

# RESILIENCE TENGARAN

Executive Summary  
of Tengarani Resilience  
Strategy



# GROUP 2B

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## BACKGROUND

- This paper summarize our planning studio result that elaborate Regional Development Strategies with the concept of inclusive and climate change resilience in Tengaran, Susukan, Suruh, and Kaliwungu District in Semarang Regency, Central Java.
- Climate change is a global issue that affect the vulnerability on every aspect. Climate change doesn't only impact the urban area but also happened in rural area. Climate change impacts the activities in rural area because rural activities are mostly depend on natural resources that directly affected by the climate. Therefore, building resilience to climate change is needed among the rural communities to face the impact due to climate change.
- Resilience definition is the ability to sustain, adapt, and grow although there are obstacles. In this case, resilience is about the vulnerable communities are expected to be resilient to face the challenges ahead. in building the resilience, identifying the shock sand stresses is needed to compose the resilience strategy. Strategies based on shocks and stresses are expected to increase the resilience of the vulnerable communities.
- Resilience should enable poor, marginalized, and otherwise vulnerable people. The development process should consider involvement of various stakeholder groups in the city, those who have influence, and those affected, so the development will be inclusive. Inclusivity is needed in regional planning to build a sustainable development. Inclusivity approach engage every person include (stakeholders and society) and every aspect get involve in planning process. Inclusivity approach enable the vulnerable people to take part in every planning process, so the planning process can resolve the vulnerability.

## BACKGROUND

- In this case, our study field in planning studio which consists of Tenganan, Susukan, Suruh, and Kaliwungu district called as Tenganan Subregion located in Semarang Regency, Central Java is a rural area. Tenganan sub-region has a role play as the main base of agricultural sector of Semarang Regency. As a rural communities, Tenganan sub-region people mostly work in agricultural sector as the main source of their livelihood. Climate change impacts the agricultural sector in this region and increase the vulnerability of rural communities. These rural communities are highly vulnerable to climate change impacts and affect its resilience.
- The challenges not just in agricultural sector that get affected by climate change, but also industrialization issue that becomes stress for them. The issues about high poverty and livestock waste also become challenges for them
- To build inclusivity and resilience in Tenganan Subregion, we identify the challenges, identify what the communities and governance has done to face those challenges, accommodate the interconnectivity between Tenganan Subregion and other areas, make the planning process ensure the needs of the communities, explore the innovative solutions and distribute the role of each stakeholders.

# PROFILE

Tengaran sub region located in the southernmost part of Semarang Regency, consists of Susukan district, Suruh district, Tengaran district and Kaliwungu district. Tengaran sub region location is strategic since it is passed by Semarang-Solo arterial road and Semarang-solo highway.

Tengaran sub region bounded with Salatiga city and Semarang Regency (Karanggede and Ampel District). There are 56 village form 4 district.

**19,591 km<sup>2</sup>**

**Total Area**

**12,654 km<sup>2</sup>**

**Paddy Field Area**

## POTENCY

### Physical Condition

Strategic location, between Salatiga and Boyolali, passed by National Road (Jl. Semarang-Solo)

### Tourism

Nature tourism potency such as Tegalwaton Ranch and Senjoyo River and Spring

### Human Resources

Demography Bonus Phenomenon



Total Population : 195.064 people

Productive age population :  
127.636 people / 65.4%

Labor population : 101.417 people

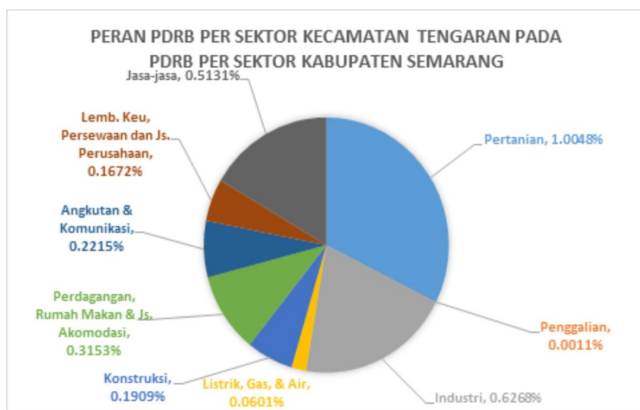
Agricultural labor : 41 % from  
labor population

Poor population: 29.317 people  
or 30% from poor population in  
Semarang Regency

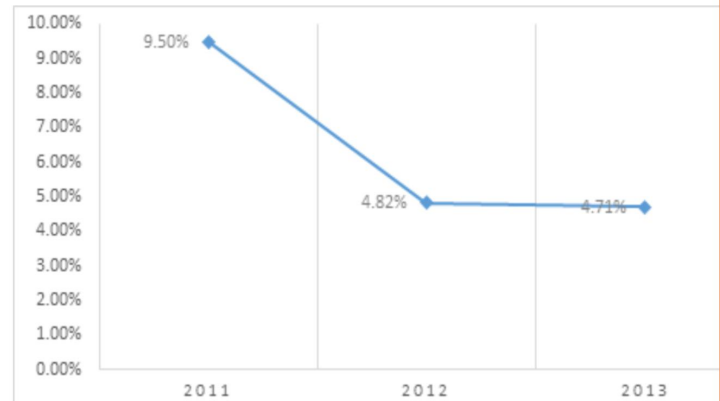
# PROFILE

## ● Economic Condition

Agricultural sector is the sector base, it showed from the main economic activities in Tengaran Sub Region is agricultural sector. Agricultural sector is the highest contributor to Tengaran Sub Region.



## ● Economic Growth



## POTENCY

### Livestock

- Farming culture produce 16.874 cows/year and 3.666.655 hens/year
- Cows production contribute 31,7% of Semarang Regency total cow production
- Hens production contribute 48,9% of Semarang Regency total hen production
- Peoples have been applying biogas technology from livestock waste
- Good partnership between farmers and chicken processing plant

### Industrial

Industrial growth with 8.416 labor in 2013

### Agriculture

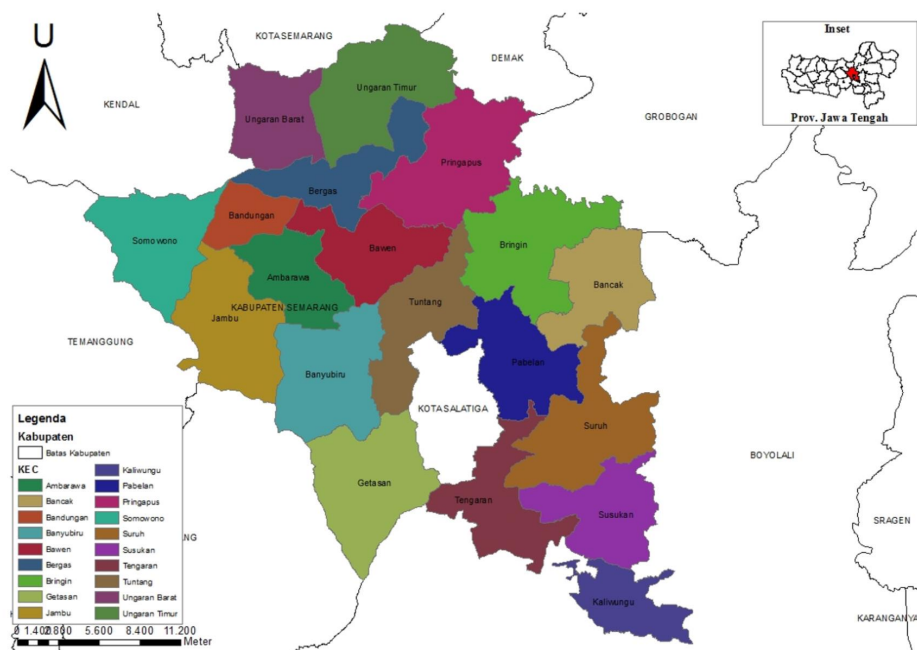
- Highest rice production in Semarang Regency, produce 76.208 tons/year
- Huge agricultural land with 6.923,95 hectare
- Every village has an active farmer group
- Organic rice development

# PROFILE

## Linkage with Other Region

Since Tengaran Sub region located in the southernmost of Semarang Regency and also far away from the capital of Semarang Regency, Tengaran Sub region has a linkage with Salatiga City. One of the linkage is on the water supply resource, Senjoyo waterspring in Tengaran district is the main water supplier for the whole Salatiga City.

Furthermore, provision of infrastructure in Tengaran sub region has not fulfill the needs of tengaran people yet, so they fulfill their needs to Salatiga City and Boyolali Regency.



# SHOCK

- **Unpredictable Season**

Tengaran sub-region has 1.627,33 hectare of rainfed agriculture or 23,5 percent from total agriculture land in Tengaran sub-region. Productivity of rainfed agriculture affected by climate as source of watering. Heat increases and changes in normal rainfall patterns caused agricultural drought. In 2014, agricultural in Tengaran Sub-Region was collapse because of drought. While, in the middle of 2015 to 2016, long rainy season caused quality of agricultural crops decreased because there are to much rainwater. Since Tengaran Sub Region is the highest paddy supplier for Semarang Regency, the decrease of paddy production caused by drought and long rainy season directly gives impact to Semarang Regency.

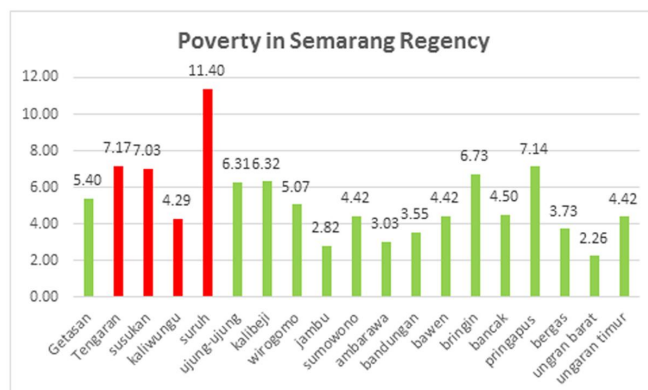
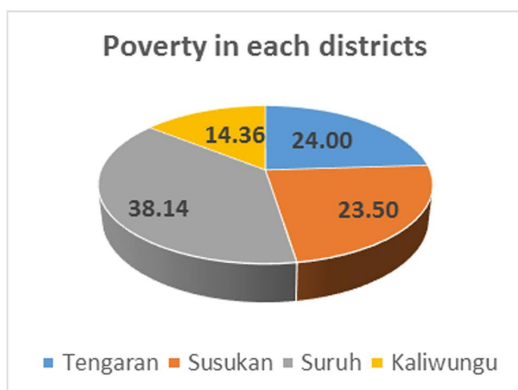




- **High Poverty (Poor Farmers)**

Highest Poverty in Semarang Regency are located in Tenganan sub-region. Poverty in Tenganan Sub-region dominate 30 percent from number of poor people in Semarang Regency and 15 percent from the number of population in Tenganan Sub-region. Poverty in Tenganan Raya are concentrate on Suruh distric. Suruh has 11.181 people that classified as poor people. In second place, Tenganan distric was contributed 7.036 poor people in Tenganan Raya, in third place is Susukan distric, that has 6.890 poor people, and the last is Kaliwungu distric which contributed 4.210 poor people .

Poverty in Tenganan Sub-region dominated by poor farmer. Low education caused poor farmer have low quality of human resources. The other factor, majority of farmer in Tenganan Sub-region working as labour farmers. Labour farmer only paid in a small salary so it leads poor life. Farmers just working in certain time, and haven't the other jobs.



# STRESS

## • Livestock waste

Tengaran Sub Region has 19.875 number of cattle and 44.020 number of goats. As known methane gas which caused by livestock reach out 14,5 percent of total green house emmision in the world. These great amount of livestock in Tengaran Sub Region becomes challenges how to manage the waste, meanwhile the ownership of livestock are still individual.



*Livestock in Suruh Village, Suruh District*



*Livestock in Jatirejo Village, Suruh District*

## • Industrialization

In recent years, industry has been developing in Tengaran subregion. Industrial area in Tengaran sub-region is concentrated in Tengaran district, the central district in the region. Today there are ten heavy industries and around twenties light industries in this area and this number is predicted to continue rising time by time. Industrial sector has provided job fields for the local residents, giving many economic benefits for the region. However, this economic benefit comes with a consequence of the declining agricultural activity.

Tengaran sub-region experiences a demographic bonus phenomenon, which is indicated by the highest productive age population. However, most of the population of productive age are more interested to work in industry sector. This is because the income of industrial sector is higher and more stable compared to the income of farmers. This leads to decreased levels of agricultural productivity due to the lack of human resources in agricultural sector. This is problematic since Tengaran sub-region takes an important role as Granary in Semarang Regency. The changes of agricultural sector to industry sector become one of stress for them.

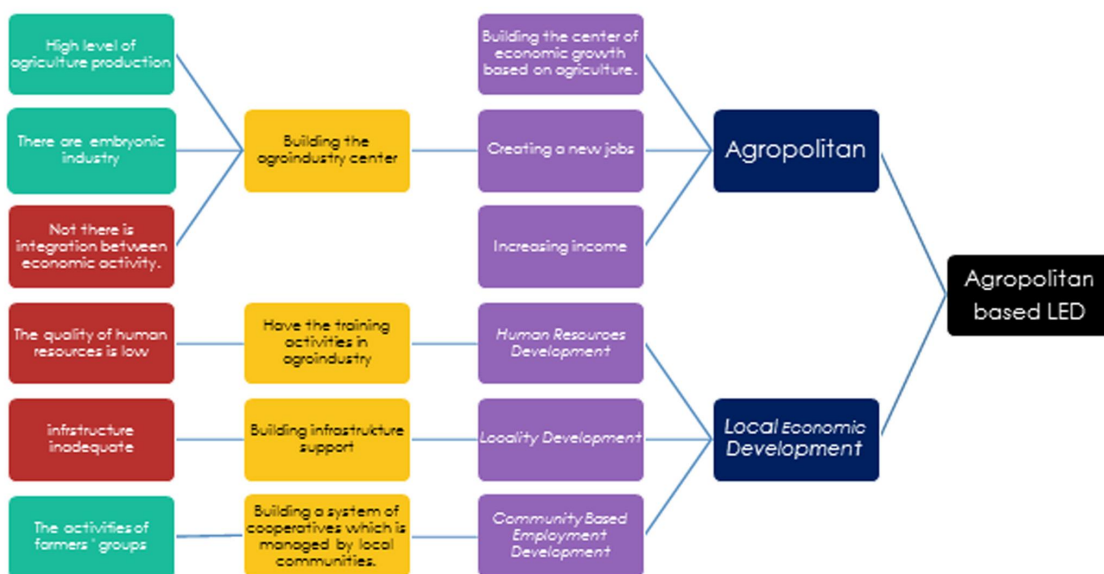
# STRESS

Beside the problem of economic disorientation, these industries are also causing some serious environmental issues. The most severe environmental problem is caused by Plywood industry. This industry transforms the form of woods from logs into wood sheets. The manufacturing process involves dehydration phase to remove the excess water in woods. This phase produces plenty of unhealthy smoke as the main pollutant. No utilization of filtration instrument is a problem because this causes to pollute the air and decrease the air quality. The other environmental issues that may arise in the future is about water pollution. The process involved in industries often requires excess amount of water. Tengeran sub-region itself has twenty one waterspring. This waterspring may be overused by industries, making its difficult for the community to access clean water in fulfilling the daily needs of water.

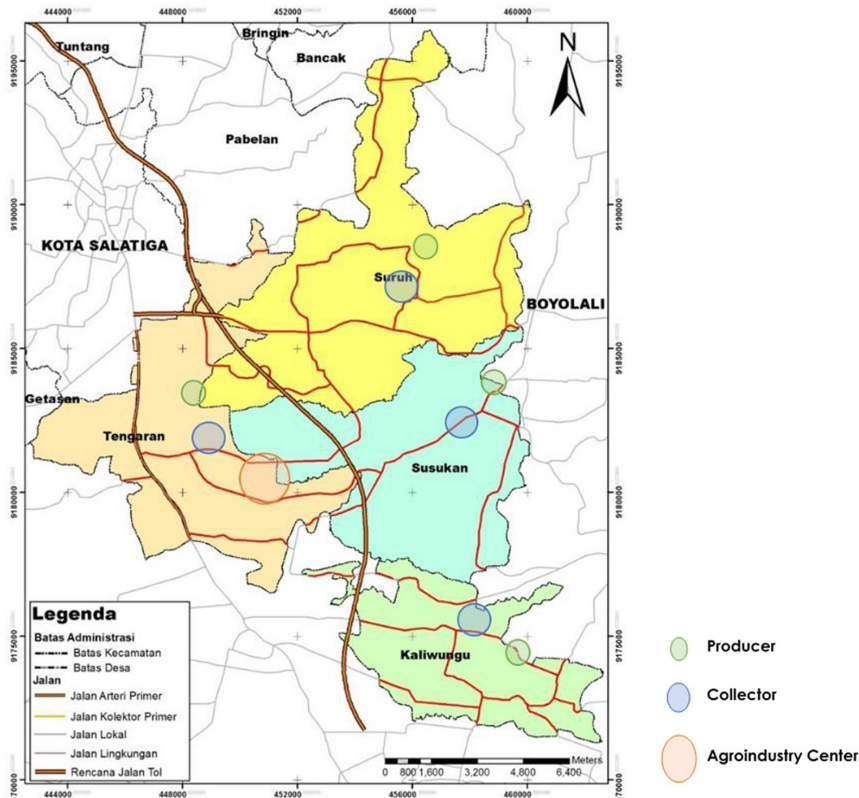


# Planning Concept

In the application of planning to achieve the goals and objectives, the planning concept in Tengeran Subregion is “Agropolitan Based on Local Economic Development”. This concept is sustainable development of agriculture based on the agricultural sector as a focused in economic growth accompanied by the construction of facilities within urban areas by empowering the whole community and stakeholders related to improve the common welfare.



Based on agropolitan concept which will be applied/implemented to Tengeran Subregion there will be three function of area; a producer of raw materials, collector of raw materials, and processing. Center of commodity production concentrated in every district to simplify fulfillment agricultural support needs each commodity. Furthermore, the difference characteristics of each region caused difference of the commodity that developed in each district, meanwhile all the raw material come from Tengeran Subregion region. After produced, production result will collect in every raw material collector for initial processing or become agroindustri environment.



For a commodity that still on processing level is a half materials and be brought to the agroindustry or agropolitan center. Agropolitan center consist of agroindustry, marketing center and processing of agriculture center. In planning process, an industry that will be developed is a small industry (<20 workers), medium industry (20-99 workers) and large industry (> 100 workers) on the marketing regional level. This activity is expected to the entire chain of agroindustry in the Tengaran Subregion.

### The Relation between Planning Concept, Resilience and Inclusive

Planning Concept in Tengaran Subregion is Agropolitan based on Local Economics Development. The relation between planning concept, resilience and inclusive include in the programs which are already compiled by involving all of people elements and stakeholders in the process of program making. The programs are providing agricultural tools, agricultural marketing and training people skill about how to increase their income and also to inform them about environment. So, the concept can help people especially farmers to improve the agricultural skills and product.

## What society and local government has been done through resilience?

Due to climate change impact to agricultural activities the farmers have done some adaptations to face the challenges. These adaptations include practicing shifting cultivation, adopting new crop varieties and modifying grazing patterns. But today the speed and intensity of climate change is outpacing the speed of autonomous adaptations and is threatening to overwhelm the ability of poor rural people to cope.

Meanwhile the local government has done some actions to help the poor farmers by providing seeds and fertilizer subsidy. But those actions weren't enough because the seeds and fertilizers by the government has low quality and the programs are not sustainable to make the poor farmers become independent.

## How to ensure society needs about resilience and inclusive?

Participatory method is one of essential approach to conduct vulnerability assessment and compose resilience strategies. This method needed because by listening to the voices of poor rural people while people planning adaptation and mitigation efforts. This method is very useful to ensure the local conditions and adaptation due to climate change effect. Participatory approach is used in our study to examine the climate change effect and making the planning adaptation and mitigation efforts.

Our method to assess the vulnerability is the vulnerability of the vulnerable peoples in this case Farming Community in Tengeran sub-region. While doing studio planning field work. The farmers were interviewed about climate change effect to the agricultural activities and their acts to adapt with the climate change effect.



# INITIATIVE STRATEGY

Challenges	Initiative Strategy	Description	Stakeholder	Status	Period				
					5 years	10 years	15 years	20 years	
Industrialization	Improved quality and quantity of Economic facility through manufacture and market development	Improving the quality of facilities economy through	Dinas PU, UPTD Pasar dan DKUPP	Development Program	■				
		Improving the quality of Kembang Sari Market, Tengaran							
		Increase the number of markets in the Dersansari's Village, Susukan							
		Optimizing Suruh, Susukan, Kaliwungu Market to improve the quality of facilities and trading and social services							
Poverty	Community skills training agricultural production	Improve the quality of human resources through training in agriculture to improve productivity and quality through Balai Pertanian dan Peternakan each region	Gapoktan, Bapermasdes, Disnakk dan Distanbunhut	Development Program	■	■			
	Community skills training in post-production field of agriculture	Improving the quality of human resources through training in agriculture to increase the selling value of agricultural production through Balai Pertanian dan Peternakan each potential region		New Program					
	Community skills training in production livestock	Improving the quality of human resources through training in livestock to increase the productivity and quality through Balai Pelatihan Peternakan dan Pertanian each potential region		Development Program					
	Community skills training in post-production livestock	Improving the quality of human resources through training in livestock to increase the selling value of farm production through Balai Pertanian dan Peternakan each potential region		New Program					
	Provision of supporting livestock production	Provide support livestock production facilities such as communal cage		Gapoktan, Perangkat Desa dan Disnakk					Development Program
	Provision of farm product processing	Provide facilities of processing of livestock such as RPH, RPU, freezer warehouse and warehouse storage		Disnakk dan Perangkat Kecamatan, Perangkat Desa					New Program
Agricultural Drought	Providing facilities and infrastructure supporting agricultural production based on technology	Providing support facilities for agricultural production such as reservoirs and farm roads	Dinas PU, Gapoktan dan Perangkat Desa	New Program	■				
	Provision for the processing of agricultural products	Providing support facilities for farming such as drying space and rice milling, warehousing and agro-industry development of supporting infrastructure (processing center) final stage	Gapoktan dan Perangkat Desa	Development Program					
Poverty	Provision for the marketing of agricultural and livestock processing	Provision for the marketing of agricultural and livestock production, such as construction and trade expo centers of agro-products as well as the promotion of agro-products Development Facility (branding featured product agro-industry) through the development of agro-products business networking information	Disnakk dan Distanbunhut	Development Program	■				
Agricultural Drought	Development product and application of agro industry quality standards of agricultural products and livestock	Set the product quality standards by conducting Quality Control Circle (QCC) in which set the order, neatness, and standards of quality raw materials to be used. Then label the products with SNI	DKUPP	New Program	■				

# INITIATIVE STRATEGY

Challenges	Initiative Strategy	Description	Stakeholder	Status	Period			
					5 years	10 years	15 years	20 years
Industrialization	Diversifying farming through sustainable home industry with heavy industry	Manage the flow of processing of commodities, some of small industry to cultivate the commodity into semi-finished goods which are then followed by a large industrial processing so that the finished goods or finished products	Bapermades dan Dinsosnakertrans	New Program				
Agricultural Drought	Procurement for appropriate agricultural technology and research and development of superior seeds of rice	Using technology in the processing of agricultural products such as rice milling tools, packaging tools, and others to use of best seeds for agriculture	Distanbunhut, Gapoktan dan DKUPP	Development Program				
Poverty	Improving the quality of human resources through training in non-agriculture	Improving the quality of human resources through the provision of training (training, sewing, automotive, mechanical, and industrial) treatment, be it a way of processing, care to distribution results	Dinsosnakertrans, Distanbunhut, Gapoktan dan DKUPP	Development Program				
Industrialization	Construction of supporting facilities such as potato agricultural production and warehousing and others relating to the processing industry in Tenganan	Construction of support facilities for pre-production, production and post-production of potatoes in the form of warehousing and others to improve the quality and the quality of potato commodities to improve the welfare of farmers	Disnakan, Distanbunhut dan Dinas PU	New Program				
Agricultural Drought	Development of Organic Rice in Tenganan Raya	Develop organic rice commodities in areas potentially through land conversion from inorganic into organic fields in rice field that potential	Gapoktan dan Distanbunhut	Development Program				
Industrialization	Commodities Processing Industry Development in Susukan district and Suruh district	Develop the agricultural product processing industry in order to increase the resale value of agricultural goods and livestock as well as lengthen the production chain	Gapoktan, DKUPP dan Distanbunhut	New Program				
Livestock waste	The residue utilization Commodities in Tenganan Raya	Utilizing residue of Rice, Cattle, sweet potato and chicken can be used as products that can be reused	Gapoktan, DKUPP dan Distanbunhut	New Program				
Poverty	Performance Improvement Farmers Group	Improvements organization internal concerning the administration of the motivation of the educator both related careers, awards, including supervision and monitoring	Bapermasdes dan Gapoktan	Development Program				
		the addition of facilities farmer groups increase of farmers group capital						
	Performance Improvement of Livestock group	Improvements organization internal concerning the administration of the motivation of the educator both related careers, awards, including supervision and monitoring	Bapermasdes dan Gapoktan	Development Program				
		The addition of facilities livestock group improve the capital of livestock group						
Agricultural Drought	Determination of Special Land Appropriation of Agriculture	Determination of the fields as a protected area as well as jobs for farmers	Bappeda, Dinas ATR/BPN dan BPMPTSP	New Program				
Livestock waste	Provision for supporting livestock production	Provide supporting livestock production facilities such as a communal cage	Distanbunhut, Gapoktan dan Perangkat Desa	Development Program				
Industrialization	Determination of Special Land Industrial Allotment	Determination of land for industrial locations make it easier to control and coordinate industrial (agglomeration) in order to provide efficiency and effectiveness so as to provide a positive impact for the region and the industry developed industry.	Dinas ATR/BPN, Dinas PU, BLH, DKUPP, BPMPTSP, BPBD dan Pihak Swasta (industri)	New Program				





**URBAN & REGIONAL PLANNING DEPARTEMENT  
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