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# PROCEEDING



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**THE RESEARCH INSTITUTE  
GANESHA UNIVERSITY OF EDUCATION**

Jl. Udayana Kampus Tengah  
Singaraja, Bali 81116

Tlp. +62362-22928 Fax. +62362-22928

Email: [icirad@undiksha.ac.id](mailto:icirad@undiksha.ac.id) || [icirad.undiksha@gmail.com](mailto:icirad.undiksha@gmail.com)

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**Edited by:**

Komang Setemen  
Kadek Surya Mahedy  
I Gede Parta Sindu  
Putu Hendra Suputra

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Komang Setemen  
Kadek Surya Mahedy  
Putu Hendra Suputra  
I Gede Parta Sindu  
Agus Aan Jiwa Permana

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## AGRICULTURAL EXTENSION INSTITUTION IN THE COLONIAL PERIOD OF NETHERLANDS INDIES (A Study of History)

Effendi Wahyono<sup>1</sup>, Nurul Huda<sup>2</sup>

<sup>1</sup>Indonesia Open University, Tangerang Selatan, Indonesia

<sup>2</sup>Indonesia Open University, Tangerang Selatan, Indonesia

email : effendi@ut.ac.id

### Abstract

*As an agricultural country, the role of agricultural extension institution in Indonesia is very important for agricultural development. The institution has existed since the colonial period. However, to what extent is the historical development and the main tasks of agricultural extension institutions in the colonial period in Indonesia? This study was intended to determine: (1) the birth history of agricultural extension institutions, and (2) the duties and functions of agricultural extension institutions. This study was conducted using the historical research method. There were four stages to be carried out in the study of history, those are heuristic, criticism, interpretation, and historiography. Sources used in this study was the colonial archives, articles, and news in contemporary magazines or newspapers. The findings indicated that a functional, agricultural extension institution was formed in 1911 under the name of Landbouw voelichtingsdienst or agricultural extension department under the Ministry of Agriculture (Departement van Landbouw). However, after going through various changes, the structure of the institution was newly formed in 1920, under the Agriculture Section, Department of Agriculture, Craft and Trade, based in Bogor. At the local level, agricultural extension institutions were divided into seven agricultural areas in Java and five agricultural areas outside Java, each headed by a senior instructor. After the formation of provinces in Java, agricultural extension authorities handed over to the provinces, in this case the agricultural extension services of provincial and local government institutions underneath. The main task of the department of agricultural extension was to develop indigenous agriculture.*

**Keywords:** *agricultural, extension institution, colonial period, Netherlands Indies*

### 1. Introduction

The development of the agricultural sector was the dominant factor in the development of Indonesian society. Agricultural development interpreted as a conscious effort to transform traditional agriculture into a developed agriculture, which its productivity continuously increase (Sinar Tani, 2001). The success of agricultural development was inseparable from the role and function of extension activities. Experience in many countries showed agricultural extension workers have an important role in agricultural development. Agricultural extension was a spearheading which directly related to farmers. Is a government agricultural extension officers who are associated with farmers. It can be said that agricultural extension is a farmer partners that its duties and functions was to empower farmers in order to improve the quality of their life.

Agricultural extension institution in Indonesia has existed since the Dutch

colonial administration. The existence of agricultural extension institutions in Indonesia have ups and downs in a significant change, since the colonial period, the new order, until today. Changes and developments occur in accordance with the needs of government for agricultural development.

In some respects the institutional changes not evolve in a linear extension towards the better, but it happens setback. The result was a discontinuity development of agricultural extension programs. This happened because of the low understanding of the history of agricultural extension. Many policy makers did not know what has been done in the past so that they are unaware of the direction to be done to achieve perfection.

Viewed from the standpoint of the history of science approach, the institutional development of agricultural extension in Indonesia in the colonial period as a whole is not yet known. Data, facts, and detailed

information is still very little, of a general nature, not exhaustive, and are not comprehensive. Experts counseling even still disagree about when institutional agricultural extension during the period of the Dutch colonial was formed and what was their duties. Thus, the road map is not yet known about the history of institutional development of agricultural extension in Indonesia from the colonial era.

Information on the history of institutional development of agricultural extension in colonial period is very important in order to be used as input and lessons for stakeholders in improving and developing the institutional quality of agricultural extension today and in the future. To that end, a study of the historical development of agricultural extension in Indonesia is very important and urgent.

Related to these problems, this paper aims to provide an explanation and understanding the birth history of agricultural extension, and to find out the duties and functions of agricultural extension institutions.

## 2. Literature

The term extension is widely known and accepted by those working in organizations providing extension services (van den Ban and Hawkins, 1999), while Slamet (2003) defines agricultural extension as a non-formal educational services provided by the government or private counseling organizations to farmers and their families to enable them to help themselves in order to achieve a more prosperous life.

In the early days, education is seen as a transfer of technology from research to farmers. Now the role of extension is seen as the process of helping farmers to make their own decisions by adding an option for them and help them develop insights about the consequences of each of these options. Thus, the most important goal is to change the behavior of the farmer (van den Ban and Hawkins, 1999).

On the other hand, according to Law No. 16 of 2006 on the extension system for agriculture, livestock and fisheries, the extension institution is a government agency or community which has the duty and the function in organizing the extension.

Extension institution is essential that contribute to the success of agricultural extension activities in Indonesia. The extension institution has various levels of the

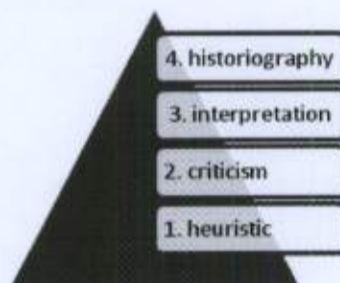
region, from the village level, village, district, provincial and national level. Each level support each other in order to achieve the target of agricultural development. In its development, agricultural extension institutions in Indonesia since the colonial period until now have ups and downs and are quite dynamic. In the new era government, extension institution was successful in achieving self-sufficiency in Indonesia. During this period, extension institution achieve a glory. However, this condition does not last long and then undergo changes that are less profitable.

In the history of its development, Indonesia's agricultural extension has been implemented since the Dutch colonial era. The historical record showed that agricultural extension in Indonesia started in the Dutch colonial era by establishing a department called Landbouw Voorlichtings Dienst (LVD), which was established in 1910 (Sinar Tani, 2001; Harijati, 2005).

Meanwhile, Mardikanto stated that institutional agricultural extension was developed by the Dutch colonial administration under the Ministry of Agriculture (Departement van Landbouw) which was formed in 1905, while the implementation was carried out by officials of the district civil servant (Pangreh Praja or PP). Agricultural extension itself was formed in 1910 under the name Voorlichtings Dienst Landbouw. The new office function as an independent institution of agricultural extension regardless of the PP since it changed to Department of Agriculture Province in 1918 (Mardikanto, 2009: 169).

## 3. Research methods

This research was conducted using the historical method, which consists of four stages that must be done, those were heuristic, criticism, interpretation, and historiography. Heuristics is the process of collecting historical data source or form of documents/files, articles, news magazine or newspaper contemporary, and the like.



The historical sources were traced from the repertoire of archives stored in the National Archives (Arsip Nasional or ANRI), and contemporary newspapers or magazines that are stored in the National Library (Perpustakaan Nasional), and the Pustaka Library of the Ministry of Agriculture in Bogor. Beside the archives, there were also the news about agricultural extension from various magazines and newspapers in the colonial period between 1905 to 1940, which presented information about agricultural extension during the period of the Dutch colonial. The newspapers and magazines were *Soerabajasch Handelsblad*, *Bataviaasch Nieuwsblad*, *Het nieuws van den dag voor Nederlandsch Indie*, *De Sumatra Post*, *De Indische Courant*, *de Ingenieur*, *de Telegraaf*, and *Landbouw Landbouw Tijdschrift Vereniging Consulenten in Nedtherlansch Indie*.

The next stage was to conduct a critique of historical sources which have been found. This process was carried out to validate whether the documents found in a primary or secondary source, authentic or not in terms of its physical document and contents. This process was done by comparing the content of the information sources with its fellow contemporaneous historical sources including the category archives, news newspapers, and magazines. From the authentic documents and relevant sources were then carried an interpretation, which the result was then considered as the fourth stage, that was historiography or historical work.

#### 4. Results and Discussion

##### 4.1. The birth of agricultural extension institution

The birth of institutional agricultural extension can not be separated from the establishment of the Ministry of Agriculture (Departement *van Landbouw*). It was established on January 1, 1905, based on the second article of *Koloniaal Besluit* (decision colonial) No. 28, dated July 28, 1904 (*Almanac Regeerings voor Nederlandsch Indie*, 1905). Before 1905, agricultural affairs were handled by several departments. Agricultural affairs related to education and agricultural research was under the Department *Onderwijs, Eeredienst, en Nijverheid* (Ministry of Education, Religion, and Crafts), while the agricultural technical matters were under the Department *van Binnenlandsch Bestuur* (Ministry of Internal Affairs).

Department of Agriculture from the beginning was designed to increase the agricultural community. Since the Dutch government implemented liberal policies (1860), the government was only focusing on the export plantations which was salable in international market, such as sugar, tobacco, rubber, and coffee. The large plantation system have damaged the detainees indigenous communities, especially Java. In 30 years of liberal economic policies, the majority of the Dutch people as *van Kol*, looked at the sad impact for the Java community. In a meeting in the Dutch Parliament, *van Kol* expressed his concern on the lives of farmers in Java. In terms of land ownership, *van Kol* saw the land ownership in Java was still divided for. In addition, he also saw the impoverishment of the population, planting systems were still very primitive (not familiar with tillage), crop failures, and the workload was too heavy compulsory. Although not approved the establishment of the Ministry of Agriculture that he thought it will caused the waste, *van Kol* urged the government to immediately took action to improve the lives of indigenous people (*Soerabajasch Handelsblad*, August 3, 1905). On another occasion (in a meeting in the Dutch Parliament) *van Kol* deplored the attitude of the Dutch government that had neglected its obligations towards indigenous agriculture. *van Kol* also deplored botanical garden (Kebun Raya) Bogor which did not carry out their duties to develop indigenous agriculture. (*Soerabajasch Handelsblad*, March 23, 1904).

Responding to the *van Kol*'s attack, colonial minister said that the Bogor Botanical Gardens were not assigned to oversee the indigenous agriculture. In accordance with the existing regulations in 1868, the Garden was a scientific institution that was beneficial to the colony, for a botanical institute in the Netherlands, and a general knowledge institutions. In the discussion of the budget increase and reorganization Botanical though, there was no desire to hand over agricultural issues indigenous to the Botanical Gardens. (*Soerabajasch Handelsblad*, July 22, 1904).

Colonial Minister regretted *van Kol* who urged to repair the fate of the indigenous population but against the establishment of the Department of Agriculture. In fact, one way to improve the lot of the natives was the establishment of an autonomous agency that handled indigenous agriculture. Agriculture was very

important because the native indigenous population depended on agriculture. Indigenous farmers need to get guidance and counseling from agricultural experts in order to obtain good results. Based on these considerations, the government felt the need to form the Department of Agriculture.

Agriculture department was formed by agreement between General Governor of the Dutch East Indies, Colonial Minister, and Professor Treub, the director of the Bogor Botanical Gardens. This agreement began on 1901, when the General Governor wrote to the Colonial Secretary of the department that proposed the establishment of department which specially addressed agricultural problems. In 1902 the Minister then asked Prof. Treub to arrange drafting laws by appealing to the directors and members of the Council of the Indies. The law draft prepared within one year, and in 1903 Treub who was in Netherlands sent the design to the Dutch East Indies to get last inputs. After that, in 1904 a law draft that has been getting input from various parties were then discussed in the Dutch Parliament.

As the architect of the Ministry of Agriculture, Prof. Treub then appointed as a director when the department was formed in January 1905. The new structure of the Department of Agriculture was still very simple, divided into four bureaus, namely technical matters (Technische zaken), public affairs (Aggemeene Zaken), finance (Comptabiliteit), and affairs archives. The focus of attention of this new department was still on pest problem that caused crop failure in some areas, and on the establishment of trial places or rice plant breeding. This can be seen from the circular signed by the Director of Agriculture in Department of Agriculture on December 11, 1905. In the circular Treub asked the heads of government in the area of Java and Madura to immediately report to the department if it found a disaster or harvest failure. A similar circular was delivered on September 19, 1906. Treub appealed to the heads of government of Java and Madura to submit regular reports about crop failure, loss of indigenous agriculture, as well as other things that caused agricultural losses of the people.

Agricultural extension started getting serious attention after the Ministry of Agriculture led by Dr. HJ Lovink, who was appointed as director on December 22, 1909. The attention to agricultural extension was greater after the Department of

Agriculture developed his authority to handle the craft and trade, so that the department changed its name in 1912 to be the Department van Landbouw, Nijverheid, en Handel (Ministry of Agriculture, Handicrafts and Trade). With the increased authority, then in 1911, the Department formed agriculture extension agency. Because of its role in the establishment of counseling agencies, Koen called Lovink as the father of Agricultural Extension (Koen, 1926).

Historiography of extension institution which was firstly found in the study were article written by AJ Koen loaded in Vereeniging Tijdschrift an Landbouw Landbouw Consulente in Nedtherliansch Indie (1925-1926) volume 1. In his article titled "De landbouwvoorlichtingendeienst en de aanstande bertuursreorganisatie", Koen revealed the length (30 pages) on the subject of agricultural extension of the agency function work until the formation of the extension services and duties. Functionally, the agricultural extension institution has been functioning since 1911 with the nomenclature of the Agricultural Extension Office (*Landbouw voorlichtingsdienst*). The form of this new office was just a collection of agricultural experts both agricultural consultant or agricultural teacher who played their function as agricultural extension. Their position was under the head of the agricultural section of the Ministry of Agriculture, Crafts, and Trade.

Agricultural extension program run by agricultural consultants. In general, they were agricultural engineer graduated from Wageningen. This extension groups already existed before Department of Agriculture was formed. The group existed for his skills required by the private plantations began to invest when the Dutch government implemented a policy of liberalization and free markets. With this policy, many Europe and America plantation companies invested in the Dutch East Indies. Since not many know about the types of plants that can grow in the Dutch East Indies, they used the services of professional agricultural consultant.

When the agriculture department was formed in 1905, many agricultural consultants were recruited to occupy on the farm. Their duties included conducting research on indigenous agriculture and developing various pilot plants for indigenous agriculture. In a limited scale, they were also heavily involved in agricultural extension.



In 1911, the agricultural extension department was formed. The agricultural consultants were widely involved in agricultural extension programs. They were scholars agriculture graduated from Wegeningen, Netherlands. In general they did not know much about indigenous agriculture. When deployed to the field as an extension, they can not simply apply the extension method as usual in Europe. They did not even understand the language. Government officials on the one hand were still reluctant to relinquish responsibility for improving indigenous people's prosperity. The government officials who work earnestly as called for increasing the indigenous economy less like the presence of this agricultural consultants. However, on the other hand, the government can not do the job themselves so it was necessary to give up some work to a consultant who was an expert (De Indische Courant, March 21, 1935).

This made them frustrated. Therefore, at the beginning they worked as agricultural extension, they mostly acted as an expert adviser for local government, conduct research, and develop experimental gardens (*Bataviaasch Nieuwsblad*, July 27, 1941). Extension services were under the agricultural section, Ministry of Agriculture, Crafts and Commerce with headquarters in Bogor. According to the Law of Decentralization, 1903, the area was divided into regions, and the regions were further divided into sub-regions, called residency. In accordance with the decentralization policy, the agriculture section supervised agricultural areas in regions.

Although the agricultural extension service has been established since 1911, but the search through Regeerings Almanac Voor Netherlands Indies (RA) indicated that the structure of these institutions firstly emerged in RA 1920. In a circular letter of Director of the Agricultural Department, Crafts and Commerce, dated 5 December 1923 No. 11931 / D (as revised circulars previously, which was dated July 7, 1919) addressed to all heads of administration of the province in Java and Madura, the Governor of Aceh, East Sumatra, Celebes, and the resident Tapanulis, West Sumatra, Palembang and Manado, mentioned that the agricultural area consisted of two or more regions. At each region, established agricultural extension services. Agricultural extension services in the region led by a senior and experienced agricultural extension worker.

He run all tasks relating to agricultural extension assisted by youth counselors who were in every part of the region. The entire extension in each region and the area underneath must submit directly to the head of the agricultural section as far as pure agricultural affairs, while business outside of agriculture they were subject to the heads of regions including areas of work. Therefore, agricultural extension should cooperate with the local government.

In a letter from the Director of Agriculture, Industry and Commerce dated December 5, 1923 and addressed to all agricultural extension in the Dutch East Indies, on the reorganization of agricultural extension services mentioned that there were seven agricultural regions in Java and outside Java five.

Table 1. Agricultural regions in Java and outside Java

No.	Agriculture Area	Position
<b>Java</b>		
1	Priangan, Banten and Batavia	Bandung
2	Cirebon	Cirebon
3	Semarang, Rombang, and Pekalongan	Semarang
4	Yogyakarta, Surakarta, Kedu and Banyumas	Yogyakarta
5	Madun and Kediri	Kediri
6	Surabaya, Pasuruhan, and Madura	Surabaya
7	Besuki	Bondowoso
<b>Outside Java</b>		
1	East Coast of Sumatra, Aceh, Tapanuli	Medan
2	West Coast of Sumatra	Padang
3	Palembang	Muara enim
4	Celebes and surrounding	Makassar
5	Manado	Tondano

Each head instructor must submit a budget for its own territory. The budget addressed to the Ministry of Agriculture, Crafts and Trade, through the head of administration of the province, the governor, and the resident. Agricultural extension department staff members were appointed by the Ministry of Agriculture, Crafts and Trade. The movement of employee placement and agricultural extension services were determined based on the Department's decision after conferring with the administration of the province and agricultural extension entrusted with the task to lead the entire agricultural area (Circular Head of Agriculture dated December 18th, 1923 No. 1816).

Since its establishment in 1911 until 1925, Koen considered that there were three periods of development as seen on Table 2.

Table 2. Agricultural period of development

No.	Stage	Development period	Characteristics
1	First stage	Initial	marked by extension that was not systematic. Almost the entire energy was devoted to local jobs, particularly in extension and agricultural cooperatives whereas the guidelines relating to counseling unclear
2	Second stage	Test Phase	characterized by high spirit examines agricultural issues at the local level.
3	Third stage	Maturation work	marked by the publication of the regulations relating to the extension. Services such as counseling and education systematically granted in accordance with existing regulations. This reorganization required study and great attention from both agencies at the central and local jobs

Source: Koen, 1926: 93-94

Dutch East Indies government in 1913 established the Commission on Government Reform, led by Simon de Graaf. The establishment of this commission was a follow up of the Law of Decentralization (Decentralisatie wet) 1903 and then with Decentralisatie besluite in 1905 as a basis for the establishment of self-governance at the regional level. This commission worked long enough as it tried to collect inputs from various parties, ranging from the native officials to the parliamentary level in the Netherlands. The result was the release of government reform legislation (Bestuurshervormingswet) in 1922. This law underlying the formation of provincial and district governments, municipalities and autonomous in the Dutch East Indies (Wahyono, 2009).

With the establishment of the autonomous regional government, then the part of the authority given to local governments. Thus, there was the authority delegated to the regions, and there were powers retained by the central government. The division of authority between central and local government can be explained as follows:

Table 3. The division of authority between central and local government

No.	Division	Authority
1	Justice	Center authority
2	Financial	held by the central authority except action to prevent the use of opium
3	Public Administration	giving releasing authority on issues related to compulsory labor. Authority over the control of land retained by the center
4	Education and religion	delegated part of its authority to the regions in matters relating to indigenous school education class 2, the education of the people, normal schools, and trade schools. Technical services, education supply, and education equal to HIS remained fully managed by the center. Public health matter involving health care, and supervision of public health, as well as the hospital, handed over to the local authority.
5	Agriculture	authority, largely taken over by local governments. Likewise, the agricultural extension. This office partly delegated to local authorities.
6	Public works	almost all of the authority delegated to the regions
7	Company	not much was released. Department of state cars assigned to the province. Likewise, the granting of concessions for the city tram, the sale of salt and mineral tenure over devolved to regional governments not much was released. Department of state cars assigned to the province. Likewise, the granting of concessions for the city tram, the sale of salt and mineral tenure over devolved to regional governments

Source: (Koen, 1925: 86-87).

After the formation of provinces in Java (1926 West Java, East Java in 1929, and Central Java in 1930), the agricultural extension was the duty of the provincial. Therefore, in every province established agricultural extension services. Each province was divided into areas that were the same as residency and are under the leadership of agricultural extension Wageningen graduates. These areas were divided into districts and sub-regional level under adjunct agricultural extension workers who have been educated in Buitenzorg (now Bogor). For specific technical work such as land for trial, demonstration plants, nurseries and the like, there were supervisors who came from the plantation schools in Malang and Sukabumi. Below them, there was a head foreman and the foreman for a simple agricultural work activities (Bataviaasch Nieuwsblad, July 27, 1041).

In 1934, by Decree of the Governor General of the Dutch East Indies No. 26 dated January 13, section (afdeeling) agriculture and fisheries was transferred to the Ministry of economy (Department voor Economische zaken). The decision applied by one in January 1934 (Statute Voor Netherlands Indies 1934 No. 24). Thus, the Agricultural Extension Service was under agricultural afdeeling participate moved in the Department of Economics. The share of

agriculture in the new department changed its name to Dienst voor Landbouw and Visscherij (department of agriculture and fisheries). This section supervised four areas, namely Algemeen Proefstation voor den landbouw (a common experimental farm), Landbouw voorlichtingsdienst, Landbouw Onderwijs en publicaties (agricultural education and publicity), tuinbouwkundige dienst (official horticulture), binnenvisscherij (inland fisheries), and zee visscherij (marine fisheries). The structure of agricultural extension services consisted of inspectors, agricultural consultants, ambtenar first-class agricultural science, agricultural science ambtenar, and adjunct-agricultural consultants (Regeerings almanac, 1937).

#### 4.2. The task and Function of Agricultural Extension Institution

The function of agricultural extension services according to Koen can be seen from two sides. Firstly, agricultural extension services served the interests of the center of the Dutch government with regard to the responsibility of the state towards indigenous agriculture. Their function was to provide advice relating to agricultural matters both technically and economically to the government or state officials, carried out the task of the government for government action was required in matters of agriculture, agricultural research, and dissemination of information about agriculture. Secondly, agricultural extension services should be able to serve local interests, which arised directly from the needs of farmers. Agricultural Extension Service not only provided information relating to local agriculture, but also provided agricultural education. They supply local interests, satisfied the desires of residents and provided solutions for local problems in agriculture both technical and economic (Koen, 1926: 92).

In the annual reports of the agricultural extension 1925 (jaarverslag van den Dienst landbouw voorlichtings over 1925) stated that the main tasks of agricultural extension includes fertilization experiment, counseling for indigenous farmers on a pilot plant, specialized research, extension field crops and aquaculture. Besides these services, it also need to deal with agricultural education, School of Agriculture at Buitenzorg, schools plantation in Sukabumi and Malang, and education efforts in Muara (Buitenzorg). Another task that must be done was the official trials of new land. This work includes land exploitation, processing,

irrigation, land cultivation, seed exchange and so on. In addition to the agricultural community, education was also conducted through demonstration for agricultural experts and horticulturist, and aquaculture, as well as farms. In the 1925 annual report of the agricultural extension services also made improvements in the irrigation system Cihea plains, Bogor.

Residency of Borneo in the West and South and East Borneo, agricultural extension services also provided counseling to the smallholder rubber plant, while Flores section also had the duty to provide counseling to cotton farmers. For this task, each department put an official of agriculture, which was placed with the special task. All these tasks may not run without the support of adequate human resources.

Employees of department of agricultural extension in 1925 consisted of : 27 agricultural consultants, 6 employees agronomist, 2 employees for inland fisheries, 6 to employees horticulturist, 64 adjunct agricultural consultants and its aspirant, 29 supervisors in agriculture, 4 supervisors plantation and one paramedic for breeding fruit, so the corps of 139 employees, all under the head of the farm and was divided in 21 regions, each of 14 people in Java and Madura, and 7 people outside Java. ( Het nieuws van den dag voor Nederlandsch Indie, dated May 7, 1927)



Figure 1. Extension Car  
Source: *The Netherlands Indie*, vol. 4 no. 3, 1937

De Indische Courant 17 April 1941 reported that in 1930 counseling agencies in the area was already running. Nevertheless, education authorities had not been able to work well. Agricultural extension and assistant were very few in number when compared with the area must be served. To be able to establish contact with the masses whose numbers were large with working area that was too broad,

formed a liaison personnel. The assistant instructor formed the core of the village. They were chosen from among the farmer's most advanced and successful. They were given a course of agricultural teachers. Furthermore, they were prepared to provide counseling in the village a more demanding practice. Because it was not much demanded theory. Rice problems for example, not much discussed in the classroom but more widely discussed in the fields themselves. Thus, the extension not only gave information about how to grow rice, but also provide an example of how to grow rice, ranging from land management such as how to plow the soil, selecting seeds, fertilizing until harvest. Through this simple education, was born connecting many workers involved in counseling. The liaison was acting as extension workers at the village level and were expected to be leaders of agricultural organizations whose members approximately 20 people. They work together, sharing information related to agriculture, selling their products, establish a granary, and saving the seeds for their own purposes.

In 1930 there were more than 1000 types of rice seedlings. Kind of rice seeds were most popular when it was "rice profit" of China and "Srivimankoti" of Suriname. Giving the name "lucky paddy" rice seed as possible can provide many more benefits when compared to other types of rice. This second type of rice grain was very small. Rice was also called "rice jacket" because of its researchers in Suriname using coat. De Indische Courant reported that the use of new seeds activity was very high. In East Java in 1940 the implementation of new seedlings reached 140,000 hectares, meaning 13% of the entire wetland. Adoption of new seeds not only occurred in rice, but also soybeans and potatoes. In the same Proponsi, planting new seeds for soybeans reached 100,000 hectares and 15,000 hectares of potato (De Indische Courant 17 April 1941).

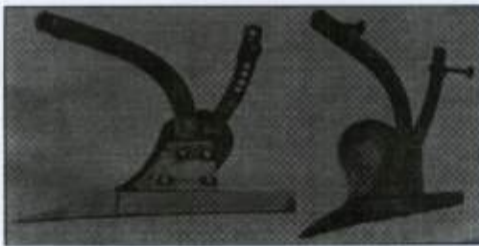


Figure 1. Left (Plow made in Germany), Right (Plow made in Kertorejo)

Source : *Almanak Tani 1925-1926*

Other activities undertaken extension services in addition to the development of plant breeding, was the introduction of green manure as fertilizer phosphate which was very expensive. Extension also taught farmers how to use agricultural equipment such as plows iron and pig tusks to pull rakes in arranging rows of rice plants. Furthermore, farmers were also taught how to seed storage in cans, application of fertilizers (ammonia sulfur substances) on rice and corn. No less important part was done by the department of education which was the construction of barns seeds and plant seeds store. Barn seeds should pay attention to ensuring the availability of seeds and seedlings available. In 1941 De Indische Courant noted that the vast barns seedlings reached about 6-7 hectares, and produced 200 quintals of seeds. The amount was only able to plant 400 hectares. Thus, there was still much needed granaries new seeds. To meet market needs, agricultural extension services provided the general public, both individuals and corporations to build granaries seed. Institutions which produced seeds continue to grow because this activity was profitable for farmers.

Beyond the technical agriculture, agricultural extension services still have duties in the field of irrigation projects. Agricultural extension services should be able to provide advice in terms of both agriculture and the economy, the extend to which an irrigation project can bring benefits or not from the farmers (De Indische Courant 17 April 1941). To facilitate the farmers get seeds, fertilizers and agricultural implements such as plows (Figure 1), agricultural extension workers also helps farmers how to gain credit of Free Master farming facilities provided by the government (Stock, 1926).

## 5. Conclusion

The birth of institutional agricultural extension can not be separated from the establishment of the Ministry of Agriculture (Departement van Landbouw). The department was established on January 1, 1905, based on the second article Koloniaal Besluit (decision colonial) No. 28, dated July 28, 1904 (RA 1905). Before 1905 agricultural affairs were handled by several departments. Agricultural affairs related to education and agricultural research under the Ministry of Education, Religion, and Crafts, while the agricultural technical affairs

under the Ministry of the Internal Affairs. Institutional counseling was functionally formed in 1911. However, a new institutional structure was formed in 1920. The agricultural extension institutions were under Section Agriculture, Ministry of Agriculture, Crafts and Trade. At the local level, institutional counseling divided into agricultural areas. The number of agricultural areas in 1923 were 7 agricultural areas in Java and 5 outside Java. After the formation of provinces in Java (ranging from West Java in 1926), it was submitted to the provincial agricultural extension. Since January 1934, the agricultural extension services was under the Ministry of Economy.

The principal tasks of agricultural extension services include the development of experimental garden, fertilizing, practiced the use of tools such as the use of plow farming, specific research, extension field of inland fisheries. In addition, this department has been tasked to handle agricultural education, School of Agriculture at Buitenzorg, schools plantation in Sukabumi and Malang, and education efforts in Muara (Buitenzorg). Beyond the technical matters of agriculture and aquaculture, agriculture extension services also provide counseling about the economy of farmers and farm credit utilization.

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