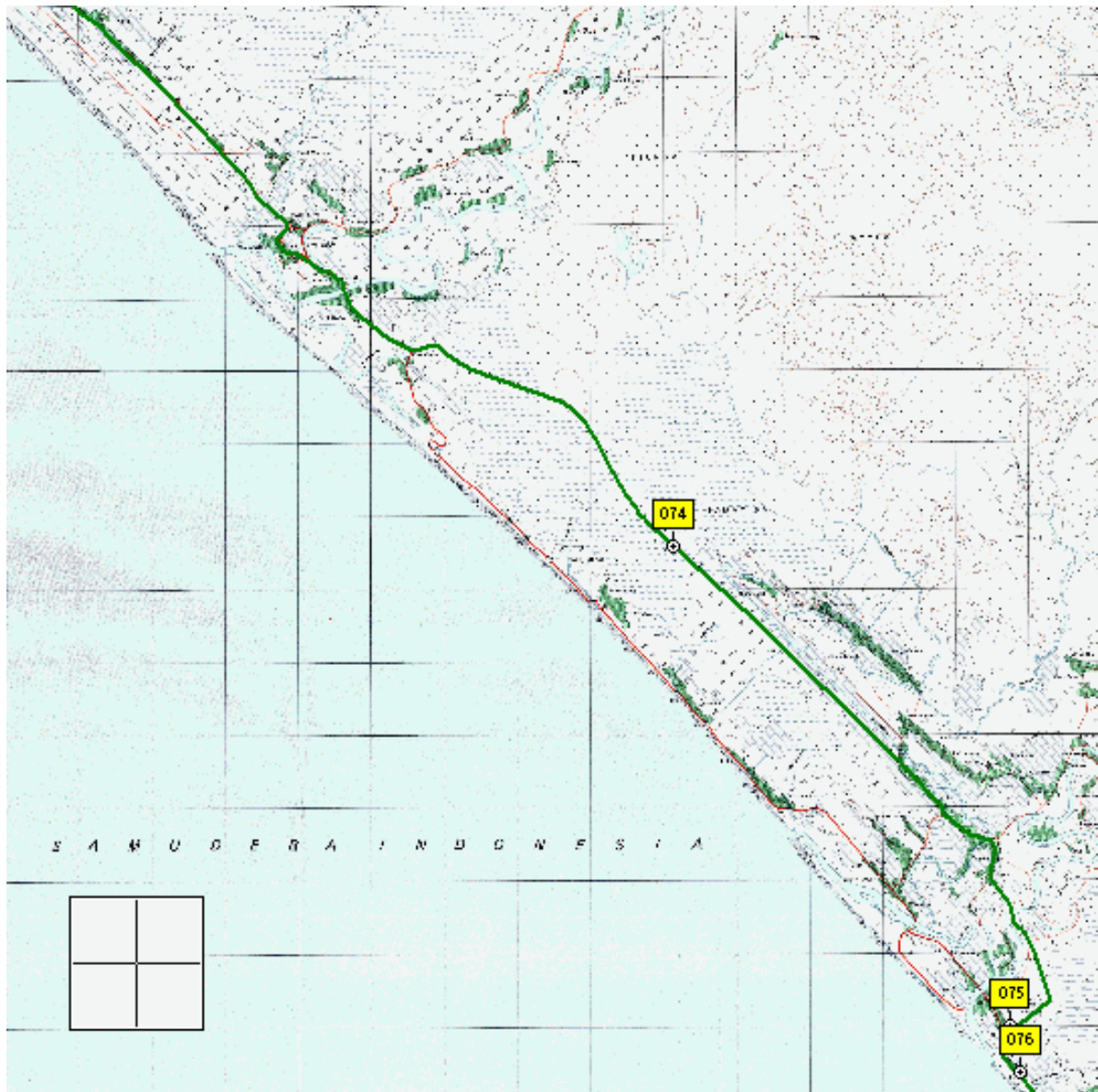


EARTHQUAKE and TSUNAMI EMERGENCY SUPPORT PROJECT (ETESP)

Field Tour Report

Feb 20th – Feb 24th 2006



(Version of 6 March 2006)

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1. PURPOSE and AREAS VISITED

The purposes of this field tour were to:

- allow the ADB Safeguards Committee visit and review sites proposed for ETESP Agriculture inputs as detailed in the SPAR submitted covering the year 2005 programme
- allow the ETESP Soil Salinity and Improvement Expert have a first look at the west coast areas and determine if any new problems or scenarios could be identified and amelioration inputs designed
- establish and / or maintain contact between ETESP and the various Dinas Pertanian offices in the districts

For the west and north coast visits the party comprised 3 ADB staff, 3 ETESP Agriculture Component staff and several Dinas Pertanian staff from Banda Aceh plus, in the various districts, staff from the district offices.

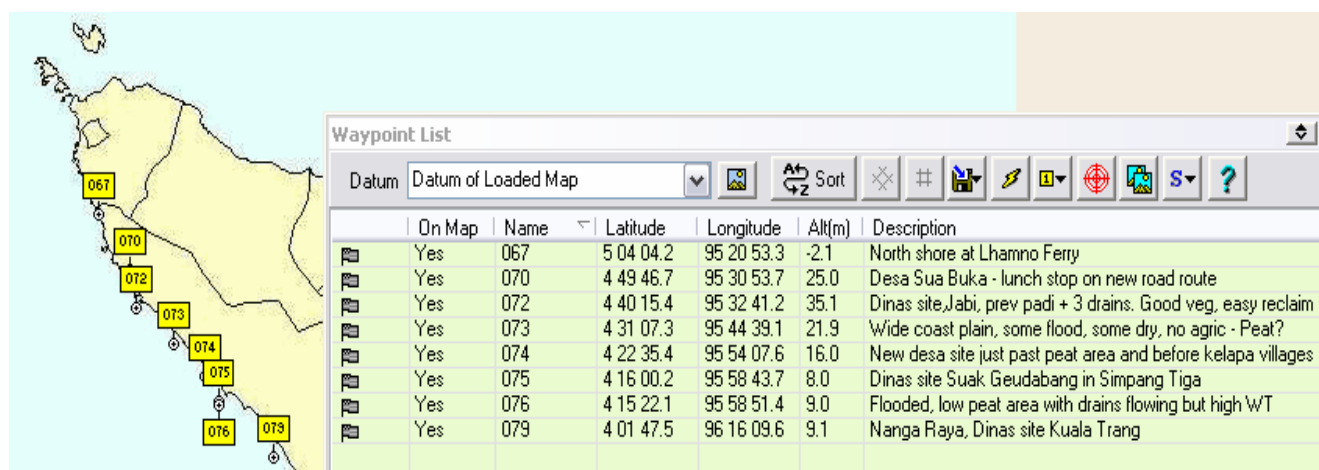
For the visit to the east coast, Aceh Utara and Aceh Timur, the team comprised the ETESP Agriculture Deputy Team Leader and the Soil Salinity and Improvement Specialist

The field sites visited were all selected by the various Dinas Offices as being in need of inputs from the ETESP programme; the inputs to be "Cash for Work" in the first instance and would mainly comprise the physical clearing of vegetation and manual refurbishment of drainage channels and similar activities.

The following Areas were visited as follows:

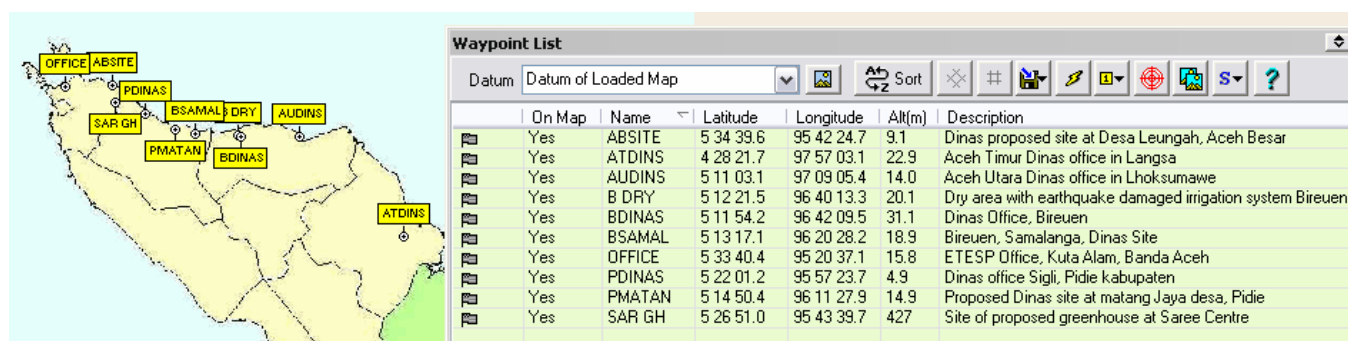
West Coast	Aceh Jaya, Aceh Barat and Nagan Raya	20th – 21 st February 2006
North Coast	Aceh Besar	22 nd February 2006
East Coast	Pidie, Bireuen	23 rd February 2006
East Coast	Aceh Utara and Aceh Timur	24 th February 2006

Figure 1.1 West Coast Location Points



The sites in these figures are all detailed in the following chapters and can be seen with a good degree of accuracy on the relevant maps in the text – the map used in this figure is for approximate locational purposes only and is not accurately geo-registered.

Figure 1.2 North and East Coast location Points



2. ITINERARY & ROUTE RECORDING

2.1 West Coast

The route followed was from Banda Aceh down the west coast through Aceh Besar, Aceh Jaya - using the ferry at Lhamno – and southwards into Aceh Barat and finally just into Nagan Raya just south of Meulaboh.

From Lhamno southwards GPS records were taken in the form of “waypoints” (WP) of navigational features, such as road junctions or village names, as well as a continuous record of the route (“GPS Track”).

The waypoint records are presented as Figure 1 and they can be uploaded to a GPS unit for future use via the GPS software OziExplorer.

Both WPs and “tracks” (road alignment followed) were downloaded onto the ETESP digital copies of the 1:50,000 scale Bakosurtanal topographic maps (Refer ETESP Digital maps Feb 2006).

An indication of the accuracy of the GPS records can be seen from Figure 2, where WP067 represents the boarding point of the ferry at Lhamno – it is right on the edge of the river. The bright red line crossing the river and continuing southwards is the ferry then road alignment.

The GPS used is a standard Garmin Etrex Summit. The GPS collected data in geographic format (Degrees Minutes and Seconds) using the WGS84 datum. The digital maps were geo-registered in the software using the WGS72 datum – the software reconciles any difference and presents map data in the datum used for map geo-registration.

2.2 North Coast – Aceh Besar

The route followed was basically northeastwards out of Banda Aceh on the coast road as can be seen in Figure 2.3. The mapped road is the darker brownish red line whilst the GPS track recorded is the bright red line. As can be seen the GPS data shows good agreement with the mapped road and hence is acceptably reliable. The yellow boxes on the right hand side are the waypoints identifying the Dinas site. (Refer Section 4.3)

Figure 2.3 Route Through Aceh Besar and Proposed Site in Kecamatan Seulemeun, Desa Leungah



Figure 2.1 Waypoints Recorded on the Trip

Name	Latitude	Longitude	Alt(m)	Description
067	5 04 04.2	95 20 53.3	-2.1	North shore at Lhamno Ferry
068	4 53 07.9	95 24 20.8	6.1	Road junction, go left Calang as road cut at Lho Kruet ahead
069	4 52 48.9	95 29 00.8	15.8	Dryland +, Sampe or Pante Purba, Y-junct - go right
070	4 49 46.7	95 30 53.7	25.0	Desa Sua Buka - lunch stop on new road route
071	4 47 27.9	95 27 41.2	20.1	W & D land agric then new houses in village then L onto dirt road
072	4 40 15.4	95 32 41.2	35.1	Dinas site, Jabi, prev padi + 3 drains. Good veg, easy reclaim
073	4 31 07.3	95 44 39.1	21.9	Wide coast plain, some flood, some dry, no agric - Peat?
074	4 22 35.4	95 54 07.6	15.8	New desa site just past peat area and before kelapa villages
075	4 16 00.2	95 58 43.7	7.9	Dinas site Suak Geudabang in Simpang Tiga
076	4 15 22.1	95 58 51.4	9.1	Flooded, low peat area with drains flowing but high WT
077	4 09 27.2	96 07 38.9	7.0	Meulaboh - restaurant
078	4 02 50.8	96 15 01.0	7.9	Meulaboh Airport
079	4 01 47.5	96 16 09.6	9.1	Nanga Raya, Dinas site Kuala Trang

Figure 2.2 WP for Ferry Crossing at Lhamno



2.3 The North & East Coast of Kabupatens Pidie and Bireuen

The route followed is the main road from Banda Aceh to Medan and can be seen in Figure 2.4. Banda Aceh to Kota Sigli (Pidie Kabupaten) takes about 2 hours and another 1 hour is needed to reach Kecamatan Samalanga in Bireuen, where the local Dinas had a site. No suitable base map has yet been compiled to show this latter part of the route.

Figure 2.4 Route via Saree to Sigli (Pidie)



The route is shown by the green line on the above map. The ETESP office location in Banda Aceh, the site of the proposed green house at Saree and the location of the Dinas office in Sigli are shown as GPS waypoints (yellow boxes).

2.4 Samalanga (Bireuen) to Langsa (Aceh Timur)

This part of the route also follows the main road to Medan and passes through Aceh Utara to reach Aceh Timur – time required from Samalanga to Langsa approximately 5 hours. No accurate map has yet been compiled in the ETESP system to show this road.

3. NOTES & OBSERVATIONS

3.1 West Coast – 20th February 2006

3.1.1 Banda Aceh to Lhamno (2 hours)

In passing the Lhoong Area (Refer ETESP Lhoong Site Visit Report Nov 2000) in one hour from Banda Aceh it was obvious that the situation there has not changed and little use of the land could be seen – the main problem at Lhoong was determined to be a “people-shortage” due to the decimation of the population by the tsunami. Much of the area of Aceh Jaya then traveled through showed very little potential for agriculture but could present possibilities for eco-tourism as the area is extremely photogenic. At the ferry crossing around Lhamno, which was obviously developing rapidly with a great deal of construction, there were several developments of padi rice in the valleys – this suggested that if there are enough people in the area then farming will be undertaken.

3.1.2 Lhamno to Sua Buka (2 hours)

After the ferry crossing the line of the original road is not followed and along the new route there was much evidence of flooding on the lowlands and there was some land-clearing on the slopes with the pattern suggesting “shifting” cultivation was being undertaken – the upland slopes were steep. On rejoining the coastal road there is a very narrow coastal strip with a great deal of flooding with possible land subsidence in places from the earthquake and some massive destruction of bridges. About one hour south of Lhamno the area is badly flooded and at a road junction the route turns left for Calang, the road ahead goes to Lhok Kruet but does not cross the river. The un-surfaced road is then very slow and rough passing through steep land in places. There is good mixed upland and wetland farming in and around Sua Buka, a convenient if unexciting lunch stop.

3.1.3 Sua Buka to Jabi (1 hour)

There is wet-land and dry-land farming south of Sua Buka but, once back near the coast, the area is often flooded and the coastal strip is very narrow. However, about 30 minutes from Sua Buka, on this narrow coastal strip some farming was being done on the higher places behind the sand-bar that existed on the edge of the ocean. There were flooded areas and it might be possible to deepen the flooded channels, to improve drainage, and use the excavated material to build up the slightly elevated sections. This suggestion has been added to the ETESP “Scenarios” descriptions (*Scenario No 7 update of ETESP, March 2006*). At this point the Dinas Site of Jabi was visited; refer Section 4.2

3.1.4 Jabi to Suak Geudebang (3 hours 20 minutes)

Much of the area south of Jabi in the vicinity of Calang was flat, flooded and with a high cover of debris and about 1 hour south of Jabi virtually everything had been flattened and destroyed. (*Information on slightly damaged land in Pangsa Kecamatan south of Calang can be found in the ETESP Oxfam Site Visit Report, March 2006*) Another 30 minutes south was a wide coastal plain and many tents could be seen. This area had some flooding but a high proportion of unflooded land though there were no signs of cultivation.

About 2hrs 30 min south of Jabi there was a huge area cleared in the forest for a new desa – this is in a peat area.

Figure 3.1 Peat Area



Figure 3.2 Peat – Mineral Soil Boundary



The scale bar on the Landsat Image above is 1km in length

In the Landsat images above the peat area is the uniform dark green forested area with very few obvious signs of any development within it, apart from the faint line in Figure 3.1 which would be a road – but it is not known if this is the alignment of the new road. Soon after that normal mineral soils occur and villages had normal dry-land farming with many coconut trees; the change from peat to mineral soil area is very clear in Figure 3.2. Suak Geudebang was then reached in 3hrs 20 min where the new housing was more traditional in design and of wood construction. Two site inspections were carried out here (Refer Section 4.2)

3.1.5 Suak Geudebang to Meulaboh (2 hours)

Very few observations made on this section due to light conditions – it was dark! However, it can be stated that the road was far from good with many off-road detours inland and sometimes onto the beach.

In Figure 3.3 the original road alignment is the red line whilst the route now used is the green line (GPS track).

As can be seen the present route generally lies almost 1km inland from the old route and very long detours are used to bypass badly damaged or flooded areas.

Figure 3.3 Final Part of the Route into Meulaboh



3.2 West Coast South of Meulaboh – 21st Feb 2006

The proposed site for Nagan Raya is located approximately 20 minutes southwest of Meulaboh on the coast road which runs past the airport. This proposed site is briefly described in Section 4.2 and no observations apart from the site were noted.

3.3 North Coast of Aceh Besar – 22nd February 2006

Most of the route into this area passes through steep, rough hilly terrain with little obvious potential due to shallow soils over rock. It would appear that cattle are grazed on many of the crests and hill tops as tree and shrub cover is replaced by grassland.

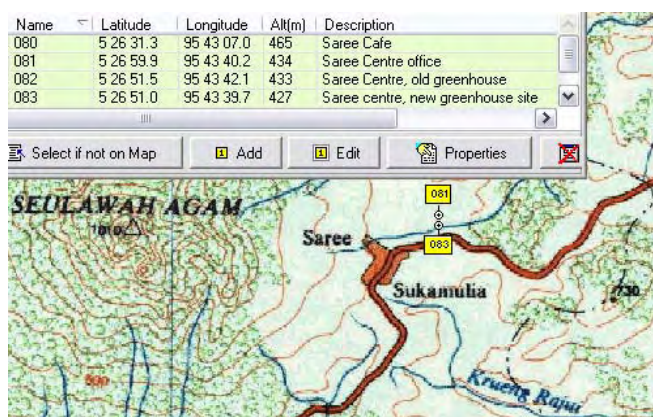
Kecamatan Seulemeun of Kabupaten Aceh Besar is reached in approximately 1hour 30minutes on an asphalt road which is not in good condition in many places. The next 30minutes is on un-surfaced road which is quite rough in places, but is passable to most vehicular traffic, and passes through hilly terrain with rich vegetative cover and often an abundance of rounded and sub-rounded stones and boulders which are basaltic in appearance. The soils seen are well structured, very dark brown in colour and would appear to be quite fertile by the state of the crops seen where farms exist.

The Dinas site is at Desa Leungah which is right on the coast edge with a dark coloured sandy beach. The local population were still living in their original houses hence this area was not heavily impacted by the tsunami. The soils must be very permeable as the area is irrigated but the water table, 20m from the sea, was at approximately 3m depth hence sea-water intrusion is not happening here. Notes on the site are presented in Section 4.3

3.4 North Coast, Pidie and Bireuen – 23 February 2006

No observations were made en-route to the above apart from recording coordinates of the new, proposed greenhouse at the integrated horticultural centre at Saree, where the party stopped to allow the ADB committee to view the site.

Figure 3.4 Location and Altitude of New Greenhouse at Saree



After discussions with Dinas staff in Sigli two sites were visited:

- Matang Jaya Desa and
- Samalanga

Points discussed in Sigli and features of the sites seen are discussed in Section 4.4. At present there is no map in the ETESP collection to clearly show the locations of the two sites visited.

However, in Section 4 the LandSat images for the immediate location around the above sites are presented.

3.5 North and East Coasts, Samalanga to Langsa – 23rd and 24th February

As this part of the trip was focused on making contact with the Dinas offices in Aceh Utara and Aceh Timur very few observations were made either going or returning.

However, the coordinates of the Dinas offices in Langsa and Lhoksuemawe were noted for future reference and the fact that there was a very dry area just west of Bireuen town was noted. This area obviously had rice planted but the fields were dry and the soils were cracking. Information from the respective Dinas office was that the irrigation system, covering a vast area, had been damaged by the earthquake and water supply was now not possible.

In the LandSat image the regularity of the irrigation canals can be seen as rectangular patterns.

Figure 3.5 Dry Area Bireuen



The scale bar lies approximately on the line followed and is 1km in length

4. DINAS PERTANIAN SITES VISITED

4.1 Introduction

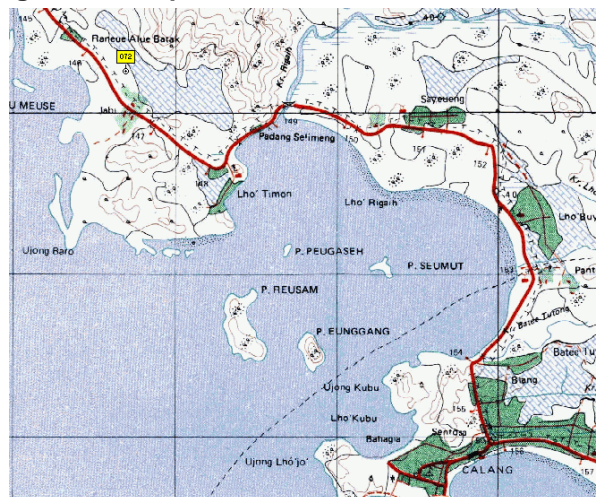
The sites described in the following sections are those proposed by the various Dinas offices for inclusion in the "Work for Cash" programme under 2005 budget.

4.2 West Coast Sites

4.2.1 Jabi, Kabupaten Aceh Jaya, Kecamatan Setia Bakti, part of Lhok Timon Desa

This site is shown as WP72 in the map below and is only a few hundred metres from the main road and about 500m from the ocean.

Figure 4.1 Proposed Dinas Site at Jabi



Previously: this site was a padi area with 2 crops per year possible. Palawija crops also grown with rubber and cloves being mentioned.

Damage: classified on the ISRI (Bogor 2005) maps as heavily damaged due to salinity level and depth of sediment.

However, since this area was presently totally covered in very vigorous, mixed vegetation and the surface showed a texture of fine sandy clay loam ETESP would not accept this as heavily damaged land.

Social: an active farmers group exists in the area and the leader of this is confident of full cooperation in any "cash for work" intervention.

Conclusions: this area has apparently recovered to a large extent and can now be fully recovered very easily using "cash for work" which would comprise:

- Clear the existing vegetation
- Re-establish the field plots
- Locate and clear all the drains to ensure they work efficiently, and
- Refurbish the irrigation supply

4.2.2 Suak Geudebang, Kecamatan Sama Tiga, Kabupaten Aceh Barat

At Suak Geudebang two sites were briefly visited.

- Site 1 – north of the village, site 75 in Figure 4.3, and covered in heavy vegetation, not flooded and 1km from the ocean. Site quoted as being 60 hectares in size
- Site 2 – south edge of the village, site 76 in Figure 4.3, with very large drains, high water-table, virtually at sea level and less than 500m from the ocean.

The village has new houses with more of a traditional design than many and constructed of wood.

Figure 4.2 Jabi Site on LandSat



The scale bar in the above image is 1km long

The vegetative state suggests that the salinity is not presently a problem and the texture is a perfectly suitable medium for plant growth (Refer Sandy Sediments, ETESP, 2006) and in the LandSat image there are no patterns to suggest problem soils.

Features: this area has three drainage channels plus an irrigation supply and, with the bonus of relatively high rainfall in the area, desalinisation has occurred. The major feature being the presence of a drainage system. In addition there is an existing farm road.

After the tsunami, which spread 5km inland whilst this village is 1km inland, the people left as they were reportedly afraid of the sea but 80 families have already returned. Families have been doing “cash for work” with Mercy Corp and many are now ready to return to their own area and land.

Figure 4.3 Proposed Sites at Suak Geudebang



Site 1 (WP75): Previously: used for rain-fed padi with good yields being obtained

Damage: although badly flooded this site could only be described as lightly damaged in that there is now strong, mixed local vegetative growth and no flooding seems to presently exist. Topsoil texture could not be checked due to the density of vegetative cover but it seemed to be dark coloured and might possibly be peaty

Features: population is now returning, the area is not flooded and the NGO “Solidaritas” is said to be in the process of installing a main drain

Conclusions: this area would seemingly be relatively easy to clear and recover with the main problem being disposal of the excessive amount of local vegetation now covering the site. There would be too much to contemplate composting and burning would appear to be the only option

It is not easy to reconcile the topo-map with the LandSat image and it is assumed that the river course and shape has changed near the coastline.

Figure 4.4 Suak Geudebang on LandSat



The scale bar in the above image is 1km long

Site 2 (WP76): It is not clear if this site is actually being considered for reclamation but it does offer an alternative to site 1

This site is very close to the ocean but it already has main drains installed and these drains are flowing. However, even with the drains there is a very shallow water-table at 20 – 30cm depth and, being virtually at sea level, there would be continual risk of re-inundation with sea water at high tides. Also, sea-water intrusion might be occurring.

Conclusions: this site could be recovered, it already has a functioning drainage system, but it will be at continual risk of further inundation and / or sea-water intrusion. The dark colour of the water suggests the area is peaty, but the water reaction (pH) was not measured so it cannot be confirmed if it is acidic or not.

[Refer ETESP Scenarios, Update of March 2006.]

4.2.3 Kuala Trang, Trang Kecamatan, Nagan Raya Kabupaten

Before proceeding to the proposed site, which lies about 20km south east of Meulaboh on the road which passes the airport, discussions were held in the Dinas office. Some of the items discussed are noted below:

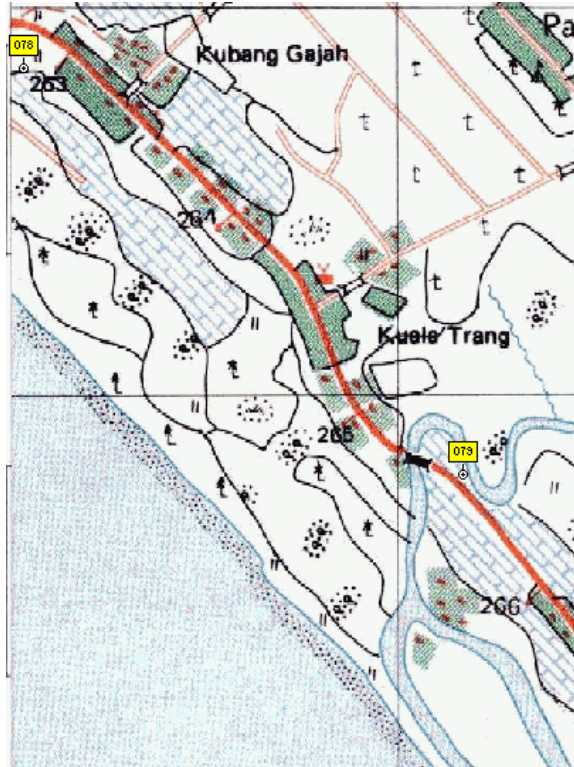
- The definition of the ‘damage’ classes was brought up and the staff agreed with ETESP that the presently used definitions are not always correct. The Kepala Dinas agreed with the ETESP finding that depth sediment is not, in itself, a limitation and that crops were growing quite well on sediments.
- In some areas it was considered that the sites had actually been improved due to the addition of sediments.
- About 20% of framers in damaged areas are now cropping and all had been helped or assisted with:

Cash-for-work” in clearing and cleaning, and
Supply of fertilisers etc

- Dinas has some quite strong feelings and that the “cash-for-work” programme must be monitored to ensure that work is actually done. That is the programme must be “cash-for-work” and not “cash-for-you”!
- There was a feeling that there had been a lot of research done in the post tsunami areas but the Dinas had never had any feed-back from researchers or organisations carrying out the research. It is suggested here that ETESP might be able to encourage some of the NGOs to undertake some on-farm trials and research but in conjunction with the Dinas staff – ensuring the Dinas benefits. Some simple trials on plots based on what has been done in the areas that are recovering might show benefit for future inputs – one such topic being “why rice shows fairly good growth in the initial, vegetative stages but then fails to produce any grain”. This might be due to:

1. Continuing salinity in the soil
2. There could be some nutrient imbalances
3. Some nutrient deficiencies, naturally occurring but worsened by the leaching effects of the flooding. There would appear to be quite a widespread deficiency of magnesium – based on all soil analyses seen to date by ETESP (ETESP 2006, Interpretation of Laboratory Data).

Figure 4.5 Proposed Dinas Site in Nagan Raya, Desa Kuala Trang



In Figure 4.5 waypoint number **78** is at Meulaboh airport whilst the site is number **WP79**.

Previously: this site was irrigated padi with good yields

Damage: this site was obviously heavily inundated as it lies at low level and is about 1km from the ocean – the flood would have had very easy passage up the river channel

Features: the site is very heavily vegetated, including some Phragmites sp that indicate that the site is very wet and flooded, there will be a huge problem in dealing with the cleared vegetation. Burning is probably the only solution

There is a strongly flowing river through or at the edge of the site and this will have acted as a drain and allowed removal of saline effluent from the site

There are some coconut trees still growing and they are fruiting so salinity would not appear to be an on-going problem here

The surface water is brownish in colour suggesting peat may exist in this swampy area – but water reaction was neutral (pH 7)

Conclusions: this site should be recoverable without too many problems as salinity does not seem to be a feature and the river, which bisects the site, is already supplying a drainage channel. The main problem will be in dealing with the huge volume of vegetation that has to be removed from the site.

There is no LandSat image presented for this site due to cloud cover on the image.

4.3 North Coast of Aceh Besar

4.3.1 Desa Leungah, Kecamatan Seulemeun, Kabupaten Aceh Besar

Figure 4.6 Desa Leungah



The GPS road track on the map, in red, can be seen on the LandSat image as a pale coloured line – otherwise it is not easy to reconcile the map with the image.

Figure 4.7 Leungah on LandSat



The scale bar on the image is 1km long.

The promontory or headland at Ujung Bateeputeh may well have taken the brunt of the tsunami wave, the wave coming in from the North-West, and hence sheltering desa Leungah. This location might actually be considered as a totally new “scenario” for ETESP in that the site was only very slightly damaged with the inundation more like a “high”

tide. The local population continues to live in their original houses and there are no obvious signs of the tsunami having caused much in the way of physical damage.

Previously: this site was a very productive irrigated padi area and, it is being assumed from observations made approaching the village, that the soils are quite rich and fertile. There has already been one crop of rice since the tsunami and the yield obtained was 80% of expected.

Damage: as noted above there are no obvious signs of the normal, devastating damage inflicted on villages this close to the shore line; a possible explanation for this being suggested above below Figure 4.4. The flood was relatively gentle and about one metre deep and it did retreat very quickly. Damage would have been limited to salinity caused by the infiltration of the sea water.

Features: study of a village well revealed that the present water table is at about 3m depth and this well is situated at less than 20m from the shore line. The shoreline comprises dark coloured sand and this would have very high infiltration rate. It could be the case that the soils have high infiltration or hydraulic conductivity due to sandy layers and this might have led to relatively large amounts of sea water being infiltrated. Conversely, if such sandy layers exist, reclamation of the soils would have been easier and quicker due to the more rapid infiltration.

The villagers have already largely recovered their land through self help and, as stated above, one crop has already been harvested with a yield of 80%. The irrigation is operational and the soils obviously are draining.

Conclusions: this area was very slightly damaged and through “self-help” the recovery or reclamation is well underway. It could be argued that this village does not need any or much assistance to fully recover. However, from a social point of view this village is relatively remote in Aceh Besar, there is a road but it is an unmade road, and more importantly the area has virtually been cut-off from the rest of the country for about 20 years due to the previous uprising. For social reasons and to help get some modernization into the farming system here “cash-for-work” could be of great value and allow the full repair of the irrigation and drainage systems.

4.4 North & East Coast – Pidie and Bireuen

4.4.1 Discussions with Dinas

The following points were raised in discussions with Dinas staff in the Sigli office:

- Still confusion and administrative problems with respect to the funds for the “cash-for-work” programme and there has been no real action as yet. It is hoped funds will be on stream soon as about 70% of the people are back in their villages and need to get on with reclamation.
- Tsunami damage was, on the whole, only slight to moderate and people stayed in close proximity to their farms and now mainly ready to try and resume agricultural activities
- The ETESP “scenarios” need to be fully understood at desa level before the “cash-for-work” programme gets fully designed and underway.
- Dinas staff appear to understand about the need for and requirements of reclamation leaching but would benefit from a workshop on the subject to get the whole picture
- About 20% of the damaged area is still below pre-tsunami condition, mostly on the lower slopes (ETESP Scenario 4)

4.4.2 Matang Jaya Desa, Pidie Kabupaten

As stated previously ETESP Agriculture presently does not have an accurately geo-registered topographic map of suitable scale on which to show sites in Pidie or Bireuen.

The best map that can be used at present has been extracted from Map Frame and, with very approximate geo-registration, is presented as Figure 4.8 with the waypoints showing as follows:

- PDINAS –Dinas office, Pidie
- PMATAN – Desa Matang Jaya, Pidie
- BSAMAL – Site in Samalanga, Bireuen

It must be stressed this map is NOT accurate but can be used to indicate approximate locations.

However, some data can be extracted from the LandSat images in Figures 4.9 and 4.10

Figure 4.8 Pidie & Bireuen Sites

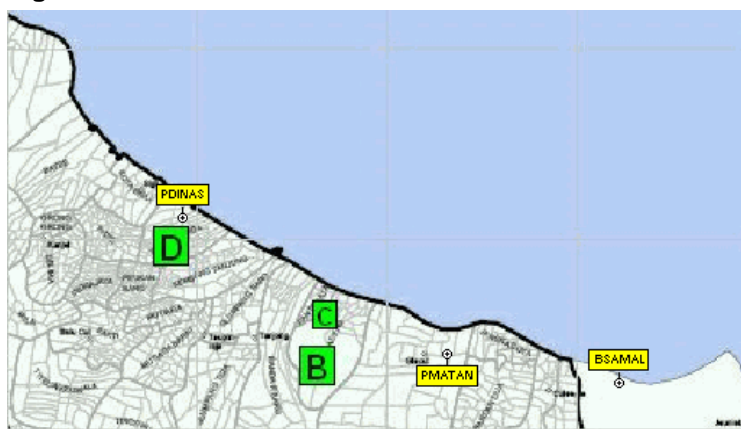


Figure 4.9 Matang Jaya on LandSat

The scale bar on the image is 1km long and is located in the approximate position of the site.

Conclusions; this area has already benefited from the ETESP programme and further allocation of “cash-for-work” funds would allow the area to get back to pre-tsunami status, if not better, by clearing and refurbishing both the irrigation and drainage systems.

Previously: this was a highly productive padi area. There has been ETESP assistance already with the supply of seed and fertilisers and it is reported that all the people are now back on site and ready to resume full agricultural activity.

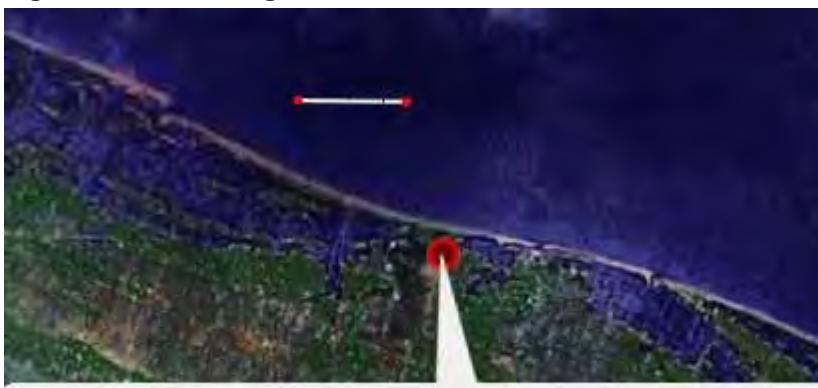
Damage: damage was reportedly slight with an inundation of only 15cm. However, the irrigation canal is not in good condition, though it is arguable if this was caused by the tsunami as, by general appearances, it would appear that the state of the canal is partly due to long term neglect and lack of good maintenance. The drain, not actually seen, is also in need of refurbishment – like all drains in all schemes.

Currently the first crop of padi is underway, it is the first crop since water-melon was grown as the first crop due to its tolerance to salinity. At present, due to the limited capacity of the irrigation system, only one crop of padi can be grown per year.

Features: the Matang Jaya site comprises an area of healthy looking padi with an irrigation canal; this canal is in need of refurbishment and would be the target of the “cash-for-work” programme. The canal is well choked in parts with weeds and slumped material but, more importantly, at some of the weirs the canal is now very wide due to collapsing banks and there must be active erosion of the fields. Water use efficiency must be very low due to the “ponds” that now exist on the canal.

4.4.3 Desa Simplam Mamplam?, Samalanga Kecamatan, Bireuen Kabupaten

As stated previously ETESP Agriculture presently does not have an accurately geo-registered topographic map of suitable scale on which to show sites in Bireuen. The best map that can be used at present has been extracted from Map Frame and, with very approximate geo-registration, is presented as Figure 4.8 whilst Figure 4.10 is the LandSat image of this location.

Figure 4.10 Samalanga Site on LandSat

Date: 1979/3/16

Magnitude: 5.5999999999999964473

The scale bar on the image is 1km long

Villagers are back on site and work of clearing up started immediately after they recovered from the immediate trauma. The third crop is now growing with expectations of a near normal yield since crops 1 and 2 gave 65% and 75% of predicted yields respectively. Land owners, share croppers and labourers have all been involved in the reclamation and many of the local people also have interests in fish ponds or are fishermen.

The process followed in this area was exactly as recommended by the ETESP Agriculture component:

- Debris was cleared
- Drains were cleared and made functional
- Irrigation was restored to a working condition
- The land was ploughed, inputs applied and crops grown

“Cash-for-work” funding is now required for this enterprising area to allow the repairs to the drainage and irrigation systems to be made more permanent and hence fully restore agricultural output to the previous two crops per year with normal yields.

Additional data can be extracted from the LandSat image since this image has the location of previous earthquakes included. As can be seen the epi-centre of a 5.9 scale earthquake occurred in 1979 more or less exactly on the site of this village. The recent flooding can also be seen as water covered areas are coloured blue similar to the ocean colour.

The site in Samalanga can only be described as a “showcase” of what can be achieved through self-help and “cash-for-work”. Through local motivation some 1200 hectares have been cleared in 3 months with a quoted 10,000 people being involved. The people were not re-located to distant locations but stayed in the local school and were motivated to start self-help by a local religious leader.

4.5 Kabupaten Aceh Utara

The visit to Aceh Utara was more of an “establish contact” exercise than one where proposed sites could be seen. However, some useful information was still collected and is presented below.

Sites are in:

Kecamatan Seunnudon	GP Matang Lada Desa Gp Matang Desa MatangPuntong Desa
Kecamatan Tanah Pasir	Matang Tunong Desa Matang Baroh Desa

The staff in the Dinas office stated that they were poorly supplied with information on funding etc from BRR and that there was virtually nothing happening or could happen until April and budgets came on line.

The areas proposed for the “cash-for-work” programme did not suffer massive, destructive damage but there was an inundation of about 1metre depth which left deposits of around 15cm depth.

The areas are close to the ocean, were previously padi and all the people were moved out as IDPs. Since there is no irrigation or drainage in the area the people have not yet gone back and the staff suggested that if ETESP wanted to see the site (not really possible as it was a Friday) they would need to be prepared to walk as access was not good. It is reported that grass is now growing and this suggests that it is time to start the reclamation process but budgetary limitations mean that no work is possible or planned for the immediate future.

It was suggested that about 30% of the people were now in houses constructed by NGOs, but many people are still in the IDP barracks.

The Dinas staff did have some comprehension of the requirements for reclamation with the need to refurbish drainage as the first step. As in Sigli a workshop presentation on the reclamation process might be a worthwhile task before the “cash-for-work” programme actually starts.

4.6 Kabupaten Aceh Timur

Location proposed for the ETESP “C-for-W” programme is in Simpang Ulim but there was no opportunity to visit this site. The site had suffered a “gentle” flood of about 1metre depth and the damage was reported as only slight to moderate.

The damaged area was very close to the ocean and was irrigated padi land. The local population has not returned to the original location but as of February some were commuting into the area to carry out the initial stages of reclamation and one crop giving about a 50% yield has been obtained after:

- Debris clearance
- Mixing in the sediment plus fertiliser application
- Clearing drains to about 50cm depth

But the irrigation system is broken and there is no or only poor water supply and the land is dry.

However, there is a much larger problem in this area and that is a social problem. The local population wants to return and live in their original location, which is right on the coast, but present rules and regulations do not allow new houses to be built in such exposed and vulnerable places. There are negotiations continuing to try and solve this problem but the locals want to live in the original place as many are also fishermen and would be prepared to accept the risk of living in an exposed, dangerous location.

5 CONCLUSIONS and FINDINGS

The conclusions and findings are presented as a list with no further explanation – explanations are to be found in the actual report:

1. Physical damage appears to be much heavier on the west coast as compared to the north and east coasts and future inputs should be concentrated on the west coast interventions
2. Much of the land on the north and east coasts is well on the way to recovery or has already been recovered, apart from heavily salinised areas on lower slopes below irrigation schemes and close to the ocean (Refer ETESP Scenarios)
3. ETESP interventions have, when applied to lightly damaged or reclaimed land, proved beneficial in getting agricultural production going again
4. The original classification of “damage” is not reliable and some lands classified as “heavily damaged” will, in fact, be easy to reclaim. Before any area is reclaimed or written off a further site inspection should be carried out
5. Depth of sediment is not, in itself, a problem as some areas are now considered to have been improved due to the addition of sediments. The tsunami re-distributed soil that it passed over by stripping some areas and dumping the soil it picked up in other areas further inland
6. Deep sandy sediments are a problem but, luckily, not many such areas have been encountered
7. Damage to the social status and confidence of local people involved in the tsunami devastation may in fact be a bigger problem than the physical damage to their land
8. Reclamation and recovery of land and agriculture is happening / has already happened in several areas and these are in areas where the local people were NOT removed from their home village areas as IDPs. By continuing to live on-site the opportunities to carry out reclamation work are greater and incentive may be higher
9. Staff in many of the Dinas offices feel that they are NOT getting sufficient support and feedback from BRR with respect to the status of proposals and availability or likelihood of funding for the “cash-for-work” programme
10. Workshops could be beneficial for fully explaining the proposed reclamation processes and procedures being promoted by ETESP. Firstly, Dinas staff should be fully briefed and trained and then the messages need to get down to the villages before “cash-for-work” programmes commence
11. “Cash-for-work” must mean exactly that and not be treated as a hand-out of “cash-for you”!
12. Some Dinas centres feel that there has been a lot of post-tsunami research done but they have, as yet, to get any feedback or advice from the researchers. Dinas staff must be involved in any on-farm and other research activities
13. All proposals to date seem to be directly tsunami related but there are some problems directly related to the earthquake that must be investigated and attended to – such as the damaged irrigation systems on the east coast for example in and around Bireuen town – there are vast areas of dry soils with wilted crops.

6. ETESP Soil Desalinisation and Improvement Reports and Tools

6.1 ETESP Soil Desalinisation and Improvement Reports

6.1.1 Technical Data Reports

ETESP Agricultural Component, Desalinisation & Soil Improvement, Mobilisation Report, OCTOBER 2005, Updated FEBRUARY 2006

ETESP, Banda Aceh Kota, Kuta Alam, Data Assessment and Soil Reclamation, NOVEMBER 2005

ETESP, Aceh Besar Kabupaten, *Lhoknga, Darussalam and Baitissalam*, Data Assessment and Soil Reclamation, DECEMBER 2005

ETESP, Pidie Kabupaten, *Meureudu, Triang Gadeng, Panteraja and Simpang Tiga*, Data Assessment and Soil Reclamation, DECEMBER 2005

ETESP, Bireuen Kabupaten, *Samalanga, Jeunieb, Jeumpa, Jangka and Ganda Pura*, Data Assessment and Soil Reclamation, DECEMBER 2005

ETESP, Executive Summary, Soil and Land Reclamation, DECEMBER 2005

ETESP, Soil and Land Reclamation Scenarios, DECEMBER 2005, Updated March 2006

ETESP, Interpretation of Laboratory Data for ETESP Irrigation Component, FEBRUARY 2006

6.1.2 Background Technical Papers

ETESP, Background Paper, Annual & Monthly Rainfall, OCTOBER 2005

ETESP, Background Paper, Soil Acidity and Aluminium, DECEMBER 2005

ETESP, Digital Maps, FEBRUARY 2006

ETESP, Earthquake & Tsunami Emergency Support Project, Sandy Sediments, FEBRUARY 2005

ETESP, Soil Conditions for Wetland Rice, MARCH 2006

6.1.3 Site Visit and Tour Reports

ETESP, Site Visit Report – BRR Area at Lhoong: Kemukiman Cot Jeumpa, DECEMBER 2005

ETESP, Site Visit report, BLANG KREUNG SITE, DECEMBER 2005

ETESP, Tour Report, Field Tour Report NAD Areas, Feb 20th – Feb 24th 2006, FEBRUARY 2006

ETESP, Site Visit Report, Visit to Oxfam Sites Calang, MARCH 2006

6.2 ETESP Soil Desalinisation and Improvement Tools

File name and date	Purpose
ECe from EM38 data.XLS OCTOBER 2005	Calculate soil salinity (ECe) values from raw data collected by EM38 salinity device when no calibration information provided
Leaching Water Requirements.XLS NOVEMBER 2005	Calculate the depths and volumes of water that have to be applied and pass through a selected depth of soil to achieve desalinisation. Information required includes: <ul style="list-style-type: none"> • Textural class of soil • Initial salinity of the soil (dS/m) • Target salinity wished to be achieved (dS/m)
Irrigation Leaching Progress.XLS NOVEMBER 2005	Determine how many irrigation gifts have to be applied to achieve de-salinisation of various depths of variously textured soil. Information required includes: <ul style="list-style-type: none"> • Soil textural group, or • AWHC (Available Water Holding Capacity) • Estimate of water application efficiency, or use default values • Size of irrigation gift as mm of water

<p>Survey Density.XLS DECEMBER 2005</p>	<ol style="list-style-type: none"> 1. Correlate the scale at which to map surveys of various types from reconnaissance to very detailed level 2. Determine observation density (Sites / hectare) 3. Calculate the total number of sites for surveys at various reliability levels <p>Requirements:</p> <ul style="list-style-type: none"> • Survey area extent in hectares (ha) <p>Also presents various map and mapping information</p>
<p>ETESP Labdata summary.XLS Version 4 FEBRUARY 2006</p>	<p>Enter standard laboratory data and obtain ratings as to the level of all the various nutrients and chemical properties.</p> <p>Also calculate weighted mean values for topsoil and subsoil plus obtain automatic simple summary of:</p> <ul style="list-style-type: none"> • Inherent fertility • Fertility potential • Possible nutrient deficiencies • Salinity status, and • Reaction <p>Also experimental estimate of possible perceived risks</p>