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Report No. 128

**Report on a Semi-Detailed Soil Survey
of
PAYA SETAJAM-SEMABAK**

4th Division

**by
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**Soil Survey Division
Research Branch**

October, 1968.

**Dept. of Agriculture
Sarawak**

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HUNTING TECHNICAL SERVICES

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Report on a Semi-detailed Soil Survey of PAYA SETAJAM - SEMABAK, Fourth Division

1. Topography

2. Vegetation and Landuse

1. Brown Family

2. Red Family

3. Brown Family by

4. Brown Family Ahmad Haji Ebon

(Assistant Agricultural Officer)

5. Brown Family Soil Survey.

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Contents

page

Introduction 1

Method of Survey 1

General Characteristics of the Area 2

1. Topography 2

2. Vegetation and Landuse 2

SOILS

1. Seduau Family 2

2. Bijat Family 3

3. Sebandi Family 3

4. Mukah Family 3

5. Anderson Family 4

Conclusion 4

Introduction

Paya Setajam - Semabak Area is located south of Sebauh, an inland town on Batang Kemena in Bintulu District, Fourth Division. The area is bounded on the north and the west by Sg. Sebauh and in the south and the east by the foothills. (See Location map on Map 1). The total area covered is approximately 1,755 acres.

This survey was requested for a proposed drainage and irrigation padi scheme. In 1962, this area was covered by reconnaissance soil survey by Wall (see Soil Survey Report No.22) and this area is mapped as deep peat. The semi-detailed survey was intended to confirm the investigation and to demarcate any area that can be used for the cultivation of padi.

The fieldwork was carried out in late August to early September 1968 by a party comprising the reporter and two Agricultural Assistants, Basmawi bin Mahli and Zamiran bin Ujang.

Method of Survey

The standard method of semi-detailed soil survey was adopted. Rentises were cut from the river bank to the foothills at close intervals but in this area only a few rentises were cut because the information obtained from the first few rentises indicated the presence of deep peat.

Soil examination were done at every two tapes and in cases of doubt, examinations were done at intervals of every tape (1 tape = 25 meters or approx. 82 feet). A 20 foot pole with notches at the lower end was used to examine the peat.

Soil boundaries were located with the help of the field data and, to a certain extent, the vegetation pattern on the aerial photographs.

The field map was compiled directly from the 1:10,000 photographs. Distortion in the scale is expected and this will affect the accuracy in the acreages given on the map. The final maps were reduced to 1:20,000 scale. The three maps produced show soils distribution on Map 1, vegetation and Landuse as Map 2 and Drainage requirement on Map 3.

General characteristics of the area

1. Topography:

Being flat land there is no relief. Between the Sg. Sebauh and the foothills there is a deep accumulation of peat. Where the water in the swamp is drained off by the natural streams, the peat is shallow such as the area in the south west corner.

2. Vegetation and Landuse:

Apart from the alluvial flat in the western corner which is covered by seedling rubber and secondary growth, sago and annual rice cultivation, the whole area is covered by primary swamp forest. Padi under the A.P.P.S. is found on either side of Sg. Setajam. Farmers complained of poor harvest from this scheme despite the vigorous vegetation growth.

SOILS

The soil in this area is predominantly peat soils derived mainly from the accumulation of organic materials, with the alluvial deposits found on the river banks.

The soils in the area can be classified as follows:-

GREAT SOIL GROUP	SOIL FAMILY
Recent Alluvial	Seduuau
Gley Soils	Bijat
	Sebandi
Peat Soils	Mukah
	Anderson

Seduuau Family (45 acres)

This is found as a small strip along the south west corner of the area. Seedling rubber and secondary growth covered the area.

The common characteristics of Seduuau soil are brownish yellow clay loam to clay with some indication of light texture layer on heavy ones being repeated down the profile. Mottles of reddish brown occur in some profiles. It is an active accumulating alluvial soil.

Seduai soil is suitable for a variety of crops but the area is too small for any organised scheme.

Bijat Family (25 acres)

This soil family is found backing the Seduai and occurs close to the river bank in the western part of the area.

Bijat soils are characterised by grey to light grey clay mottles with strong brown below 25 inches of the surface. In certain profiles, the mottles are much lower down. The topsoil, if present, comprises very dark brown clay loam often mixed with well to partly decomposed organic matter. Mottles concentrate mainly within the 'redox' layer. Below this the soil is mainly gleyed.

This soil is ideal for padi cultivation and other annual crops with proper drainage.

Sebandi Family (80 acres)

The soil of this family occurs as a small strip backing the Bijat Family and in the northern part of the area, it is associated with Mukah soils.

Sebandi soil is similar to Bijat except that the water table in the profile is close to the surface thus making the clay more in a reduced state. Mottling if any is noticed in the upper layer of 6 inches of the clay layer where most of the fine roots are present. Sebandi soil has peat topsoil up to 10 inches thick. The drainage condition is poor.

Sebandi soil is ideal for padi after drainage improvement.

Mukah Family (125 acres)

The soil is found in between the gley mineral soils and the deep peat and is found along the river bank.

Mukah is characterised by the grey to white clay with peat topsoil ranging from 10 to 40 inches thick. In areas where the peat has been cultivated for padi, the topsoil is more decomposed than those in the virgin jungle.

Mukah soil if well drained can be used for padi cultivation.

Anderson Family (1,480 acres)

This soil covers the major part of the area. It extends from the Sg. Sebuah right to the foothills.

Peat soil is composed of raw woody peat which exists in a well waterlogged condition. The peat has depth ranging from 40 inches to well over 15 feet. Anderson 1 (40-80 inches deep of peat), Anderson 2 (80-120" deep of peat) and Anderson 3 peat exceeding 120".

At the present, Anderson soil is regarded as unsuitable for agriculture.

CONCLUSION

Out of the 1,755 acres, only 275 acres of Seduau, Bijat, Sebandi and Mukah soils can be used for the cultivation of padi and these with proper improvement and management would be guaranteed to give good crops. Anderson 1 may be used but moderate drainage requirement is necessary. Map 3 shows the drainage requirement, the detail of which could be obtained from Report No.119. The major part of the area is under Anderson 2 and 3, the reclamation of which would be uneconomical. Moreover the crop grown on drained peat as is seen on other areas and in this area of the A.P.P.S. near Sg. Setajam develops more vegetative parts than the grains.

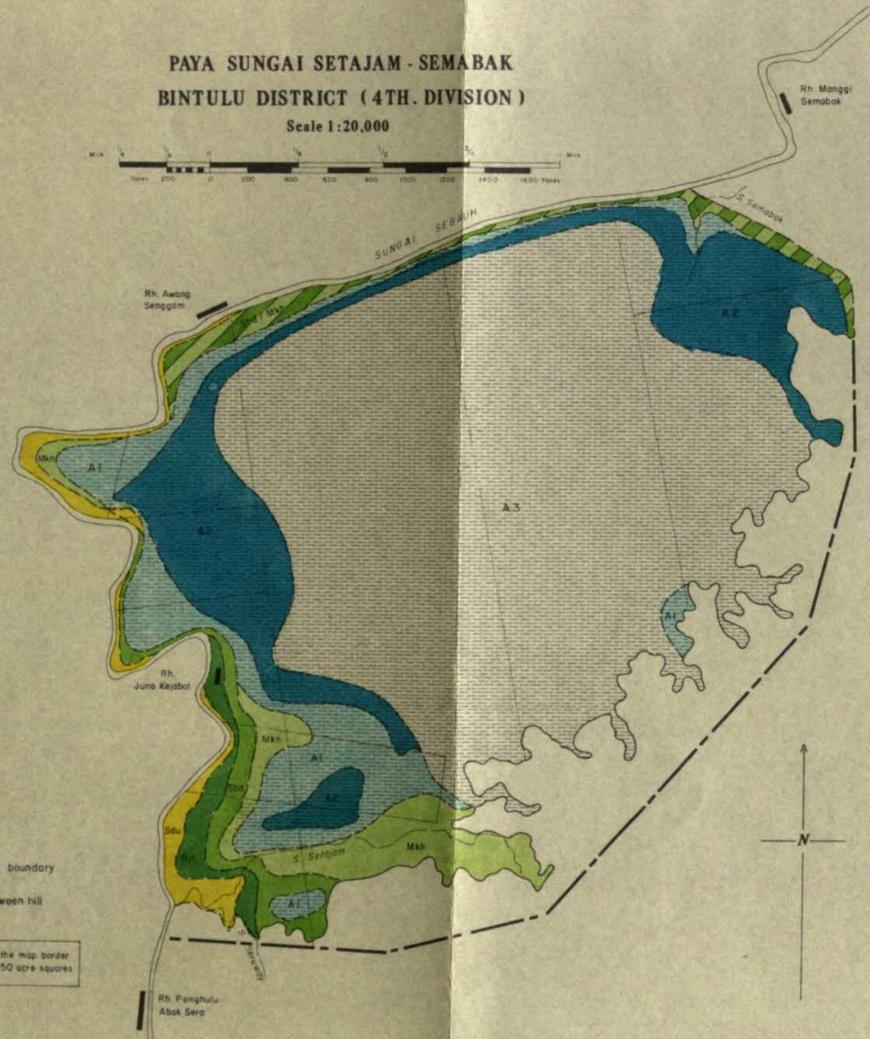
In view of the extensive area under peat soil it would be cheaper to abandon this area for major padi scheme than to reclaim it.

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MAP 1 : SOILS

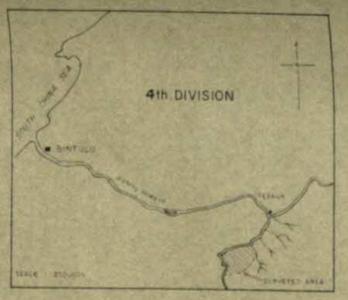
PAYA SUNGAI SETAJAM - SEMABAK
BINTULU DISTRICT (4TH. DIVISION)

Scale 1:20,000



Legend
 --- Restases
 - - - Tentative soil boundary
 ~~~~~ Boundary between hill and flat land  
 The division of the map border form a grid of 50 acre squares

LOCATION



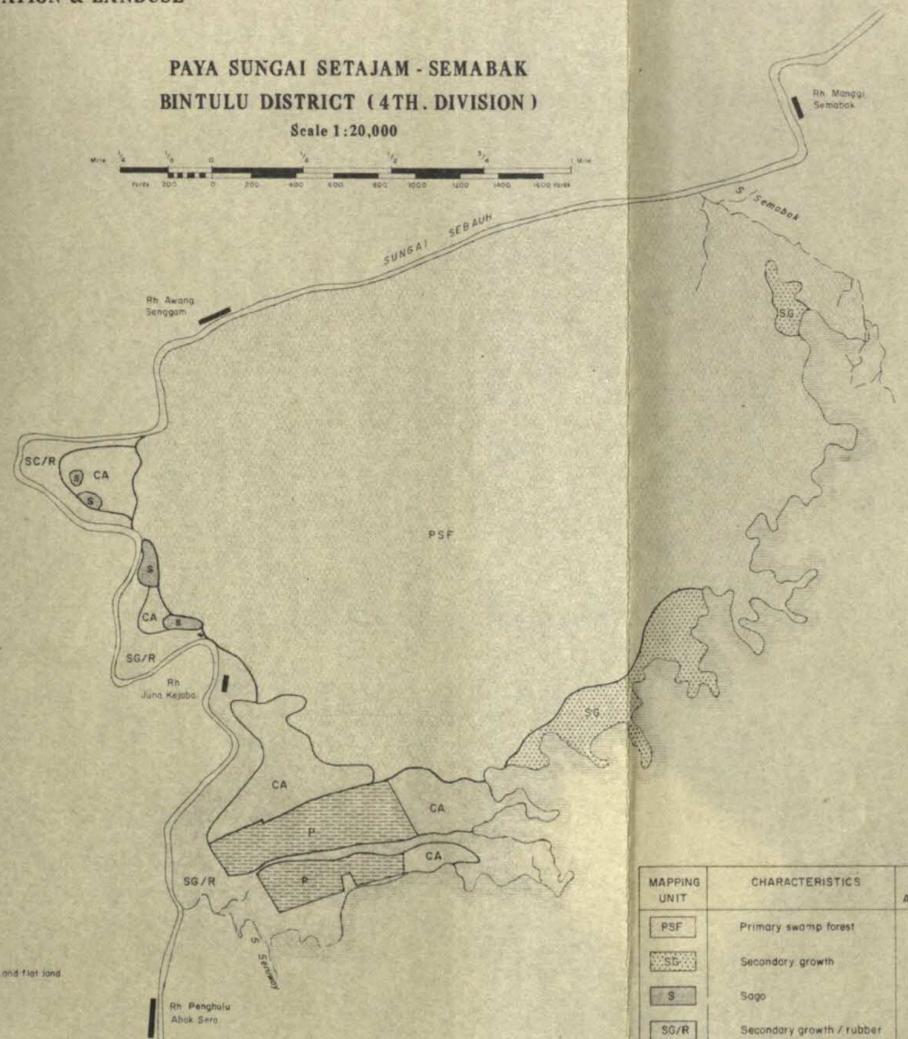
KEY TO SOIL

| ORIGIN           | MAPPING UNIT | SOIL FAMILY | MAIN CHARACTERISTICS                                           | APPROX. ACREAGE | SOIL SUITABILITY                                |
|------------------|--------------|-------------|----------------------------------------------------------------|-----------------|-------------------------------------------------|
| ALLUVIAL DEPOSIT | S4u          | SEDIAU      | Well to imperfectly drained yellow clay loam on clay           | 45              | Suitable for rice. Require drainage improvement |
|                  | S1u          | BIJAT       | Poorly drained light grey alluvial clay                        | 25              |                                                 |
|                  | S2u          | SEBANGI     | Poorly drained light grey clay with 10" peat topsoil           | 80              |                                                 |
| ORGANIC DEPOSIT  | Mkh          | MUKAH       | Very poorly drained light green clay with 10"-40" peat topsoil | 125             | Unsuitable for agriculture                      |
|                  | A1           | ANDERSON    | Peat ranging 40"-80" thick on light grey clay                  | 165             |                                                 |
|                  | A2           |             | Peat ranging 80"-120"                                          | 280             |                                                 |
|                  | A3           |             | Peat exceeding 120"                                            | 1,035           |                                                 |

MAP 2 : VEGETATION & LANDUSE

PAYA SUNGAI SETAJAM - SEMABAK  
BINTULU DISTRICT (4TH. DIVISION)

Scale 1:20,000



**LEGEND**  
 ~~~~~ Boundary between hill and flat land  
 The division of the map border form a grid of 50 acre squares

| MAPPING UNIT | CHARACTERISTICS | APPROX. ACREAGE |
|--------------|---------------------------|-----------------|
| PSF | Primary swamp forest | 1,370 |
| SG | Secondary growth | 55 |
| S | Sago | 5 |
| SG/R | Secondary growth / rubber | 135 |
| CA | Cleared area | 110 |
| P | Paddy under APPS | 80 |

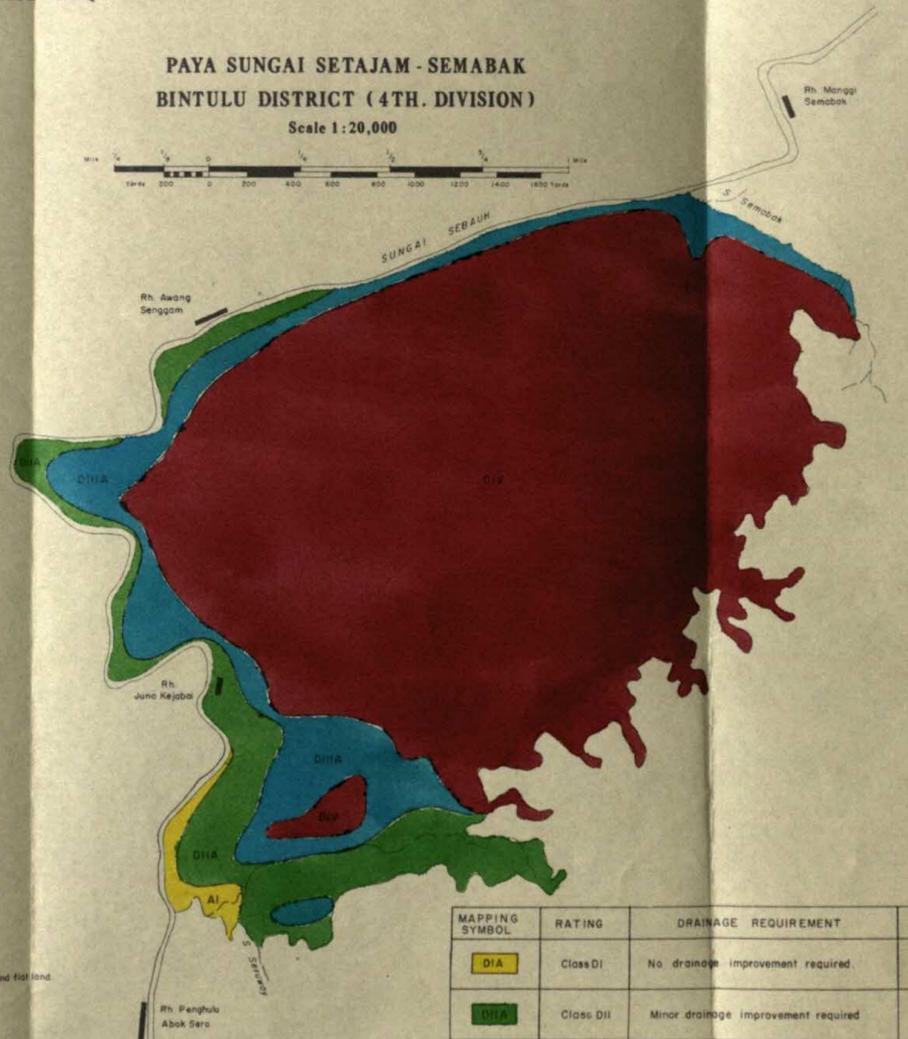
Soil Survey Drawing No. 197 Survey Area No. 128 September, 1968 Based map derived from Land & Survey Dept. Sarawak

Compiled by Ahmad Haji Eban Drawn by Sabil Mhd. Ap

MAP 3 : DRAINAGE REQUIREMENT

PAYA SUNGAI SETAJAM - SEMABAK
BINTULU DISTRICT (4TH. DIVISION)

Scale 1:20,000



LEGEND
 ~~~~~ Boundary between hill and flat land  
 The division of the map border form a grid of 50 acre squares

| MAPPING SYMBOL | RATING     | DRAINAGE REQUIREMENT                   | APPROX. ACREAGE |
|----------------|------------|----------------------------------------|-----------------|
| ■ (Yellow)     | Class DI   | No drainage improvement required       | 20              |
| ■ (Green)      | Class DII  | Minor drainage improvement required    | 165             |
| ■ (Blue)       | Class DIII | Moderate drainage improvement required | 230             |
| ■ (Red)        | Class DIV  | Major drainage improvement required    | 1320            |

Soil Survey Drawing No. 197 Survey Area No. 128 September, 1968 Based map derived from Land & Survey Dept. Sarawak

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