

“Medical herbs assessment for turmeric is one of the activities of the empowerment smallholder advocacy, namely strengthening the position of small scale farmers in the value chain, empowering stakeholders and smallholders in agribusiness and commodity networks to improve and provide consistent products, and encourage diversification product within the framework of respect and compliance with human rights values and principles .The survey was conducted in Kulon Progo, Gunungkidul, Yogyakarta and Pacitan cities. The business people found in Kulon Rogo and Gunungkidul are farmers, collectors, turmeric processors and sellers. Whereas those found in the market in the city of Yogyakarta are local market traders.”

ASSESSMENT REPORT of TURMERIC VALUE CHAIN

SECTION 1: INTRODUCTION



Turmeric, one of the few spices of traditional medicine supported by modern scientific research. Turmeric is a spice that collects all medical-based drug efficacy with fewer side effects than pharmaceutical drugs patented. Turmeric has a spicy, warm, and bitter taste. Turmeric has long been used as an anti-inflammatory drug by the physician's system of

China and India. The dark orange concentrated is used throughout civilization as a spice, healing medicine, and textile coloring. Contains a million benefits in turmeric. Turmeric is a very unique spice that has a very high level of drug safety compared to hydrocortisone, or chemotherapy drugs. Turmeric has a yellow or orange pigment called curcumin. Curcumin is considered the main pharmacological substance in turmeric. In many studies, the anti-inflammatory effects of curcumin comparable efficacy with hydrocortisone (an anti-inflammatory compound) and phenylbutazone (anti-inflammatory).

Through clinical studies it has been proven that curcumin also has a very strong antioxidant effect. As an antioxidant, curcumin is able to neutralize free radicals that cause damage to healthy cells and cell membranes. Arthritis is one result of free radicals. The combination of turmeric to the effects of antioxidant and anti-inflammatory explain why many people with diseases of the joints were relieved after using this spice regularly. Antioxidants in turmeric curcumin substances protect large intestinal cells from free radicals that damage DNA. Curcumin also helps the body destroy mutated cancer cells from spreading to the rest of tubuh. Kunyit have great benefits for the cure.

Some of the amazing properties of turmeric include protecting the damage to radiation exposure, preventing Alzheimer's, destroying cancer, protecting it from heavy metal poisoning, destroying cancerous stem cells which are the roots of all cancers, and reducing the level of inflammation. The amazing thing about turmeric is its ability to improve conditions that are truly resistant to conventional medicine. There are more than six hundred additional health conditions that can be prevented or treated with turmeric. In fact turmeric grows freely in almost every land of the earth.

Some parts of Indonesia have the potential to develop quite large turmeric plants. Turmeric is easily planted and cultivated in various types of soil, can live under shade with limited sunlight. However, due to lack of exclusivity, the ability of patents and the benefits produced by turmeric plants is difficult to accept the stamp of the Food and Drug Administration. More complete databases and information are needed for the implementation of a program to support the agenda and advocacy of turmeric as medical herbs.

One series of activities will be carried out and jointly managed by ICCO Cooperation, PSNI and Penabulu for the achievement of Pathway 3's advocacy goals are strengthening the position of small-scale farmers in the value chain; empowering stakeholders and small farmers in agribusiness and commodity networks to improve and provide consistent products; and encourage product diversification in the framework of respect and compliance with the values and principles of human rights. One of the activities to reach the Pathway 3 destination through the medical herbs assessment on turmeric plants.

SECTION 2: PURPOSE OF THE ASSESSMENT

This assessment activity aims to:

1. Mapping the needs of smallholders of Turmeric in applying standards of feasibility for production and post-harvest handling (G.A.P and G.H.P).
2. Mapping post-harvest handling, distribution and markets for turmeric commodities.
3. Mapping the turmeric value chain.

SECTION 3: DATA COLLECTION AND ANALYSIS METHODS

Methods of collecting primary data in assessments are: observation, interviews, and laboratory tests. Data collection begins with mapping the parties in the area under study. This mapping is intended to determine the location and parties to be encountered in connection with the turmeric value chain from production to the last consumer.

- Observations were carried out in several locations in Yogyakarta Province. In Kulon Progo Regency, observations were made in Pengasih District in Karangsari Village and Kedungsari Village, as well as in Nanggulan District. Observations in these locations to see farming practices at the farm level and processing practices that have been carried out. Observations were also made at Beringharjo Market to find out which turmeric and processed products needed by the local market. This observation is to find out the type, price and origin of the goods.
- Interviews were carried out on the parties involved in the turmeric value chain, namely: turmeric farmers, collectors, turmeric processors, local herbal sellers, market traders. Determination of interviewee based on chain information obtained from stakeholders.
- Laboratory tests in the form of curcuminoid test and simplicia test took wet turmeric samples from 4 locations, with 3 locations in Kulon Progo and 1 location in Gunungkidul. The sample was tested at the Integrated Research and Testing Laboratory (LPPT) of Gajah Mada University and the Center for Environmental Studies (PSL) of Sanata Dharma University.

Secondary data collection was carried out by examining information from previous research and BPS data from two districts.

As for the method of data analysis, using analysis of the value chain and the supply chain. This method is used to understand the actors in each value chain. By understanding the value chain and supply chain, the intervention plan is made easier. Appropriate intervention to ensure the sustainability concerns of the market, precise interventions that do not do the other side.

SECTION 4: ANALYSIS

Chart of Value Chain

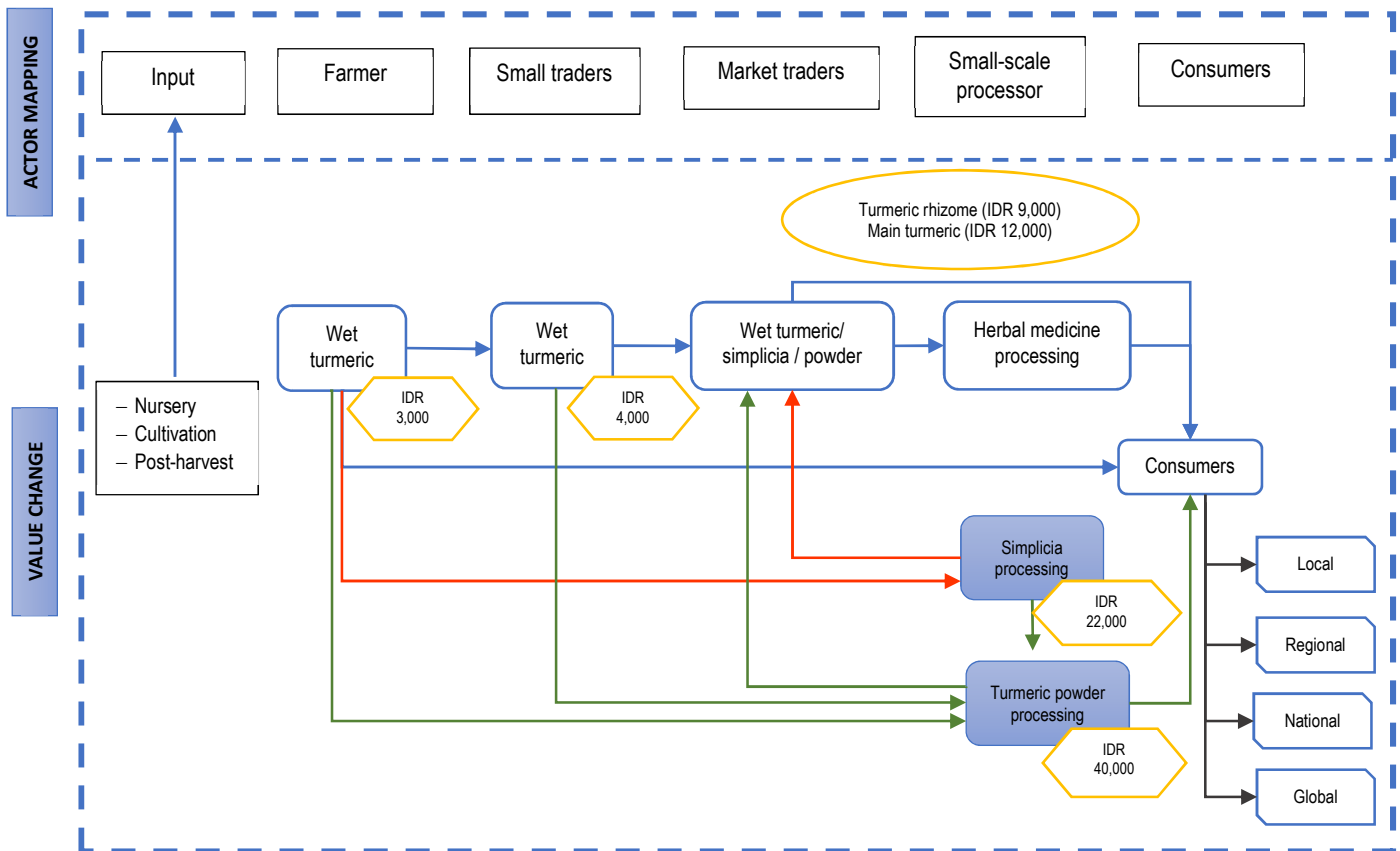
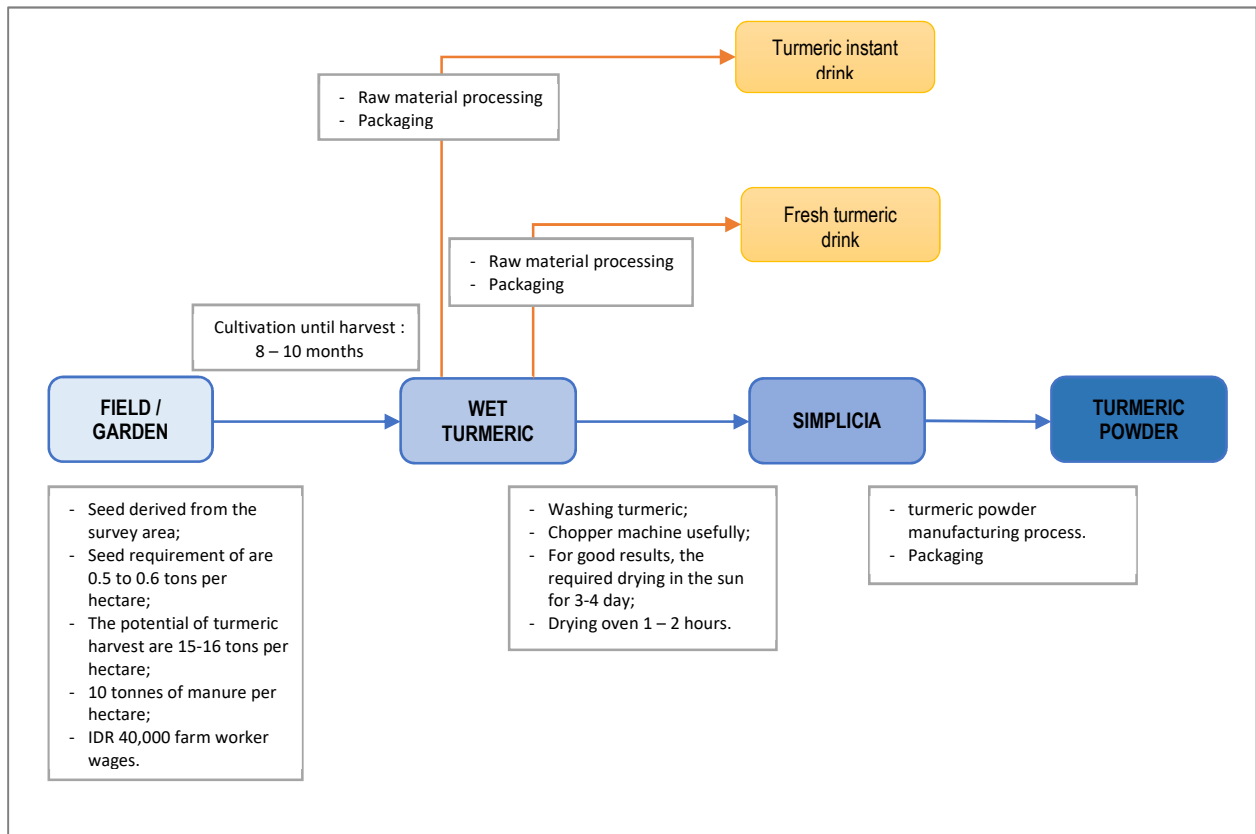


Chart of Supply Chain



In the supply chain chart it describes what inputs are given since land processing, cultivation, harvesting, post-harvesting, processing, and markets. Packing. The white box depicts turmeric products until they are processed. While the straight line describes the flow in each stage of the supply chain. The yellow box is the result of processed turmeric which can be done quickly according to supply chain analysis.

Market Survey in Beringharjo, the Central Market of Yogyakarta

Turmeric market observations at Beringharjo Market in Yogyakarta are conducted to find out which turmeric and processed products are needed by the local market in Yogyakarta and its surroundings. Information obtained in market observations is about (i) the type of turmeric needed by the market: (ii) the price of each type and processed product; (iii) the location of the raw material origin. The type of turmeric sold is fresh turmeric and processed with turmeric.



The type of turmeric sold by traders at Beringharjo Market is fresh turmeric and processed with turmeric. Large and small fresh turmeric consists of masters and rhizomes. The types of turmeric preparations found are instant turmeric ready to be packed with bottles,

turmeric flour, and simplicia. Turmeric which is sold at Beringharjo Market is used for cooking spices, herbal ingredients, fresh drink ingredients. Based on information from traders in Beringharjo Market, turmeric which is good for herbal ingredients usually comes from the Kulon Progo and Gunungkidul regions. Turmeric originating from these two locations has a small form, because it is planted in a thin soil where it rains dry rain.

Beside of turmeric for ingredients of drinks, turmeric is good for cooking spices, which are large in shape and look attractive. This type of turmeric comes from Magelang. Availability of turmeric stock will be abundant during the harvest season, which is at the end of the dry season. While in the rainy season the availability of turmeric on the market will shrink. When observing in December, all traders at Beringharjo Market do not have processed turmeric products.

Supply Chain Survey in Gunungkidul, Yogyakarta

There are four essential in analyzing the supply chain in Gunung Kidul, namely (i) calendar seasons; (ii) potential land; (Iii) the resulting product; and (iv) a smaller traders opportunities for cooperation with village businesses.

The climate in the Gunungkidul region, especially in Tepus Subdistrict, will experience dryness every year, at least 3 months in each year. Besides turmeric, the land in Tepus can produce gude, peanuts, corn, rice, empon-empon, and koro beans. In observing land in the area of Tepus Subdistrict, it was found that turmeric and ginger products were produced by farmers but were not a priority for farmers to cultivate. This is evident from the saffron grown on land, then when farmers will sell turmeric at harvest time to the traditional market. There are also some traders of turmeric harvesters, but until now, both officially and unofficially, there is no complete data on the value chain of turmeric originating from Tepus.

Supply Chain Survey in Kulon Progo, Yogyakarta



In Kulon Progo, observations were carried out in 3 sub-districts known as turmeric producers, namely in Pengasih Sub-District, Kokap Sub-District, and Girimulyo Sub-District.

From the survey in **Pengasih Subdistrict**, Kulon Progo, information was obtained that turmeric produced by farmers was usually sold to herbal medicine traders in the (local) village market. The sale of turmeric is centered on

herbal medicine traders in the market because farmers feel that traders in the village market can provide decent prices. Turmeric rhizome from Pengasih District is more suitable for cooking spices.

In addition to conducting interviews with several turmeric farmers, interviews were also conducted with turmeric collector trader in Nanggulan District. These traders make purchases of fresh turmeric and are processed into simplicia. Turmeric processing using a machine with a capacity of 100 kg per hour. The collector trader in Nanggulan Subdistrict receive turmeric from Girimulyo Subdistrict, Samigaluh District, and Nanggulan District. The

obstacle faced by collectors' swords is when there are parties who cancel orders of simplicia. In the manual record of collectors who are found by assessors, Kulon Progo Regency has the potential to produce turmeric on a large scale.

In **Kokap Subdistrict**, there is an organic farmer group organized under the Jatirogo Cooperative. There are around 524 hectares of land that already have organic certification and have the opportunity to produce organic turmeric simplicity products. This location can be relied on as a producer of organic commodities, including medicinal plants.

In **Pengasih Subdistrict**, turmeric is a commodity that is seriously cultivated by several farmers. The type of turmeric produced is small. Small rhizome turmeric is suitable for herbal ingredients. Karangsari Village Government plans to make the Karangsari Village which is surplus of turmeric, empon-empon center and supports the development of processed turmeric.

In Tawangsari Village, Pengasih Subdistrict, there is a culinary entrepreneur who serves a herbal menu as a fresh drink. Turmeric is processed into a mix of turmeric and tamarind drinking. However, turmeric ingredients are obtained in the market, not directly with farmers, so the origin of the planting location is unknown. Turmeric plants are very potential to be developed in the Menoreh Mountains region of Kulon Progo because of their geographical conditions supporting turmeric cultivation.

From the interview in **Giripurwo Subdistrict** with village government staff, information was obtained if turmeric was a product that was never considered but needed and sought during traditional village events. In Giripurwo Subdistrict, agricultural land is still wide with contour of mountainous land with easy to draining soil conditions. Even in Giripurwo Village, it has the potential for large-scale cultivation. Its hot and strategic location also has the potential for processing turmeric into simplicia.

Table of Turmeric Potential Market Chain in Yogyakarta

LOCATION	PRICE		
	Prices at Farmers	Prices at Local Village Market	Prices at Beringharjo Market
Kedungsari, Pengasih, Kulon Progo	3,500-4,000	4,000-5,000	9,000-12,000
Karangsari, Pengasih, Kulon Progo	2,500-3,000	3,000-4,000	6 .000- 9 .000
Girimulyo, Kulon Progo	2 .500 -3500	4,000	6 .000-12.000
Tepus, Gunungkidul	2,000-2,500	2,500-3,000	6 .000- 9 .000

Curcuminoid and Simicidal Test Results

To determine the levels of curcumin from turmeric samples taken from Kulon Progo and Gunungkidul, a curcuminoid test was carried out at the Integrated Research and Testing Laboratory (LPPT) of Gajah Mada University. The results are listed in the following table:

Table of Curcuminoid Result Test

Origin of Turmeric	Visual Size	Curcuminoid Levels
Karangsari, Kulon Progo	Small	11.22% b / b
Tepus, Gunungkidul	Medium	8.91% b / b
Girimulyo, Kulon Progo	Medium	8.82% b / b
Kedungsari, Kulon Progo	Big	7.17% b / b

From the table above, turmeric from Karangsari has the highest curcuminoid content, so it can be developed into turmeric flour. While turmeric which has medium and large sizes originating from Tepus, Girimulyo, and Kedungsari can be developed as a refreshing beverage and cooking spices.

Whereas in the simplicia test, testing is done manually. Turmeric cuts used a stainless steel knife and drying it in the sun with a black fabric protection. From the simplicia test it was found that in every 1 kg of turmeric produced 200 grams of dried simplicia.

SECTION 5: CONCLUSIONS & RECOMMENDATIONS

Turmeric is a much needed medicinal plant, but there has never been a particular concern for the development of this plant. This is reflected in the assessment in Gunungkidul Regency and Kulon Progo Regency. Turmeric is grown individually but has not been cultivated and developed intensively.

In search of BPS DIY data, it is not specifically listed the number of farmers, area of land, and the amount of turmeric production regionally. In general, the geographical conditions of Kulon Progo Regency and Gunungkidul Regency have the potential to develop turmeric in organic fields. Both of these districts have hilly mountainous land, so the soil is slime and suitable for planting turmeric.

Based on the results of a market survey, the chances of turmeric cultivation in these two locations are quite high because the absorption of high local markets and in the central market of Beringharjo shows that good quality turmeric sold comes from Gunungkidul Regency and Kulon Progo Regency.

The assessment results will be material for the development of the action. And the curcuminoid test results are used to determine the location of turmeric feasibility for development and its diversification products. The types of turmeric sold in the local market of Yogyakarta are large fresh turmeric and small fresh turmeric which consists of masters and rhizomes. Types of processed turmeric are marketed in the form of: instant turmeric ready brew packaged in bottles, turmeric flour, and simplicia of turmeric as herbal ingredients and drinks.

Turmeric which is good for herbal ingredients originating from Kulon Progo and Gunungkidul, because of its small visual form, is planted in a thin soil that does not contain much water, because when it rains the soil dries out immediately. Turmeric is good for seasoning great shape and looks interesting.

The proposed recommendations based on this assessment are as follows:

1. Preparation of turmeric data commodity in Kulon Progo and Gunungkidul Regencies.
2. Initiation of the development of organic turmeric cultivation and organizing farmers.
3. Initiation of post-harvest processing and marketing of turmeric.
