

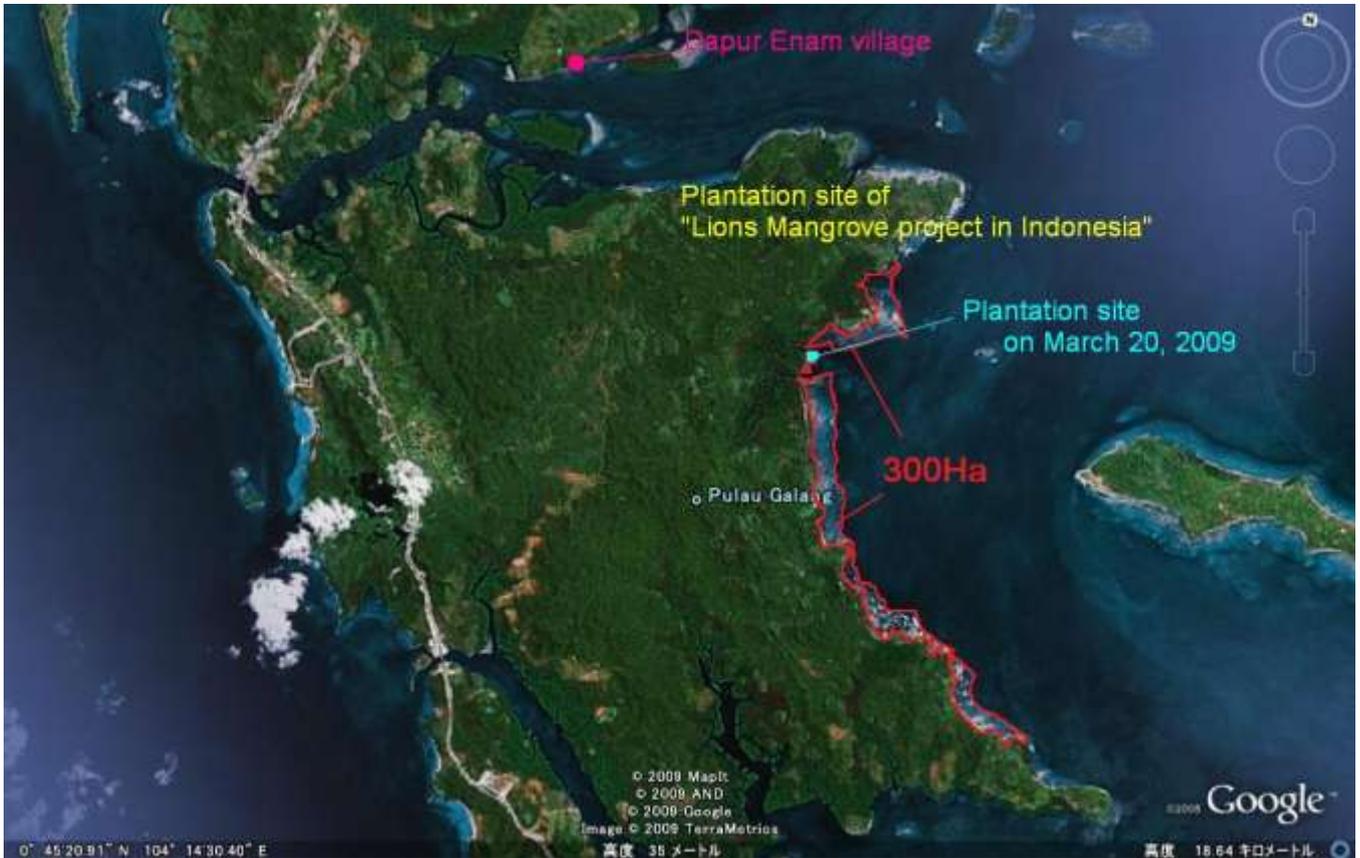
NPO Lions Mangrove Project, a report No. 2

Date created : August 23, 2009

Reporter : Kawazoe(YLinvest)

Date: Sunday, August 23, 2009 **Whether:** Rain

Location: NPO Lions Mangrove Project site at Cape Ramei, Galan, Batam Island, Riau Islands province, Republic of Indonesia



Afforestation date: March 20, 2009

Planted timber : *Rhizophora mucronata* ; 800 stands
Avicennia officnalis ; 800 stands

Status : 5 months had passed since the plantation.

Tide table

AGUSTUS 2009																										
J/T	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	J/T	
23	3.0	2.5	1.8	1.1	0.6	0.4 * 0.5	0.9	1.4	2.1	2.6	3.0	3.0 * 2.6	2.1	1.5	1.0	0.8 * 0.9	1.2	1.7	2.3	2.8	3.2	3.0	2.5	1.8	1.1	23

* Upper layer; time, Lower layer; meter

Site observation

Land on dry beach which located east side of the forested site at 8: 20 a.m. Five months have passed since *Rhizophora mucronata* that was planted when the members of NPO Lions Mangrove Project had visited the site in March.



The picture above showed the current status of *Rhizophora mucronata*. It was planted with propagules and has grown to the 3rd joint on the stem. It is now 40 to 50 cm in height and has 2 to 4 leaves, which is kind of small ones but not so thick. Mangrove leaves are small and thick in the condition they are exposed to stress when salt concentration in the water marks high. Yet the mangroves in the site have smaller leaves but not thick, showing that they are not under heavy stress. Rooted rate of the stands reaches 90 – 95% and most of the planted *Rhizophora mucronata* are vigorous. The survival rate of the site also attains 90 – 95%. It gives the impression that they stay on track.



We observed that *R. mucronata* stands in the inlands grow better than those in the seaside. We considered the following three clues;

1. Influence of sea-waves over the ocean territory.
2. The planted *R. mucronata* on the ocean territory exposure to seawater longer than the land territory since ground level in the ocean territory is lower, which inhibits plant's photosynthesis and respiration.
3. Attachment of mud, which also inhibits the photosynthesis and respiration.

The picture left shows the current condition of *R. mucronata* planted on the ocean territory. Dirt and mud closely get stuck on the leaves and they are not flashed out by seawater. On the other hand, we hardly found any obstacles stick to the leaves and stalk on the land territory.

The picture listed below showed the current status of *Avicennia officinalis*. Five months have passed since *A. officinalis* that was planted when the members of NPO Lions Mangrove Project had visited the site in March. In general, *A. officinalis* can survive even in a severe circumstance that concentration of salt remarks too high for *R. mucronata* to survive. So that we would like to plant *A. officinalis* on area where marks too high in concentration, instead of *R. mucronata*. Nevertheless YL invest Co., Ltd. that conduct the afforestation and reforestation in the field does not have any experience of planting *A. officinalis*, so they have conducted a trail afforestation on *A. officinalis*. The seed of *A. officinalis* is very small and easy to be washed away by the waves, we adopted seedlings to conduct the trail. Since this is a trail afforestation, we did not nurture the seedlings and brought indigenous ones. The rooted rate of *A. officinalis* reached only just 10% and the survival rate barely marked 6 – 7%.

The height of the planted *A. officinalis* does not seem to be grown. The numbers of leaves are increased but very small. Moreover, spacing among the joints on the stem was so close. The leaf circled with yellow color in the picture was the one before the seedling was transplanted. The other leaves supposed to be leaved after the transplant. Compared to the leaves, it can be indicated that the size of leaves were quietly different.



We assume high percentage of salt concentration in the site results in those small leaves. Mangrove would have small and thick leaves when the salt concentration marks too high. By the same token, we could establish a hypothesis on that the area we had brought the seedling of *A. officinalis* has lower percentage in the concentration of salt. There are four types of *Avicennia specie* in Indonesia. We had planted *A. marina* in March. Consequently, we have planted another type of *Avicennia marina*, which called *Avicennia alba* on a trial afforestation. That trail afforestation was conducted by village mayor of Dapur Tiga. We could not observe the project site conducted by the village mayor since we were not able to identify the site location. We will observe there for the next opportunity.



We have seen a lot of driftwood over the forested site. The below picture shows that he collects the driftwood and take them away from the forested site. As the picture shows, some huge deadwoods were flowed into the site, so that it has possibility the woods becomes harmful against the planted mangrove stands. It is necessary to take care of the driftwood in the site.



Challenges

At this present, we still continue observation on the mangrove stands planted in March. It seems that growing of the *R. mucronata* stands are well but we need more continuous observation on *Avicennia officinalis*. Throughou the future observation, we will decide the specie that we apply for the afforestation.