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## PROMOTING SAGO STARCH UTILIZATION IN INDONESIA

September 2019

SDGs:



Countries:

Indonesia

Project Codes:

TCP/INS/3503 (Phase I) and TCP/INS/3701 (Phase II)

FAO Contribution:

USD 339 000

Duration:

2 November 2015 – 31 March 2019

Contact Info:

FAO Representation in Indonesia

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### Implementing Partner

Ministry of Agriculture (MoA).

### Beneficiaries

National Agency for Food Security.

### Country Programming Framework

CPF Priority 2: Reduce rural poverty, improve inclusive food system and enhance value chain development.



### BACKGROUND

It is estimated that by 2025 Indonesia will have a population of 300 million people and will require approximately 18 million tonnes of rice to feed its population. The increasing trend in rice consumption due to population growth rate in Indonesia in recent years, however, has raised concerns for the country's food security. Sago starch consumption in Indonesia offers a significant opportunity to contribute to the elimination of food insecurity. Promoting awareness of sustainable sago palm production and starch extraction is the key to increasing sago starch utilization. Adding value to sago starch through downstream processing and linking the value added products to markets are also critical to the sustained growth of sago production. To address these challenges, the projects aimed to raise awareness and promote advocacy for the sustainable production and utilization of sago starch, strengthen the application of good agricultural practices (GAP) in sago palm production and promote good manufacturing practices (GMP) in sago starch production. The projects would also build capacities to promote the creation of small food-based sago starch enterprises by piloting integrated units for sago starch extraction and wastewater and hampas management and utilization in South Konawe and Konawe District, and Kendari City, South East Province.

### IMPACT

The projects contributed to food diversification and food security in Indonesia by building capacity to produce, utilize and market sago starch and its downstream processed products as alternative carbohydrate sources. At the end of the projects, the food security of farmers and women farmer groups at the target sites was improved through increased physical access to sago starch, as well as through improved economic access resulting from increased market opportunities realized through value addition.

### ACHIEVEMENT OF RESULTS

The project outcome of improved food security of farmers and women farmer groups at the target sites was successfully achieved. The outputs delivered included the organization of an inception workshop and two terminal workshops, and the conduct of a Sago Festival for around 450 participants. The hygienic processing of sago and its products was promoted in four high schools in Kendari for 200 students, and a media campaign on local radio and television was launched to promote sago starch utilization. Awareness-raising material on the potential of sago palm, for use by extension staff, farmers and communities, was developed, and a socialization forum was held for three extension staff members and 52 farmers to introduce the potential of sago palm. Training in good sago field management practices was provided for 42 farmers and demonstration plots were established in Konawe District and South Konawe District. Two sago starch processing units (SSPUs) were established and guidelines for SSPU enterprises were developed and disseminated. Thirty farmers were trained in the application of GMP in the two SSPUs. Finally, a market survey was conducted to collect ideas on developing sago-based products, on the basis of which 25 women were trained in GMP for the production of sago-based products and the development of business proposals.



## IMPLEMENTATION OF WORK PLAN

Phase I (TCP/INS/3503) was scheduled to end in December 2017 and most project activities had been implemented in line with the work plan by that date. However, completion of the SSPU was delayed by constraints regarding material procurement, social issues among beneficiaries and bad weather. This affected SSPU operations and the implementation of the agri-business plan, and had a negative impact on building farmers' capacity with regard to entrepreneurial and business skills. Phase II (TCP/INS/3701) thus focused on providing support to the development of the managerial and entrepreneurship skills of the three viable business units developed under Phase I in Kendari, Konawe District, and South Konawe.

## FOLLOW-UP FOR GOVERNMENT ATTENTION

It is recommended that the Government follow up implementation of GAP and GMP, and that training continue to be given in sago starch processing and related business activities. Regular promotion of the benefits of sago-based staple foods by local and national governments is also required.

Regular monitoring by extension workers to maintain GMP at farmer level is recommended. Extension workers should also be regularly supervised to ensure continued good practices.

The Government should continue to endorse the promotion of viable business units run by farmer groups. Partnerships and alliances should be created or strengthened to contribute to project sustainability with strong facilitation and support by the government. Collaboration was sought with a non-governmental organization (NGO), Gerakan Desa Emas, to ensure such sustainability.

## SUSTAINABILITY

### 1. Capacity development

The Government has stated that the SSPU model will be replicated in four more provinces to optimize the opportunities for turning sago palm cultivation and processing into a viable rural industry.

### 2. Gender equality

More men than women participated in sago field management and SSPU activities because of the physical demands made by the activities. Women were, however, involved in the production of sago-based products. At field level, although more men than women participated in training, this reflected the membership of local farmer groups and did not indicate a lack of attention to gender equality.

### 3. Environmental sustainability

The project mainstreamed environmental sustainability in activities regarding attitude, facilities and capacity building with regard to waste management in SSPUs.

### 4. Human Rights-based Approach (HRBA) – in particular Right to Food and Decent Work

Although the project did not directly contribute to the improvement of labour conditions in rural areas, it improved local H male and female farmer groups' knowledge of more sustainable sago production and processing.

### 5. Technological sustainability

The technology and managerial skills introduced by the project in the form of SSPUs can be modified and scaled up. MoA is currently replicating the successes achieved under the project by constructing SSPUs at ten sites in four new provinces.

The project contributed to the development of local knowledge on sustainable sago production through the development of SSPUs in Konawe and South Konawe. Several women's group were trained in the use of sago starch to produce value added products.

Stakeholders and beneficiaries were trained to implement GAP in sago production and GMP in the production and utilization of sago starch, and of sago-based products, at three sites. Participants were keen to apply the skills acquired. Monitoring, evaluation, supervision must be continued on a periodic basis after the handover of the programme to ensure that beneficiaries are able to sustainably manage viable business units.

### 6. Economic sustainability

The project supported the beneficiary farmers to implement GAP and GMP. The SSPU model is affordable for national and local government as well as for farmers' associations or cooperatives, as the model has been designed to be scalable.



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## DOCUMENTS AND OUTREACH PRODUCTS

- ❑ Back-to-office report (BTOR) of National Consultant (NC) on Agronomy, First Mission (2 May-31 July 2016). Yulius Barra Pasolon. Jakarta. 2016. 22 pp.
- ❑ Technical Guidelines for Local Training: Agronomic and GAP of Sago Palm (5-8 September 2016). Yulius Barra Pasolon. Jakarta. 2016. 4 pp.
- ❑ Progress Report of NC on Agro-processing (7 October 2016). Prayoga Suryadarma. Jakarta. 2016. 7 pp.
- ❑ BTOR of NC on Agro-processing (4-13 December 2016). Prayoga Suryadarma. Jakarta. 2016. 4 pp.



- ❑ Technical Guidelines for Local Training: Agronomic and GAP of Sago Palm. FAO. Kendari. 2016. 5 pp.
- ❑ BTOR of NC on Agro-processing (19-22 April 2017). Prayoga Suryadarma. Jakarta. 2017. 4 pp.
- ❑ BTOR of NC on Agro-processing (22-27 May 2017). Prayoga Suryadarma. Jakarta. 2017. 4 pp.
- ❑ BTOR of NC on Marketing (5-18 June 2017). Mohamad Reyza Ramadhan. Jakarta. 2017. 13 pp.
- ❑ BTOR of NC on Agro-processing (15-22 July 2017). Prayoga Suryadarma. Jakarta. 2017. 4 pp.
- ❑ BTOR of NC on Agro-processing (3-18 August 2017). Prayoga Suryadarma. Jakarta. 2017. 9 pp.
- ❑ BTOR of NC on Communication (10-17 September 2017). M. Aswan Zanynu. Jakarta. 2017. 4 pp.
- ❑ BTOR of NC on Agro-processing (2-4 October 2017). Prayoga Suryadarma. Jakarta. 2017. 9 pp.
- ❑ BTOR of NC on Marketing (10-12 October 2017). Mohamad Reyza Ramadhan. Jakarta. 2017. 3 pp.
- ❑ BTOR of NC on Communication (28 October-13 November 2017). M. Aswan Zanynu. Jakarta. 2017. 6 pp.
- ❑ BTOR of NC on Marketing (15-20 November 2017). Mohamad Reyza Ramadhan. Jakarta. 2017. 6 pp.
- ❑ BTOR of NC on Communication (15-19 December 2017). M. Aswan Zanynu. Jakarta. 2017. 5 pp.
- ❑ End-of-assignment Report of NC on Communication. M. Aswan Zanynu. Jakarta. 2017. 21 pp.
- ❑ Guidelines for Waste Management. FAO. Kendari. 2017. 4 pp.
- ❑ BTOR of NC on Marketing (5-7 February 2018). Mohamad Reyza Ramadhan. Jakarta. 2018. 3 pp.
- ❑ Photographs. Various.
- ❑ Video. Various.

**ACHIEVEMENT OF RESULTS - LOGICAL FRAMEWORK**

<b>Expected Impact</b>	<b>Food diversification and food security in Sulawesi island of Indonesia are improved as a result of improved production, utilization and marketing of sago starch and its downstream processed products as alternative carbohydrate sources</b>		
<b>Outcome</b>	Improved food security of farmers and women farmer groups at the target sites through increased physical access to sago starch as an alternative carbohydrate source, as well as through improved economic access resulting from increased market opportunities realized through value addition		
	<b>Indicator</b>	Improved community capacity in production, utilization and marketing of sago starch and its downstream processed products as alternative carbohydrate sources.	
	<b>Baseline</b>	Lack of awareness and attention of local government, extension agents and society on potential of production and processing of sago palm. Limited involvement of district and local government officers in promoting sago starch production and utilization. Lack of sound guidelines for sago field management. Limited capacity of extension agents and farmers to implement GAP in sago production. Lack of pilot demonstration plots for sago starch extraction, waste management and effluent utilization. Inadequate human resource capacity to support efficient manufacture of sago starch. Lack of capacity of farmer and women groups in sago processing, packaging and marketing. Inadequate capacities of farmers, particularly women farmers, to access financial support from banks or local governments for sago starch production. Lack of entrepreneurial skill and limited capacity in enterprise development. Lack of information on market development system and trade.	
	<b>End Target</b>	Two demonstration plots established to promote improved sago field management. Two SSPUs established in sago-producing areas. Well trained extension agents, farmer groups and women’s groups in sago starch processing.	
	<b>Comments and follow-up action to be taken</b>	Monitoring and evaluation is required in order to follow up implementation of GAP in sago gardens and GMP in SSPUs, producing high quality sago-based products, and ensuring sustainability in managing viable business units.	
<b>Output 1</b>			
Awareness raised and advocacy promoted on potential of sago palm and its contribution to farming and local community livelihoods, as well as to food diversification and food security			
	<b>Indicators</b>	<b>Target</b>	<b>Achieved</b>
	Inception and terminal workshop successfully implemented. Number of promotional activities on sago starch utilization implemented for different target groups.	One inception workshop and two terminal workshops held: (one at end of Phase 1 and one at end of Phase 2). At least four promotional activities implemented with stakeholders to promote sago starch utilization among end consumers in Kendari city.	Yes
<b>Baseline</b>	0		
<b>Comments</b>	There were no impediments to implementation. A high level of interest was stimulated in upgrading sago production and processing. Continued promotion of the benefits of sago-based staple foods by local and national governments is required.		
<b>Activity 1.1</b>			
	Project inception workshop implemented		
	<b>Achieved</b>	Yes	
	<b>Comments</b>	52 stakeholders, including Lead Technical Officer, FAO and government representatives, and academia, participated. Terminal workshops were also conducted at the end of both project phases. At the end of Phase I, the terminal workshop was attended by 60 government, academia, NGO and farmer representatives. The second terminal workshop was attended by 14 participants from the Government and FAO.	

Activity 1.2	Awareness raised for extension staff and farmers, as well as communities, on potential of sago palm through appropriate communication media		
	Achieved	Yes	
Activity 1.2	Comments	<p>Awareness was raised through the conduct of a Sago Festival, targeted to attract interest and attention of youth in particular, in sago processing and packaging. Approximately 450 individuals participated.</p> <p>Hygienic processing of sago and its products was promoted in four high schools in Kendari with the participation of 200 students.</p> <p>A media campaign on local radio and local television was launched to promote sago starch utilization</p> <p>Six joint field visits were held in Konawe, South Konawe and Kendari.</p> <p>Three extension staff members and 52 farmers participated in a socialization forum to introduce the potential of sago palm.</p> <p>Training of extension workers in sago starch processing and related business should be continued.</p>	
	Development and distribution of educational materials to promote awareness on sago palm in schools		
Activity 1.3	Achieved	Yes	
	Comments	<p>Awareness-raising material on potential of sago palm, targeted for use by extension staff, farmers and communities was developed.</p> <p>Promotional materials were distributed to four high schools in Kendari.</p> <p>Regular promotion programmes are required for the development, improvement and promotion of sago consumption.</p>	
Activity 1.4	Promotion of sago starch utilization and its value addition involving local government (province, district, and sub-district), banking, and local and national sago starch-related entrepreneurs or companies		
	Achieved	Yes	
Activity 1.4	Comments	<p>The participation of government representatives, micro and small entrepreneurs and particularly youth in the Sago Festival held in Kendari promoted greater awareness and interest in the potential for value addition to sago.</p> <p>The potential of sago was promoted on local television and radio to reach a broad audience across Kendari City.</p> <p>Billboards were posted in three strategic locations for a period of three months to promote awareness and interest.</p> <p>Continued support is needed to maintain the trend of increasing sago consumption.</p>	
	At least 20 farmer groups benefit from an improved technical knowledge base on the application of GAP in sago palm production		
Output 2	Indicators	Target	Achieved
	Number of sound guidelines for sago field management.	Adaptable guidelines for farmers and extension workers on implementing GAP of sago field management developed for at least 20 farmer groups.	Yes
	Number of pilot demonstration plots established.	Sago field demonstration plot developed.	
Number of farmer groups trained.			
Baseline	0		
Comments	<p>There were no impediments.</p> <p>Regular monitoring by extension workers is recommended. This support will maintain practices at farmer level. The success stories of farmer groups that have benefited from the programme will thus influence other farmer groups.</p>		
Activity 2.1	Farmer training - theoretical and practical - on the application of good sago field management practices (nursery, thinning, treatment, pre and post-harvest) using appropriate extension media		
	Achieved	Yes	
Activity 2.1	Comments	<p>Forty-two farmers were trained in application of good sago field management practices (nursery, thinning, treatment, pre and post-harvest) using appropriate extension media. One demonstration plot was established in Labela Village in Konawe District and another in Kosebo Village in South Konawe District.</p> <p>Forty-two farmers benefited from access to equipment and tools for sago field management activities.</p> <p>Regular supervision will be required to assure sustainability of the intervention.</p>	

<b>Output 3</b>	At least 20 farmer groups benefit from capacity building designed to improve GMP for starch extraction		
	<b>Indicators</b>	<b>Target</b>	<b>Achieved</b>
	Number of farmers trained in GMP.	Equipment and tools for sago starch extraction, wastewater and solid waste management and utilization provided to farmer groups. An integrated unit for sago starch extraction, wastewater and solid waste management and utilization established with farmer groups. At least 20 farmer groups trained to manage the processing units in Konawe and South Konawe.	Yes
<b>Baseline</b>	0		
<b>Comments</b>	There were no impediments. Regular monitoring and supervision by extension workers are suggested to maintain the practices at farmer level. The success stories of farmer groups that have benefited from the programme will thus influence other farmer groups.		
<b>Activity 3.1</b>	Establishment of a pilot demonstration integrated unit for sago starch extraction, wastewater and solid waste management and utilization with farmer groups		
	<b>Achieved</b>	Yes	
	<b>Comments</b>	Two SSPUs were established with the implementation of GMP. The SSPUs were managed by six selected and trained farmers and operated by nine other farmers. In South Konawe, the SSPU was managed by five selected and trained farmers and operated by nine other farmers. Extension workers must be regularly supervised in order to ensure continued good practices as this is still a new approach for the farmers.	
<b>Activity 3.2</b>	Improvement of farmer knowledge and skills on implementation of GMP in post-harvest handling chain for sago palm, and in sago starch extraction from pith		
	<b>Achieved</b>	Yes	
	<b>Comments</b>	Guidelines for SSPU enterprises including sago starch production and utilization, and sago waste treatment and utilization were developed and disseminated. Thirty farmers were trained in application of GMP on SSPU in Konawe and South Konawe. Regular supervisory activity needs to be applied by extension workers as this is still a new approach for farmers.	
<b>Activity 3.3</b>	Establishment of an initial farmer group economic unit or cooperative, specialized in sago starch production and utilization		
	<b>Achieved</b>	Yes	
	<b>Comments</b>	SSPUs were operated by two working groups, specialized in sago starch production and utilization and implementing GMP in their operations. Regular supervisory activity needs to be applied by extension worker as this is still a new approach for the farmers, as well as regular business evaluation to ensure mutual benefit among all groups involved.	

Output 4	At least 25 entrepreneurs benefit from technical and agri-business training designed to promote sago starch enterprise development		
	Indicators	Target	Achieved
	Number of farmer and women groups with capacity built in sago processing, packaging and marketing. Number of farmers equipped with entrepreneurial skills and enterprise development. Level of available market information for sago.	The current marketing situation for sago starch and sago flour in Indonesia critically appraised. Business groups that sustainably produce sago-based products of good quality established.	Yes
Baseline	0		
Comments	There were no impediments. Regular supervisory activity needs to be applied by extension worker as this is still a new approach for the farmers. Continuing endorsement by the Government to promote viable business districts run by the farmer groups is required.		
Activity 4.1	Conduct of a market survey to assess consumer and market interest in a range of sago-starch-based products.		
	Achieved	Yes	
	Comments	Twelve food and beverage practitioners and ten food writers were involved in a market survey to collect ideas on developing sago-based products that fit with market trends for feedback to processed sago-based food producers.	
Activity 4.2	Training of women's groups in the efficient processing, packaging and marketing of sago starch-based food products with good market potential and that contribute to food diversification and food security		
	Achieved	Yes	
	Comments	Twenty-five women from three women's groups were trained in GMP for production of sago-based products (healthy crackers ( <i>kerupuk</i> ), macaroni, improved traditional cake ( <i>bagea</i> ), and sago cake and benefited from increased income. The Mata sub-district in Kendari city has diversified its product base, improved its hygienic management and expanded its market access. Continuous endorsement by the Government to promote viable business districts run by the farmer groups is required.	
Activity 4.3	Training of farmer groups and women farmers on the preparation of bankable business plan proposals		
	Achieved	Yes	
	Comments	Twenty-five women from three women's groups were trained in the development of business proposals. Further monitoring and technical assistance on business calculations, financial forecasting, and setting up business targets are still required to ensure proper and sustainable implementation of the business plan.	
Activity 4.4	Dissemination of successful experiences of sago starch-based agri-business and provision of support for supporting exchange visits to individual farmers and women champions (groups)		
	Achieved	Yes	
	Comments	None	
Activity 4.5	Development of and support to the creation and strengthening of producer and market organizations for sago starch and its downstream products		
	Achieved	Yes	
	Comments	Collaboration was established among business actors of the three target sites to support the value chain. The project helped to set up three working groups, in Kendari City, Konawe District, and South Konawe. The groups were trained in collective entrepreneurship, marketing, finance and administration. The districts were inclusively connected and engaged in processing of the pith into sago flour, followed by value addition in the production of sago-based products. The inclusive group was called Sagu Meambo Food and managed by 13 farmers. Further close monitoring must be focused on strengthening capacity of the business enterprises established during Phase I to ensure that they function fully, above all with regard to: the collaboration mechanism among three main actors; transactions management; marketing plans; and business meetings and profitable negotiation to ensure business sustainability.	

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