}^3 \\
2 \times 5.00 \times 0.40 \times 0.30 &= 1.20 \text{ m}^3 \\
3.00 \times 1.00 \times 0.15 &= 0.45 \text{ m}^3 \\
1.00 \times 1.15 \times 0.30 &= 0.35 \text{ m}^3 \\
&= 8.90 \text{ m}^3
\end{align*}
\]

\( @ '\.3216.00/-\text{m}^3 \) ................................................................. \$ 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.
2 x 2.00 x 0.70 x 0.70 = 1.96 m³
2 x 2.00 x 0.70 + 0.50 x 1.50 = 3.90 m³
2 x 2 x 3.00 x 0.80 x 0.70 = 3.36 m³
2 x 3.00 x 0.50 + 0.80 x 1.50 = 5.85 m³
2 x 3.00 x 2.00 x 1.05 = 12.60 m³
= 27.67 m³

@ `1.479.00/-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 x 6.00 x 1.50 = 14.40 m²
2 x 1.00 x 1.15 = 2.30 m²
= 20.30 m²

@ `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.
2 x 6.00 x 1.50 = 3.00 m²
1 x 6.00 x 0.50 = 18.00 m²
2 x 3.00 x 1.45 = 8.70 m²
2 x 3.00 x 2.00 = 12.00 m²
= 41.70 m²

@ `121.00/-m²……………………………………………………` 5045.70

9/3.2(a) 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
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` .................................................. `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.

\[ 3.00 \times 0.20 \times 0.20 = 0.12 \text{ m}^3 \]
\[ 3.00 \times 0.20 \times 0.20 = 0.12 \text{ m}^3 \]
\[ = 0.24 \text{ m}^3 \]

@ `\text{2823.00/- m}^3` .................................................. `677.52`

3/4.5 Providing stone pitching including filling the Interstices and carriage of stone filling within 200m complete as directed.

\[ 2.80 \times 2.80 \times 0.20 = 1.57 \text{ m}^3 \]
\[ 3.00 \times 4.50 \times 0.20 = 2.70 \text{ m}^3 \]
\[ = 4.27 \text{ m}^3 \]

@ `\text{559.00/- m}^3` .................................................. `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.

\[ 2.80 \times 3.00 \times 0.20 = 1.68 \text{ m}^3 \]
\[ 2.80 \times 2.60 \times 0.20 = 1.46 \text{ m}^3 \]
\[ \frac{2 \times 2.60 \times 3.00 + 2 \times 2.60 \times 0.20}{2} = 2.91 \text{ m}^3 \]
\[ = 6.05 \text{ m}^3 \]

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

\[ 3.60 \times 3.60 = 12.96 \text{ m}^2 \]
7/6.3 Providing C.C. work in proportion 1:2:4 with hard granular 
Stone of 20 mm dawn graded including curing and necessary 
Local carriage of stones within 200m etc complete as directed.

\[
\begin{align*}
3.60 \times 3.60 \times 0.10 &= 1.30 \text{ m}^3 \\
3.00 \times 4.50 \times 0.10 &= 1.35 \text{ m}^3 \\
&= 2.65 \text{ m}^3
\end{align*}
\]

@ `\ 308.00/- m\(^3\) ....................................................\ 3991.68

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.

\[
\begin{align*}
2.80 \times 3.00 &= 8.40 \text{ m}^2 \\
2.80 \times 2.60 &= 7.28 \text{ m}^2 \\
2 \times 2.60 \times 3.00 + 2.60 &= 14.56 \text{ m}^2 \\
&= 8.40 \text{ m}^2 \\
2 \times 3.00 \times 1.60 + 1.20 &= 12.96 \text{ m}^2 \\
&= 1.80 \text{ m}^2 \\
2 \times 2 \times 3.60 \times 0.10 &= 1.44 \text{ m}^2 \\
3.00 \times 4.50 &= 13.50 \text{ m}^2 \\
&= 68.34 \text{ m}^2
\end{align*}
\]

@ `\ 121.00/- m\(^3\) ....................................................\ 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.

\[
\begin{align*}
5.00 \times 0.70 \times 0.90 &= 3.15 \text{ m}^3 \\
1.00 \times 1.15 \times 0.30 &= 0.35 \text{ m}^3 \\
&= 3.50 \text{ m}^3 \\
\end{align*}
\]

\[\text{\$} 194.00/\text{m}^3 \]

\[\text{\$} 679.00\]

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

\[
\begin{align*}
2 \times 2.000 \times 0.80 \times 0.90 &= 2.88 \text{ m}^3 \\
2 \times 3.00 \times 0.80 \times 0.90 &= 4.32 \text{ m}^3 \\
2 \times 3.00 \times 2.00 \times 0.40 &= 4.80 \text{ m}^3 \\
&= 12.00 \text{ m}^3 \\
\end{align*}
\]

\[\text{\$} 78.00/\text{m}^3 \]

\[\text{\$} 936.00\]

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

\[
\begin{align*}
5.00 \times 0.70 \times 0.10 &= 0.35 \text{ m}^3 \\
2 \times 2.00 \times 0.80 \times 0.10 &= 0.32 \text{ m}^3 \\
3.00 \times 1.00 \times 0.15 &= 0.45 \text{ m}^3 \\
2 \times 3.00 \times 0.80 \times 0.10 &= 0.48 \text{ m}^3 \\
1 \times 1.00 \times 0.15 \times 1.15 &= 0.17 \text{ m}^3 \\
&= 1.77 \text{ m}^3 \\
\end{align*}
\]

\[\text{\$} 576.00/\text{m}^3 \]

\[\text{\$} 1019.52\]

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

\[
\begin{align*}
5.00 \times 0.70 \times 0.10 &= 0.35 \text{ m}^3 \\
2 \times 2.00 \times 0.70 \times 0.10 &= 0.28 \text{ m}^3 \\
2 \times 3.00 \times 0.70 \times 0.10 &= 0.42 \text{ m}^3 \\
&= 1.05 \text{ m}^3 \\
\end{align*}
\]

\[\text{\$} 2823.00/\text{m}^3 \]

\[\text{\$} 2964.15\]

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

\[
\begin{align*}
5.00 \times 0.70 \times 0.70 &= 2.45 \text{ m}^3 \\
5.00 \times 0.70 + 0.40 \times 1.20 &= 3.30 \text{ m}^3 \\
2 \times 5.00 \times 0.40 \times 0.30 &= 1.20 \text{ m}^3 \\
3.00 \times 1.00 \times 0.15 &= 0.45 \text{ m}^3 \\
1.00 \times 1.15 \times 0.30 &= 0.35 \text{ m}^3 \\
&= 7.75 \text{ m}^3 \\
\end{align*}
\]

\[\text{\$} 3216.00/\text{m}^3 \]

\[\text{\$} 24924.00\]

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.

\[
\begin{align*}
2 \times 2.00 \times 0.70 \times 0.70 &= 1.96 \text{ m}^3 \\
2 \times 2.00 \times 0.70 + 0.50 \times 1.50 &= 3.90 \text{ m}^3 \\
2 \times 3.00 \times 0.80 \times 0.70 &= 3.36 \text{ m}^3 \\
\end{align*}
\]
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.

\[
\begin{align*}
2 \times 5.00 \times 1.50 & = 15.00 \text{ m}^2 \\
2 \times 1.00 \times 1.15 & = 2.30 \text{ m}^2 \\
& = 17.30 \text{ m}^2
\end{align*}
\]

@ `. 308.00/-m²

\[\text{TOTAL} = \text{`. 5328.40}\]

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

\[
\begin{align*}
2 \times 5.00 \times 1.50 & = 15.00 \text{ m}^2 \\
1 \times 5.00 \times 0.50 & = 2.50 \text{ m}^2 \\
2 \times 3.00 \times 1.45 & = 8.70 \text{ m}^2 \\
2 \times 3.00 \times 2.00 & = 12.00 \text{ m}^2 \\
& = 38.20 \text{ m}^2
\end{align*}
\]

@ `. 121.00/-m²

\[\text{TOTAL} = \text{`. 4622.20}\]

Cutting drain including dressing etc. complete

Length of drain = 6.6 m

@ `. 49.00/- Rm

\[\text{TOTAL} = \text{`. 323.60}\]

\[\text{TOTAL} = \text{`. 81720.80}\]

\[\text{SAY,} = \text{`. 81720.00}\]

(Rupees Eighty One Thousand Seven Hundred Twenty) only
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.**

\[
\begin{align*}
4.00 \times 0.60 \times 0.80 & = 1.92 \text{ m}^3 \\
1.00 \times 1.15 \times 0.30 & = 0.35 \text{ m}^3 \\
& = 2.27 \text{ m}^3
\end{align*}
\]

@ \text{'}, 194.00/\text{m}^3………………………………………. \text{'}, 440.38

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

\[
\begin{align*}
2 \times 2.00 \times 0.70 \times 0.80 & = 2.24 \text{ m}^3 \\
2 \times 3.00 \times 0.70 \times 0.80 & = 3.36 \text{ m}^3 \\
2 \times 3.00 \times 2.00 \times 0.40 & = 4.80 \text{ m}^3 \\
& = 10.56 \text{ m}^3
\end{align*}
\]

@ \text{'}, 78.00/\text{m}^3………………………………………. \text{'}, 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.**

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

@ \text{'}, 576.00/\text{m}^3………………………………………. \text{'}, 979.20

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

\[
\begin{align*}
4.00 \times 0.70 \times 0.10 & = 0.28 \text{ m}^3 \\
2 \times 2.00 \times 0.70 \times 0.10 & = 0.28 \text{ m}^3 \\
2 \times 3.00 \times 0.70 \times 0.10 & = 0.42 \text{ m}^3 \\
& = 0.98 \text{ m}^3
\end{align*}
\]

@ \text{'}, 2823.00/\text{m}^3 …………………………………………. \text{'}, 2766.54

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

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

@ \text{'}, 3216.00/\text{m}^3 …………………………………………. \text{'}, 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.**

\[
\begin{align*}
2 \times 2.00 \times 0.70 \times 0.70 & = 1.96 \text{ m}^3
\end{align*}
\]
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.

\[
\begin{align*}
2 \times 4.00 \times 1.20 &= 9.60 \text{ m}^3 \\
2 \times 1.00 \times 1.15 &= 2.30 \text{ m}^3 \\
&= 11.90 \text{ m}^2
\end{align*}
\]

\[
\text{@ } \text{`} \cdot 308.00/- \text{m}^2 \text{…………………………….} \text{`} \cdot 3665.20
\]

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

\[
\begin{align*}
2 \times 4.00 \times 1.20 &= 9.60 \text{ m}^3 \\
1 \times 4.00 \times 0.50 &= 2.00 \text{ m}^3 \\
2 \times 3.00 \times 1.45 &= 8.70 \text{ m}^3 \\
2 \times 3.00 \times 2.00 &= 12.00 \text{m}^3 \\
&= 3.23 \text{m}^2
\end{align*}
\]

\[
\text{@ } \text{`} \cdot 121.00/- \text{m}^2 \text{…………………………….} \text{`} \cdot 3908.30
\]

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

Length of drain = 98.50 m

\[
\text{@ } \text{`} \cdot 49.00/- \text{ Rm} \text{……………………………………} \text{`} \cdot 4826.50
\]

\[
\text{TOTAL} \text{`} \cdot 71143.76
\]

\[
\text{SAY,} \text{`} \cdot 71145.00
\]

(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.

\[
\begin{align*}
4 \times 0.90 \times 0.90 \times 1.20 &= 3.888 \text{ m}^3 \\
2 \times 1.50 \times 0.90 \times 0.90 &= 2.43 \text{ m}^3 \\
&= 6.318 \text{ m}^3
\end{align*}
\]

@\$ 194.00/ \text{ m}^3…………………. \text{ .1225.69}

2/4.8 Providing C.C. 1:4:8 etc ….complete as directed

\[
\begin{align*}
4 \times 0.90 \times 0.90 \times 0.10 &= 0.324 \text{ m}^3 \\
2 \times 1.50 \times 0.90 \times 0.10 &= 0.27 \text{ m}^3 \\
&= 0.594 \text{ m}^3
\end{align*}
\]

@\$ 2823.00/ \text{ m}^3…………………. \text{ .1676.86}

3/4.2 (a) Regular Stone Masonry …………etc complete as directed.

\[
\begin{align*}
2 \times 1.50 \times 0.90 \times 0.90 &= 2.43 \text{ m}^3 \\
2 \times 1.50 \times 0.90 + 0.50 \times 2.65 &= 5.565 \text{ m}^3 \\
&= 7.995 \text{ m}^3
\end{align*}
\]

@\$ 1479.00/ \text{ m}^3…………………. \text{ .11824.61}

5/6.15(b) Steel reinforcement……….. etc complete as directed.

\[
\begin{align*}
4 \times 4 \times 3.90 \times 1.58 &= 0.99 \text{ Qntl} \\
4 \times 4 \times 1.30 \times 0.89 &= 0.18 \text{ Qntl} \\
1 \times 4 \times 5.50 \times 1.58 &= 0.34 \text{ Qntl} \\
2 \times 4 \times 4 \times 0.90 \times 0.62 &= 0.17 \text{ Qntl} \\
11 \times 5.00 \times 0.62 &= 0.34 \text{ Qntl} \\
40 \times 1.30 \times 0.62 &= 0.32 \text{ Qntl} \\
4 \times 26 \times 1.05 \times 0.22 &= 0.24 \text{ Qntl} \\
4 \times 9 \times 1.05 \times 0.22 &= 0.08 \text{ Qntl} \\
1 \times 34 \times 1.05 \times 0.22 &= 0.07 \text{ Qntl} \\
2 \times 4 \times 7 \times 0.22 &= 0.12 \text{ Qntl} \\
&= 2.85 \text{ Qntl}
\end{align*}
\]

@\$ 5945.00/Qntl…………………. \text{ .16943.25}

5/6.12 Providing Shuttering …………etc complete as directed.

\[
\begin{align*}
4 \times 2 \times 0.25 &= 2.00 \text{ Rm} \\
4 \times 2 \times 0.30 &= 2.40 \text{ Rm} \\
&= 4.40 \text{ Rm} \times 3.00 = 13.20 \text{ m}^2 \\
4 \times 2 \times 0.25 \times 1.30 &= 2.60 \text{ m}^2 \\
1 \times 2 \times 0.25 \times 5.00 &= 2.50 \text{ m}^2 \\
5.00 \times 1.30 &= 6.50 \text{ m}^2 \\
2 \times 4 \times 2 \times 0.20 &= 3.20 \text{ Rm} \\
2 \times 4 \times 2 \times 0.25 &= 4.00 \text{ Rm} \\
&= 7.20 \text{ Rm} \times 0.90 = 6.48 \text{ m}^2
\end{align*}
\]

~ 88 ~
= 31.28 m$^3$

\$\cdot 308.00/ m^3$…………………………………………………….. \$\cdot 9634.24

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

\[ 4 \times 0.90 \times 0.90 \times 0.45 = 1.458 \text{ m}^3 \]
\[ 4 \times 0.25 \times 0.25 \times 3.00 = 0.75 \text{ m}^3 \]
\[ 4 \times 0.25 \times 0.25 \times 1.30 = 0.32 \text{ m}^3 \]
\[ 5.00 \times 1.40 \times 0.10 = 0.70 \text{ m}^3 \]
\[ 2 \times 4 \times 0.20 \times 0.20 \times 0.90 = 0.288 \text{ m}^3 \]
\[ 1 \times 0.25 \times 0.30 \times 5.00 = 0.31 \text{ m}^3 \]
\[ = 3.826 \text{ m}^3 \]

\$\cdot 4074.00/ m^3$…………………………………………………….. \$\cdot 15587.12

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

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

\$\cdot 559.00/- \text{ m}^3$…………………………………………………….. \$\cdot 362.23

8/7.2 Providing plastering …………..etc complete as directed.

\[ 4 \times 4 \times 0.25 \times 2.65 = 10.60 \text{ m}^2 \]
\[ 1 \times 5.00 \times 1.30 = 6.50 \text{ m}^2 \]
\[ 2 \times 5.00 \times 0.10 = 1.00 \text{ m}^2 \]
\[ 2 \times 4 \times 4 \times 0.15 \times 0.90 = 4.32 \text{ m}^2 \]
\[ 2 \times 4 \times 1 \times 0.20 \times 0.20 = 0.32 \text{ m}^2 \]
\[ = 22.74 \text{ m}^2 \]

\$\cdot 121.00/ \text{ m}^2$…………………………………………………….. \$\cdot 2751.54

Total: \$\cdot 60005.54

Say, \$\cdot 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.

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

@ Rs.26.00/ m$^3$  

\[
= Rs.7500.00
\]

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.

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

Land leveling \hspace{1cm} \text{L.S} = 50.00 \text{ m}^3

\[
= 166.5 \text{ m}^3
\]

\[
@ \text{Rs.26.00/- per m}^3 = \text{Rs.4329.00}
\]

\[
\text{Total} = \text{Rs.4329.00}
\]

\[
\text{Say} \hspace{1cm} \text{Rs.4,300.00}
\]

(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.

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

@ Rs.39.00/ m$^3$ .......................... = 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 \text{ m}^3 \\
@ \text{Rs.26.00/- per m}^3 \ldots }
<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Items of Works</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Soil working and cost of sowing -5Mdays @Rs.100/Mdays</td>
<td>Rs. 500.00</td>
</tr>
<tr>
<td>2.</td>
<td>Cost of seed for 4 varieties @Rs.300/Variety/Kg</td>
<td>Rs. 1200.00</td>
</tr>
<tr>
<td>3.</td>
<td>Organic manure</td>
<td>Rs. 500.00</td>
</tr>
<tr>
<td>4.</td>
<td>Watering including implements (pipe etc)</td>
<td>Rs. 1500.00</td>
</tr>
<tr>
<td>5.</td>
<td>Plant protection including hand sprayers</td>
<td>Rs. 800.00</td>
</tr>
<tr>
<td>6.</td>
<td>Mulching (winter crop to conserve moisture)/ weeding / intercultural operation</td>
<td>Rs. 500.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>Rs. 5000.00</strong></td>
</tr>
</tbody>
</table>
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

- Rs.2400.00

**First Year Planting**

Jungle Clearance etc. Mandays @Rs.100/- per manday

- Rs. 500.00

Pit digging (pit size 0.3m x 0.30 m x 0.30s @Rs.4/- each

- Rs.1200.00

Cost of planting 300 Nos @Rs.2/each

- Rs. 600.00

Weeding two times 20 mandays @Rs.100/- Manday

- Rs.2000.00

Fire protection measures 5 manday @Rs.100/- Manday

- Rs. 500.00

- Rs.4800.00

**Second Year Planting**

Vacancy filling (10%)

- Rs. 400.00

Weeding two times 20 mandays @Rs.100/- per manday

- Rs.2000.00

**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

*(Rupees Ten Thousand One hundred) only*
A. Preliminary Works

Cost of Planting materials.
160 Nos @ Rs.8/- each

\[ \text{Rs.2400.00} \]

First Year Planting

a. Site Clearance etc.
   Mandays @ Rs.100/per manday

\[ \text{Rs. 300.00} \]

b. Pit digging (pit size 0.30m x 0.30 m x 0.30
   160 Nos @ Rs.4/- each

\[ \text{Rs. 800.00} \]

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

\[ \text{Rs. 480.00} \]

d. Weeding two times 20 mandays
   @ Rs.100/- Manday

\[ \text{Rs.2000.00} \]

\[ \text{Rs.3580.00} \]

Second Year Planting

Refilling vacancy (10%)

\[ \text{Rs. 370.00} \]

Weeding two times
20 mandays @ Rs.100/- Manday

\[ \text{Rs.2000.00} \]

\[ \text{Rs.2370.00} \]

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

100 nos seedlings @Rs.8/- each
Cost of Planting materials.
- Rs. 800.00
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
- Rs. 400.00
- Rs.1800.00

C. Second Year Planting

Refilling vacancy (10%)
- Rs. 100.00

Round Weeding around the plant four times
5 mandays @Rs.100/- Manday
- Rs. 500.00

Fire protection measures
4 manday @Rs.100/- Manday
- Rs. 400.00
- 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

b. Pit digging (pit size 0.30m x 0.30 m x 0.30
   134 Nos @` .4/- each -  `.536.00

c. Cost of planting 134 Nos @` .2/each -  `.268.00

d. Round Weeding around the plant two times
   6 mandays @` .100/- Manday -  `.600.00

e. Fire protection measures
   4 manday @`.100/- Manday -  `.400.00
                           -  `.2004.00

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

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.

\[ 70.00 \times 0.40 \times 0.70m = 19.60 \text{ m}^3 \]

@ \text{'194 / m}^3 \text{...................} \quad \text{'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 x 30cm long) with proper key stones each not less than 25 x 25 x 75 cm long in cement mortar 1:4 including carriage of stone within 200m complete as directed.

\[ 70.00 \times 0.40 \times 0.70 = 19.60 \text{ m}^3 \]
\[ 70.00 \times 0.70 + 0.40 \times 1.00m = 38.50 \text{ m}^3 \]
\[ \frac{2}{2} = 58.10 \text{ m}^3 \]

@ \text{'1574.00/m}^3 \text{...................} \quad \text{'91449.40}

\text{TOTAL: '95251.80}

\text{SAY: '95250.00}

Rupees (Ninety Five Thousand Two Hundred Fifty ) Only

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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.

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

@ \text{'194 / m}^3 \text{...................} \quad \text{'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 x 30cm long) with proper key stones each not less than 25 x 25 x 75 cm long in cement mortar 1:4 including carriage of stone within 200m complete as directed.
20.00 x 0.40 x 0.70 = 5.60 m³  
20.00 x 0.70 + 0.40 x 1.00m = 11.00 m³  
\[ \frac{2}{2} = 16.60 m³ \]

\[ @ \ ' 1574.00/-m³ \] ........................................... \[ 26128.40 \]

TOTAL: \[ 27214.80 \]

SAY: \[ 27215.00 \]

For 14 Nos = \[ 27215.00 \times 4 = 381010.00 \]

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 x 0.40 x 0.70m = 11.20 m³

\[ @ ' 194 / m³ \] ........................................... \[ 2172.80 \]

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 x 0.40 x 0.70 = 11.20 m³

40.00 x 0.70 + 0.40 x 1.00m = 19.80 m³

\[ \frac{2}{2} = 31.00 m³ \]

\[ @ \ ' 1574.00/-m³ \] ........................................... \[ 48749.00 \]

TOTAL: \[ 50966.80 \]

SAY: \[ 50965.00 \]

For 5 Nos = \[ 50956.00 \times 5 = \] \[ 254825.00 \]

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 x 0.40 x 0.70m = 14.00 m³

\[ @ ' 194 / m³ \] ........................................... \[ 2716.00 \]

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
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.

\[ \frac{60.00 \times 0.40 \times 0.70}{2} = 16.80 \text{m}^3 \]

\[ \text{\₽}\ 194 / \text{m}^3 \] \[ = \text{\₽} 3259.20 \]

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 x 30cm long) with proper key stones each not less than 25 x 25 x 75 cm long in cement mortar 1:4 including carriage of stone within 200m complete as directed.

\[ \frac{60.00 \times 0.40 \times 0.70}{2} = 16.80 \text{m}^3 \]
\[ \frac{60.00 \times 0.70+ 0.40 \times 0.90}{2} = 29.70 \text{m}^3 \]

\[ \text{\₽} \cdot 1574.00\text{/m}^3 \] \[ = \text{\₽} 73191.00 \]

\text{TOTAL: \₽ 76450.20}

\text{SAY: \₽ 76450.00}

For 5 Nos = \₽ 76450.00 x 4 = \₽ 382250.00

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

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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.

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

\[ \text{\₽} \cdot 194 / \text{m}^3 \] \[ = \text{\₽} 814.20 \]
Providing regular coursed stone masonry only in abutment walls with hammer dressed stone of heavy section (size not less than 25 cm x 25 cm x 30 cm long) with proper key stones each not less than 25 x 25 x 75 cm long in cement mortar 1:4 including carriage of stone within 200 m complete as directed.

\[
\begin{align*}
15.00 \times 0.40 \times 0.70 &= 4.20 \text{m}^3 \\
15.00 \times 0.70 \times 0.40 \times 1.00m &= 8.25 \text{m}^3 \\
\frac{2}{2} &= 12.45 \text{m}^3
\end{align*}
\]

\[
\begin{align*}
@ \text{`1574.00/-m}^3 & \text{………………………………………` .19596.30} \\
\text{TOTAL: `20410.50} \\
\text{SAY: `20410.00}
\end{align*}
\]

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 30 m lead and all lift.

\[
\begin{align*}
45.00 \times 0.40 \times 0.70m &= 12.60 \text{m}^3 \\
@ \text{`194 / m}^3 & \text{………………………………………` .2444.40}
\end{align*}
\]

2/ 4.3 Providing regular coursed stone masonry only in abutment walls with hammer dressed stone of heavy section (size not less than 25 cm x 25 cm x 30 cm long) with proper key stones each not less than 25 x 25 x 75 cm long in cement mortar 1:4 including carriage of stone within 200 m complete as directed.

\[
\begin{align*}
45.00 \times 0.40 \times 0.70m &= 12.60 \text{m}^3 \\
45.00 \times 0.70 \times 0.40 \times 0.90m &= 22.275 \text{m}^3 \\
\frac{2}{2} &= 34.875 \text{m}^3
\end{align*}
\]

\[
\begin{align*}
@ \text{`1574.00/-m}^3 & \text{………………………………………` .54893.25} \\
\text{TOTAL: `57337.65} \\
\text{SAY: `57335.00}
\end{align*}
\]

For 4 Nos = `57335.00 x 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 up to 30 m lead and all lift.

\[
\begin{align*}
25.00 \times 0.40 \times 0.70 &= 7.00 \text{m}^3
\end{align*}
\]

~ 103 ~
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 x 30cm long) with proper key stones each not less than 25 x 25 x 75 cm long in cement mortar 1:4 including carriage of stone within 200m complete as directed.

\[
\begin{align*}
25.00 \times 0.40 \times 0.70 &= 7.00 \text{m}^3 \\
25.00 \times 0.70 + 0.40 \times 1.00 &= 12.375 \text{m}^3 \\
\frac{2}{2} &= 19.375 \text{m}^3
\end{align*}
\]

\[\text{w} \times 1574.00 / \text{m}^3 \] \( \text{TOTAL: } \text{Rs. } 31859.25 \)

\[\text{SAY: } \text{Rs. } 31850.00 \]

For 6 Nos = \( \text{Rs. } 31850.00 \times 6 = \text{Rs. } 191100.00 \)

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.

\[\begin{align*}
35.00 \times 0.40 \times 0.70m &= 9.80 \text{m}^3 \\
\text{w} \times 194 / \text{m}^3 \] \( \text{TOTAL: } \text{Rs. } 1901.20 \)

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 x 30cm long) with proper key stones each not less than 25 x 25 x 75 cm long in cement mortar 1:4 including carriage of stone within 200m complete as directed.

\[
\begin{align*}
35.00 \times 0.40 \times 0.70 &= 9.80 \text{m}^3 \\
35.00 \times 0.70 + 0.40 \times 1.00m &= 17.325 \text{m}^3 \\
\frac{2}{2} &= 27.125 \text{m}^3
\end{align*}
\]

\[\text{w} \times 1574.00 / \text{m}^3 \] \( \text{TOTAL: } \text{Rs. } 42694.75 \)

\[\text{SAY: } \text{Rs. } 44595.00 \]

For 5 Nos = \( \text{Rs. } 44595.00 \times 5 = \text{Rs. } 222975.00 \)

Rupees (Two Lakhs Twenty Two Thousand Nine Hundred Seventy Five ) Only
walls with hammer dressed stone of heavy section (size not less than 25cm x 25cm x 30cm long) with proper key stones each not less than 25 x 25 x 75 cm long in cement mortar 1:4 including carriage of stone within 200m complete as directed.

\[
\begin{align*}
30.00 \times 0.40 \times 0.70 &= 8.40 \text{ m}^3 \\
30.00 \times 0.70 \times 0.40 \times 1.00m &= 14.84 \text{ m}^3 \\
2 &= 23.25 \text{ m}^3
\end{align*}
\]

@ `.1574.00/-m^3

TOTAL: `.36595.50

SAY: `.38225.10

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.

\[
\begin{align*}
11.00 \times 0.70 \times 0.90 &= 6.93 \text{ m}^3 \\
1.00 \times 1.15 \times 0.30 &= 0.35 \text{ m}^3 \\
&= 7.28 \text{ m}^3
\end{align*}
\]

@ `.194.00/-m^3

TOTAL: `.1412.32

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

\[
\begin{align*}
2 \times 2.000 \times 0.80 \times 0.90 &= 2.88 \text{ m}^3 \\
2 \times 3.00 \times 0.80 \times 0.90 &= 4.32 \text{ m}^3 \\
2 \times 3.00 \times 2.00 \times 0.40 &= 4.80 \text{ m}^3 \\
&= 12.00 \text{ m}^3
\end{align*}
\]

@ `.78.00/m^3

TOTAL: `.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.

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

@ `.576.00/-m^3

TOTAL: `.1261.44

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

\[
\begin{align*}
11.00 \times 0.70 \times 0.10 &= 0.77 \text{ m}^3 \\
2 \times 2.00 \times 0.70 \times 0.10 &= 0.28 \text{ m}^3 \\
2 \times 3.00 \times 0.70 \times 0.10 &= 0.42 \text{ m}^3 \\
&= 1.47 \text{ m}^3
\end{align*}
\]
5/6.1 Providing cement concrete work in proportion 1:3:6 with hard broken stone etc complete as directed. (Excluding Shuttering)

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

\@ \ `. 3216.00/-m\(^3\) .................................................... ` 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.

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

\@ \ `. 1479.00/-m\(^3\) .................................................... ` 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.

\[
\begin{align*}
2 \times 11.00 \times 1.50 &= 33.00 \text{ m}^2 \\
2 \times 1.00 \times 1.15 &= 2.30 \text{ m}^2 \\
\frac{2}{2} &= 35.30 \text{ m}^2
\end{align*}
\]

\@ \ `. 308.00/-m\(^2\) .................................................... ` 10872.40

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

\[
\begin{align*}
2 \times 11.00 \times 1.50 &= 33.00 \text{ m}^2 \\
1 \times 11.00 \times 0.50 &= 5.50 \text{ m}^2 \\
2 \times 3.00 \times 1.45 &= 8.70 \text{ m}^2 \\
2 \times 3.00 \times 2.00 &= 12.00 \text{ m}^2 \\
\frac{2}{2} &= 59.20 \text{ m}^2
\end{align*}
\]

\@ \ `. 121/-m\(^2\) .................................................... ` 7163.20

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

Length of drain = 10.00 m

\@ \ `. 49.00/- Rm .................................................... ` 490.00

\textbf{TOTAL} \ ` 115963.66

\textbf{SAY}, \ ` 115960.00

\textit{(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.

\[
\begin{align*}
15.00 \times 0.60 \times 1.00 & = 9.00 \text{ m}^3 \\
\end{align*}
\]

\[
\text{Rate} \times \text{quantity} = 1746.00
\]

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

\[
\begin{align*}
2 \times 1.00 \times 0.80 \times 0.40 & = 0.64 \text{ m}^3 \\
\end{align*}
\]

\[
\text{Rate} \times \text{quantity} = 49.92
\]

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

\[
\begin{align*}
15.00 \times 1.00 \times 0.10 & = 1.50 \text{ m}^3 \\
2 \times 1.00 \times 0.80 \times 0.10 & = 0.16 \text{ m}^3 \\
& = 1.66 \text{ m}^3 \\
\end{align*}
\]

\[
\text{Rate} \times \text{quantity} = 2823.00
\]

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

\[
\begin{align*}
1 \times 15.00 \times 2.00 \times 0.10 & = 3.00 \text{ m}^3 \\
\end{align*}
\]

\[
\text{Rate} \times \text{quantity} = 6843.00
\]

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.

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

\[
\text{Rate} \times \text{quantity} = 45856.395
\]

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.

\[
\begin{align*}
1 \times 15.00 \times 1.50 & = 22.50 \text{ m}^2 \\
\end{align*}
\]

\[
\text{Rate} \times \text{quantity} = 6930.00
\]
Providing 12mm thick cement plaster including clearing the surface, curing carriage of sand within 200m, complete as directed.

\[
1 \times 15.00 \times 1.50 = 22.50 \text{ m}^2 \\
1 \times 15.00 \times 0.50 = 7.50 \text{ m}^2 \\
= 30.00 \text{ m}^2
\]

@\(\text{Rs} \, 121/\text{-m}^2\) .............................................................. \(\text{Rs} \, 3630.00\)

TOTAL \(\text{Rs} \, 69741.50\)

SAY, \(\text{Rs} \, 69740.00\)

(Rupees Sixty Nine Thousand Seven Hundred Forty) only
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.

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

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

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

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

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

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

\[
20.00 \times 1.00 \times 0.10 = 2.00 \text{ m}^3
\]
\[
2 \times 1.00 \times 0.80 \times 0.10 = 0.16 \text{ m}^3
\]
\[
= 2.16 \text{ m}^3
\]

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

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

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

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

\[
1 \times 20.00 \times 1.90 \times 0.50 = 19.00 \text{ m}^3
\]
\[
1 \times 20.00 \times 0.90 + 0.40 \times 1.50 = 19.50 \text{ m}^3
\]
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.

\[
\begin{align*}
1 \times 20.00 \times 1.50 & = 30.00 \text{ m}^2 \\
@ \text{`}.308.00/-\text{m}^2 & = \text{:`}.9240.00
\end{align*}
\]

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

\[
\begin{align*}
1 \times 20.00 \times 1.50 & = 30.00 \text{ m}^2 \\
1 \times 20.00 \times 0.50 & = 10.00 \text{ m}^2 \\
& = 40.00 \text{ m}^2 \\
@ \text{`}.121.00/-\text{m}^2 & = \text{`}.4840.00
\end{align*}
\]

\[
\begin{array}{c}
\text{TOTAL} \\
\text{SAY,}
\end{array} \quad \text{`}.95611.37 \quad \text{`}.95610.00
\]

(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.

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

\ @$ .194.00/m^3$............................................... $= \, 26190.00$

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
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.

\[ V = \frac{2.00(20.00 \times 20.00) + 4(18.00 \times 18.00) + (16.00 \times 16.00)}{6} \]
\[ = \frac{2.00(400.00 + 1296.00 + 256.00)}{6} \]
\[ = 650.67 \text{ m}^3 \]

@\text{\$78.00/m}^3 \text{ } \ldots \ldots \ldots \ldots \ldots \ldots \text{ } \text{\$50752.26}

Total \text{ } \text{\$50752.26}
Say \text{ } \text{\$50750.00}

\text{For 2Nos} \text{ } = 2 \times 50750.00 = \text{\$101500.00}

\text{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.

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Volume (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dam</td>
<td>6.00 x 0.80 x 0.60</td>
<td>2.88</td>
</tr>
<tr>
<td>W/Wall</td>
<td>2 Nos x 3.00 x 0.80 x 0.60</td>
<td>2.88</td>
</tr>
<tr>
<td>Apron</td>
<td>6.00 x 2.00 x 0.15</td>
<td>1.80</td>
</tr>
<tr>
<td>Curtain Wall</td>
<td>6.00 x 0.25 x 0.15</td>
<td>0.23</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>7.79</strong></td>
</tr>
</tbody>
</table>

@ `.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 m³

@ `.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.

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Volume (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 x 6.00 x 0.80 x 0.15</td>
<td>0.72</td>
</tr>
<tr>
<td></td>
<td>2 x 3.00 x 0.80 x 0.15</td>
<td>0.72</td>
</tr>
<tr>
<td></td>
<td>6.00 x 2.00 x 0.15</td>
<td>1.80</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>3.24</strong></td>
</tr>
</tbody>
</table>

@ `.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.

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Volume (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6.00 x 0.80 x 0.10</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td>2 Nos x 3.00 x 0.80 x 0.10</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>0.96</strong></td>
</tr>
</tbody>
</table>

@ `.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.

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Volume (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>W/Wall</td>
<td>2 Nos x 3.00 x 0.80 x 0.35</td>
<td>1.68</td>
</tr>
<tr>
<td></td>
<td>2 Nos x 3.00 x 0.80 + 0.50 x 1.20</td>
<td>4.68</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td><strong>6.36</strong></td>
</tr>
</tbody>
</table>

@ `.1479.00/-m³……………………………………………………….` 9406.44

~ 114 ~
Providing cement concrete work in proportion 1:3:6 with hard broken stone etc complete as directed. (Excluding Shuttering)

\[
\begin{align*}
6.00 \times 0.80 \times 0.35 &= 1.68 \text{ m}^3 \\
6.00 \times 0.80 + 0.40 \times 0.90 &= 3.24 \text{ m}^3 \\
2 &= \\
2 \times 2.00 \times 0.40 \times 0.30 &= 0.48 \text{ m}^3 \\
10.00 \times 0.80 \times 0.10 &= 0.80 \text{ m}^3 \\
2 \times 10.00 \times 0.60 \times 0.10 &= 1.20 \text{ m}^3 \\
6.00 \times 2.00 \times 0.10 &= 1.20 \text{ m}^3 \\
6.00 \times 0.25 \times 0.15 &= 0.23 \text{ m}^3 \\
\text{Total} &= 8.83 \text{ m}^3
\end{align*}
\]

@ `321.60/-m\(^3\)………………………………………………….`28397.28

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.

\[
\begin{align*}
2 \times 6.00 \times 1.20 &= 14.40 \text{ m}^2 \\
2 \times 10.00 \times 0.60 &= 12.00 \text{ m}^2 \\
\text{Deduction for Spillway:} \\
2 \times 2.00 \times 0.30 &= (-) 1.20 \text{ m}^2 \\
\text{Total} &= 25.20 \text{ m}^2
\end{align*}
\]

@ `308/-m\(^2\)…………………………………………………….`7761.60

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

\[
\begin{align*}
2 \times 6.00 \times 0.90 &= 10.80 \text{ m}^2 \\
2 \times 2.00 \times 0.30 &= 2.40 \text{ m}^2 \\
2 \times 2.00 \times 0.40 &= 1.60 \text{ m}^2 \\
2 \times 0.40 \times 0.30 &= 0.24 \text{ m}^2 \\
2 \times 10.00 \times 0.60 &= 12.00 \text{ m}^2 \\
1 \times 10.00 \times 0.60 &= 6.00 \text{ m}^2 \\
1 \times 6.00 \times 2.00 &= 12.00 \text{ m}^2 \\
\text{Total} &= 45.04 \text{ m}^2
\end{align*}
\]

@ `121.00/-m\(^2\)…………………………………………………….`5449.84

Cutting drain including dressing etc. complete

Length of drain = 100.00 m

@ `49.00/- Rm…………………………………………………….`4900.00

\[\text{TOTAL=} \quad `62439.54\]

\[\text{SAY,} \quad `62440.00\]

For 2Nos = 2x62440.00 = `124880.00

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

\[
\begin{align*}
18.00 \times 1.00 \times 1.20 & = 21.60 \text{ m}^3 \\
18.00 \times 1.50 \times 0.20 & = 5.40 \text{ m}^3 \\
2 \times 2.30 \times 1.00 \times 0.90 & = 4.14 \text{ m}^3 \\
& = 31.14 \text{ m}^3
\end{align*}
\]

\[\text{@ `194.00 / m}^3\text{………………………………………………... `6041.16}\]

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

\[
18.00 \times 1.50 \times 0.20 \text{ m} = 5.40 \text{ m}^3
\]

\[\text{@ `576.00/m}^3\text{………………………………………………... `3110.40}\]

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.

\[
\begin{align*}
18.00 \times 1.05 \times 0.85 & = 16.06 \text{ m}^3 \\
18.00 \times (1.05 + 0.60) \times 2.20 & = 32.67 \text{ m}^3 \\
\frac{2}{2} & = 32.67 \text{ m}^3 \\
18.00 \times 0.30 \times 0.60 & = 3.24 \text{ m}^3 \\
2 \times 2.30 \times 1.00 \times 0.90 & = 4.14 \text{ m}^3 \\
2 \times 2.30 \times (1.00 + 0.60) \times 2.50 & = 9.20 \text{ m}^3 \\
\frac{2}{2} & = 65.31 \text{ m}^3
\end{align*}
\]

\[\text{@ `1479.00 / m}^3\text{………………………………………………... `96593.49}\]

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.

\[
\begin{align*}
18.00 \times 1.20 \times 0.15 & = 3.24 \text{ m}^3 \\
18.00 \times 3.35 \times 0.15 & = 9.04 \text{ m}^3 \\
18.00 \times 1.50 \times 0.10 & = 2.70 \text{ m}^3 \\
& = 14.98 \text{ m}^3
\end{align*}
\]

\[\text{@ `3216.00 / m}^2\text{………………………………………………... `48175.68}\]

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.

\[
18.00 \times 2.50 = 45.00 \text{ m}^2
\]

\[\text{@ `308.00/m}^2\text{………………………………………………... `13860.00}\]

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 m²
1 x 18.00 x 0.75 = 13.50 m²
1 x 18.00 x 0.30 = 5.40 m²
1 x 18.00 x 2.55 = 45.90 m²
1 x 18.00 x 1.50 = 27.00 m²
= 136.80 m²

@ `.121.00/m²…………………………………………………`.16552.80

7/3.2(a)(i) Cutting drain …………..etc. complete

Length of drain = 25.00 Rm

@ `.49/- Rm ………………………………………. `.1225.00

TOTAL = `.185558.50

SAY, = `.185555.00

For 3Nos = 3 x 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.

\[
\begin{align*}
28.00 \times 1.00 \times 1.20 &= 33.60 \text{ m}^3 \\
28.00 \times 1.50 \times 0.20 &= 8.40 \text{ m}^3 \\
2 \times 2.00 \times 1.00 \times 0.90 &= 3.60 \text{ m}^3 \\
&= 45.60 \text{ m}^3 \\
\end{align*}
\]

\[
\text{\@ } \text{\`194.00 / m}^3 \text{……………………………………………………\`8846.40}
\]

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

\[
\begin{align*}
28.00 \times 1.50 \times 0.20 &= 8.40 \text{ m}^3 \\
\text{\@\text{\`576.00/m}^3 \text{……………………………………………………\`4838.40}
\]

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.

\[
\begin{align*}
28.00 \times 1.05 \times 0.85 &= 24.99 \text{ m}^3 \\
28.00 \times (1.05 + 0.60) \times 2.20 &= 50.82 \text{ m}^3 \\
2 &= 5.04 \text{ m}^3 \\
2 \times 2.00 \times 1.00 \times 0.90 &= 3.60 \text{ m}^3 \\
2 \times 2.00 \times (1.00 + 0.60) \times 2.50 &= 8.00 \text{ m}^3 \\
2 &= 92.45 \text{ m}^3 \\
\text{\@\text{\`1479.00 / m}^3 \text{……………………………………………………\`136733.55}
\]

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.

\[
\begin{align*}
28.00 \times 1.20 \times 0.15 &= 5.04 \text{ m}^3 \\
28.00 \times 3.35 \times 0.15 &= 14.07 \text{ m}^3 \\
28.00 \times 1.50 \times 0.10 &= 4.20 \text{ m}^3 \\
&= 23.31 \text{ m}^3 \\
\text{\@\text{\`3216.00 / m}^2 \text{……………………………………………………\`72867.06}
\]

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.

\[
28.00 \times 2.50 &= 70.00 \text{ m}^2 \\
\text{\@\text{\`308.00/m}^2 \text{……………………………………………………\`21560.00}
\]

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

\[
63 \text{ Nos} \times 3.65 \times 0.89 = 204.66 \text{ Kg}
\]
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.

\[
\begin{align*}
1 \times 28.00 \times 2.50 & = 70.00 \text{ m}^2 \\
1 \times 28.00 \times 0.75 & = 21.00 \text{ m}^2 \\
1 \times 28.00 \times 0.30 & = 8.40 \text{ m}^2 \\
1 \times 28.00 \times 2.55 & = 71.40 \text{ m}^2 \\
1 \times 28.00 \times 1.50 & = 42.00 \text{ m}^2 \\
\end{align*}
\]
\[= 212.80 \text{ m}^2 \]

@ Rs.121.00/-m²…………………………………………………… \$.25748.80

Cutting drain ……………etc. complete

Length of drain = 15.00 Rm

@ `.49.00/- Rm ………………………………………………….. \$.735.00

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.

\[
\begin{align*}
20.00 \times 1.00 \times 1.20 & = 24.00 \text{ m}^3 \\
20.00 \times 1.50 \times 0.20 & = 6.00 \text{ m}^3 \\
2 \times 2.00 \times 1.00 \times 0.90 & = 3.60 \text{ m}^3 \\
& = 33.60 \text{ m}^3 \\
\end{align*}
\]

@ ` 194.00 / m³ ................................................................. ` 6518.40

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

\[
\begin{align*}
20.00 \times 1.50 \times 0.20 & = 6.00 \text{ m}^3 \\
\end{align*}
\]

@ ` 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.

\[
\begin{align*}
20.00 \times 1.05 \times 0.85 & = 17.85 \text{ m}^3 \\
20.00 \times 1.05 + 0.60 \times 2.20 & = 36.30 \text{ m}^3 \\
\frac{2}{2} & \\
20.00 \times 0.30 \times 0.60 & = 3.60 \text{ m}^3 \\
2 \times 2.00 \times 1.00 \times 0.90 & = 3.60 \text{ m}^3 \\
2 \times 2.00 \times 1.00 + 0.60 \times 2.50 & = 8.00 \text{ m}^3 \\
\frac{2}{2} & \\
@ ` 1479.00 / m³ ................................................................. ` 102124.95
\end{align*}
\]

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.

\[
\begin{align*}
20.00 \times 1.20 \times 0.15 & = 3.60 \text{ m}^3 \\
20.00 \times 3.35 \times 0.15 & = 10.50 \text{ m}^3 \\
20.00 \times 1.50 \times 0.10 & = 3.00 \text{ m}^3 \\
& = 16.65 \text{ m}^3 \\
\end{align*}
\]

@ ` 3216.00 / m³ ................................................................. ` 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.

\[
\begin{align*}
20.00 \times 2.50 & = 50.00 \text{ m}^2 \\
\end{align*}
\]
6/6.15(b) Providing Tor Steel reinforcement including bending etc. as directed complete.

\[
\text{45 Nos x 3.65 x 0.89} = 146.18 \text{ Kg} \\
\text{10 Nos x 20.00 x 0.62} = 124.00 \text{ Kg} \\
\text{=} = 270.18 \text{ Kg} \\
\text{=} = 2.702 \text{ Qntl}
\]

\@ \`.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.

\[
\begin{align*}
1 \text{ x 20.00 x 2.50} &= 50.00 \text{ m}^2 \\
1 \text{ x 20.00 x 0.75} &= 15.00 \text{ m}^2 \\
1 \text{ x 20.00 x 0.30} &= 6.00 \text{ m}^2 \\
1 \text{ x 20.00 x 2.55} &= 51.00 \text{ m}^2 \\
1 \text{ x 20.00 x 1.50} &= 30.00 \text{ m}^2
\end{align*}
\]

\=
\[
152.00 \text{ m}^2
\]

\@ \`.121.00/-m\^2……………………………………… \`18392.00

8/3.2(a)(i) Cutting drain …………..etc. 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

\text{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.

\[
\begin{align*}
20.00 \times 1.20 \times 1.30m &= 31.20 \, m^3 \\
20.00 \times 1.50 \times 0.20 m &= 6.00 \, m^3 \\
2 \times 2.00 \times 1.00 \times 1.10 m &= 4.40 \, m^3 \\
&= 41.60 \, m^3 \\
\end{align*}
\]

@ `.194.00 / m^3 .................................................. `8070.40

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

\[
\begin{align*}
20.00 \times 1.50 \times 0.20 m &= 6.00 \, m^3 \\
\end{align*}
\]

@ `.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.

\[
\begin{align*}
20.00 \times 1.15 \times 1.05 &= 24.15 \, m^3 \\
20.00 \times 1.15 + 0.60 \times 2.70 &= 47.25 \, m^3 \\
\frac{20.00 \times 0.30 \times 0.60}{2} &= 3.60 \, m^3 \\
2 \times 2.00 \times 1.00 \times 1.10 &= 4.40 \, m^3 \\
\frac{2 \times 2.00 \times 1.10 + 0.60 \times 3.00}{2} &= 10.20 \, m^3 \\
&= 89.60 \, m^3 \\
\end{align*}
\]

@ `.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.

\[
\begin{align*}
20.00 \times 1.30 \times 0.15 &= 3.90 \, m^3 \\
20.00 \times 4.05 \times 0.15 &= 12.15 \, m^3 \\
20.00 \times 1.50 \times 0.10 &= 3.00 \, m^3 \\
&= 19.05 \, m^3 \\
\end{align*}
\]

@ `.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.

\[
\begin{align*}
20.00 \times 3.00 &= 60.00 \, m^2 \\
\end{align*}
\]

@ `.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 = 30.00 m$^2$
\[= 166.00 \text{ m}^2\]

\[\text{Rate}\ \`\text{121.00/m}^2\text{…………………………………….}\ \`\text{20086.00}\]

7/3.2(a)(i) Cutting drain …………etc. complete

Length of drain = 30.00 Rm

\[\text{Rate}\ \`\text{49.00/- Rm} \text{…………………………………….}\ \`\text{1470.00}\]

\[\text{TOTAL=\ `245345.60}\]

\[\text{SAY,\ =\ `245345.00}\]

\textit{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.

\[
\begin{align*}
20.00 \times 1.20 \times 1.30 & = 31.20 \text{ m}^3 \\
20.00 \times 1.50 \times 0.20 & = 6.00 \text{ m}^3 \\
2 \times 2.00 \times 1.00 \times 1.10 & = 4.40 \text{ m}^3 \\
& = 41.60 \text{ m}^3 \\
\end{align*}
\]

\[\text{ @ } \text{ `.194.00 / m}^3 \text{ .................................. } \text{ `.8070.40} \]

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

\[
20.00 \times 1.50 \times 0.20 \text{ m} = 6.00 \text{ m}^3 \\
\]

\[\text{ @ } \text{ `.576.00/m}^3 \text{ .................................. } \text{ `.3456.00} \]

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.

\[
\begin{align*}
20.00 \times 1.15 \times 1.05 & = 24.15 \text{ m}^3 \\
20.00 \times 1.15 + 0.60 \times 2.70 & = 47.25 \text{ m}^3 \\
\frac{20.00 \times 0.30 \times 0.60}{2} & = 3.60 \text{ m}^3 \\
2 \times 2.00 \times 1.00 \times 1.10 & = 4.40 \text{ m}^3 \\
2 \times 2.00 \times 1.10 + 0.60 \times 3.00 & = 10.20 \text{ m}^3 \\
\frac{2}{2} & = 89.60 \text{ m}^3 \\
\end{align*}
\]

\[\text{ @ } \text{ `.1479.00 / m}^3 \text{ .................................. } \text{ `.132518.40} \]

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.

\[
\begin{align*}
20.00 \times 1.30 \times 0.15 & = 3.90 \text{ m}^3 \\
20.00 \times 4.05 \times 0.15 & = 12.15 \text{ m}^3 \\
20.00 \times 1.50 \times 0.10 & = 3.00 \text{ m}^3 \\
& = 19.05 \text{ m}^3 \\
\end{align*}
\]

\[\text{ @ } \text{ `.3216.00 / m}^2 \text{ .................................. } \text{ `.61264.80} \]

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.

\[
20.00 \times 3.00 \text{ m} = 60.00 \text{ m}^2 \\
\]

\[\text{ @ } \text{ `.308.00/-m}^2 \text{ .................................. } \text{ `.18480.00} \]

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.

\[
1 \times 20.00 \times 3.00 \text{ } = \text{ 60.00 m}^2 \\
\]

~ 124 ~
\[ \begin{align*}
1 \times 20.00 \times 0.75 &= 15.00 \text{ m}^3 \\
1 \times 20.00 \times 0.30 &= 6.00 \text{ m}^3 \\
1 \times 20.00 \times 2.75 &= 55.00 \text{ m}^3 \\
1 \times 20.00 \times 1.50 &= 30.00 \text{ m}^3 \\
&= 166.00 \text{ m}^3 \\
\end{align*} \]

\[ \text{@ \£121.00/m}^3 \]...

\[ \text{\£20086.00} \]

7/3.2(a)(i) Cutting drain …………etc. complete

Length of drain = 25.00 Rm

\[ \text{@\£49.00/Rm} \]...

\[ \\text{\£1225.00} \]

\[ \text{TOTAL=} \quad \text{\£245100.60} \]

SAY, = \text{\£245100.00}

\[ \text{Rupees (Two Lakhs Forty Five Thousand One Hundred) only} \]
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.

Yours faithfully,

[Signature]
Headman
Wongnawthoh-Mawthoh
Nongstoin Syleship

[Signature]
Mr. P. Nongsiej
Headman
Dorbar Shnong Syleship
Nongstoin Syleship
RESOLUTION OF THE VILLAGES COMMITTEE/DORBAR SHNONG

A General meeting the 4 Villages falling under Ummawiong Micro Watershed IWMP (Siejlieh, Mawkhlam, Mawtynrong, 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 completion 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
   
   [Signature]
   
   Headman
   Dorbar Shnong Siejlieh
   Nongstoin Sylenship

2. Mawkhlam
   
   [Signature]
   
   Dorbar Shnong Mawkhla
   Nongstoin Sylenship

3. Mawtynrong
   
   [Signature]
   
   Dorbar Shnong Mawtynrong
   Nongstoin Sylenship

4. Mawthoh
   
   [Signature]
   
   Dorbar 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
   Mawkhiam Nongpyndeng
   Rangbah Dong, No. 2.

2. Mawtnrong
   Secretary
   Dong No-2
   Mawkhiam - Nongpyndeng.

3. Siejlieh
   Mr. K. Nongsiej
   Headman
   Dorbar Shnong Siejlieh
   Nongstoin Sylemship

4. Mawthoh
   Nong-mawthoh -Mawthoh
   Nongstoin Sylemship
OFFICE OF THE VILLAGES COMMITTEE/DORBAR SHNONG
MAWKHLAM, MAWTYNRONG, SIEJLIEH, MAWTHOH VILLAGES
WEST KHASI HILLS DISTRICT

NO OBJECION CERTIFICATE

This is to certify that the Dorbar Shnong Mawkhlan Mawlynrong, 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. Mawkhlan

2. Mawlynrong

3. Siejlieh

4. Mawthoh
To,

The Secretary
Ummawiong Micro Watershed Committee.

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

Sir,

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

1. Chairman > Shri. F. K. Bani
2. Secretary > Shri. A. Thongri
3. Member > Shri. A. Rymbai
4. ---- > Smt. Tevely K. Bani
5. ---- > Shri. Jingelang Roren

Thanks You.

Yours faithfully,

[Signature]

Secretary
Dong Ho-2
Mawkhram - Nongpyndaw.
To,

The Secretary
Ummawiong Micro Watershed Committee.

Sub :- “Members of the Ummawiong Micro Watershed Sub-Committee Mawthoh”

Sir,

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

Chairman > Shri. Powlal Jamhniaw
Secretary > Shri. Fulgen Marngon.
Member > 1) Shri. Tingdoniu Marwein
       2) Shri. Tenen Paring
       3) Smt. Monistela Marngon.

Thanks You.

Yours faithfully,

[Signature]

[Name]

[Position]
Ka Office jong
KA DORBAR SHNONG SIEJLIEH
NONGSTOIN SYEMSHIP
WESTKHASI 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 KONGSIET
Secretary > MR. S.K. THONGNI
Member > MR. ONESIUS KONGSIET
           MR. GROSSWEL NONGLANG
           MRS. CHRISTINA WANNIANG

Thanks You.

Yours faithfully,

(Ms. S.K. Thongni)
Secretary
Dorbar Shnong Siejlieh,
Nongstoin Syemship

[Signature]

Mr. D. Nongsiej
Headman
Dorbar Shnong Siejlieh
Nongstoin Syemship
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. Shangw
2. Secretary > Mr. N. Shangphang
3. Member > Mr. F. Mui Thang
4. Mr. Kany Liddleo K. Bami
5. Mr. W. Lanyrii

Thanks You.

Yours faithfully,

[Signature]

Secretary Bong,
Mawtynrong No. -1
(Mawkhlang)