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Land-Use Targets in Javanese Agriculture:  
An Institutional Analysis<sup>1</sup>

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THE ABSTRACT

Agricultural planning in Indonesia involves the setting of annual land-use targets at the national level for crops such as rice and sugar. These targets are then passed down through the provincial, district and sub-district administrations and are finally allocated to individual villages and to farmers groups within the villages. The national land-use targets are promulgated by ministerial decree and passed down to the village level by official instruction letters. This paper analyzes the way in which the land-use targets are determined at each level. It also considers the institutional means by which land-use targets are implemented or enforced at the village level. Particular reference is made to land-use targets for rice, sugar and secondary crops (soybean, maize, etc.) in the Javanese context.

INTRODUCTION

In the period from 1953 to 1967 the average annual increase in rice production in Indonesia was only 1.5 %, while population increased by more than 2 %. Rice had to be imported to maintain per capita rice consumption. Each year more than US \$ 100 million of foreign exchange was used for imports of rice (Pedoman Kabinet Ampera, 1967). In the first years of the New Order government, rice continued in short supply and imports of rice increased. Food production had to

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<sup>1</sup> Paper contributed to the 34th Annual Conference of Australian Agricultural Economics Society, University of Queensland, Brisbane, February 13 - 15, 1990.

increase to ensure an adequate food supply for a still rapidly growing population. However since small farmers, who were relatively poor, produced all the food crops in Indonesia (Birowo 1975; Satari 1985), it was considered unlikely that food production could be significantly increased by relying solely on the farmers own initiative (Hedley 1986; Deptan 1967). In addition, market mechanisms were not strong enough to stimulate economic development (Adjid, 1985; Bintoro, 1980). Therefore, it was argued that agricultural development based on central government planning was necessary to overcome Indonesia's food problem (Deppen 1967; Mahmud 1979; Adjid 1985).

In the planning procedure adopted a system of setting targets for crop production and area planted has been used by the government as a mean to increase production in each region of the country. These targets have long been used for the estate crops and for rice and sugarcane and more recently have been extended to secondary food crops (Gordon 1979; Hedley et al 1987; Brown 1989). They are developed annually by the Agricultural Department, first on a provincial basis, then at lower levels and ultimately at the village (kelurahan) level, from where they are given to farmers' groups within villages for implementation. This system has been an important factor in the achievement of national self-sufficiency in rice and in increasing food production generally. Therefore the use of the target system in the agricultural sector is likely to continue.

This paper briefly reviews the history of land-use targets for rice, sugarcane and secondary food crops. It then describes the procedures for setting and implementing the targets. Some preliminary results from a case study of two villages in Yogyakarta are presented to illustrate the impact of land use targets, and some provisional conclusions are

drawn.

## HISTORICAL BACKGROUND

### Rice

Government initiative dealing with rice policy can be traced back to the 17th century (Timmer 1981). It was recorded in 1655 that export of rice from Java was prohibited when drought resulted in a threefold increase in the price of rice. The first time rice was imported into Java was in 1847 from Saigon. In 1950, rice was imported again to satisfy the domestic demand. Thereafter, the dependency upon the international market for rice continued to grow until the 1980s. Indonesia achieved self-sufficiency in rice in 1984.

To attempt to solve the postwar rice shortage several programs were launched. In 1952 the government inaugurated the Kasimo welfare program<sup>2</sup>. The program was based on new technology and intended to achieve self-sufficiency in rice production by 1965. Nevertheless, the goals of the Kasimo welfare program were not met and the program was terminated in 1955 (Timmer 1981; Birowo et al 1981).

In 1958 the Agricultural Department established the Food Production and Land Development Enterprise (Badan Perusahaan Produksi Bahan Makanan dan Pembukaan Tanah, or BPMT) to implement the government program to increase production of rice. The program emphasized both agricultural intensification and the expansion of agricultural land. However, it was unsuccessful and it was terminate' in 1962.

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<sup>2</sup> The program was called Kasimo because it was proposed by Kasimo. He was one of Indonesian ministers who was responsible in social welfare and rural development.

The annual import of rice rose to over one million tons in the period 1961-1964.

In 1963, the Mass Guidance (Bimbingan Massal or Bimas) program was inaugurated. In brief, it was an agricultural extension system which aimed to increase agricultural production, especially food production, and at the same time improve farmers' welfare and that of the rural population in general (Deptan 1987). After several changes and adjustments it was replaced by a scheme which was more incentive-oriented and organized around the village unit. This is called Perfected National Bimas (Bimas Nasional yang Disempurnakan or BND).

The Bimas program has been and continues to be an important instrument of land-use policy. Indonesian rice production has grown rapidly since the implementation of the Bimas program, supported by irrigation development, the dissemination of modern rice varieties, interventions in rice marketing and price support, and the introduction of fertilizer subsidies (Siamwalla 1978; Hedley 1986; Rosegrant et al 1987). By effectively implementing land-use policy, Indonesia achieved self sufficiency in rice by 1984. From being the biggest rice-importing country, Indonesia overcame the problem of rice shortage. It can be argued, therefore, that the use of land-use targets was an important factor in achieving rice self-sufficiency.

### Sugar

Indonesian sugarcane farmers have long been used to a land-use target policy. The Indonesian Government historically has intervened heavily in the sugar industry. In the first years of the 20th century, Java was one of the biggest exporters of

sugar in the world. The main reason for this was a policy that targeted production and land-use and was tightly enforced by the government (Gordon 1979; Brown 1989).

During the colonial period, sugar mills in Java did not cultivate sugarcane on their own land, because sugar mills did not and could not own land (Gordon 1979; Brown, 1989). Land regulations (Ordinance of 1875) forbade the sale of land to non-Indonesians, and almost all sugar mills were owned by non-Indonesians. Therefore, the sugar mills had to rent land. During this time the government imposed a strict policy of land-use targets for sugarcane.

During the Japanese occupation (1942-45) the production of sugar declined significantly. Although the Japanese government planned to continue the Dutch policy for the sugar industry, the areas targeted for sugarcane were much smaller. The Japanese authorities did not want to increase production as planned by the Dutch government.

Land-use targets for sugarcane lapsed during the revolution (1945-49) and the sugar industry continued to decline. Possibly the main factor in the decline in sugar production was that the government relaxed control on the area targets. Because the government was not as powerful as in the colonial time, it could not force the implementation of the sugar policy. Consequently only a few farmers were willing to lease their land for sugar estates since they knew that they could get higher income from other crops.

To overcome this decline in the sugar industry, land use target were re-introduced by the government (Land Use Regulation No. 38, 1960), but with some changes. The period of lease was significantly reduced from 21½ years to one

year or one season only. In addition, the sugar mills could buy cane from smallholders and irrigation land could be used by smallholders to cultivate sugarcane. Apart from such changes, the basic policy remained the same. There was still an area target for sugar estates and farmers were still required to lease their land for sugarcane cultivation.

From 1969, the results of the government's effort to rehabilitate the sugar industry began to appear. Production of sugar increased rapidly as a result of increased yield as well as area harvested, especially for estate sugarcane. However, some underlying problems remained. Sugarcane farmers considered their income too low, while sugar millers had no assurance of continuous supply (Mubyarto, 1977). Besides, there were several constraints on the implementation of the policy to increase sugar production, such as the coordination among departments which were in charge in development sugar industry.

With the objectives to increase sugar production and sugarcane farmer income, the Bimas program was progressively introduced in the sugar industry following Presidential Instruction No. 9 of April 1975. The government intended to change the sugarcane growing system from the large sugarcane estates based on rented land to purely smallholder cultivation. The new system is called Intensification of Smallholder's Sugarcane (Tebu Rakyat Intensifikasi or TRI). Step by step the system of rent would be changed into the Bimas system. As in the Bimas program for rice, under the TRI system all sugarcane land is owned and operated by the farmers, while the government through its institutions provides extension and other services.

Within the TRI program the government imposed area targets on the farmers in a different way. Prior to 1975, the farmers

were compelled to lease their land to the sugar mills, which then managed the land as a part of a large estate. The area targets were implicit in the area leased. In the TRI program, the area targets are imposed directly on the farmers. Therefore, the TRI program is currently the means of implementing land-use policy for sugarcane.

### Secondary crops

Though secondary crops have been noted in development plans since Repelita I (1969-74), they received little attention because the efforts of the government were concentrated on the need to overcome the rice shortage. Therefore, during this period there was no significant increase either in yield or area harvested of secondary crops. In 1972-73, with the intention to increase the production of alternative staple foods, secondary crops like soybean, corn, peanuts and cassava were entered in the Bimas program. However, because the main government effort was concentrated on rice self-sufficiency, other commodities received less attention. During that period, the targets for other commodities, even for the secondary crops included in the Bimas program, were set as a prediction exercise only.

During the period of Repelita IV (1984-89), secondary crops again became an important policy issue, partly because self-sufficiency in rice had been almost achieved. Besides, as the Indonesian economy grows, so does the demand for a greater volume and variety of agricultural production. This has caused rapidly growing pressure on food imports. With the successful experience of achieving in self-sufficiency on rice, the system of targets has been expanded to other crops in order once again to achieve self sufficiency, especially in corn and soybean.



## SETTING THE LAND USE TARGETS

Production and land-use targets are developed annually at the national level by the central office of the Agricultural Department. The national targets are then broken down to the provincial, district and sub-district levels and ultimately to the individual villages (kelurahan) and to farmers' groups within villages. The central government (the National Planning Board, or BAPPENAS, together with the Agricultural Department) sets the production targets. They are developed primarily on the basis of predictions of national requirements. Ensuring that production increases to meet the target is considered as the main task of the Agricultural Department. One way of fulfilling this task is through setting and implementing land-use targets.

In this paper, a land-use target is defined as the area targeted for intensification of a particular crop. Intensification in this context means a specific technology (including crop variety) to be used by farmers, with a given area to be planted during each crop season. At the national level, the land-use target is based primarily on the previously established production target. Starting with the production target, the Agricultural Department develops including land-use targets which are related to the availability of agricultural land and the technology to be used. In practice it is also affected by the availability of extension workers, village institutions (including farmers' organizations), infrastructure and production inputs. The Bimas program is the prime example of the application of land-use targets.

The Bimas intensification program is based on the notion that two categories of technology are being used by farmers, namely, non-intensive and intensive technology. The non-

intensive technology is nothing but the traditional methods, while the intensive technology utilizes more modern methods. The intensification program for rice involves three kinds of extension activity, each of which is part of the Bimas program - General Intensification (Inmum), Special Intensification (Insus) and Large-scale Special Intensification (Supra Insus). Besides these three kinds of extension activity, there is Mass Intensification (Inmas).

Within the Insus and Supra Insus programs there are four quite specific technology packages, termed A, B, C and D. A Package A Insus is improvement of Inmum for dryland (or upland) rice. A Package B Insus is improvement of Inmum to Insus for wetland (or lowland) rice. A Package C Insus is improvement of the B package. A package D insus is a further improvement of the C package. The precise technology being used is one important factor in setting the land-use target.

As mentioned, the important factors for success in the Bimas program are that extension, agricultural inputs (especially fertilizer) and credit must be readily available. During the first period of the Bimas program, these appeared to be very difficult to put into place effectively. The Bimas program also requires that the farmer be obligated to grow the recommended crop varieties. Therefore, in issuing the land-use targets, the ministerial decree assumes great importance.

There are differences in the setting of land-use targets for rice, sugarcane and secondary crops. The land-use targets for rice tend to be developed on a nation-wide basis and to be implemented throughout the country. It is also likely that in the case of rice the central figure for land-use will prevail when there is conflict between central and regional figures, though theoretically the central figures could be adjusted. Land-use targets for sugarcane are set only for agricultural

areas designated as Sugar Mill Working Areas. As in the case of rice, the central figure for land-use is also quite rigid. In the case of secondary crops, though the targets tend to be developed on a nation-wide basis and to be implemented throughout the country, the central figures are not very rigid. Regional figures could be taken into account whenever there is conflict between central and regional figures.

### IMPLEMENTING THE LAND-USE TARGETS

There are two parties that play a role in agricultural policy, the government and the farmers. Each party usually has its own priorities which do not always coincide. Almost all agricultural policy is set by the government but ultimately has to be carried out by farmers who know very little about the policies. Farmers are unlikely to be able to influence government decisions. They rarely go to government offices. Therefore, in the absence of efficient communication, the farmers are not often aware of the government policy. This lack of awareness of the farmers will affect the success of land-use policy. It is no surprise that conflicts may arise in implementing the land-use targets.

To transfer and implement the intensification targets, the Minister of Agriculture, as the Head of the Central Bimas program, issues decrees for land-use for certain commodities. There are three kinds of intensification program decrees issued each year by the Minister of Agriculture relating to intensification for food crops, intensification for estate crops, and intensification for livestock. From the national level, targets covered in the Minister of Agriculture's decrees are passed down as government instructions to lower levels of the administration until they reach farmers for implementation. These government instructions are broken down

by Department of Home Affairs together with the Agricultural Department.

The flow of the targets and how they are distributed is shown in Figure 1. The flow of the targets may be categorized into two sections. The first is the flow within the government sector itself, from the highest to the lowest level government institution. The second involves carrying the target from the government sector to the private sector, that is, from the lowest level government institution to farmers for implementation.

The land-use targets for intensification as stated in the Minister of Agriculture's decrees are first broken down into provincial-level targets. At the provincial level, they are passed down to the district (kabupaten)<sup>3</sup> level through an instruction letter from the governor. At the district level the targets are divided into sub-districts (kecamatan) by an instruction letter from the district head (bupati). Sub-district targets are further divided into village (desa) targets by an instruction from the sub-district head (camat). From the village level they are distributed to farmer groups, and from the groups to individual farmers for implementation. There is no formal (official) instruction letter or decree at the village level to distribute the target from the village to the farmer groups. This distribution is implicitly stated in the instruction from the sub-district head. The distribution of targets from the farmer groups to individual farmers is also not explicit. All members of the group have to attend when the group is given the targets by the village officers.

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<sup>3</sup> There are several terms used to translate kabupaten and kecamatan. This paper follows MacAndrew (1986) in using district for kabupaten and sub-district for kecamatan.

From Figure 1 it can also be seen that farmers can be informed of the intensification target from two sources. The communication channel from the Department of Home Affairs is an instruction or regulation that should be followed by the farmers, once their farms are appointed to be part of the area for the intensification program. Formally, all decrees relating to the intensification program mention only the commodity covered by the program and the total area. They do not clearly indicate farmers or farmer groups nor the sites which are to be included in the program. Therefore, officially there is no obligation for the farmers to join the program, though there is considerable informal pressure on the farmers to implement the program (Hedley 1987; Gordon 1979; Mubyarto 1977). The communication channel from the Agricultural Department comes only as a suggestion or extension advice. Therefore, the Agricultural Department can do nothing if farmers covered by its area do not want to follow the program.

In principle, there are three categories of intensification target planning. These are indicative, consultative and definitive planning. Indicative planning is the plan that is developed by the government, as stated in the government instruction. The consultative plan is when the indicative plan has been discussed with farmer groups, though not yet approved by the farmer group. A definitive plan is a plan that has been accepted and will be followed by farmer groups. If the indicative plan cannot be implemented, theoretically it can be transferred to other farmer groups. However, if no other farmer group is able to implement the plan, it will be submitted back to higher government officers to be transferred to other regions. Therefore, the intensification target planning could also be called a rolling plan, since theoretically there are possibilities to adjust the target every time. Figure 2 shows how the targets can be adjusted.

## PRELIMINARY FINDINGS

For this study, two villages in Yogyakarta Province were selected with differing degrees of government influence through the land-use target system. Village 1 (Kebonagung) was strongly influenced by the target policy, while Village 2 (Purwomartani) was less influenced by this policy. Both villages had the capacity to produce rice, sugar and secondary crops. A comparison between them can be taken to reflect (at least in part) the impact of the target policy.

The average area operated in Village 1 was 2,464 sq m, compare with 3,376 sq m in Village 2<sup>4</sup>. In Village 1, the distribution of operated area among the farmers was more equal than in Village 2. In Village 1, 20 per cent of farmers rented 19 per cent of agricultural land, while in Village 2, and 16 per cent of farmers rented 7 per cent of agricultural land. In the case of rental agreements, production share contracts were the most popular in Village 1. The terms of the rental agreement were uniform throughout the village. In Village 2, there were many different kinds of agreement, but in general they can be grouped into production share and cash lease agreements, the two kinds of agreement occurring with almost equal frequency. Unlike in Village 1, in this village the terms of rental agreements varied.

There were two kinds of organization which dealt with farming activities in each village - farmer groups and village cooperatives. In general, the activities of a farmer group are directly related to farming. The members of a farmer

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<sup>4</sup> In Village 1 there is only one kind of agricultural land included in this study that is, sawah land, while in Village 2 there was irrigated sawah, non-irrigated sawah and dryland. Backyard was excluded. The calculation of area operated was based on the land productivity, with the assumption that the highest productivity was irrigated sawah. The conversion factors were: irrigated sawah x 1, non-irrigated sawah x .7 and dry land x .5.

group have their farm in the same tract or block of land. Thus, one farmer group corresponds to one tract of land. The tract should have a clear boundary, such as irrigation channel, river, or road but could not extent beyond the village boundary. Thus one farmer group could not possibly belong to more than one village, but one farmer may belong to several farmer groups. It is likely that each farmer is a member of at least one farmer group. On average the area managed by one farmer group is 25 hectares and each village has about 10 farmer groups. However, there is considerable variation because the area managed by farmer groups and the number of farmer groups per village depend on the village area.

Farmer groups in Village 1 were already well established. They were heavily involved in managing the farming activities of their members, including the choice of crops, the cropping pattern, and the technology used, conducting pest control operations and to some extent engaging in land preparation and harvesting. Most farmers considered that their farmer group gave advantages to them. Therefore they obeyed the farmer group's directives. On the other hand, most farmers considered that the village cooperative was not useful.

Within Village 2, farmers would also follow the suggestions of their farmer group, but farmer groups in this village did not strongly influence the farmers' decisions. Therefore farming activities were conducted more independently than in Village 1. As in Village 1, most farmers considered that the village cooperative was not useful. Though most farmers were in fact members of the village cooperative, many did not know that this was the case.

Within Village 1 the farm activities were relatively homogeneous. Crop variety and planting season were almost

same for most farmers. In 1987-88 there were only three major crops grown in the village, namely rice, soybean and sugarcane. All of these were targeted crops. There was no sugarcane grown by farmers outside the area targeted for sugar cane. Though this village was also targeted to plant groundnut and maize, no farmer grew them.

Within Village 2, farming activities were quite different from one farmer to another. Crops grown and planting seasons varied widely. There were nine crop grown in 1987-88. Sugar cane was planted voluntarily, because this village was not considered as part of a Sugar Mill working Area. In growing crops, farmers paid little attention to target policy.

In Village 1, all farmers used new technology. Therefore on average the land productivity within Village 1 was higher than in Village 2. However, most farmers considered that the productivity targets set for their village were too high. For rice, diseases and weather conditions were the main problems in meeting the productivity target set for the village. For soybean the main problem was seed, both in terms of supply and quality. Productivity did not vary widely, though on average the larger the area operated the higher the productivity, and the productivity of pure owner operators was slightly higher than that of the pure tenant operators.

Within Village 2 technology used by the farmers varied. Some farmers used traditional technology while others used modern technology or a combination of the two. Therefore their productivity varied widely, even among farmers belonging to the same landholding classes. Usually, the higher productivity was obtained by the farmers who used technology suggested by the target policy. Some farmers considered that the productivity target set for the village was too low, while some others considered it too high. For farmers who



considered the target too high, labor requirement and cost of the technology were the main reasons for the difficulty in meeting the target.

### CONCLUSION

Target policy has long been used in Indonesia as a guide to increase agricultural production. Notwithstanding the implementation problems, this system has been an important factor in the achievement of self-sufficiency in rice and increasing food production. However, the effect of the target system at the village level needs to be analyzed, since the effect of the system at the national level does not necessarily coincide with that at village level.

The land-use targets may be more easily accepted by villagers if they only deal with one crop. The targets may be implemented by providing additional incentives and by utilizing village institutions, especially farmer groups. Thus it may not be necessary to use official pressure. The land-use targets may cause homogeneity of farming activities and village institutions. They may improve farming activities and lead to increased yield. However, this changes may not necessarily improve the welfare of all classes of farmers. Further analysis is needed to specify who gains and who loses.

It is likely that, in the beginning, the success in the implementation of land-use targets for rice was affected mainly by the existence of farmers groups rather than other village institutions. For example, there is little evidence that the village cooperatives have played any role in implementing target policy. Within farmer groups the members feel as a single unit. Once the targeted crops are accepted

by the group, they will also be accepted by the members. In this case, the only way of avoiding the instruction to a farmer group is by moving out of the group. Therefore, farmers who rent land have more chance to avoid target policy than farmers who operate their own land.

The target system is likely to remain a crucial factor in the sugar industry. Without the targets it is unlikely that sugarcane would be grown by the farmers in certain regions. There is trade-off between maintaining the sugar industry and maximizing the income of the farmers. Hence, enforcing the targets will cause problems and create resistance.

If targets have to be expanded from rice to other crops, they should be applied to the regions which have the comparative advantage in those crops. However, in most cases, the implementation of the target policy is unlikely to take into account the characteristics of the region and the needs as perceived by the people in the region. Since it is not easy to obtain reliable data of regional potential, food crop development programs in Indonesia tend to be implemented throughout the nation. There is a reluctance by policy makers to develop policies for specialization of food crop production according to regional comparative advantage.

It could be argued that the target system for secondary crops may still be implemented through highly subsidized government projects. However, without the continuation of these projects the targeted land use is unlikely to last. Though targets have been specified, the farmers are not now compelled to grow the secondary crops targeted. Outside the rice seasons farmers can grow any secondary crops. Therefore, the area targets for secondary crops should be viewed only as practical exercises for predicting crop production. As a consequence, self-sufficiency for certain targeted secondary

crops may not be achieved.

Thus targets may be necessary for the national interest and may not harm the farmers if they deal with one or two of the most important crops only. However, if the target system is expanded to more crops and implemented throughout the nation, it is likely that the targets will create problems. The expansion of the system to include other crops will reduce the flexibility of farmers in being able to select the best crop combinations for land classes and seasons. Targets will not necessarily coincide with the farmers' preferred pattern of land use. Therefore, this will impose a cost on the agricultural sector. There is also a conflict in that while there has been a decrease in land available for agriculture as the population has increased, the area planted needs to be increased to meet the set targets. Therefore the expansion of the target policy to include other crops may need official pressure to implement the policy. In enforcing the target, village institutions may be further modified from above.

## NATIONAL LEVEL

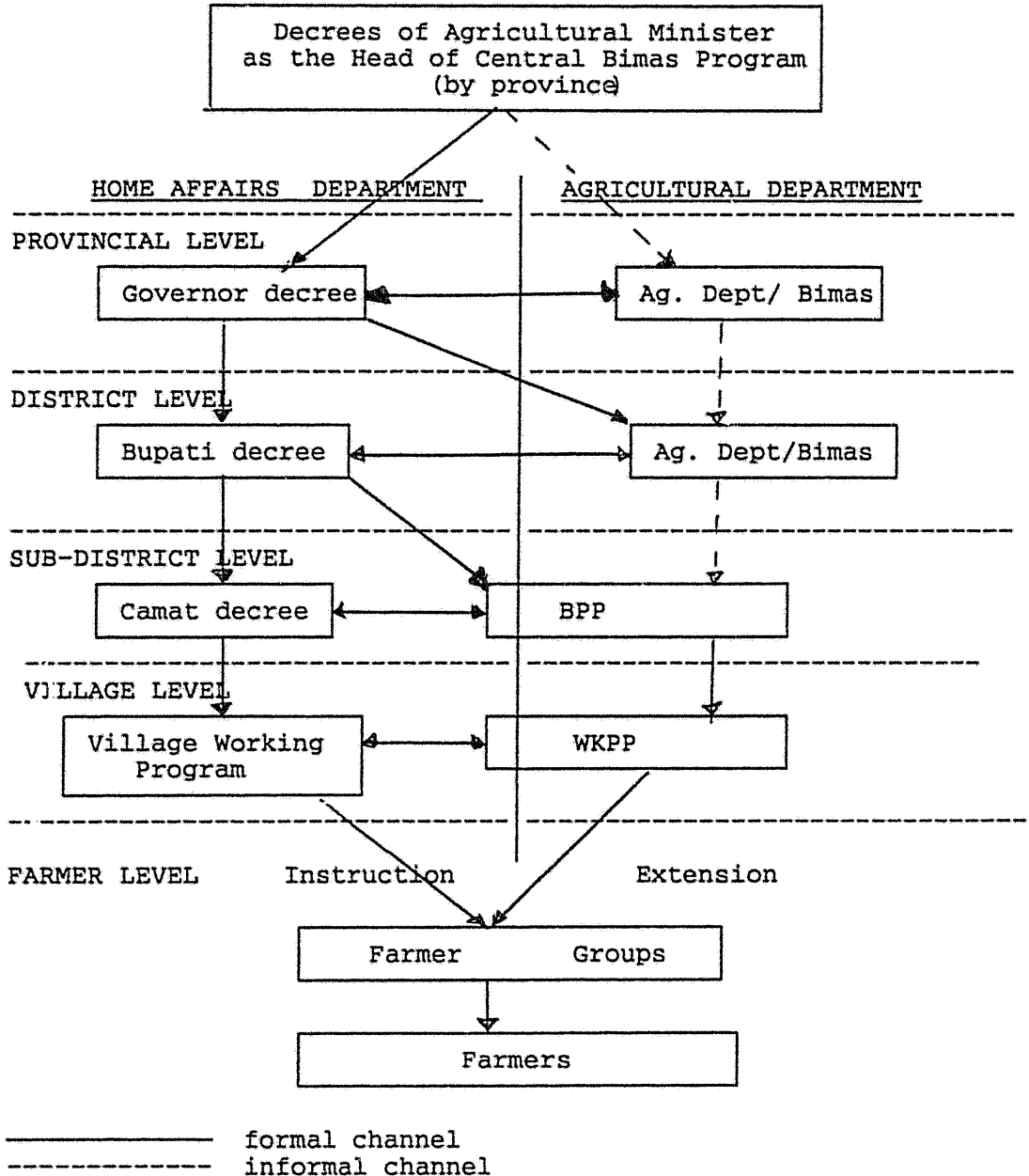


Figure 1 THE FLOW OF LAND-USE TARGETS

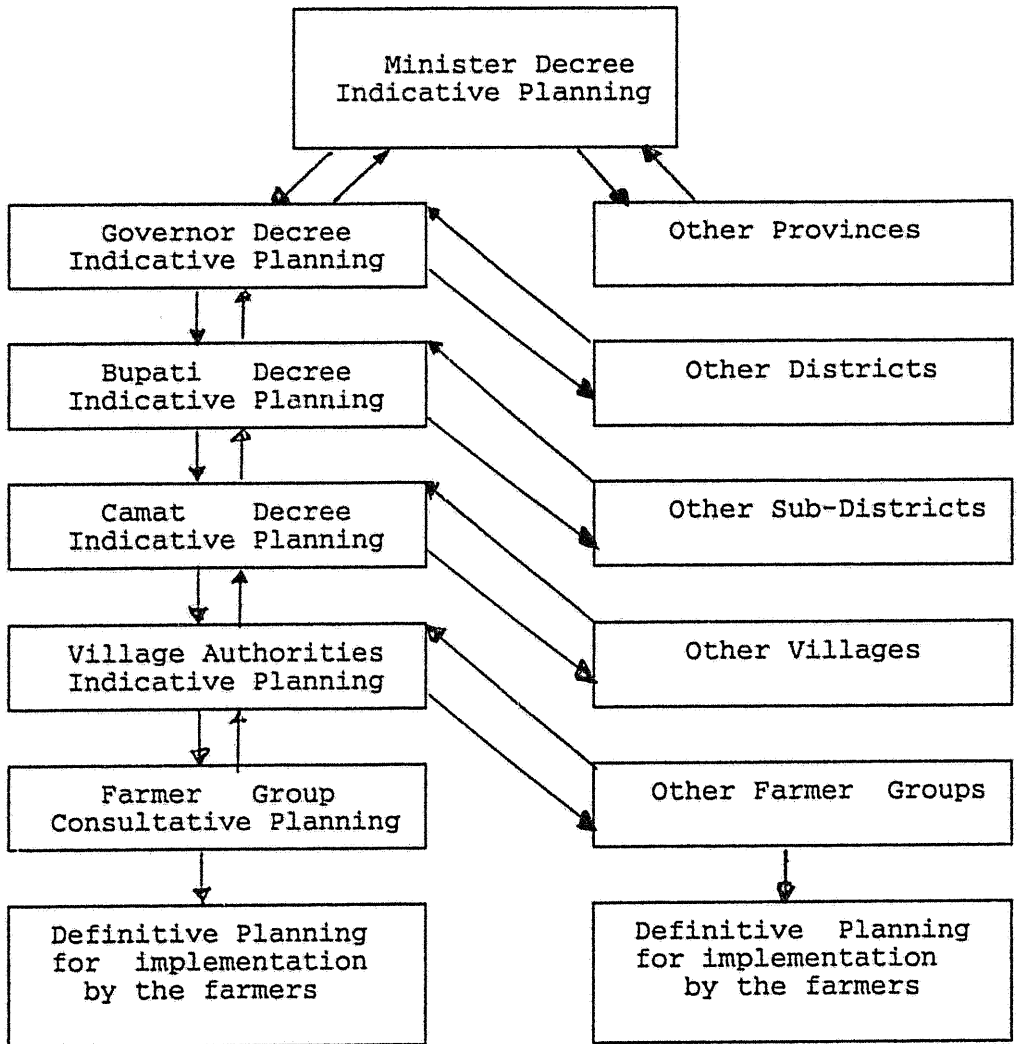


Figure 2 THE ADJUSTMENT OF THE TARGETS

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