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Agroforestry and Forestry in Sulawesi (AgFor Sulawesi) is a five-year project funded by the Department of Foreign Affairs, Trade and Development Canada. The World Agroforestry Centre is the lead organization of the project, which operates in the provinces of South Sulawesi, Southeast Sulawesi and Gorontalo.

Canadian representative examines the progress of AgFor Sulawesi

By: Enggar Paramita and Shinta Purnama Sarie

Visiting a nursery in Campaga village. (Photo by: World Agroforestry Centre/Shinta Purnama Sarie)

Mr Hari Basuki of the Department of Foreign Affairs, Trade and Development Canada (DFATD) visited villages involved in the AgFor Sulawesi project in Bantaeng, Bulukumba and Jeneponto districts in South Sulawesi province during March 2014. DFATD funds the five-year, research-in-development project. During his three-day visit, Mr Basuki talked with people who had been collaborating with the project.

'AgFor Sulawesi has recently just expanded its area to Jeneponto and Gowa. As the donor, it is our responsibility to visit the project area in order to monitor implementation', he said. 'On top of that we'd also like to gain feedback from the field while ensuring the DFATD-funded projects currently running in the area can go hand in hand nicely'.

In Bulukumba, Mr Basuki along with AgFor Sulawesi's partners Balang and The Bulukumba Forestry and Plantation Office discussed progress of the district regulation regarding the Kajang customary community.

Mr Basuki, CIFOR, World Agroforestry Centre and Balang discuss the progress of the local regulation with members of the Kajang community and AgFor. (Photo by: World Agroforestry Centre/Shinta Purnama Sarie)

For the past year, the governance component of AgFor has been facilitating the formulation of the local regulation that acknowledges the existence of the indigenous community and formalizes their right to manage the 331 hectares of Tana Toa customary forest.

The promulgation of the regulation will be a significant achievement that will motivate other groups claiming customary forest management rights.

'With assistance from AgFor, the regulation has been successfully developed in less than a year', said Misbawati Wawo, the head of Bulukumba Forestry and Plantation Office, outlining her appreciation of the project's support. 'AgFor's involvement has helped to expedite the whole process. I am very pleased, since this will be the first legal product that has been developed by the Bulukumba Forestry and Plantation Office'.

On a separate occasion, Kasman, a farmer from Balang Pesoang, shared his experience of involvement with AgFor Sulawesi. While working in his tree garden, Kasman told Mr Basuki how the new technical knowledge he had gained, such as how to do trimming and how to make fertilizer, has helped to improve his durian and rambutan garden, not only stimulating tree growth but also making it easier for him to harvest. Moreover, by using his new knowledge of seedlings and nursery cultivation that he obtained from AgFor, Kasman is now able to sell seeds, such as durian, rambutan, mangosteen, longan and cloves. He also has been teaching his community about tree-garden management.

'I even share knowledge with those who buy my seeds as well', he said.

In Bantaeng district, Mr Basuki talked with Ningsih, a farmer from Bonto Bulaeng village, who told him that she previously planted only corn but now she has diversified her portfolio, planting pepper, candlenut, cacao and cloves. She is confident that the various commodities will increase her income.

Sahabuddin from Campaga village also shared his experience of AgFor Sulawesi. He mentioned his farmers' group's achievement of supplying quality seedlings not only to the community but to the government office as well. In December 2013, the group received an order from Bantaeng Plantation Office to supply 700 cocoa seeds.

In Jeneponto, a district that has just recently been included in the AgFor project area, Mr Basuki met with Salam, the leader of Jenetalassa village, who enthusiastically embraced AgFor's plan to work there. Salam said that most farmers in the area planted vegetables since most had only limited knowledge of other commodities that were suitable to be cultivated locally.

In a follow-up discussion, the head of Bantaeng district, Nurdin Abdullah, underscored his strong support for AgFor Sulawesi, particularly its focus on improving farmers' knowledge.

AgFor Sulawesi Senior Project Leader Dr James M. Roshetko explained that the project was expanding its area of operations. 'AgFor has now started to assist farmers in Gowa and Jeneponto districts, too. We will still provide assistance to farmers in Bantaeng and Bulukumba yet there will be adjustment of the frequency'.

He pledged that the collaboration between the project, farmers and local government will be maintained. One way to do that was by regularly involving everyone in developing project strategies, as had been the practice to date.

Mr Basuki expressed his appreciation of the achievements of the project, particularly in strengthening communities' capacity in agricultural innovation, fostering partnerships with local governments and facilitating the development of the local regulation on the Kajang forest.

'DFATD hopes that the collaboration will eventually grow into a partnership so that when the project ends this partnership will remain to continue the work. I believe this is a win-win solution that will benefit both the local governments and the farmers', said Mr Basuki.

AgFor Sulawesi expands to Gorontalo and Boalemo districts to improve farmers' incomes

By: Enggar Paramita

Dr James M. Roshetko, AgFor Sulawesi Senior Project Leader, explains the background to the project. (Photo by: World Agroforestry Centre/Enggar Paramita)

Agroforestry and Forestry in Sulawesi (AgFor Sulawesi) officially commenced its collaboration with Gorontalo and Boalemo districts to improve smallholder farmers' incomes through equitable and sustainable agroforestry and forestry management.

A number of representatives from local government, working units, educational institutions and non-governmental organizations attended the inception meeting for AgFor Sulawesi in Gorontalo province, held at the Amaris Hotel, Gorontalo city, on Tuesday 3 June 2014.

Dr James M. Roshetko, Senior Project Leader of AgFor Sulawesi, said that the project seeks to improve agricultural systems through agroforestry, promote the inclusion of local communities in spatial and land-use planning and support sustainable environmental management.

According to the Central Statistics Agency, most of Gorontalo's residents work in agriculture[1]. Moreover, in the first quarter of 2014 agriculture had contributed the most to the provincial economy, producing 28.95% of the Gross Regional Domestic Product. AgFor Sulawesi's activities are planned to go hand in hand with the mission designed by the provincial government for agricultural development.

On the same occasion, the head of the Regional Planning and Development Agency, Sudirman Habibie, declared that he hoped that the people involved with AgFor Sulawesi will be able to develop the same perceptions in order to accelerate agricultural development in Gorontalo.

Gorontalo and Boalemo districts were selected as project sites based on four criteria: 1) the existence of agroforestry systems in the community; 2) farmers' commitment to improving their agroforestry systems; 3) the existence of forest; 4) support from the government.

Based on observation of, and discussion with AgFor Sulawesi and local communities in Gorontalo and Boalemo districts, five primary agricultural systems were identified that were practised by smallholders. The systems were characterised by their dominant land-use: 1) maize; 2) coconut; 3) cocoa; 4) timber; and 5) domestic mixed garden.

'These agricultural systems are still managed traditionally', said Dr Roshetko. 'With the increase in population and demands from the market, product intensification has become crucial. Yet we must ensure that it's carried out according to local conditions and by stressing environmental sustainability'.

Sudirman Habibie, head of the Regional Planning and Development Agency, talks about the development program in Gorontalo. (Photo by: World Agroforestry Centre/Enggar Paramita)

Participants at the inception workshop. (Photo by: World Agroforestry Centre/Enggar Paramita)

Husein Hasni, head of the Forestry, Energy and Mineral Resources Office of Gorontalo, noted that agroforestry systems have been widely practised in Gorontalo, even if conventionally implemented. 'What we need to do is to utilize things that have existed and are being practised so then we can learn from them', said Hasni.

Dr Roshetko responded that AgFor Sulawesi was designed to bring together the experience of the World Agroforestry Centre and partners, and the knowledge held by local people. 'By doing so, we will be able to come up with proper solutions', he said.

AgFor Sulawesi is funded by the Department of Foreign Affairs, Trade and Development Canada, and has been working in South and Southeast Sulawesi since 2011. The World Agroforestry Centre (also known as ICRAF/ International Centre for Research in Agroforestry) is the lead implementing organization, collaborating with the Center for International Forestry Research, Winrock International, Operation Wallacea Terpadu, Universitas Hasanudin and the National Planning and Development Agency of Indonesia (Bappenas).

Through capacity building activities, AgFor Sulawesi works with local communities, government bodies and others to achieve mutual goals. Up to March 2014, in South and Southeast Sulawesi, AgFor Sulawesi had conducted 231 capacity-building activities in agroforestry and forestry, which were attended by 8113 people; held 450 training sessions on nurseries and propagation, involving 6857 people; initiated the development of 73 farmers' groups; developed and built 132 demonstration plots; and facilitated the development of 88 group nurseries and 92 individual nurseries.

'The response has been very gladdening' said Dr Roshetko. 'We have received lots of support and encouragement, not only in the other provinces but also just at the beginning here in Gorontalo, which is a very good start. And we believe that in Gorontalo we can also achieve the great successes as we did in South and Southeast Sulawesi'.

[1] Badan Pusat Statistik Gorontalo. 2012. Gorontalo in Numbers 2012. Gorontalo, Indonesia: Badan Pusat Statistik Gorontalo.

Agroforestry field school draws out the spirit of improvement

By: Enggar Paramita

AgFor's agroforestry farmers' field school arranged more visits by experts—in coffee, cocoa and durian—to several villages in South and Southeast Sulawesi after the highly successful training in pepper and clove management by visiting specialists.

Scientist-to-farmer sessions were conducted with Dr Retno Hulupi and Dr Adi Prawoto from the Indonesian Coffee and Cacao Institute in October 2013 and by Dr Sobir from the Center for Tropical Horticulture Studies at Bogor Agricultural University in February 2014.

In the coffee field school, Dr Hulupi addressed a number of issues, such as coffee varieties, clones, garden management, pest and-disease management

and post-harvest treatment. During the training, Dr Hulupi was surprised to find that though farmers had grown coffee for many years they were still not able to identify coffee types, such as arabica, robusta and liberica. She was also surprised to discover that fertilizing and pruning were also rarely done.

'We usually just let the coffee grow with branches spread out because we think that it's good to have lots of branches. Also, we don't fertilizing regularly', said Amiruddin, a coffee farmer from Pattaneteang village, Bantaeng.

But according to Dr Hulupi, pruning the branches is crucial in order to trim the non-productive ones and to have easier tree management, better pest-and-disease control and more fluid air and sunlight circulation.

'What we saw when we visited farmers' gardens was that their capacity in coffee cultivation was still inadequate, hence, they lost the chance to maximize the yield', said Dr Hulupi.

She outlined that improvements needed to be made, namely, utilizing only certified, high-quality seedlings, applying fertilizer regularly and pruning. In addition, Dr Hulupi emphasized the importance of forming farmer group particularly if the farmers would like to promote their commodity as a specialty coffee.

In the cocoa field school, farmers had a dynamic conversation about pest-and-disease management with Dr Prawoto. For the past couple of years, attacks by pests and diseases were the main cause of a downturn in productivity in Sulawesi, causing a corresponding fall in farmers' incomes since cocoa has become the major source of farmers' livelihoods. Farmers said that they were devastated by the low productivity and some had decided to shift to other commodities and abandon their cocoa farms.

Dr Prawoto encouraged farmers to persevere, arguing that pests and diseases can be controlled as long as farmers pay serious attention to their garden. During the session, he underscored the application of a method called PsPSP, or Panen sering, Pemangkasan, Sanitasi, Pemupukan (frequent harvesting, pruning, sanitation and fertilizing) that is effective in preventing pest-and-disease attack. He also demonstrated a simple yet effective way of fighting the malignant pod borer: cover each pod with clear plastic thereby preventing the female moth from laying eggs on the pod's surface.

In the subsequent session on durian, the farmers showed great enthusiasm, throwing seemingly endless questions at Dr Sobir. Their curiosity represented their strong will to improve their yields. Most farmers usually plant durian from local seedlings, which only produce limited yields for personal consumption. Dr Sobir suggested farmers use local species—that have been proven to be adaptive to local conditions—as rootstock, which is then grafted with high-quality species. By doing so, farmers will grow durian trees with strong root systems that produce juicy fruit. Another of his recommendations was to combine two best-match clones, such as 'montong' with 'kani' or 'kradumtong' in order to produce delicious fruit.

Just like the previous field school, following the scientist-to-farmer session, a farmer-to-farmer session was held, where selected 'champion' farmers share their knowledge with farmers in other villages.

Farmers and Dr Hulupi discuss pruning techniques for coffee trees. (Photo by: World Agroforestry Centre/AgFor Southeast Sulawesi Team)

Dr Prawoto discusses with farmers during the field school. (Photo by: World Agroforestry Centre/Enggar Paramita)

Dr Sobir explains about pollination process in durian. (Photo by: World Agroforestry Centre/Enggar Paramita)

Later, a field visit to a farmer's garden was arranged for practical, firsthand experience.

Six months after the field school, farmers have started to practise pruning and fertilizing in their gardens. Some declared that their coffee and cocoa production had already improved. The durian farmers, who previously had doubts about mixing durian with clove, now have greater confidence after visiting a successful garden.

From April 2013 to February 2014, more than 1700 farmers participated in the agroforestry farmers' field schools, including 17 'champions' in South Sulawesi and 18 in Southeast Sulawesi. These champions will become the main experts spreading information in their local areas. Moreover, around 100 demonstration plots have been built in the two provinces. The plots are on the land of farmers who had agreed to collaborate with AgFor, with each plot designed to address a specific issue. Garden management, such as fertilizing, pruning and pest-and-disease control, is carried out in existing gardens that have been planted whereas the newly planted gardens demonstrate ideal tree spacing recommended by AgFor scientists.

The plots, which are designed to allow farmers to experiment with new knowledge and technologies to improve their land's productivity, are monitored every three months by the farmers and an AgFor facilitator. Over the next two years, these plots will be observed regularly. It is expected that during this time, farmers will be able to witness the result of the knowledge gained in the schools.

'In farmers' field schools, information should not only be disseminated through discussion and practical sessions but we also need to give them proof, which we provide through demonstration plots. This is because farmers learn by "seeing" the reality', said Endri Martini, agroforestry extension specialist with the World Agroforestry Centre.

Martini noted that there were three key factors that determined the success of a farmers' field school: 1) a high level of farmers' willingness to learn; 2) the presence of credible resource persons; and 3) a dedicated team of facilitators who encourage farmers to come up with innovations. These factors need to be identified and developed 3–6 months prior to the beginning of a school. Additionally, Martini said that the curriculum should be designed using a participatory approach by involving farmers who will attend the school, hence, the technology introduced will likely be accepted and applied.

AgFor Sulawesi Senior Project Leader Dr James M. Roshetko, said that farmers' field schools were a part of the project's 'exit strategy' that assured sustainability after the project closes.

'The champion farmer creates a cadre of skilled agroforestry specialists who can be consulted when farmers need advice or face new problems', said Dr Roshetko. He also mentioned that skill-and-capacity enhancement gained by farmers was crucial for communities to enable them to address their own problems in the future.

Both Martini and Roshetko foresee that the positive results of the schools will be used by extensionists and farmers in the project and other locations throughout the two provinces and beyond.

Sustainable forest honey

By: Hasantoha Adnan, Jhon Roy Sirait, La Ode Ali Said and Amir Mahmud

Honey is a forest commodity that offers many benefits. The thick, golden-brown liquid is produced by the honey bee (Apis dorsata) from nectar collected from various plants. Aside from being consumed directly, honey is also mixed with other foods, drinks and even soap. Moreover, beehives produce not only honey but also beeswax, which is used in the beauty and medical industries.

In several areas in Indonesia honey is a major commodity that contributes to improving communities' economies. Honey is also a part of a community's cultural identity, for example, many indigenous communities preserve their forests for sustainable honey production.

The upstream area of Konaweha, Southeast Sulawesi, is a well-known forest honey production site. During the harvest seasons—usually November–January and April–May—thousands of kilograms of honey are brought out of the forests. The honey-producing sites in Konaweha include Ueesi and Uluiwoi sub-districts in East Kolaka district and Latoma, Asinua and Abuki in Konawe district.

In these areas, honey is still processed traditionally by groups of honey hunters, called 'pasoema'. Pasoema usually consist of 3–4 people. They go into the forests, identify the trees where beehives are located and mark them so they won't be claimed by other pasoema. Subsequently, to oust the bees they smoke the hive by burning palm leaves tied in a tube-like bamboo stick. When the bees depart, a member of the pasoema climbs the tree to the hive. He squeezes it to extract the honey, placing the liquid in recycled plastic bottles, ready for sale.

A pasoema climbs a tree to collect a bee hive. (Photo by:Yascita)

Cutting combs that contain honey. (Photo by: World Agroforestry Centre/ La Ode Ali Said)

From this description, it should be clear that the commonly practised traditional method doesn't place much importance on hygiene and sustainability, which affects the honey quality and continuity of the honey bee habitat. In contrast with the traditional technique, sustainable and hygienic honey-production emphasizes preserving the honey bee and its habitat and the post-harvesting process takes cleanliness into account. In this method, preserving the bee is ensured through conserving trees; not only those that harbour hives but also the surrounding trees because they provide protection and are food sources.

Aside from that, while the traditional method will see the harvest of whole hives, the sustainable method only takes the combs that contain honey. Harvesting the whole hive means that the honeycombs that house the 'brood' (eggs, larvae, pupae) are also taken, which restricts or even destroys the reproductive capacity of the hive. Further, to extract the honey the hives are squeezed, which kills the larvae. Taking only the combs that contain honey means maintaining the colony's life cycle; the bees will require less time to rebuild their hive than if the entire hive was taken. A faster rebuild means a shorter harvesting period, which benefits the pasoema. By way of comparison, it takes 8–10 months for bees to build a whole hive but only 3–5 months to rebuild.

In sustainable honey production, hygiene and post-harvest processing are emphasised. The harvested combs containing honey are placed in a sterilized jerry can and the draining process involves workers who

A beehive in a tree. (Photo by: Yascita)

wear protective clothing, masks and head covering. In addition, cutting the honeycomb is done with stainless steel blades and draining with nylon filters and clean funnels. The honey is put in a tightly closed jerry can and placed in dark surroundings separate from fertilizers, gasoline and other contaminants.

By applying the sustainable method, the honey achieves a higher selling price. At the moment, Ueesi Forest Honey Network, a pasoema association from Ueesi sub-district, Southeast Sulawesi, which is also a member of the Indonesian Forest Honey Network, buys honey from local pasoema at IDR 44 000–55 000/kilogram. This price is much higher than squeezed honey at IDR 20 000–30 000/kilogram. Furthermore, with proper storage, drained honey can last up to 8 years without reducing its quality, while squeezed honey only lasts for 2 years.

According to Nasrudin, the leader of the Ueesi Forest Honey Network, not all forest honey from the combs can be drained. Some can only be squeezed. Moreover, he noted that some consumers still prefer squeezed honey. Therefore, although the network has been promoting drained honey, they still produce squeezed honey but are gradually reducing its quantity. This is a transitional step before the network fully focuses on producing only drained honey.

Considering the hefty benefits of sustainable honey production, AgFor Sulawesi will share information about it to communities so they will all be able to adopt the method. In order to do so, the governance team of AgFor is helping pasoema in Tawanga, Undolo, Lalombai and Sanggona villages in Uluiwoi sub-district, East Kolaka district, adopt the sustainable method. As a first step, in November 2013, AgFor held a training session on sustainable honey harvesting followed by marketing and entrepreneurship training in February 2014. In collaboration with local partners, Komunitas Teras and Yascita, AgFor will conduct participatory rapid market assessment, training in development of derivative products, build pasoema's institutional capacity and marketing networks and hold meetings at district and provincial levels to encourage policies that will reinforce upstream Konaweha as a centre of forest honey production in Southeast Sulawesi.

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