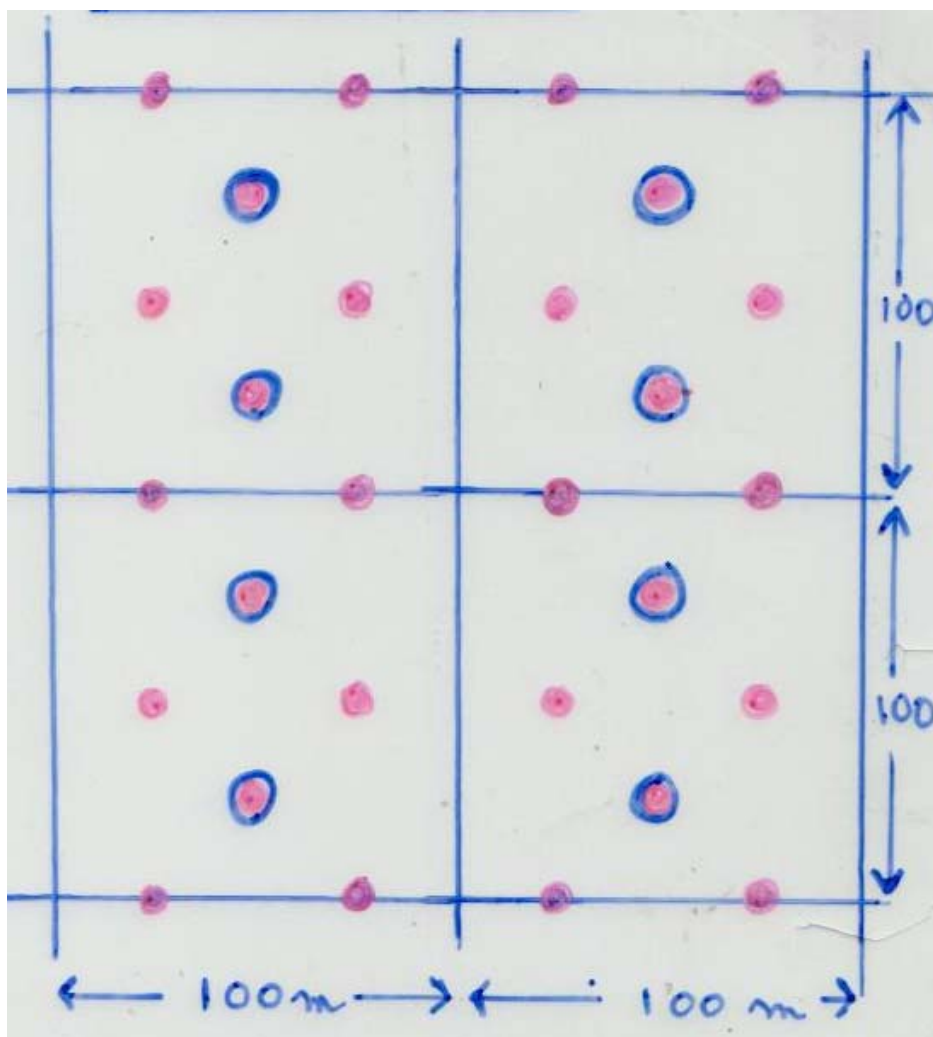


# EARTHQUAKE and TSUNAMI EMERGENCY SUPPORT PROJECT (ETESP)

## IRRIGATION SITES – Sand Surveys



(May 2006)

## INTRODUCTION

Following previous cooperative visits to some ETESP Irrigation and Drainage sites in Aceh Jaya field staff undertook the task of mapping the depths of sand covering the sites.

The Soil Scientists from the Agriculture Component of ETESP visited two sites with the field staff on 2<sup>nd</sup> May 2006 to assess if this was being done in a manner that would supply the required outputs and to offer any assistance in the form of advice on procedures etc.

## ETESP SOIL SCIENTISTS

Visit conducted by;

Austin Hutcheon – Desalinisation and Improvement Specialist  
Pak Sarwono – Soil Scientist

## FINDINGS

The field staff were making progress and had a good understanding of what they were trying to do in that:

- Sand was being recognised as sand
- Sites were being done following methodical grid layout which was covering the areas in question
- Progress could be quicker and life made easier for the field staff

## POINTS DISCUSSED and RECOMMENDATIONS

### 1. Progress

Progress could be speeded up considerably by using other means of excavating the inspection holes.

- A simple local chisel-like device was being used and sites were taking up to 15 – 20 minutes to complete
- For shallower sands a small “chisel or mini” pit could be excavated in seconds using a local hoe or even a spade. This would enable the surveyors to actually see the sand:soil junction very clearly and get very accurate depths of sand
- For deeper sands the ETESP Soil Scientists enabled the staff to complete the excavation of sites to up to one metre in 3 – 4 minutes using an auger.

The recommendation is that ETESP Irrigation 7 Drainage obtain at least one auger as soon as is possible. Advice on and how to get suitable augers can be obtained from Pak Sarwono through ISRI – Indonesian Soil Research Institute, Bogor.

The auger used on this visit was a collapsible Edelman-type auger and when obtained “sand” or “combination” heads would be required as the auger must be able to lift the sand to the surface.

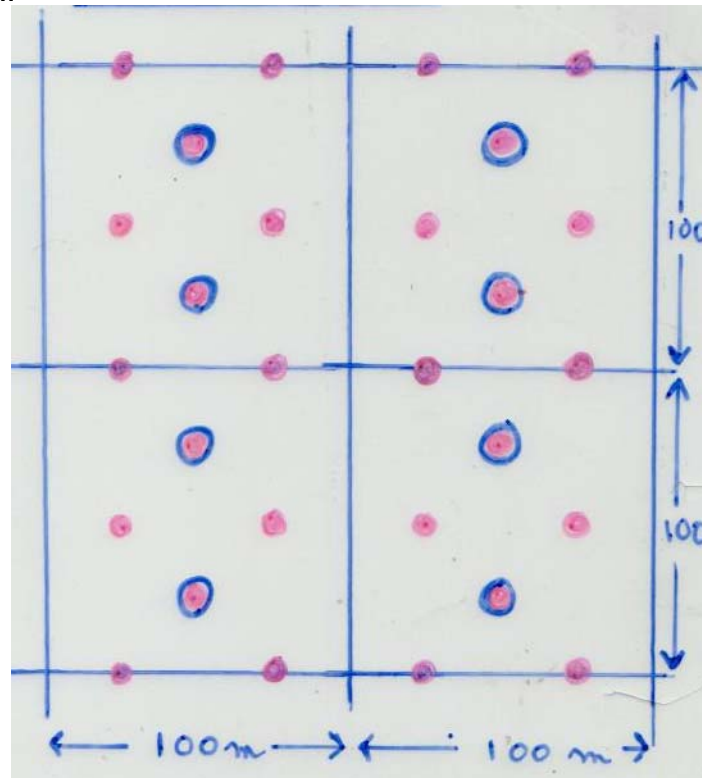
### 2. Phased Approach

The possibility of doing the surveys in a phased manner was discussed and is explained below.

1. The recommended density is FAO Mid which uses 8 sites per hectare as being suitable for mapping at 1:2,000 or 1:2,500 scale
2. The diagram below comprises 100m x 100m (1 hectare) blocks
3. There are 8 sites suggested per block – each site represented by a red dot
4. The first pass should be done at lower density and the FAO Minimum is suggested, that is 2 sites per Hectare
5. The sites with the blue circle round the red dot represent the first pass
6. After the first pass is done append the sand depth beside the site (dot)
7. See if it is possible to then map out the deeper and shallower areas
8. Where is not possible start doing the intermediate sites till a reliable map can be drawn
9. In very complicated areas more than 8 sites per hectare may be needed

The field staff appreciated the idea of having to do “check” sites to establish more accurately where the boundary or contour between various depths could be drawn.

The layout of the present survey is basically as given above and the suggestions are made to possibly assist make life easier for the surveyors and get the job done more quickly – excavating and describing endless sites in this manner is a very boring task.

**Figure 1 Site Distribution**

The advantages gained here could be the rapid separation of areas that are covered in sand far too deep to contemplate ploughing or partial removal. The balance of the planned sites could then be used to accurately delineate the boundary between depth classes.

### 3. Immediate Thoughts on Findings to Date

#### 3.1 Baba ie

The original soil surface would appear to have been very uneven or undulating from the few sites looked-at since depths of sand were random. If this area had originally been used for flood irrigated agriculture then the surface would have been level, or much more level than it is.

The depths of sand noted to date indicate that this area is not going to be suitable for padi and flood irrigation. There is too much sand and not enough water to consider flooding until the sand is saturated due to the water sitting on the low permeability clay(ish) original soil, and the sand is generally too deep to plough in or remove.

The site would be very suitable for overhead and drip types of irrigation.

The best use could well be planting of Kelapa and then creation of improved pasture grasses below the Kelapa and the raising of livestock, as was done in the past. The water supply from the irrigation system could be used for livestock and possibly domestic purposes.

#### 3.2 Kreung Tunong

The area looked at on the visit was the most northern part lying between the road and the hill-front basically where the word "Kreung" is shown in Figure 2.

Near the road at this location the present soil surface is virtually at road level and the depth of sand noted was about 100 cm. This was confirmed by a local farmer who said the padi used to be one metre below the road.

Sand depth did decrease towards the hill front, dropping to about 15 cm at one point, and it might well be possible to recover a strip of land for irrigation just below the hill front – this is on the assumption that the refurbished irrigation supply main canal / channel runs along the contour below the hill.

**Figure 2 Northern Part of Kreung Tunong**