

**NORTH EASTERN COUNCIL (NEC)**

<https://necouncil.gov.in/>

## **EVALUATION OF NEC FUNDED PROJECTS IN ASSAM**



### **AAMLOGA-BARASAPUR SOIL CONSERVATION AND WATER DISTRIBUTION PROJECT IN SONITPUR DISTRICT OF ASSAM**

**WAPCOS Limited**

**(International Consultants in Water Resources, Power and Infrastructure Development)**

**76-C, Institutional Area, Sector-18, Gurgaon, Haryana - 122015,**

**Regd. & Corporate Office: Kailash, 5th Floor, K.G.Marg, New Delhi-110001**

**Regional Office: 10th Floor, Jalasampad Bhawan, Salt Lake City, Kolkata-700 091**

**Phone: 91-33-23597015, Fax: 91-33-23599260,**

**E-mail: [wapcoskol@yahoo.co.in](mailto:wapcoskol@yahoo.co.in)**

**<http://www.wapcos.org>**



**DECEMBER, 2010**

**NORTH EASTERN COUNCIL (NEC)**

**EVALUATION OF NEC FUNDED PROJECTS IN ASSAM**

**“Aamloga-Barasapur Soil Conservation and Water Distribution Project”**

**CONTENTS**

<b>CHAPTER</b>	<b>TITLE</b>	<b>PAGE NO.</b>
	Executive Summary	<i>1-2</i>
<b>CHAPTER 1</b>	<b>INTRODUCTION</b>	<b><i>1-2</i></b>
1.1	North Eastern Council (NEC)	<i>1</i>
1.2	Project Area	<i>1-2</i>
1.2.1	Introduction	<i>1</i>
1.2.2	Soil and Topography	<i>1</i>
1.2.3	Drainage	<i>2</i>
1.2.4	Climate	<i>2</i>
1.2.5	Demography	<i>2</i>
1.2.6	Literacy Percentage	<i>2</i>
1.2.7	Socio-economic Condition	<i>2</i>
1.2.8	Nature and Vegetation cover and present Landuse	<i>2</i>
<b>CHAPTER 2</b>	<b>PRE PROJECT SITUATION</b>	<b><i>1-3</i></b>
2.1	Objective	<i>1</i>
2.2	Problems	<i>1</i>
2.3	Needs of the Area	<i>1</i>
2.4	Activities	<i>2</i>
2.4.1	Land Development Activities	<i>2</i>
2.4.2	Gully Control Projects	<i>2</i>
2.4.3	Water Distribution Projects	<i>2</i>
2.4.3	River Training Works	<i>2-3</i>
2.5	Salient Features	<i>3</i>
<b>CHAPTER 3</b>	<b>PROJECT EVALUATION</b>	<b><i>1-4</i></b>
3.1	General	<i>1</i>
3.2	Financial Evaluation	<i>1</i>

<b>3.3</b>	<b>Physical Evaluation</b>	<b>2</b>
<b>3.4</b>	<b>Assistance provided by NEC</b>	<b>2</b>
<b>3.5</b>	<b>Site Visit</b>	<b>2</b>
<b>3.6</b>	<b>Interaction with Local Public</b>	<b>3</b>
<b>3.7</b>	<b>Interaction with the Officers of the Soil Conservation Department</b>	<b>3</b>
<b>3.8</b>	<b>Success and Impact</b>	<b>4</b>
<b>3.9</b>	<b>Mid-Term Correction</b>	<b>4</b>
<b>3.10</b>	<b>Opportunity Cost</b>	<b>4</b>
<b>3.11</b>	<b>Guide Points</b>	

## **PHOTOGALLERY**

## **EXECUTIVE SUMMARY**

Water is essential not only for survival of life on earth but also for sustenance of environment. The proper use of land and water resources, prevention of erosion, flood, soil conservation not only minimizes hazards to natural resource but also improves the socio-economic condition of the people. The combination of various activities such as land development works, gully control cum water harvesting projects, water distribution networks, river training works etc. and construction of water harvesting structures, bunds, RCC drop structures, boulder pitching work wherever applicable can not only increase the agricultural activities leading to enhanced production of food grains but also improve the socio-economic condition of people living in that area.

North Eastern Council (NEC) under the Ministry of Development of North Eastern Region (Ministry of DONER), Govt. of India, has been involved in the process of development of all the eight states of North Eastern Region (NER) and contributing to the socio-economic development of the people of this region by providing financial assistance to the schemes/projects in various sectors.

In order to get a better picture of the proper implementation of the approved projects and effective utilization of fund released by NEC to various implementing agencies, it is necessary to evaluate the success and impact for such project. To achieve this NEC has engaged WAPCOS Limited, a Govt. of India Undertaking under the Ministry of Water Resources to carry out Evaluation and Impact studies of some projects one such being “Aamloga-Barasapur Soil Conservation and Water Distribution Project in Tezpur sub-division, Sonitpur district of Assam” vide letter of award No.NEC/EM/58/2009 dated 24th November, 2009.

The project site is located at a distance of about 45 km from Tezpur town. The people of the project area are mainly dependent on the agricultural activities for their livelihood. Due to occurrence of flood, soil erosion hazards, lack of sufficient irrigation water, soil moisture and poor socio-economic condition of people living nearby the agricultural fields of rivers Jharashar, Mansiri, Kekurajuri, Gerua, Aamloga, Sukanjuri, Barasapur etc the people were suffering badly. In order to mitigate their suffering and also to give a lift to their socio-economic condition, the above project was taken up by Soil Conservation Department of Assam. The NEC was approached for funding the project. The NEC accordingly accorded approval for an amount of Rs. 51 lakh. As a result of the project, there has been an overall socio-economic and environmental development of the area.

The approach and methodology which were followed for evaluation study of Aamloga-Barasapur Soil Conservation and Water Distribution Project in Tezpur sub-division, Sonitpur district of Assam are indicated below:

- i. Discussion with Senior Officers of the department
- ii. Collection of data and information related to the project
- iii. Perusal of project documents like project proposal, sanction letter, progress report etc.

- iv. Interaction with Senior Officers as well as Field Officers and other Technical Staff and sub-staff of the Soil Conservation Division, Sonitpur.
- v. Field visit of the project sites
- vi. Interaction with villagers, beneficiary/consumers
- vii. Interaction with local people
- viii. Findings

The purpose for which the above project proposal was approved by the NEC has been fully achieved by successful implementation of the Aamloga-Barasapur Soil Conservation and Water Distribution Project in Tezpur sub-division, Sonitpur district of Assam under Soil Conservation Department. It was also observed that due to implementation of the project not only the agricultural activity in the project area has increased but also the socio-economic condition of the people has improved thereby creating a very good social impact.

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 NORTH EASTERN COUNCIL (NEC)**

The North Eastern Region (NER) of India comprises of eight states namely Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. The NER comprises an area of 2,55,000 sq km representing 7.7% of the country's total geographical and with a population of 38.4 million, sharing 3.75% of the countries population.

With the reorganization of erstwhile Assam into formation of different states and Union Territories since 1971-72, the NEC came into being by an Act of Parliament in 1971. The NEC was empowered to act as an advisory body in respect of socio-economic development of the NER. In 2002 the state of Sikkim was inducted as the 8th member of NEC by an amendment to the NEC Act of 1971.

NEC has been functioning as a Regional Planning Body for the NER by formulating proposals and funding projects and schemes for the reasonable and balanced development of the states of the region.

The NEC is of strategic importance for being close to the India's International borders for 98% with as many as 4 countries – China (1126 km), Myanmar (1643 km), Bhutan (489 km) and Bangladesh (1187 km).

The NEC has made substantial achievements towards socio-economic development of the people of the region in various fields.

#### **1.2 PROJECT AREA**

##### **1.2.1 Introduction**

Agriculture being the prime source of livelihood for the people of Assam, they need all round development of their cultivable land in a harmonious manner. The project site is located at a distance of about 45 km away towards North direction of Tezpur town via Balipara. It extends essentially between 26°30' to 26°45'N latitude and 92°45' to 93°0' E longitude. The project area is bounded by Arunachal Pradesh towards west and north, Phulbari Teas Estate lies in south and Rangapara P.W.D Road and NH-52 in east. It falls within Balpari (Ghorabari) Development Block of Tezpur sub- division in the district of Sonitpur, Assam. The project area under consideration is rainfed and hence availability of water, the most critical factor, if assured intensive production of specialized nature could be practiced for maximum production.

##### **1.2.2 Soil and Topography**

The soil of the project area is alluvial in nature. They are sandy loam to sandy clay in texture. As per the topography of the project area concerned, it is almost flat plain with a uniform slope in some portion, specially nearer to the existing rivers, which varies from 0% to 3%.

### 1.2.3 Drainage

Four big rivers namely Jarasar river, Mansiri river, Aamloga river and Barasapur - Milanchuburi river flows through the project area. There are other small rivers like Gerua river, Saruamloga river and Bamunjuli river. There are also five small juries namely Kekorajuri, Tarabari juri, Dakhinsila Sukankhar juri and Barasapur juri.

### 1.2.4 Climate

The climate of the project area is humid sub-tropical. The area experiences a hot moist temperature during summer and cool dry temperature during winter.

The maximum temperature is 35°C and minimum temperature ranges from 8°C to 10°C. Mean annual temperature is 19°C. Humidity varies from 70% to 80%.

### 1.2.5 Demography

There are about 5800 number of families living within the project area. The people mostly belong to schedule tribe, schedule cast and general community.

### 1.3.4 Literacy Percentage

The literacy percentage has been on the increase within the project area but stands below state level average.

### 1.2.6 Socio-economic Condition

Though detail socio-economic survey is not conducted in the project area, it has been observed from the field inspection and interaction with the public that the farmers were socio-economically poor due to their dependence on agricultural activities only but after completion of the soil conservation and water distribution projects the status has appreciably increased.

### 1.2.7 Nature and Vegetation Cover and Present Landuse

Green vegetative covers are seen within the project area, specially near to the Arunachal hills. Trees are planted by the villagers. Horticultural crops are also grown in and around the project areas.

The built up land consists of homestead area, homestead garden, market area, roads, play ground, religious place etc. which contains about 15% of total project area.

Paddy is the main agricultural crop in the project area. They used to grow wet paddy crops in some parts within the project area. About 80% of the project area is used for agricultural activities by the farmers.

Apart from paddy crop, it is observed that farmers of the project area are growing wheat, maize, jute, mustard, lemon and other horticultural crops etc. The farmers also developed interest in rabi crops with the introduction of irrigation water to their crop land.

Water bodies and barren land consists of about 5% of the total project area. Water bodies are being utilized by converting them into water harvesting cum fish pond.

## **CHAPTER 2**

### **PRE PROJECT SITUATION**

#### **2.1 OBJECTIVE**

The project is aimed at proper use of all land and water resources of the project area for optimum production with minimum hazards to natural resource. The different objectives of the project are as follows:

- i. Prevention of accelerated soil erosion and degradation thereby conservation of soil and water.
- ii. Run-off control, thereby checking of sediment hazards through the existing rivers and their tributaries in the project area.
- iii. Improvement of drainage system and irrigation facilities to the cultivable lands through construction of drop structures, earthen channels etc.
- iv. Improvement of in-situ moisture conservation through construction of small agricultural field bunds in appropriate position.
- v. Poverty alleviation through improvement of overall socio economic conditions.

#### **2.2 PROBLEMS**

The major problems noticed in the project area are:

- i. Soil erosion hazards in the river bank of Jharashar, Mansiri, Kekurajuri, Gerua, Aamloga, Sukanjuri, Barasapur etc. and nearby agricultural field.
- ii. Occurrence of flood by those rivers in down stream portion of the project area.
- iii. Deficiency in in-situ moisture content due to lack of proper irrigation facilities and land development activities.
- iv. Lack of sufficient irrigation water in the field especially during summer.
- v. Low productivity from land used for agricultural purpose due to unscientific method of land utilization.
- vi. Poor socio-economic condition of land holder in the project area, since they depend mainly on agricultural production.

#### **2.3 NEEDS OF THE AREA**

The people of the project area need the following development activities for upliftment of their socio-economic conditions:

- i. Agricultural land should be improved through engineering and vegetative measures so as to take-up double cropping, inter cropping etc.
- ii. Switch off from age-old practices of cultivation to settled cultivation for which available water resource should be trapped and distributed to the agricultural field.
- iii. Reduction on soil erosion and moisture stress through measures as well as by improvement and treatment of drainage lines and construction of new field channel.
- iv. Control of flood in the project area by existing river and their tributaries.



## **2.4 ACTIVITIES**

As the people of the project area are mainly dependent on agricultural production they preferred agricultural based activities to be carried out in their fields. Therefore it was proposed to adopt activities such as land development works, gully control cum water harvesting projects, water distribution networks, river training works etc. within the project area. The combination of these items would lead not only to increase in the agricultural production but also would improve the socio-economic condition of farmers residing within the project area.

### **2.4.1 Land Development Activities**

It was proposed to carry out as many as four number of land development projects within the project area, which would contain construction of agricultural field bund for a length of 3100 Rm of property designed according to the existing field condition in different location in the field. These bund would be constructed along the field contour and across the prevailing field slope in order to retain in-situ moisture in the field for both summer and winter crops. It was expected that about 558 ha of agricultural land would be benefited out of this activities in the project area.

### **2.4.2 Gully Control Projects**

Gully erosion through the existing juries became a major threat in the project area. Moreover, paucity of sufficient irrigation water to the agricultural field was one of the major problems for the farmers to grow appropriate crop in appropriate time in the existing project area. Therefore it was proposed to construct as many as eight number of RCC drop structures covering a command area of 630 ha within the project area. The drop structure would be constructed across the streams/channels in proper locations so that each of them would cover optimum area in the field for irrigation of crops by impounding water. Apart from irrigating crops, they would also stop gully erosion since the velocity of flowing water through the streams would be reduced by the structures. It would also reduce the occurrence of flood in downstream portion of project area.

### **2.4.3 Water Distribution Projects**

Crops need irrigation water for their optimum level of productivity. The harvested water required efficient covering to the agricultural fields. A few numbers of earthen channels were proposed to be constructed in order to carry water thus harvested for crop growth in the fields. This earthen field channels distributed water within the project area. It extended for about 1500 Rm within the project area as per the need and requirement of the farmers. It would also increase soil moisture in the field which would facilitate farmers during cultivation of Rabi crops.

### **2.4.4 River Training Project**

River bank erosion is one of the major problems faced by the farmers in the project area. They are loosing their land year after year due to river bank erosion. In order to restrict further erosion for the land nearer to the river bank it was proposed to carry out river training works especially in the meandering portion of the river. The boulder spur, boulder pitching with revetment was proposed for

construction which would increase the agricultural land of the farmers along with increase in productivity.

## 2.5 SALIENT FEATURES

1.	<b>Name of the Project</b>	Aamloga-Barasapur Soil Conservation and Water Distribution Project.
2.	<b>Development Block</b>	Balipara (Ghorabari)
3.	<b>Sub-Division</b>	Tezpur
4.	<b>District</b>	Sonitpur, Assam
5.	<b>Source of water</b>	Amloga river, Barsapur river, Geruwai river.
6.	<b>Date of Commencement of Work</b>	
	<b>i. Kekurajuli Gully Control and Water Distribution Projects</b>	22 <sup>nd</sup> March, 2008
	<b>ii. Saru-Amloga Gully Control and Water Distribution Project</b>	3 <sup>rd</sup> April, 2008
7.	<b>Date of Completion</b>	
	<b>i. Kekurajuli Gully Control and Water Distribution Projects</b>	13 <sup>th</sup> May, 2008
	<b>ii. Saru-Amloga Gully Control and Water Distribution Project</b>	17 <sup>th</sup> May, 2008
8.	<b>Area Benefitted</b>	1188 ha
9.	<b>Cost of Project</b>	Rs. 51 lakh
10.	<b>Key Personnel</b>	
	<b>i. Range Officer, Soil Conservation Department, Tezpur Div.</b>	Shri. Hiren Gope
	<b>ii. Soil Conservation Demonstrator</b>	Shri. Sahabuddin
	<b>iii. Soil Conservation Field Assistant</b>	Shri. Mineswar Barua

## CHAPTER 3

### PROJECT EVALUATION

#### 3.1 GENERAL

The project evaluation was carried out in accordance with the following objectives:

- i. Evaluation of Projects/Schemes to assess the impact and desired outcome
- ii. Recommend mid-term correction of the project if any for optimum utilization of fund
- iii. Give a measure of the opportunity cost of the project
- iv. Generate guide points for better planning of future projects.

The analysis of the project parameters were done and the results are reported in this chapter under the following headings:

- Financial Evaluation
- Physical Evaluation
- Assistance provided by NEC
- Site Visit
- Interaction with Local Public
- Interaction with the Officers of the Soil Conservation Department
- Success and Impact
- Project Benefit
- Mid-term Correction
- Opportunity
- Guide Points

#### 3.2 FINANCIAL EVALUATION

The cost of the scheme as proposed by the Soil Conservation Department to NEC was Rs. 54,16,000/-. The NEC had accorded approval for Rs. 51 lakh. The details are furnished below:

Sl. No.	Name of the Scheme	Administrative approval Order/Revised Administrative Approval		Balance amount to be released by NEC Rs. in lakh	Remarks
		Number and Date	Amount Rs. in lakh		
1.	Aamloga-Barasapur Soil Conservation and Water Distribution Project.	NEC/IRGN/ASM /2K/9/1641(A/A-cum S/O) Dated: 14/09/2006	45.90	Nil	90% of the project cost is released by NEC, remaining 10% by State Government.

### 3.3 PHYSICAL EVALUATION

The project has been implemented at Balipara (Ghorabari) Development Block by the Soil Conservation Department. The physical progress are as follows:

Sl. No.	Item	Remark
1	Kekurajuri Land Development Project	Completed
2	Jarashar Land Development Project (channel cutting)	Completed
3	Barasapur River Land Development Project	Completed
4	Bor Aamlana Land Development Project	Completed
5	Merongkhar Gully Control Project	Completed
6	Barasapur Dakhinsilkhar Gully Control Project	Completed
7	Dakhinsila Sukankhar Gully Control Project	Completed
8	Merongkhar Gully Control Project	Completed
9	Jogibeel Gully Control Project	Completed
10	Saru Aamolga Gully Control Project	Completed
11	Kamala Bagan Gully Control Project	Completed
12	Sukanjuli Gully Control Project	Completed
13	Water Distrubution Project	Completed
14	Geruway River Training Project	Completed

### 3.4 ASSISTANCE PROVIDED BY NEC

The assistance provided by NEC for implementation of Aamloga-Barasapur Soil Conservation and Water Distribution Project has helped in implementation of the project resulting in reducing erosion control, soil conservation, improvement of irrigation and drainage system, meeting the needs of the farmers and overall socio-economic development of the population of the area.

### 3.5 SITE VISIT

The various project sites were visited by a team of experts from WAPCOS. The water harvesting structures and earthen canals constructed across stream Kekurajuli, Uttar Aamloga village are functioning well. Due to the existence of these structures water table of the vast cultivable land has increased resulting in increased productivity of the land. At least three crops can be harvested now after the construction and implementation of different schemes. The production of paddy before construction of the schemes was 400 kg per bigha which has increased to 480 kg per bigha after

implementation of the schemes and will further increase in future. No gully formation was seen on both upstream and downstream of the structures. After implementation of the schemes the villagers have got involved in fishery and horticultural activities like plantation of:

- i. Betel nut garden
- ii. Orange orchards
- iii. Banana gardens
- iv. Pine apple gardens
- v. Various types of other local fruits

### **3.6 INTERACTION WITH THE LOCAL PUBLIC**

Interaction with various cross-sections of the consumers as well as population of the benefitted area and also those of the adjoining areas revealed that the consumers are getting benefit out of these schemes by way of multiple cropping and increase in yield, development of horticulture, fishery and prevention of gully formation, soil erosion and river bank erosion problems.

Detailed interactions were also made with the local public of Uttar Aamloga village regarding Saru Aamloga gully control project. They are satisfied with the implementation of the project but suggest some additional works.

- i. Shri. Sukleshwar Mesh, Post Manager of Uttar Aamloga village (Ph. No.03714-291095) suggested for a gate arrangement to be made so that the water level on upstream of the project can be raised for both bank of the river whenever require.
- ii. Shri Bipin Mesh, a local of Uttar Aamloga village suggested for providing another water harvesting structure upstream of the present scheme so that water can be distributed on the higher land upstream of the structure.
- iii. Shri. Akan Narjari, Primary School Teacher of Chemoraloga village (Ph. No.7399142150) informed us that the production of paddy has increased from 600 kg to 1080 kg per bigha, whereas it was almost nil before implementation of the project.

### **3.7 INTERACTION WITH THE OFFICERS OF THE SOIL CONSERVATION DEPARTMENT**

The Director, Soil Conservation Department, Assam was informed about the visit by WAPCOS. Shri. S.K. Dev, Divisional Soil Conservation Officer, Sonitpur Soil Conservation Department was also informed about the visit. The site which is about 45 km from Tezpur town was visited on 20<sup>th</sup> December, 2010. The following officers and staff accompanied during the site visit.

- i. Shri. Hiren Gope , Range Officer, Soil Conservation Department, Tezpur Div.
- ii. Shri. Sahabuddin, Soil Conservation Demonstrator
- iii. Shri. Mineswar Barua , Soil Conservation Field Assistant

### **3.8 SUCCESS AND IMPACT**

The project approved by NEC has met its success as evident after seeing the happiness and satisfaction of the consumers and the population and after fulfillment of their requirement for development of the area after land development, gully control, water distribution, river training etc. measures were taken up with funding of NEC. It is also a fact that due to implementation of this project the public at both macro and micro level are harvesting the benefits in terms of overall socio- economic development due to increased agricultural production, multiple cropping, horticultural development and other connected benefits.

The implementation of the project has created a very good social impact.

### **3.9 MID-TERM CORRECTIONS**

The mid-term corrections are an integral part of project implementation if the corrections are technically sound and financially viable. In case of this project under evaluation there is no scope for mid-term correction since the physical works have been completed at site. However, the guide points as mentioned in the following para need be adhered to.

### **3.10 OPPORTUNITY COST**

The project for Aamloga-Barasapur Soil Conservation and Water Distribution Project was approved by the NEC for a cost of Rs. 51 lakh. The project could be completed without escalation. Since the project was approved when cost price index was at a much lower level, it was beneficial for the NEC as well as the State Government not only from the point of view of early public benefits through increased agricultural production of food grains but also from the consideration of positive financial advantages.

### **3.11 GUIDE POINTS**

The guide points which we would like to mention based on our field experiences during visit to project sites are:

- i. The index map showing the project location should be geo-referred and preferably on Survey of India toposheet showing the roads, rivers, water source, intake location etc.
- ii. There should be a proper layout plan of the project showing the distribution system, location of gully control projects, land development projects etc.
- iii. Number of population benefitted due to this project should be mentioned showing population pattern etc.
- iv. Salient features of the project.





**Water Harvesting Structure across Kekurajuli stream**



**Kekurajuli GC cum Water Distribution Project**



**Kekurajuli GC cum Water Distribution Project**



**Detail Downstream View of Kekurajuli Water Harvesting Structure**





**View of the paddy field at the project site**



**Water Harvesting Structure**



**Saru-Aamloga GC cum Water Distribution Structure**



**Saru-Aamloga GC cum Water Distribution Structure**





**View of Paddy field in Saru-Aamloga**



**Chemoraloga GC cum Water Distribution Structure**



**Barkhapur GC cum Water Distribution Structure**



**Water body suitable for fishery**