FRUIT GERMPLASM’ RESOURCES AND DEMANDS FOR SMALL SCALE FARMERS POST-Tsunami AND CONFLICTS IN NANGGROE ACEH DARUSSALAM PROVINCE, INDONESIA

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PRESENTATION OUTLINE

• INTRODUCTION
• DATA COLLECTION METHODS
• RESULTS AND DISCUSSIONS
  → Fruit germplasm resources
  → Fruit germplasm demands for small scale farmers
  → Small scale farmers’ access to fruit germplasm resources and good quality seedlings
• CONCLUSION AND RECOMMENDATION
INTRODUCTION

- Aceh small scale farmers characteristic:
  (i) land 0.25 to 4 ha per capita;
  (ii) consists of various trees species (fruits, rubber, cocoa, etc) in a mixed-tree based system (agroforestry) with extensive management,

- Increased price of fruits urged farmers to enhance their fruit production by planting more fruit trees or rejuvenating their old garden.

- Therefore, demand for fruit seedlings also increase. Farmers need **good quality seedlings → depend on the available good quality fruit germplasm resources in the area,**

- However, Tsunami catastrophe and conflicts that happened in Aceh have impeded the development of local fruit germplasm.

- Hence, as part of post-tsunami and conflict rehabilitation activities in Aceh region, **inventory were made on fruit germplasm resources (both indigenous and introduced variety) and its demands in Aceh as source for livelihood and ensure food security particularly of the local community.**
METHODS:
Discussion with 156 farmers with 20% of them are females farmers (9 Farmer Group in Aceh Barat, 9 Farmer Group in Aceh Jaya and 12 Farmer Groups in Pidie), Local Government Unit representative per region (Dinas Kehutanan dan Perkebunan, Dinas Pertanian, Badan Pengawasan dan Sertifikasi Benih), universities (Universitas Teuku Umar, Universitas Jabal Nur, Universitas Syiah Kuala), commercial nurseries in North Sumatra (4 nurseries in Medan, 6 nurseries in Tanjung Morawa, 3 nurseries in Binjai), and NGOs.

DATA COLLECTION METHODS

Data collection was commenced as part of the survey to explore the seedling market potency in Nanggroe Aceh Darussalam (NAD) province to support the development of small scale seedlings nursery enterprise in Aceh region

LOCATION: Aceh Barat, Aceh Jaya, Pidie, Pidie Jaya, Medan, Binjai, Tanjung Morawa

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Direct observations
RESULTS AND DISCUSSIONS

• Post Tsunami and Conflict, farmers in Aceh rehabilitate their garden to improve their livelihood.

• Demands for fruit seedlings exceeded the available seedlings, therefore farmers with financial resources buy seedlings from Medan while most cash-limited farmers produce seedlings themselves.

• Farmers prefer to plant tree species that have good market prices and easy to domesticate, such as Durian, Rambutan, Mango, Langsat, Duku, Jeruk and Melinjo.

• Unfortunately tree seedlings market in the region is limited in the short term by programs’ reliance on genetic materials coming from Medan.

• Farmers still have limited access and knowledge to good quality fruit seedlings and fruit germplasm resources.
From 1984 to 2007, 407 varieties of 38 fruit species (346 local varieties and 61 introduced species) registered to BPSB as superior species. However only 7 registered NAD superior indigenous species (UPTD BPP NAD, 2007): i.e. Durian Asoe Kaya (Aceh Besar district), Durian Pha Gajah (Aceh Utara district), Melinjo Mulieng Gajah (Pidie district), Melinjo Mulieng Padee (Pidie district), Jeruk Giri Matang (Bireuen district), Jeruk Keprok Gayo (Aceh Tengah district), Alpukat Gayo (Aceh Tengah district) and Langsat (Indrapuri).

Post-tsunami and conflict, limited info from the BPSB can be obtained, particularly on the location of mother tree and nursery that operated before the Tsunami.

Most of that fruit germplasm data and resources were disappeared along with the Tsunami.

Due to time limitation AND non fruiting seasons in most of the districts, we only collected fruit germplasm information based on discussion with farmers, BPSB, universities and Dinas Pertanian.
<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>SPECIES</th>
<th>LOCAL NAME</th>
<th>SUB DISTRICT</th>
<th>REGISTERED STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aceh Barat</td>
<td>Mango</td>
<td>Kuini</td>
<td>Kaway16 (Blambangren) and Suaknie</td>
<td>Most registered superior mother trees destroyed by the tsunami</td>
</tr>
<tr>
<td>Aceh Jaya</td>
<td>Durian</td>
<td>Durian Tambo</td>
<td>Woyla</td>
<td>Not yet registered to BPSB</td>
</tr>
<tr>
<td>Aceh Jaya</td>
<td>Durian</td>
<td>Durian Pesantren</td>
<td>Panga</td>
<td>Not yet registered to BPSB</td>
</tr>
<tr>
<td>Aceh Jaya</td>
<td>Durian</td>
<td>Durian Jalo</td>
<td>Krueng Sabee</td>
<td>Not yet registered to BPSB</td>
</tr>
<tr>
<td>Aceh Jaya</td>
<td>Orange</td>
<td>Jeruk Patek</td>
<td>Sampoinet</td>
<td>Not yet registered to BPSB</td>
</tr>
<tr>
<td>Aceh Jaya</td>
<td>Langsat</td>
<td>Langsat</td>
<td>Teunom</td>
<td>Not yet registered to BPSB</td>
</tr>
<tr>
<td>Aceh Jaya</td>
<td>Mango</td>
<td>Kuini</td>
<td>Krueng Sabee</td>
<td>Not yet registered to BPSB</td>
</tr>
<tr>
<td>Pidie and Pidie Jaya</td>
<td>Durian</td>
<td>Durian Empang duk</td>
<td>Padang Tijie</td>
<td>Not yet registered to BPSB</td>
</tr>
<tr>
<td>Pidie and Pidie Jaya</td>
<td>Durian</td>
<td>Durian Tengku Ali</td>
<td>Tangse</td>
<td>Not yet registered to BPSB</td>
</tr>
<tr>
<td>Pidie and Pidie Jaya</td>
<td>Durian</td>
<td>Durian 7 pangs</td>
<td>Geumpang</td>
<td>Not yet registered to BPSB</td>
</tr>
<tr>
<td>Pidie and Pidie Jaya</td>
<td>Gnetum</td>
<td>Meuling padi</td>
<td>BPP Pidie</td>
<td>Registered to BPSB</td>
</tr>
<tr>
<td>Pidie and Pidie Jaya</td>
<td>Gnetum</td>
<td>Meuling gajah</td>
<td>BPP Pidie</td>
<td>Registered to BPSB</td>
</tr>
</tbody>
</table>
INTRODUCED SPECIES:
source for improved fruit germplasm are from Medan.

- BPSB Aceh (Feb08) from 45 fruit seedlings nursery operators in NAD province, only 3 nurseries produced seedlings by themselves.
- The other 42 nurseries, are buying seedlings mostly from North Sumatra and re-sells the seedlings to the local consumers (with the offered price per seedling (>50 cm) = Rp15,000,00 to Rp40,000,00

- Smallholder farmer with financial capital could afford the offered price, and usually bought around 10-20 seedlings per species. While smallholder farmer, with limited capital, couldn’t afford the price offer by those nurseries.

- High dependency of Aceh nursery operators to North Sumatra for source of superior planting material.
FRUIT GERMPLASM DEMANDS FOR SMALL SCALE FARMERS

- Post conflict, farmers in Aceh are able to access their garden without the previous danger; and marketplaces are more accessible than during conflict.
- As part of the rejuvenating process farmers require good quality seedlings of superior species. However, the available tree nurseries in Aceh couldn’t produce enough quantity and quality as demanded by the market.
- Farmers still lack of knowledge and experience to produce and access seedlings of superior species/variety by themselves. Therefore they have to buy the seedlings directly to North Sumatra (Medan, Tanjung Morawa and Binjai) that may cost them Rp 10,000 to Rp 25,000 per seedling.
- Based on the discussion with 13 commercial nursery operators in North Sumatra, ca. 50% of their seedlings were sold to Aceh, particularly after the Tsunami in 2004. With six most demanded species: Mango, Orange, Rambutan, Durian, Mangosteen and Snakefruit
Estimate fruit seedlings demand for year 2008 in 4 districts in NAD province, based on the interview with local government and local consumers

<table>
<thead>
<tr>
<th>District</th>
<th>Institution</th>
<th>Species</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aceh Barat</td>
<td>Dinas Perkebunan</td>
<td>Rubber</td>
<td>600,000-990,000</td>
</tr>
<tr>
<td></td>
<td>Dinas Pertanian</td>
<td>Durian monthong, mango</td>
<td>10,000</td>
</tr>
<tr>
<td></td>
<td>Local consumer</td>
<td>Cacao</td>
<td>unclear</td>
</tr>
<tr>
<td>Aceh Jaya</td>
<td>Dinas Perkebunan</td>
<td>Rubber</td>
<td>3,000,000</td>
</tr>
<tr>
<td></td>
<td>Dinas Perkebunan</td>
<td>Cacao</td>
<td>500,000</td>
</tr>
<tr>
<td></td>
<td>Dinas Pertanian</td>
<td>Durian monthong, kuini</td>
<td>50,000</td>
</tr>
<tr>
<td></td>
<td>Local consumer</td>
<td>Cacao</td>
<td>200-500/HH</td>
</tr>
<tr>
<td>Pidie and Pidie Jaya</td>
<td>Dinas Perkebunan</td>
<td>Cacao</td>
<td>unclear</td>
</tr>
<tr>
<td></td>
<td>Dinas Pertanian</td>
<td>Rambutan brahrang</td>
<td>1,066,800</td>
</tr>
<tr>
<td></td>
<td>Local consumer</td>
<td>Cacao</td>
<td>100-1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Durian monthong, Rambutan, Duku</td>
<td>300 - 5000</td>
</tr>
</tbody>
</table>

Currently five tree species that are most demanded in Aceh: Durian monthong, Rambutan brahrang, Duku, Cacao and Rubber
TREND OF FARMER PREFERENCE:

Farmers would prefer to plant the introduced species than the indigenous species. This particularly due to much higher price of the fruit from introduced species than local indigenous fruit species.

For example, farmers would prefer to sell Durian monthong than local superior Durian.

Price of the local varieties is not clear yet, as the number of people producing and selling local varieties is limited.

The local indigenous species/varieties are less market recognition by consumers, market agents and local farmers.

The superior quality of local indigenous fruit varieties have not yet been sufficiently socialized to those three important stakeholders – consumers, market agents, and local farmers.

Around 80% of the surveyed farmers - that were mostly cash-limited farmers-, said that if they could produce good quality seedlings, they would like to use the seedlings for their own uses. While farmers with limited-land tend to sale the seedlings they’ll produce.
SMALL SCALE FARMERS ACCES TO GOOD QUALITY GERMPLASMS AND SEEDLINGS

• Still lack, due to:
  (i) lack of awareness at the farmer level,
  (ii) preference to distribute superior germplasm to other stakeholders,
  (iii) very limited *budwood garden blocks* managed at the district level.

• Based on the discussion with BPSB North Sumatra, same situation occurred in North Sumatra (the nearest province).
• To answer the demand for good quality seedlings, farmers explore new local superior species that occurred in their nearby area (local superior varieties or lokal unggul).

• Farmers selected the superior mother trees by developing criteria based on the characteristic that meet market specifications.

• Moreover, farmers still require more capacity building to enhance their knowledge and skills in superior mother tree identification and management.

• Transfer knowledge from research centre and BPSB would be of importance to enhance farmers’ capacity on this.

• Support from the local government would play major role in enhancing farmers access to fruit germplasm resources. E.g.:

   **Case in Binjai district**, North Sumatra (origin of Rambutan brahrang): DISTRICT BUDWOOD GARDEN OF RAMBUTAN BRAHRANG based on proposal from Aspenta to the Dinas Pertanian Binjai. To obtain the scion from the budwood garden, farmers have to pay Rp 25,00/scion to the Dinas Pertanian Binjai. This Binjai government attempt was acknowledged by the farmers and improve farmers access to good fruit germplasm to support their livelihood.
CONCLUSION AND RECOMMENDATION

• Development to enhance the quality of and access to fruit germplasm in Aceh required further serious follow up from multi stakeholder.

• Initiation and supports from the local government unit (particularly Agriculture Department and Forestry and Estate crop Department) are vital in developing partnership between farmers with other stakeholders.

• Farmer association, research institution, university, NGO and private sector could be potential stakeholders to develop and improve good quality fruit germplasm and its accessibility particularly for smallholder farmers.

• Improvement may necessary be made by:
  – Enhancing farmer capacity and involving farmers in the germplasm inventory, selection, collection and domestication. Concrete: Rewarding farmer, who could found mother trees with good quality.
  – Establishing budwood garden of registered superior fruit species that can be accessed by smallholder farmers and other stakeholder at district level.
  – Developing partnership scheme that involved the LGU, university, research centres, private sector, smallholder farmers. Concrete: developing information centre for farmers and partners at sub district level to fill knowledge gaps between stakeholders.
ACKNOWLEDGEMENT

CIDA (Canadian International Development Agency) for financial assistance to support the ICRAF-Winrock Team to implement the “Rehabilitation of Agricultural Systems in Aceh – Developing Nurseries of Excellence (NOEL) Program”;

Local government agencies and farmers in Banda Aceh, Aceh Barat, Aceh Jaya, Pidie and Pidie Jaya, Medan, Binjai, Tanjung Morawa;

BPSB (Bureau of Seed Control and Certification) Medan, Banda Aceh, Aceh Barat and Pidie.

THANK YOU...