Land Availability and Labor Absorption in the Agricultural Sector as a Consequence of Demographic Change in Thailand: 1987-1992

Population Policy Background Paper

Study on

Land Availability and Labor Absorption in Agricultural Sector as Consequences of Demographic Change in Thailand, 1987 - 1992

by

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDIX TABLES

1. INTRODUCTION

1.1 Problem

A problem of major concern to Thailand has been in the area of employment and income generation in the rural areas (Akrasanee and others). Major issues in the rural employment situation include the high level of underemployment, the seasonality of employment in agriculture, and the potential of employment generation in agriculture. Over the past two decades, the growth of real per capita income in Thailand has increased at about 4 percent per annum. Despite this favorable growth rate, a sizable portion of the rural population continue to live under the absolute poverty line (Panpiemras and Krusuansombat). Statistics in the Fourth Five-Year Plan (1977-1981) reported the average per capita income per year in farming at about US$430, while those engaged in other sectors earned more than US$2,000 (NESDB, 1980). This indicates a serious problem of income disparity between the agricultural and non-agricultural sectors.

In the past, agricultural policy emphasizing capital intensive infrastructure favored the better-off farmers. Industrial policy emphasizing large, capital intensive investment has led to a concentration of industry in the central region. These and other policies have worsened the existing uneven distribution of income, and have also contained the growth of demand for labor. Although the government has been quite successful in bringing down the birth rate in recent years, the large number of births since 1960 has substantially increased the rural labor force. According to labor force surveys, the annual growth rate, predicted at 2.3 percent from 1960-70, slightly increased to 2.6 percent per annum in the period of 1970-76 (World Bank).

A recent estimate by NSO shows about 30 percent of the

population, or about 15 million persons, aged between 15-29 years. The number of unemployed persons, according to the same source, was 650,000 persons in 1981. Out of this total, there were 260,000 persons classified as open unemployment. This number was expected to increase to 440,000 in 1982 as a result of unfavorable weather conditions which caused reductions in agricultural employment. Furthermore, among unemployed persons about 64 percent were living outside municipal areas. A high rate of open unemployment has also been a common phenomenon in the Northeast and Central region in recent years.

In addition, widespread underemployment and seasonal unemployment also exist in the rural areas due to lack of employment opportunities as well as to the seasonal nature of agricultural activities. According to the first round labor-force survey (January-March), seasonal unemployment (i.e. people waiting for the agricultural season) increased from 2.9 million persons in 1974 to 5.6 million persons in 1981. Unemployment was mostly found among young workers aged 15-29 who had only a primary education. The seasonality problem was also commonly found among farmers of both monocropping rainfed and irrigated farms.

Large numbers of inactive people waiting for the agricultural season may enter the labor market if job opportunities become available. A study by Chalamwong (1982) indicates some positive response to job opportunities if off-farm wages increase. This finding has also been confirmed by Priebprom's study. So far, there is no information indicating the number of people that could be absorbed in the rural areas under different cropping patterns and land uses.

Based on existing information, it is evident that there is a need to solve problems of open unemployment and the high seasonality of demand for labor in Thailand. This point is confirmed in the

study by Panpiemras and Krusuansombut (1985). The authors point out that the slowdown in the growth of seasonal employment due to limited land resources will be a very important issue in the future development of Thailand's rural sector.

They recommended that the development of agricultural resources could absorb at least a fraction of the rural workers. However, the development of such resources in Thailand has focused on the distribution of agricultural land.

For rural workers engaged in agricultural production in Thailand, land availability is the dominant constraint on production patterns. It also determines the distribution of income, wealth, and power resulting from the use of land and of related techniques. As Gotsch (1972, p.329) notes, "... it is nearly always possible to identify some varient of (1) the landed aristocracy, (2) the capitalist farmers, (3) the peasant (subsistence) class, and (4) the groups that are economically and politically dependent on land owners."

Given the primacy of land in rural areas, it is understandable that land, and man's relationship to land, have come under increasing scrutiny. They are major determinants of human behavior in general, and of cultivation behavior in particular.

With regard to land use and agriculture in Thailand, it may be useful to briefly review the situation. During the 1960s and the 1970s, the growth rate of the cultivated area was nearly 4 percent per year. As a result the forest areas have been reduced from 40 percent of the total area in the 1970s to about 30 percent in the 1980s. The rapid expansion of new lands has clearly reached the extensive margins in all regions except the South.

Many experts on land policy suggested that crop expansion could,

in fact, continue to be a significant cause of agricultural growth in the 1980s. The potential growth in output would depend in part on a reclassification of the threshold of agricultural suitability of land from a flatter to a steeper slope and on an increase in the area used for upland and tree crops.[1]

The general concensus is that the increase in arable land has reached its frontier, and that the opportunity of using existing farm land more intensively is also very limited due to lack of water and rapid degradation of land. The intensity of land use is very low in the North and especially in the Northeast, where the limited amount of rainfall makes it difficult for farmers to switch their lands to alternative uses. Much of the underutilized land in the North is under shifting cultivation. Farmers are unable to practice permanent cultivation systems due to lack of land development and agricultural services.

Land use can be intensified by improving irrigation schemes and increasing double cropping. However, this is possible only for provinces in the Central Plain and in some other areas where irrigation services are accessible. Further growth in agricultural output, income, and employment will, therefore, probably be very limited. Nonetheless, policy makers should not overlook the role of agriculture in providing employment opportunities. The agricultural sector has always been the largest sector providing employment for the rural labor supply in Thailand.

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[1] For details of discussion see National Economic and Social Development Board "Final Report Policy Study on Agricultural Development and Related Activities" prepared by Regional Research and Development Center, Asian Institute of Technology, November 1983.

It is clear that levels of unemployment and underemployment are very high during the dry season. It is also clear that levels of employment are very high during the planting and harvesting seasons. But little is known about the total labor demand for agriculture in relation to labor supply. Now the question is, "Does the agricultural sector have the capacity to absorb more rural labor in the next five or six years?" This study will attempt to provide more insights on employment generation activities and their relationship to agricultural activities.

1.2 Objectives

Since employment issues will be of a major concern in the Sixth Five-Year Plan, it would be appropriate to analyse, in a medium-run perspective, the linkages between demographic changes and labor force growth, land availability, and labor absorption in the agricultural sector of Thailand.

The study will provide quantitative projection of employment potential in the agricultural sector in relation to projections of labor force growth implied by demographic projections. These projections would be medium-run covering the period 1985-1992, and disaggregated to permit analysis of regional or sub-regional employment implications.

The specific objectives of this study are:

(1) To assess the pattern of labor absorption over the short to medium term by using linear programming technique; and

(2) To compare the performance of labor absorption in agriculture among different regions, considering

technological and demographic change as well as the end of the land frontier.

1.3 Review of Selected Literature

Little research has been done in Thailand to quantify the number of rural people working or idle on the farm. Most farm modelling studies have focused on the operation of farm activities rather than on the details of employment activities in different land use patterns.

There are few researchers in Asia seriously studying labor absorption in the agricultural sector. In terms of employment generation potential, Oshima's (1976) study of irrigated areas in the Northeast found that crop diversification to increase yield per rai can absorb as much as 50 percent more labor. Spoeltra and Israngkun (1978) pointed out that the forward linkage of multiple cropping has great potential as an employment generating strategy. There is an increase in consumption expenditures on locally-produced, labor-intensive manufactured goods as well as on services. Since research on the subject is limited in Thailand, other sources must provide information about the capability of the agricultural sector to absorb the increasing labor supply.

Now let us look at some interesting and relevant experiences of other countries in the Far East and Southeast Asia.[1] Oshima studied labor absorption in industry by relating the growth rate of unemployment to the growth rate of income (or value added) during the 1960s and 1970s. He found that labor absorbtion by the agricultural sector (which comprises a major part of the economy)

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[1] For details of the discussion, see Harry T. Oshima, "Labor Absorbtion in East and Southeast Asia : Summary, Perspective, prospects, The Philippines Economic Journal, Vol.XV, Nos.1&2, 1976.

had been poor and the elasticity of absorption generally very low. According to Oshima, changes in agricultural production take place via the use of disembodied technological progress and the use of current modern inputs, which do not directly involve fixed material capital. Some new high-yielding variety may increase income without additional use of labor force or fixed capital. This was also true with livestock production.

Oshima suggests that technology related to rice production may have taken place mainly through increases in productivity of the larger farmers. They may use better equipment as well as labor-saving inputs such as chemicals and modern hydrological technology.

The labor absorption elasticities of Indonesia, the Philippines, and Malaysia were around 80 percent, nearly double those of South Korea, Taiwan and Thailand, which were around 40 percent. Professor Oshima noticed that the latter group of countries tended to have high rates of labor force increase, larger unemployment rates, and lower growth rates of GNP, with the exception of Thailand. This was because the availability of new lands in Thailand may have absorbed the increased supply of labor during the 1960s. However, as mentioned in the previous section, the shortage of good arable land may become acute in the 1980s.

In his analysis of growth processes in Taiwan between 1950 and 1969, Professor Oshima also suggested a strategy which might be relevant to Thailand's present circumstances. That is, the promotion of multiple cropping systems in agriculture. In fact, multiple cropping research and extension programs have already been carried out in some areas in Thailand. In this regard Spoeltra and Israngkun found that multiple cropping strategy, in itself, may not contribute much to labor absorption, though it could generate growth in other sectors through multiplier and

linkage effects. Evidence from Japan, however, indicates that labor absorption can be increased in the early stages of agricultural development when land use is greatly intensified through multiple cropping.[1]

Modelling studies carried out in Thailand, have been done mostly by Ministry of Agriculture and Cooperatives research teams. The work of Stoceker and Khatikarn[2] emphasizes only the crop models included in "Thailand's Fourth Five-Year Plan Guidelines." The models aim to assess the possible impact of crop production, planted area and fertilizer use without attending directly to employment levels in rural areas.

Nicol, Sriplung and Heady's[3] model mostly combines linear programming and other quantitative approaches from the macro-model in agriculture initiated in the 1970's by the Ministry of Agriculture and Cooperatives in cooperation with Iowa State University. This valuable research technique and its results provide a tool and concepts for this study. A similar technique can be found in the Thailand Agricultural Model (THAM-I),[4] in research reports done by the Center for World Food Studies. The model describes the supply behavior of the Thai agricultural

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[1] More details of discussion can be found in Shiqeru Ishikawa. Easays on Technology Employment and Institutiions in Economic Development. Kinokuniya Company Ltd., Tokyo, Japan, 1981.

[2] A. L. Stoceker and Kanok Khatikarn, "National Crop Model of Thailand" Division of Agricultural Economics, Ministry of Agriculture and Cooperatives, 1976.

[3] K. J. Nicol, S. Sriplung and E. O. Heady, ed., Agricultural Development Planning in Thailand (Iowa State University), Press, 1982.

[4] A. L. Stoceker and Kanok Khatikarn, "National Crop Model of Thailand" Division of Agricultural Economics, Ministry of Agriculture and Cooperatives, 1976.

sector by using regional recursive linear programming models.[1]

Despite the fact that models constructed in the past are either out of date or no longer available to the public, the creation of the Kasetsart Agricultural Labor Absorption Model (KAM) is intended to remedy such problems.

1.4 Organization of the Study

This research report has been organized into 5 sections. Section 1 is an introductory chapter. Section 2 provides the analytical framework and methodology employed in the construction of The Kasetsart Agricultural Labor Absorption Model. This model presents an analysis of alternative futures for the Sixth Five-Year Plan, and for the beginning of the Seventh Five-Year Plan. The model is used to analyze output potential and employment opportunities in the agricultural sector. Section 3 presents the optimal conditions and the interpretation of agricultural production and land use. Section 4 continues discussion on optimal solution for potential employment. Finally section 5 summarizes the discussion and outlines policy implications of the study.

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[1] Research and Documentation on THAM-I is reported in five separate volumes.

2. ANALYTICAL FRAMEWORK AND METHODOLOGY

The main task of the present study is to define and construct a linear programming (LP) model for the Thai agricultural sector with emphasis on labor absorption within the sector.

After a series of discussions on modelling development, it was agreed that a farm-oriented, linear programming model does not provide sufficient emphases in the interest of the overall socioeconomic consequences of demographic change. It should be a regional model, using technical coefficients representing all farms in the region, and using constraints that represent the availability of regional inputs.

Time has been a constraint in this study. Problems and delays that might come about as a consequence of infeasible solutions have had to be reduced. Therefore, only constraints that would force the model to duplicate a target output pattern have been introduced. This target output pattern has been determined exogenously, using the available projections conducted by the National Economic and Social Development Board (NESDB) and the Ministry of Agriculture and Cooperatives (MAC). The LP thus becomes a national model and is similar to a simulation model, simply yielding the input requirements to produce a given output vector.[1]

The model can concentrate fully on land and labor, the only constraints necessary in this study, without including many

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[1] Note that in this case, the output pattern determined by the model will almost certainly be sub-optimal compared to what would exist if the agricultural output levels were not imposed. The use of sub-optimizing technique is justified by the fact that it is difficult to establish a meaningful objective function for the country as a whole.

irrelevant constraints such as credit, risk etc.[1]

As now defined, the real "policy" variables are in the constraint set and in the matrix of technical coefficients, rather than in the objective function. This formulation focuses much more on demographic, land, and output constraints, and on the technology available to meet these constraints.

The objective function still has an interesting purpose, however. It gives an idea of the net value of the output vector (which is entered as a constraint) using the most efficient technology. It also gives the researcher some information as to pricing policy. This may be instrumental in inducing the farmers to adopt the technology necessary to meet the output constraints, given the land and labor constraints.

Existing price forecasts will be used, or simple forecasts made. In any case, as the problem is currently defined, prices do not play an important role.[2] They are used as rough indicators of the relative profitability of various technologies.

This national programming model includes the existing crops and production practices in each region. Details of the LP model and its estimating procedures are presented in the next section.

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[1] By redefining the LP model, the optimizing behaviour of the LP methodology is useful for choosing among the various technologies for each crop, rather than for determining the cropping pattern.

[2] Prices may play an important role in this study if production targets do not prove to be constraints.

2.1 Programming Model

2.1.1 Assumptions and Constraints

The Kasetsart Agricultural Labor Absorption Model (KAM) combines the regional models. It is consonant with the national objective function, reflecting the government's role of setting and implementing policies. From an overall perspective, the model can be constructed appropriately with the following assumptions and restrictions:

(a) There are six production regions and each region is considered as a homogeneous production unit with different stages of production technology. The details of production regions are presented in Appendix Table A.1.

(b) The technical coefficients of each region at each production stage are fixed for each production process and not allowed to vary from region to region.

(c) Within the commodity spaces, primary resources such as land and labor are allowed to enter into the production process. The outputs are considered only in the forms of primary products that are directly consumed and/or sold. However, the model allows crop residues or by-products to be used as animal feeds. The details of crops and livestock included in the model are presented in Table 2.1.

(d) Since this study is a comparatively short-run analysis, the primary inputs, such as labor, are mobile from one region (Northeast) to another (Central). Such primary inputs as land and labor are assumed to be

known and fixed with certainty at each period covered in the study. However, these resources can be changed over time.

(e) The activity level and amount of input used can be divided into small discrete units, and none of them are closely related.

2.1.2 Mathematical framework of the model

Based on the above specified assumptions, a mathematical model expressed in a general form is presented below.

(a) The Objective Function

The Objective function is to be maximized, subject to constraints imposed on the model. The maximization can be expressed as:

- Maximize

$$(2.1) \quad \sum_r \sum_i Y_{ri} P_{ri} - \sum_r \sum_t \sum_s \sum_j C_{rtsj} X_{rtsj}$$

i = 1, 2, ... , for the commodities (crop and livestock produced)
j = 1, 2, ... , for the production processes defined
r = 1, 2, ... , 6 for the regions
t = 1, 2, ... , 7 for the land types
s = 1, 2 for the wet and the dry cropping seasons

where Y_{ri} = amount of crop and livestock produced in region r.
P_{ri} = price at which crop and livestock outputs, i are sold in region r.
C_{rtsj} = total variable cost associated with production process j, in region r, on land type t and in

season s.

X_{rtsj} = level of production process j, in region r, on land type t and season s.

- Land Constraints

The land constraints are classified into eight classes, namely: (1) flood lowland; (2) irrigated land; (3) rainfed lowland; (4) upland; (5) new settlements upland and lowland; (6) permanent fallow land; and (7) forest and plantation land.

The constraint is of the form:

$$(2.2) \quad \sum_r \sum_j \sum_t \sum_s X_{rjts} \leqslant LD_{tsr}$$

where LD_{tsr} = the quantity of land type t, in season s and in region r available for production of crop and livestock in the model.

X_{rjts} = the level of production process j, in region r, on land type t (measured in rai) and in season s.

- Labor Constraint

The labor constraints are defined by month for the regional models. The typical constraint in the model is of the form:

$$(2.3) \quad \sum_r \sum_j \sum_t \sum_m a_{rjtm} \leqslant LB_{rm}$$

m = 1, 2, ... , 12 for the months

r = 1, 2, ... , 6 for the regions

t = 1, 2, ... , 7 for the land types

j = 1, 2, ... , for the production processes

where a_{rjtm} = the number of hours of labor required per rai of production process j, in region r, on land type t and in month m.

X_{rjtm} = the rai of production process j, in region r, on land type t and in month m.

LB_{rm} = the supply of labor available for crop and livestock production in region r and in month m.

- Capital Requirement

The capital use in the KAM model is defined to reflect cash and non-cash required for seeds, power, fuel, fertilizer, pesticide, herbicide, medicine for livestock, and other short-term capital expenditures. They are of the following forms:

$$(2.4) \quad \sum_r \sum_j \sum_t \sum_s a_{rjts} X_{rjts} - \sum_r \sum_j \sum_t \sum_s C_{rjts} X_{rjts} = 0$$

s = 1, 2 for the wet and dry seasons

r = 1, 2, 3, 4, 6 for the regions

t = 1, 2, ... , 7 for the land types

j = 1, 2, ... , for the production processes

where a_{rjts} = the amount of cash and non-cash expenses per rai, for production process j, in region r, on land type t, and in season s.

X_{rjts} = the rai of production process j, in region r, on land type t, and in season s.

C_{rjts} = total variable cost associated with production process j, in region r, on land type t, and in season s.

- Feed Requirement for Livestock and Animal Power Requirement for Ploughing

$$(2.5) \quad \sum_r \sum_{j'} \sum_t \sum_s l_{rj'ts} X_{rj'ts} \leqslant \sum_r \sum_{j''} f_{rj''} X_{rj''}$$

j' = 1, 2, ..., for the crop production processes

j'' = 1, 2, ..., for the livestock production processes

$l_{rj'ts}$ = the number of hours of animal power required per rai (in land preparation) of production process j', in region r, on land type t and in season s.

$f_{rj''}$ = the amount of feed requirement for livestock process j'', in region r.

$X_{rj'ts}$ = the level of crop production process j', in region r, on land type t and in season s.

$X_{rj''}$ = the level of livestock production process j'', in region r.

- Minimum Requirement for Regional Production

To improve computational efficiency, lower bounds of crops and livestock in each region are imposed by using the lowest possible level of each commodity produced during the past 10 years. The constraints are of the form:

$$(2.6) \quad X_{jr} \geqslant B_{jr}$$

where X_{jr} = the level of production process j, in region r.

B_{jr} = a lower bound on crops (in terms of rai) and livestock (in terms of animal unit), production process j, in region r.

- Technological Change

The model incorporates a series of constraints on the use of technology. It assumes that the maximum level of technological change is feasible. The constraints are allowed to enter at a regional level in the form:

$$(2.7) \quad \sum_r \sum_t \sum_s \sum_{(j' \text{ with } c)} X_{rj't s} \leqslant MT_{cr}$$

$c = 1, 2, \ldots$, for the technology controlled by adoption
$r = 1, 2, \ldots, 6$ for the regions
$t = 1, 2, \ldots, 7$ for land types
$j' = 1, 2, \ldots$, for the crop production processes
$s = 1, 2$ for the wet and the dry seasons

where MT_{cr} = the maximum level of technology controlled by adoption in region r.

- Production Targets

The levels of agricultural production defined as total domestic and total export demands are controlled by a hypothetical upper limit that the country could produce, given the price. The constraints are of the form:

$$(2.8) \quad Y_i \leqslant T_i$$

$i = 1, 2, \ldots$, for the commodities

where Y_i = the amount of crop and livestock i produced nationally.
T_i = the maximum domestic and export demand assumed possible for crop and livestock i.

2.2 Estimation of the Variables

2.2.1 Organization of the Models

This study focuses on an aggregate analysis of production and distribution of at least 20 important commodities. It contributes more than 1,100 column activities and more than 650 associated constraints in the construction of a national linear programming model. The details of columns and corresponding rows are as follows:

(a) Production Activities

This section contains various production activities undertaken in each region. The assignment of crops and livestock in the model are based on regional specialization and presented in Table 2.1.

On the row's side there are restrictions on paddy land, field crop land, and labor supply constraint in each period and region.

The values of technical coefficients pertaining to each column activity are coefficients for the production of all crops and livestock, as well as for labor in each period and each region. The calculations of the coefficients are presented in the next section.

(b) Transfer Row Activity

Transfer rows provide a vehicle whereby the output of one activity can be transferred in the model to another activity. Transfer of primary products represents the transfer of all products from producing regions to selling activities. Labor is also transferred from a labor hiring activity to any activity requiring labor. In this case labor can be transferred from regions of

Table 2.1: Major crops and livestock and crop production techniques in the Kasetsart Labor Absorption Model.

Crop and Livestock		Crop and Livestock
Crop:		
Nonglutinous rice (TP, OV, F)*		Castor bean (OV and NV)
Nonglutinous rice (TP, NV, F)		Cassava
Nonglutinous rice (S, OV, F)		Sugarcane
Nonglutinous rice (S, NV, F)		Tobacco
Glutinous rice	(TP, OV, F)	Kenaf
Glutinous rice	(TP, NV, F)	Intercropping (OV and NV)
Glutinous rice	(S, OV, F)	Coconut
Glutinous rice	(S, NV, F)	Rubber
Upland nonglutinous rice		Livestock:
Upland glutinous rice		Buffalo
Maize	(OV and NV)	Cattle
Sorghum	(OV and NV)	Swine
Mungbean	(OV and NV)	Chicken
Soybean	(OV and NV)	Duck
Groundnut	(OV and NV)	
Sesame		
Cotton	(OV and NV)	

Note: * TP = transplanted; F = yields with fertilizer; S = sowed; OV = old variety; NV = new variety

surplus to regions of deficit with certain costs.[1] The region from which surplus labor can be transferred is the Northeast. The deficit regions are located in the East, the Central Plains, and the West.

2.2.2 Estimation of the Technical Coefficients

The estimations of the relevant technical coefficient for each production process in all regions will not be displayed in the main text. The estimation of production costs is based on farm management survey data of OAE in 1983/84. It is assumed that these costs remained fixed during the study period. The variable cost is composed of expenses on labor used, fertilizer, land preparation, seeds, fuel cost, etc. This total variable cost will be deducted from gross returns from the sale of commodities which will give the net return over variable cost.

Estimation of the labor coefficient of a particular crop or livestock varies from region to region. Data used to compute labor coefficients comes mainly from the Division of Agricultural Economics Research, OAE. Man-hour requirements per rai in the production of all crops and livestock are presented to reflect the patterns of agricultural activity in each region.

These costs are taken into account in the model out of concern for short-run planning in 1987, 1991 and 1992. The objective function is to find net return above total variable cost.

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[1] The value depends on the difference between the shadow price of labor from regions of surplus and regions of deficit.

Crop yield in each region is computed with the assumption that it represents a typical (average) yield per rai for all the farms in the region. Similar procedure is applied to the output of livestock. New sets of yield per rai in each region are also calculated for each crop when new technology is adopted. The data used to calculate these variables also come from the published statistics of OAE.

2.2.3 Estimation of the Right-Hand Side Availability

(a) Estimation of Land Availability

In the past, growth of the Thai agricultural sector and agricultural output was highly dependent on increasing the acreage of land brought under cultivation i.e. more than 3 percent per year. Such increases could not, of course, go on forever. According to many sources, utilization of land base resource has reached its limit and further increase in new area is not possible. Due to limited information concerning new areas brought under cultivation, it is difficult to estimate and make projections regarding the potentially available area outside current holdings. Many agricultural migrants have settled in areas less suitable for agriculture. The Thai government has also shown a strong intention to preserve water-shed areas and sustainable forest production. Therefore, the chance to expand arable lands during the study period is very unlikely.

For the present study the land constraints are divided into seven types, as follows:

(1) Flood low land, Type I, denotes land that is continuously flooded and suitable to grow only flooding rice. This can be found in the Central, lower North, and Northeastern regions. This area is assumed

constant during the study period. (Table 2.2.)

(2) Irrigated land, Type II, is land under some types of water control. It is divided into two categories, namely, irrigated wet season land and irrigated dry season land. Wet season irrigated land includes all land which benefits during the wet season from existing systems of dams, reservoirs, drainage canals, and other water control facilities. This area can be used to grow transplanted rice and other crops. Dry season irrigated land can be used for the planting of the second season crop. During the period of 1987-1992, only small irrigation projects are expected to be completed. This will allow the average irrigated land to increase by 200,000 rai per annum in the North and Central regions, by 157,500 rai per annum in the Northeast, and by about 112,500 rai per annum in the South. (Table 2.2.)

(3) Rainfed low land, Type III, is available for growing rainfed paddy production. This type of land can be upgraded to Type II if some types of water control are introduced. (Table 2.2.)

(4) Upland area, Type IV, denotes land that is suitable for upland crops. (Table 2.2.)

(5) New settlement area, Type V, is new land, recently brought under cultivation. Most of these areas are outside holdings and can be divided into lowland and upland categories. The assumption underlying these estimates is that the rate at which new lands (Land Types V are being brought under cultivation is increasing at 1.5 percent per annum for both lowland and upland. (Table 2.2.)

(6) Pasture and permanent fallow land, Type VI and Type VII, are relatively infertile areas that can be used for raising animals, growing rubber trees, coconut

Table 2.2: Projected agricultural land area by type and by region, 1987-1992.

unit:rai

Region	Year	Land Type									
		I	II : Irrigation		III	IV	V		VI	VII	Total
			Wet Season	Dry Season			Upland	Lowland			
North	1987	1,284,955	5,149,963	502,121	4,014,917	4,533,985	3,955,260	6,448,770	-	892,463	26,787,434
	1991	1,284,955	5,949,963	580,121	3,214,917	4,533,985	4,197,969	6,448,489	-	947,227	27,553,626
	1992	1,284,955	6,149,963	599,621	3,014,917	4,533,985	4,260,938	6,947,157	-	961,435	27,752,971
Northeast	1987	-	2,962,189	235,790	25,551,976	8,741,131	2,883,840	7,936,854	12,886,000	3,535,406	64,733,186
	1991	-	3,592,189	285,938	24,923,976	8,741,131	3,060,803	8,423,888	12,886,000	3,752,350	65,666,275
	1992	-	3,749,189	298,435	24,766,976	8,741,131	3,106,714	8,550,246	12,886,000	3,808,635	65,903,326
Central Plains	1987	1,010,974	5,586,720	2,473,241	907,686	1,904,260	1,343,909	224,816	4,620,495	891,563	18,963,664
	1991	1,010,974	6,146,720	2,721,153	347,686	1,904,260	1,426,376	238,612	4,620,495	946,802	19,363,078
	1992	1,010,974	6,286,720	2,783,131	207,686	1,904,260	1,447,717	242,191	4,620,495	960,466	19,463,640
East	1987	290,210	1,517,307	453,371	1,923,354	2,349,957	1,738,135	721,762	3,373,075	650,863	13,018,034
	1991	290,210	1,621,307	484,447	1,819,354	2,349,957	1,844,793	766,052	3,373,075	690,802	13,239,997
	1992	290,210	1,647,307	492,215	1,793,354	2,349,957	1,872,465	777,543	3,373,075	701,164	13,297,290
West	1987	27,363	1,600,025	386,886	331,271	1,195,898	663,148	412,077	1,264,430	243,982	6,125,080
	1991	27,363	1,736,025	419,771	195,271	1,195,898	703,841	437,364	1,264,430	258,953	6,238,916
	1992	27,363	1,770,025	427,992	161,271	1,195,898	713,990	443,923	1,264,430	262,837	6,267,726
South	1987	-	1,992,140	199,413	1,196,981	130,829	-	1,803,981	7,786,000	855,902	13,965,246
	1991	-	2,442,140	244,458	746,981	130,829	-	1,914,679	7,786,000	508,423	13,773,510
	1992	-	2,554,640	255,719	634,981	130,829	-	1,943,399	7,786,000	516,049	13,821,117
Total	1987	2,613,502	18,808,344	4,250,822	33,926,185	18,861,060	10,584,292	17,548,260	29,930,000	7,070,179	143,592,644
	1991	2,613,502	21,488,344	4,735,888	31,248,185	18,861,060	11,233,782	18,625,084	29,930,000	7,104,557	145,835,402
	1992	2,613,502	22,157,844	4,857,113	30,578,685	18,861,060	11,401,824	18,904,459	29,930,000	7,210,586	146,506,073

Source: Appendix Tables A.2 - A.4.

trees or fast growing trees (e.g. woodlot). (Table 2.2.)

(b) Estimation of Labor Availability

The availability of labor is considered very important in this study. The size of employment as a result of population change would contribute to a shortage or surplus of labor during the peak periods of agricultural production. This inturn, would have some impact on the income and employment of rural farm families.

In this model, labor availability is determined on a monthly basis. It is expressed in man-hours per month by region. The estimation procedures of labor availability are outlined as follows:

(1) Distribution of projected rural population across region;
(2) Estimation of economically active rural population by region;
(3) Estimation of the number of persons available to perform major agricultural activities by region; and
(4) Estimation of monthly labor available by region.

The projection of rural population by sex and region is derived from a projection of the Thai urban-rural population estimated by Chulalongkorn University's research team.[1] The actual projections are presented in Table 2.3 to Table 2.5.

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[1] More details of discussion of the estimation technique can be found in T. Kiranandana and others, A Projection of Thai Urban-Rural Population, 1987-2001, A Research Report, Thailand Development Research Institute, Bangkok, 1985.

Table 2.3: Projection of rural population classified by age, sex and region, 1987.

unit:person

Age group	North		Northeast		Central Plains*		East		West		South	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
15-19	483,482	459,748	1,060,706	992,113	114,078	104,957	143,091	132,571	138,320	130,332	331,450	317,373
20-24	484,396	451,247	846,548	798,908	111,838	103,338	133,134	123,166	132,938	122,062	283,144	274,299
25-29	429,869	401,421	631,866	616,307	92,957	86,444	111,560	102,894	108,538	102,945	221,549	223,125
30-34	359,629	341,958	536,893	542,167	73,065	72,986	92,192	87,923	89,575	88,734	176,599	181,904
35-39	272,498	256,800	459,634	455,939	53,748	59,346	70,599	69,946	66,168	70,362	145,610	147,103
40-44	200,752	191,678	382,021	382,669	44,065	48,574	56,635	55,705	51,651	54,585	119,649	120,261
45-49	184,662	177,653	305,367	320,739	42,406	47,391	50,717	50,568	46,933	50,291	109,274	111,030
50-54	155,909	171,875	248,015	276,153	40,786	46,388	43,929	45,191	40,809	48,187	95,607	101,338
55-59	137,189	144,591	200,719	221,645	33,582	38,796	34,810	36,505	35,212	39,233	77,197	80,864
60-64	100,643	107,573	149,281	164,774	26,679	30,974	26,360	28,424	27,455	31,230	59,593	62,711

Note: * Exclude Bangkok Metropolis.

Source: Calculated from T. Kiranandana and others, A Projection of Thai Urban-Rural Population, 1987-2001, A Research Report, Thailand Development Research Institute, Bangkok, 1985.

Table 2.4: Projection of rural population classified by age, sex and region, 1991.

unit:person

Age group	North		Northeast		Central Plains*		East		West		South	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
15-19	454,392	434,982	1,080,035	1,019,857	104,030	94,818	140,153	129,008	135,898	127,726	337,822	324,190
20-24	467,433	446,653	981,902	928,015	109,290	99,196	139,915	127,982	139,448	126,358	310,736	299,021
25-29	463,565	430,292	767,703	728,148	103,337	94,891	127,421	116,542	121,017	114,415	263,135	260,333
30-34	407,316	384,668	592,397	592,239	85,629	80,891	107,466	99,212	103,445	98,999	208,181	212,866
35-39	332,437	317,965	502,081	509,864	64,406	69,470	85,771	83,268	82,027	83,496	167,994	172,451
40-44	245,916	232,585	430,194	432,355	49,262	54,694	65,291	64,892	60,956	65,173	135,795	138,662
45-49	193,310	178,999	350,533	355,704	40,908	45,187	53,558	52,257	47,582	50,763	113,027	113,355
50-54	157,674	171,618	277,048	300,502	40,729	46,557	47,776	48,548	42,214	49,452	103,491	108,246
55-59	149,800	159,926	223,105	252,761	37,001	42,761	39,261	41,394	39,761	44,267	85,986	92,382
60-64	116,013	126,761	170,118	194,280	29,464	34,740	30,235	32,879	30,889	35,754	67,228	73,251

Note: * Exclude Bangkok Metropolis.

Source: Calculated from T. Kiranandana and others, A Projection of Thai Urban-Rural Population, 1987-2001, A Research Report, Thailand Development Research Institute, Bangkok, 1985.

Table 2.5: Projection of rural population classified by age, sex and region, 1992.

unit:person

Age group	North		Northeast		Central Plains*		East		West		South	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
15-19	449,052	431,311	1,071,354	1,014,075	102,749	93,540	139,912	129,002	135,421	127,561	337,204	323,585
20-24	457,582	437,283	998,033	945,765	105,722	94,849	138,749	126,312	138,593	125,068	314,777	301,839
25-29	468,787	436,468	817,613	773,334	105,711	96,658	131,952	120,582	124,755	117,720	273,025	268,874
30-34	418,039	391,912	609,089	601,937	88,374	82,025	110,811	101,968	105,772	101,150	219,294	222,273
35-39	344,443	330,994	512,049	524,162	67,694	68,607	89,920	86,162	86,375	86,166	172,848	177,941
40-44	262,727	249,085	440,649	444,294	51,142	57,334	68,537	68,533	64,332	69,075	142,224	145,424
45-49	198,733	182,215	363,334	367,613	41,516	45,201	54,605	53,075	48,752	52,077	114,773	115,324
50-54	156,232	168,860	285,995	305,441	39,483	45,238	48,201	48,669	41,316	48,345	103,798	107,216
55-59	151,919	162,162	228,026	259,342	38,263	43,976	40,712	42,990	41,365	45,581	89,532	96,459
60-64	119,512	131,374	175,571	202,324	29,853	35,417	30,986	33,620	31,510	36,602	68,036	74,545

Note: * Exclude Bangkok Metropolis.

Source: Calculated from T. Kiranandana and others, A Projection of Thai Urban-Rural Population, 1987-2001, A Research Report, Thailand Development Research Institute, Bangkok, 1985.

It should be noted that the rural population of Bangkok Metropolitan has been excluded from the Central Plains sub-region. The projections of rural population by age (15-64) and sex are adjusted by the labor force participation rate which is assumed constant during the study period. From this economically active rural population by age (15-64) and sex can be determined. This rate of participation is one of the very important variables in this study since small variations in it would result in significant difference in the number of available man-hours. Therefore, this study has adopted two levels of participation rates. The first participation rate was chosen from the first round (January-March) and the second from the second round (July-September) of the reports of the Labor Force Survey introduced by National Statistical Office. The Labor Force Survey, round 1 (January-March), is called "Low participation rate". Round 2 (July-September) is called "High participation rate" (see Table 2.6 - Table 2,7). The projections of the total number of economically active persons adjusted by these low and high rates are presented in Tables 2.8 - 2.10 and 2.11 - 2.13, respectively.

The projections of the total economically active rural population are adjusted by a proportion of the participation rates in major agricultural activities (Table 2.11 - Table 2.15). To generate the total number of economically active persons available to work in major agricultural activities in the years 1987, 1991, and 1992, the hourly agricultural labor supply in each region has been developed and used to quantify the constraints. The estimates are presented in Tables 2.16 - 2.21.

2.2.4 Capital Requirements

The capital constraints, which include both cash and non-cash expenses related to agricultural products, are not taken explicitly into the RHS of the model. Rather they exert influence

Table 2.6: Labor force participation rates by age group, sex and region in non-municipal areas, 1983*

unit:percent

Age group	Whole Kingdom		Regions							
			North		Northeast		Central Plains		South	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	73.7	71.3	72.5	78.6	79.4	72.5	72.2	69.5	61.9	59.9
20 - 24	90.7	77.1	93.0	82.6	92.8	74.9	92.5	76.6	79.1	75.9
25 - 29	98.6	79.3	99.5	86.0	98.9	71.8	98.1	79.9	98.3	88.7
30 - 34	97.9	80.7	98.0	87.4	97.9	73.7	96.6	81.8	99.9	89.8
35 - 39	98.8	83.2	97.5	90.0	99.2	78.4	98.5	82.2	99.9	89.8
40 - 44	98.5	81.8	98.9	86.9	98.9	74.6	97.6	82.2	99.0	93.4
45 - 49	98.5	81.8	98.9	86.9	98.9	74.6	97.6	82.2	99.0	93.4
50 - 54	95.2	72.4	95.5	75.0	97.3	67.8	91.1	72.7	96.5	84.8
55 - 59	95.2	72.4	95.5	75.0	97.3	67.8	91.1	72.7	96.5	84.8
60+	52.3	17.3	51.7	24.1	53.3	22.6	45.9	28.3	64.0	36.5

Note: * The labor force participation rate is assumed constant during period 1987-1992.

Source: National Statistical Office, Report of The Labor Force Survey, Whole Kingdom (round I), January-March 1983.

Table 2.7: Labor force participation rate in non-municipal areas by age, by sex and by region, 1983.*

unit:percent

Age group	Region							
	North		Northeast		Central Plains		South	
	Male	Female	Male	Female	Male	Female	Male	Female
15-19	76.5	81.7	84.3	81.4	70.7	70.7	61.9	57.8
20-24	94.9	85.6	94.6	90.7	92.5	77.6	86.9	72.8
25-29	98.3	88.7	99.1	90.3	97.7	82.9	99.1	82.0
30-34	97.5	85.1	98.0	94.0	97.4	87.0	99.5	89.3
35-39	97.6	92.6	99.7	94.4	98.4	84.0	99.8	96.0
40-49	97.6	86.9	98.7	93.8	97.9	85.6	98.7	92.1
50-59	93.3	75.1	97.1	82.8	91.0	75.2	97.4	83.0
60+	52.1	23.5	57.9	29.3	47.8	27.0	61.5	35.1

Note: * Labor force participation rate is assumed constant during period 1987-1992.

Source: National Statistical Office, Report of the Labor Force Survey : Whole Kingdom (round 2) July - September 1983, Office of Prime Minister, Bangkok (forthcoming).

Table 2.8: Projection of economically active rural population (at low participation rates) classified by age, sex and region, 1987.

unit:person

Age group	North		Northeast		Central Plains*		East		West		South	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
15-19	350,524	361,362	842,201	719,282	82,364	72,945	103,312	92,137	99,867	90,581	205,168	190,106
20-24	450,488	372,730	785,597	598,382	103,450	79,157	123,149	94,345	122,968	93,499	223,967	208,193
25-29	427,720	345,222	624,915	442,508	91,191	69,069	109,440	82,212	106,476	82,253	217,783	197,912
30-34	352,436	298,871	525,618	399,577	70,581	59,703	89,057	71,921	86,529	72,584	176,422	163,350
35-39	265,686	231,120	455,957	357,456	52,673	48,782	69,187	57,496	64,845	57,838	145,464	132,098
40-44	198,544	166,568	377,819	285,471	43,007	39,928	55,276	46,554	50,411	44,869	118,453	112,324
45-49	182,631	154,381	302,008	239,271	41,388	38,955	49,500	41,567	45,807	41,339	103,702	103,702
50-54	148,893	128,906	241,315	187,232	37,156	33,724	40,019	32,854	37,177	35,032	92,261	85,935
55-59	131,016	108,443	195,300	150,275	30,593	28,205	31,712	26,539	33,256	28,522	74,495	68,573
60-64	52,032	25,925	79,567	37,239	12,246	8,766	12,099	8,044	12,602	8,838	38,139	22,890
Total	2,559,970	2,193,528	4,430,297	3,416,693	563,649	479,234	682,751	553,669	659,938	555,355	1,400,333	1,285,083

Source: Table 2.3 × Table 2.6.

Table 2.9: Projection of economically active rural population (at low participation rates) classified by age, sex and region, 1991.

unit:person

Age group	North		Northeast		Central Plains*		East		West		South	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
15-19	329,434	341,896	857,548	739,396	75,110	65,896	101,190	89,661	98,118	88,770	209,112	194,190
20-24	434,713	368,935	911,019	695,083	101,093	75,984	129,421	98,034	128,989	96,790	245,792	226,957
25-29	461,247	370,051	759,258	522,810	101,374	75,818	125,000	93,117	118,718	91,418	258,662	230,915
30-34	399,170	336,200	579,957	436,479	82,718	66,169	103,812	81,155	99,928	80,890	207,973	191,154
35-39	324,126	286,169	498,064	399,733	63,118	57,104	84,056	68,446	80,386	68,634	167,826	154,861
40-44	243,211	202,116	425,462	322,537	48,080	44,958	63,724	53,341	59,493	53,572	134,437	129,510
45-49	191,184	155,550	346,677	265,355	39,926	37,144	52,273	42,955	46,440	41,727	111,897	105,874
50-54	150,579	128,714	269,568	203,740	37,104	33,847	43,524	35,294	38,457	35,952	99,869	91,793
55-59	143,059	119,945	217,081	171,372	33,708	31,087	35,767	30,093	36,222	32,182	82,977	78,340
60-64	59,979	30,549	90,673	43,907	13,524	9,831	13,878	9,305	14,178	10,118	43,026	26,737
Total	2,736,702	2,340,125	4,955,307	3,800,141	595,755	497,838	752,645	601,401	720,929	600,053	1,561,571	1,430,331

Source: Table 2.4 × Table 2.6.

Table 2.10: Projection of economically active rural population (at low participation rates) classified by age, sex and region, 1992.

unit:person

Age group	North		Northeast		Central Plains*		East		West		South	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
15-19	325,563	339,010	850,655	735,204	74,185	65,010	101,016	89,656	97,774	88,655	208,729	193,827
20-24	425,551	361,196	926,175	708,378	97,793	72,654	128,343	96,755	128,199	95,802	248,989	229,096
25-29	466,443	375,363	808,619	555,254	103,702	77,230	129,445	96,345	122,385	94,058	268,384	238,491
30-34	409,678	342,531	596,098	443,628	85,369	67,096	107,043	83,410	102,176	82,741	219,075	199,601
35-39	335,832	297,895	507,953	410,943	66,340	56,395	88,122	70,825	84,648	70,828	172,675	159,791
40-44	259,837	216,455	435,802	331,443	49,915	47,129	66,892	56,334	62,788	56,780	140,802	135,826
45-49	196,547	158,345	359,337	274,239	40,168	37,155	53,294	43,628	47,582	42,807	113,625	107,713
50-54	149,202	126,645	278,273	207,090	35,969	32,888	43,911	35,382	37,639	35,147	100,165	90,919
55-59	145,080	121,622	221,869	175,834	34,858	31,970	37,089	31,254	37,684	33,173	86,398	81,797
60-64	61,788	31,661	93,579	45,725	13,903	10,023	14,223	9,514	14,463	10,358	43,543	27,209
Total	*2,775,524*	*2,370,723*	*5,078,360*	*3,887,738*	*602,002*	*497,550*	*769,378*	*613,103*	*735,338*	*610,346*	*1,602,385*	*1,464,270*

Source: Table 2.5 × Table 2.6.

Table 2.11: Projection of economically active rural population (at high participation rates) classified by age, sex and region, 1987.

unit:person

Age group	North		Northeast		Central Plains*		East		West		South	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
15-19	369,864	375,614	894,175	807,580	80,653	74,205	101,165	93,728	97,792	92,145	205,168	183,422
20-24	459,692	386,267	806,834	724,610	103,450	80,190	123,149	95,577	122,968	94,720	246,052	199,690
25-29	422,561	356,060	626,179	556,525	90,819	71,403	108,994	84,990	106,042	85,033	219,555	182,962
30-34	350,638	291,006	526,155	509,640	71,165	63,936	89,795	70,021	87,246	77,731	175,716	162,440
35-39	265,958	237,797	458,255	430,406	52,888	50,088	69,469	59,034	65,109	59,386	145,319	141,219
40-44	195,934	166,558	377,054	358,943	43,140	41,579	55,446	47,683	50,566	46,725	118,094,	110,760
45-49	180,230	154,380	301,397	300,853	41,515	40,567	49,652	43,286	45,947	43,049	107,853	102,259
50-54	145,463	129,078	240,823	228,655	37,115.	34,884	39,975	33,984	37,136	36,237	93,121	84,111
55-59	127,997	108,588	194,898	183,522	14,607	29,175	15,142	27,452	15,317	29,503	75,190	67,117
60-64	52,435	25,280	86,434	48,279	12,753	8,363	12,600	7,674	13,123	8,432	36,650	22,012
Total	2,570,772	2,230,628	4,506,204	4,216,802	549,105	494,390	665,387	593,429	641,246	572,961	1,422,718	1,256,012

Source: Table 2.3 × Table 2.7.

Table 2.12: Projection of economically active rural population (at high participation rates) classified by age, sex and region, 1991.

unit:person

Age group	North		Northeast		Central Plains*		East		West		South	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
15-19	347,610	355,380	910,470	830,164	73,549	67,036	99,088	91,209	96,080	90,302	209,112	187,382
20-24	443,594	382,335	928,690	841,710	101,093	76,976	129,421	99,314	128,989	98,054	270,030	217,687
25-29	455,684	381,669	760,794	657,518	100,960	78,380	124,490	96,264	118,235	94,507	260,767	213,473
30-34	397,133	327,352	580,549	379,033	83,403	70,861	104,672	86,910	100,755	86,626	207,140	190,098
35-39	324,459	294,436	500,575	481,312	63,376	58,633	84,399	70,278	80,715	70,471	167,558	165,553
40-44	240,014	202,116	424,601	415,549	48,227	46,818	63,920	55,548	59,676	55,788	134,020	127,707
45-49	188,671	155,550	345,976	333,650	40,049	38,680	52,433	44,732	46,583	43,453	111,558	104,340
50-54	147,110	128,885	269,014	248,816	37,063	35,011	43,476	36,508	38,415	37,256	100,800	89,844
55-59	139,763	120,104	216,635	209,286	33,671	32,156	35,728	31,128	36,183	33,289	83,733	76,677
60-64	60,443	29,788	98,498	56,924	14,084	9,379	14,495	8,877	14,765	9,654	41,345	25,711
Total	2,744,477	2,377,615	5,035,802	4,443,962	595,475	513,960	752,122	620,768	720,396	619,400	1,586,063	1,398,472

Source: Table 2.4 × Table 2.7.

Table 2.13: Projection of economically active rural population (at high participation rates) classified by age, sex and region, 1992.

unit:person

Age group	North		Northeast		Central Plains*		East		West		South	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
15-19	343,525	352,381	903,151	825,457	72,644	66,133	98,918	91,204	95,743	90,186	208,729	187,032
20-24	434,245	374,314	944,139	857,809	97,793	73,603	128,343	98,018	128,197	97,053	273,541	219,739
25-29	460,818	387,147	810,255	698,321	103,280	79,765	128,917	99,601	121,886	97,237	270,568	220,477
30-34	407,588	333,517	597,005	565,821	86,076	71,854	107,930	89,324	103,022	88,607	218,198	198,490
35-39	336,176	306,437	510,513	494,809	66,611	57,904	88,481	72,721	84,993	72,724	172,502	170,823
40-44	256,422	216,455	431,921	416,748	50,068	49,078	67,098	58,664	62,981	59,128	140,375	133,936
45-49	193,963	158,345	358,611	344,821	40,644	38,692	53,458	45,432	47,728	44,578	113,281	106,213
50-54	145,765	126,814	277,701	252,905	35,930	33,929	43,863	36,502	37,598	36,259	101,294	88,989
55-59	141,740	121,784	221,413	214,735	34,819	32,982	37,048	32,243	37,642	34,186	87,204	80,061
60-64	62,267	30,873	101,656	59,281	14,270	9,563	14,768	9,077	15,062	9,883	41,842	26,165
Total	2,782,509	2,408,167	5,156,365	4,730,707	602,135	513,503	768,824	632,786	734,852	629,841	1,627,534	1,431,925

Source: Table 2.5 × Table 2.7.

Table 2.14: Total number of persons available to perform major agricultural activities by region 1987-1992. (at low participation rates).

	Regions					
	North	Northeast	Central Plains	East	West	South
(1) Total number of economically active persons[1]						
1987	4,753,498	7,846,990	1,042,883	1,236,420	1,215,293	2,685,416
1991	5,076,827	8,755,448	1,093,593	1,354,046	1,320,982	2,991,902
1992	5,146,247	8,966,098	1,099,552	1,382,481	1,345,684	3,066,655
(2) Proportion of labor participation in major agricultural activities* (assumed constant)[2]						
	0.9652	0.9915	0.8225	0.8225	0.8225	0.9280
(3) Total number of economically active persons available to work on major farm activities (1)×(2)						
1987	4,588,077	7,780,288	857,769	1,016,957	959,577	2,492,067
1991	4,900,154	8,681,024	899,481	1,113,702	1,086,510	2,776,486
1992	4,967,159	8,889,885	904,380	1,137,091	1,106,779	2,845,857

Note: * Excluded are activities such as time given to the growth and care of fruit trees, vegetable gardens, and fisheries. These numbers were adjusted according to past trends.

Source: 1. Calculated from Tables 2.8 - 2.10.
2. National Statistical Office, Population and Housing Census, Bangkok, 1971.

Table 2.15: Total number of persons available to perform major agricultural activities by region 1987-1992. (at high participation rates)

	Regions					
	North	Northeast	Central Plains	East	West	South
(1) Total number of economically active persons[1]						
1987	4,801,400	8,723,207	1,043,495	1,258,816	1,214,207	2,678,730
1991	5,122,094	9,479,764	1,109,436	1,372,890	1,339,796	2,984,535
1992	5,190,576	9,877,072	1,115,638	1,401,610	1,364,693	3,059,459
(2) Proportion of labor participation in major agricultural activities* (assumed constant)[2]						
	0.9652	0.9915	0.8225	0.8225	0.8225	0.9280
(3) Total number of economically active persons available to work on major farm activities (1)×(2)						
1987	4,634,311	8,649,060	858,275	1,039,376	998,685	2,485,861
1991	4,943,843	9,399,216	912,511	1,129,202	1,101,982	2,769,648
1992	5,009,944	9,793,117	917,612	1,152,824	1,122,460	2,839,178

Note: * Excluded activities such as time given to the growth and care of fruit trees, vegetable garden and fisheries. These numbers were adjusted according to past trends.

Source: 1. Calculated from Tables 2.11 - 2.13.
2. National Statistical Office, Population and Housing Census, Bangkok, 1971.

Table 2.16: Available labor (RHS) by month by region, 1987 (at low participation rates).

unit:1,000 man-hours

Month	Man-hours per person*	Regions					
		North	Northeast	Central Plains	East	West	South
January	208	954,320	1,618,300	178,416	211,527	207,912	518,286
February	192	880,911	1,493,816	164,692	195,255	191,919	478,417
March	216	991,024	1,680,543	185,279	215,662	215,909	538,220
April	200	917,615	1,556,058	171,554	203,391	199,916	498,351
May	192	880,911	1,493,816	164,692	195,255	191,919	478,417
June	208	954,320	1,618,300	178,416	211,527	207,912	518,286
July	200	917,615	1,556,058	171,554	203,391	199,916	498,351
August	216	991,024	1,680,543	185,279	215,662	215,909	538,220
September	208	954,320	1,618,300	178,416	211,527	207,912	518,286
October	200	917,615	1,556,058	171,554	203,391	199,916	498,351
November	200	917,615	1,556,058	171,554	203,391	199,916	498,351
December	208	954,320	1,618,300	178,416	211,527	207,912	518,286

Note: * Time given to cultural activities, ceremonies, and holidays is deducted.

Source: Calculated from Table 2.14.

Table 2.17: Available labor (RHS) by month by region, 1991 (at low participation rates).

unit:1,000 man-hours

Month	Man-hours per person*	Regions					
		North	Northeast	Central Plains	East	West	South
January	208	1,019,232	1,805,653	178,416	231,650	225,994	277,509
February	192	940,829	1,666,757	164,692	213,831	208,610	533,085
March	216	1,058,433	1,575,102	185,279	240,560	234,686	599,721
April	200	980,031	1,736,205	171,554	222,741	217,301	555,297
May	192	940,829	1,666,757	164,692	213,831	208,616	533,085
June	208	1,019,232	1,805,653	178,416	231,650	225,650	577,509
July	200	980,031	1,736,205	171,554	222,741	217,301	555,721
August	216	1,058,433	1,575,102	185,279	240,560	234,686	599,721
September	208	1,019,232	1,805,653	178,416	231,650	225,994	577,509
October	200	980,031	1,736,205	171,554	222,741	217,301	555,721
November	200	980,031	1,736,205	171,554	222,741	217,301	555,721
December	208	1,019,232	1,805,653	178,416	231,650	208,610	533,085

Note: * Time given to cultural activities, ceremonies, and holidays is deducted.

Source: Calculated from Table 2.14.

Table 2.18: Available labor (RHS) by month by region, 1992 (at low participation rates).

unit:1,000 man-hours

Month	Man-hours per person*	Regions					
		North	Northeast	Central Plains	East	West	South
January	208	1,033,169	1,849,096	188,111	236,515	230,220	591,938
February	192	953,694	1,706,859	173,641	218,322	212,510	546,404
March	216	1,072,906	1,920,215	195,346	245,612	239,074	614,705
April	200	993,432	1,777,977	180,876	227,415	221,365	569,172
May	192	953,694	1,706,858	173,641	218,322	212,510	546,404
June	208	1,033,169	1,849,096	188,111	236,515	230,220	591,938
July	200	993,432	1,777,977	180,876	227,415	221,365	569,172
August	216	1,072,906	1,920,215	195,346	245,612	239,074	614,705
September	208	1,033,169	1,849,096	188,111	236,515	230,220	591,938
October	200	993,432	1,777,977	180,876	227,415	221,365	569,172
November	200	993,432	1,777,977	180,876	227,415	221,365	569,172
December	208	1,033,169	1,849,096	188,111	236,515	230,220	591,938

Note: * Time given to cultural activities, ceremonies, and holidays is deducted.

Source: Calculated from Table 2.14.

Table 2.19: Available labor (RHS) by month by region, 1987 (at high participation rates).

unit:1,000 man-hours

Month	Man-hours per person*	Regions					
		North	Northeast	Central Plains	East	West	South
January	208	963,397	1,799,004	178,521	215,358	207,726	517,059
February	192	889,788	1,660,620	164,789	198,792	191,748	477,285
March	216	1,001,011	1,868,197	185,387	223,641	215,716	536,946
April	200	926,862	1,729,812	171,655	207,075	199,737	497,172
May	192	889,788	1,660,620	164,789	198,792	191,748	477,285
June	208	963,397	1,799,004	178,521	215,358	207,726	517,059
July	200	926,862	1,729,812	171,655	207,075	199,737	497,172
August	216	1,001,011	1,868,197	185,387	223,641	215,716	536,946
September	208	963,397	1,799,004	178,521	215,358	207,726	517,059
October	200	926,862	1,729,812	171,655	207,075	199,737	497,172
November	200	926,862	1,729,812	171,655	207,075	199,737	497,172
December	208	963,397	1,799,004	178,521	215,358	207,716	517,059

Note: * Time given to cultural activities, ceremonies, and holidays is deducted.

Source: Calculated from Table 2.15.

Table 2.20: Available labor (RHS) by month by region, 1991 (at high participation rates)

unit:1,000 man-hours

Month	Man-hours per person*	Regions					
		North	Northeast	Central Plains	East	West	South
January	208	1,028,319	1,955,037	189,802	234,874	229,212	576,087
February	192	949,218	1,804,649	175,202	216,807	211,581	531,772
March	216	1,067,870	2,030,231	197,102	243,908	238,028	598,244
April	200	988,769	1,879,843	182,502	225,840	220,396	553,930
May	192	949,218	1,804,649	175,202	216,807	211,581	531,772
June	208	1,028,319	1,955,037	189,802	234,874	229,212	576,087
July	200	988,769	1,879,843	182,502	225,840	220,396	553,930
August	216	1,067,870	2,030,231	197,102	243,908	238,028	598,244
September	208	1,028,319	1,955,037	189,802	234,874	229,212	576,087
October	200	988,769	1,879,843	182,502	225,840	220,396	553,930
November	200	988,769	1,879,843	182,502	225,840	220,396	553,930
December	208	1,028,319	1,955,037	189,802	234,874	229,212	576,087

Note: * Time given to cultural activities, ceremonies, and holidays is deducted.

Source: Calculated from Table 2.15.

Table 2.21: Available labor (RHS) by month by region, 1992. (at high participation rates)

unit:1,000 man-hours

Month	Man-hours per person*	Regions					
		North	Northeast	Central Plains	East	West	South
January	208	1,042,068	2,036,968	190,863	239,787	233,472	590,549
February	192	961,909	1,880,278	176,182	221,342	215,512	545,122
March	216	1,082,148	2,115,313	198,204	249,010	242,451	613,262
April	200	1,001,989	1,958,623	183,522	230,565	224,492	567,836
May	192	961,909	1,880,278	176,186	221,342	215,512	545,122
June	208	1,042,068	2,036,968	190,863	239,787	233,472	590,549
July	200	1,001,989	1,958,623	183,522	230,565	224,492	567,836
August	216	1,082,148	2,115,313	198,204	249,010	242,451	613,262
September	208	1,042,068	2,036,968	190,863	239,787	233,472	590,545
October	200	1,001,989	1,958,623	183,522	230,565	224,492	567,836
November	200	1,001,989	1,958,623	183,522	230,565	224,492	567,836
December	208	1,042,068	2,036,968	190,863	239,787	232,472	590,549

Note: * Time given to cultural activities, ceremonies and holidays is deducted.

Source: Culculated from Table 2.15.

directly to the objective function.

2.2.5 Feed Requirement

The four most important types of livestock included in the model are buffalo, cattle, swine and poultry (chicken & ducks). Buffalo and cattle feeds originate from 2 sources: (a) natural grazing land and forest area and (b) crop residues. Swine and poultry feeds are mainly obtainable by purchase.[1]

2.2.6 Contraints on Technology Adoption

Technology adoption is applicable to the production of rice and upland crops. It is assumed in this study that land suitable for agricultural use has now been brought under cultivation. More arable land can be obtained only by encroaching on essential forest reserves and watersheds, which are, infact, unsuitable for agricultural use. Therefore, production increases must be realized through more intensive use of existing land through the adoption of new technology. In this model new production techniques for rice are incorporated into the model. Projections of trend values of the proportion of total area planted to new rice varieties (RD) are obtained from the following relationships:

$$\text{Prop } 1987 = e^{-b/T^{2}}$$

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[1] For details see K. J. Nicol and Others, Agricultural Development Planning in Thailand, op.cit.

[2] This technique was adopted from A. L. Stoecker, K. Khatikarn and N. Sroytong, "Agricultural Sector Crop Models" in Agricultural Development Planning: Thailand, edited by K. J. Nocal, Somnuk Sriplung and E. O. Heady, Iowa State University, Press, 1982, page 69.

where b = -T ln (proportion of base period ... 1981)

T = 1 in the first period that the technology is available

Then the constraints are placed at a regional level in accordance with the farm, as shown in equation 2.7. The projected trend rates of adoption of RD rice varieties in terms of percentage of area planted are presented in Table 2.22.

With regard to field crops, only new improved seed technology has been introduced. This allows the yield of each crop to increase by a certain percentage. The labor requirement for harvesting activities is then adjusted accordingly.

Table 2.22: Projected trend rate of the adoption of RD rice varieties in terms of percentage of land areas.

unit:percent

	1987		1991		1992	
	RD01	RD02	RD01	RD02	RD01	RD02
North	43.6	41.8	73.9	78.2	84.3	89.2
Northeast	15.7	17.9	37.6	42.9	46.8	53.4
Central Plains	46.4	48.2	81.5	77.4	93.8	91.7
East	37.6	56.8	53.2	85.2	58.0	92.9
West	37.6	56.8	53.2	85.2	58.0	92.9
South	40.4	-	82.5	-	96.3	-

Note: RD01 non-glutinous rice varieties.
RD02 glutinous rice varieties.

2.2.7 Agricultural Production Target Constraint

Restrictions on agricultural production requirements are composed of the total domestic demand attributed to people in all regions, plus the export demand. Domestic demand requirements are assumed exogenous while export targets are predetermined. To allow for flexibility, the model includes three levels of targets, namely high, medium and low targets for each period. Three levels of constraints are specified to account for different degrees of free access to the world market. Revenue at least equal to the lowest level of each constraint, is assumed from the export of such commodities. However, specification of the bounded constraint can be determined for specific purposes with certain commodities, especially the one about which we have inadequate information.

Tables 2.23 and 2.24 present projections of agricultural production targets for 1987-1991. These bounds are intended to ensure that crop and livestock production do not exceed projected levels fixed in the Sixth Five-Year Plan by NESDB and the Ministry of Agriculture and Cooperatives. However, since guidelines for agricultural production targets beyond the end of the Sixth Five-Year Plan are not available, the annual growth rates of production in 1992 are assumed to be identical to those calculated in the Sixth Plan (Table 2.25).

2.2.8 Alternatives to be Analyzed

Alternative choices are to be identified by determining for policy makers the impact of each on a specific objective. Given the objectives to be analyzed, some factor affecting supply of agricultural commodities, such as land, labor and technology adoption have to be considered. Based on these considerations, specific analytical approaches for alternative development plans have been established as follows:

Table 2.23: Projected agricultural production targets, 1987.

unit:ton

Commodities	Projected production targets		
	Low*	Medium	High*
Crops:			
Non-glutinous rice, paddy	12,421,000	12,680,000	12,988,000
Glutinous rice, paddy	5,417,000	5,417,000	5,417,000
Maize	3,755,000	3,980,000	4,289,000
Sorghum	272,000	386,000	395,660
Mung beans	394,020	398,000	407,950
Soy beans	235,880	243,000	249,070
Ground nuts	147,000	153,000	156,000
Sesame	27,000	28,000	29,000
Kenaf	238,000	242,000	248,000
Cotton	128,000	131,000	134,000
Castor beans	41,000	42,000	43,000
Cassava	21,466,000	22,048,000	22,599,000
Sugarcane	27,200,000	27,412,000	28,097,000
Tobacco	53,000	54,000	55,000
Coconuts	827,209	827,209	827,209
Rubber	626,178	626,178	626,178
Wood products (1,000 m^3)	100,620	100,620	100,620
Livestock products:			
Cattle	54,098	54,099	54,099
Buffalo	178,432	178,432	178,432
Swine	370,765	370,765	370,765
Chicken & Duck	271,398	271,765	271,765

Note: * Adjusted according to past history and performance.

Source: Unpublished guidelines for the Sixth Five-Year Plan of the National Economic and Social Development Board and Ministry of Agriculture and Cooperatives, Bangkok, 1985.

Table 2.24: Projected agricultural production targets, 1991.

unit:ton

Commodities	Projected production targets		
	Low*	Medium	High*
Crops:			
Non-glutinous rice, paddy	13,737,000	15,498,000	16,051,000
Glutinous rice, paddy	5,739,000	5,739,000	5,739,000
Maize	4,194,000	5,646,000	5,092,000
Sorghum	422,530	503,000	565,921
Mung beans	464,300	484,000	496,100
Soy beans	338,600	388,000	434,000
Ground nuts	153,000	137,555	172,000
Sesame	28,000	32,000	33,000
Kenaf	242,000	155,107	266,000
Cotton	131,000	145,000	148,600
Castor beans	42,000	34,915	46,000
Cassava	22,048,000	24,257,000	24,863,000
Sugarcane	27,412,000	28,300,000	29,007,000
Tobacco	54,000	60,000	61,500
Coconuts	827,209	827,209	827,209
Rubber	626,178	626,178	626,178
Wood products (1,000 m^3)	427,976	427,976	427,976
Livestock products:			
Cattle	57,376	57,376	57,376
Buffalo	178,432	178,432	178,432
Swine	392,432	392,432	392,432
Chicken & Duck	301,398	301,398	301,398

Note: * Adjusted according to past history and performance.

Source: Unpublished guidelines for the Sixth Five-Year Plan of the National Economic and Social Development Board and Ministry of Agriculture and Cooperatives, Bangkok, 1985.

Table 2.25: Projected agricultural production targets, 1992.

unit:ton

Commodities	Projected production targets		
	Low*	Medium	High*
Crops:			
Non-glutinous rice, paddy	13,381,000	15,689,000	16,454,000
Glutinous rice, paddy	5,821,000	5,821,000	5,821,000
Maize	4,254,000	4,829,000	5,249,000
Sorghum	436,720	537,505	618,800
Mung beans	483,780	509,070	521,800
Soy beans	370,660	436,100	498,800
Ground nuts	153,000	165,000	176,000
Sesame	28,000	33,000	34,000
Kenaf	242,000	264,600	271,200
Cotton	131,000	148,600	152,300
Castor beans	42,000	46,000	47,000
Cassava	22,048,000	24,856,000	25,478,000
Sugarcane	27,412,000	28,521,000	29,234,000
Tobacco	54,000	61,500	63,000
Coconuts	827,209	827,209	827,209
Rubber	626,178	626,178	626,178
Wood products ($1,000\ m^3$)	528,660	528,660	528,660
Livestock products:			
Cattle	58,250	58,250	58,250
Buffalo	192,128	192,128	192,128
Swine	398,044	398,044	398,044
Chicken & Duck	311,541	311,541	311,541

Note: * Adjusted according to past history and performance.

Source: Estimation.

(1) To identify three levels of planning alternatives: at the beginning of the Sixth Five-Year Plan (1987); at the end of the Sixth Five-Year Plan (1991); and at the beginning of the Seventh Five-Year Plan (1992) when the three different levels of production targets (low, medium and high) change.

(2) To identify the impact of principal alternatives on the objectives as those levels to be emphasized in the Sixth Five-Year Plan period (1987-1991) and at the beginning of the following Five-Year Plan, (e.g. increasing the level of participation rates ... solution C).

(3) To estimate the impact of the drop in production targets on the optimum level of land and labor during the Sixth Five-Year Plan period (1987-1991) and at the beginning of the Seventh Five-Year Plan (1992) ... solution B. Details of alternative solutions are presented in Table 2.26 and 2.27.

Table 2.26: Alternative solutions to be analyzed.

Conditions	Solutions		
	A	B	C
1. Limit production targets	yes	no	yes
2. Improve production (e.g. new variety seeds)	yes	yes	yes
3. Growth of new land settlement, Type 5 at 1.5% and increase in irrigated area	yes	yes	yes
4. Low participation rates	yes	yes	no
5. High participation rates	no	no	yes

Table 2.27: Solutions' name.

Plan Periods	Level of Targets	Solutions' Name		
		A	B	C
1987	Low	A87L	-	C87L
	Medium	A87M	B87M	C87M
	High	A87H	-	C87H
1991	Low	A91L	-	C91L
	Medium	A91M	B91M	C91M
	High	A91H	-	C91H
1992	Low	A92L	-	C92L
	Medium	A92M	B92M	C92M
	High	A92H	-	C92H

3. Optimal Solution of the Model

This section discusses briefly the optimal conditions for the maximization of the objective function, subject to a set of constraints. The discussion will focus on the optimal production planning of crops and livestock. Emphasis is also put on land and labor utilization. The duality analysis, reflecting marginal valuation of the objective function if certain constraint are subject to change, will demonstrate the shadow prices of all relevent constraints.

3.1 Interpretation of the Shadow Price

Sets of shadow prices for land and labor constraints are presented below.

3.1.1 The opportunity cost (shadow price) of land in any region is greater than zero if the land is fully utilized. This means that the marginal revenue obtained from using an additional rai of land is greater than the amount available. Value of shadow price varies from region to region. Its value is higher if the quality of land and location are relatively high.

3.1.2 The opportunity cost of labor is also important. It reflects the marginal revenue obtained from using one more unit (man-hour) of labor in the production of an agricultural product. The production costs of crops and livestock already include labor costs valued at market wage rates. These rates deviate from region to region. For regions where the labor supply is fully employed, there will be a positive opportunity cost of labor. This opportunity cost should be added to the existing market wage if the shadow wage rate is to emerge. Nevertheless, in regions where labor is scarce, the shadow wage rate is higher than in other regions. Additional labor forces will then flow in from labor surplus regions to

regions where a shortage exists until the market wage rate is equal to the shadow wage rate under the optimal production plan. In this study we also specify the target level of production, based on the official estimation for the Sixth Plan (unpublished documents of NESDB and the Ministry of Agriculture and Cooperatives). Each optimal solution aims to reach the upper bounds of the production target.

3.2 Optimal Production Plan

This section presents, by region, optimal levels of crops, livestock, and tree crops which are consistent with national production targets covering the periods of 1987, 1991, and 1992. To make solutions more realistic, the lower limits of land devoted to various crops are imposed, based on historical data. The lowest possible levels of land under cultivation in the past 10 years were adopted here as the lower bounds for each production process.

The major alternative solution A will be discussed first, followed by discussion of solutions B and C.

3.2.1 Solution A

Nationally, all production of crops and livestock under Solution A, covering the period of 1987 to 1992, has reached all of the target constraints. Based on the optimum production solutions, the growth rates of agricultural products vary considerably among regions when all target constraints are considered. In the case of medium national targets, the South, West and North are among the regions that have the largest annual growth rates of non-glutinous rice. The production of glutinous rice increases over time in the Northeast. High rates of growth of maize production can be found in the East, the North and the Northeast. The

Northeastern region has high potential to produce sorghum. The North, Central Plains, and South also have high potential to produce Mungbeans.

The production of soybeans tends to focus in two regions, namely, the North and the Northeast, with annual growth rates of about 3 and 1.3 percent, respectively. A high rate of growth of groundnuts (16 percent) and a modest growth rate of kenaf (1.5 percent) can commonly be found in the Northeast. The growth rate of cotton is high in the Central Plains. Other regions show no progress with this crop. The North dominates the production of castor beans. It has an annual growth rate of about 16 percent. While the growth of cassava production is declining in the Northeast, the West has a high potential to reach up to 37 percent of the annual growth of production. The annual growth rates of sugarcane are small in the Central Plains and in the West, whereas in the Northeast the rate increases up to 15 percent annually.

Tobacco grows very rapidly in the North and Northeast. Woodlot production can be promoted in the Northeast with a rate of growth as high as 71 percent.

The West seems to be the area that favors the production of cattle, buffalo, swine, and poultry with growth rates of 10, 24, 31 and 33 percent, respectively. The other regions have negligible growth rates except the Northeast and the South, which could potentially support livestock industry (Table 3.2).

However, in models A87L and A87H, where different levels of production targets are imposed, the annual growth rates are slightly different from those discussed in model A87M above. For details of solutions, see Tables 3.1 and 3.3.

Table 3.1: Average rate of growth of agricultural production, Solution A (at low targets), 1987-1992. (A87L - A92L).

unit:percent

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains	East	West	South	
Crops:							
Non-glutinuous rice, paddy	1.89	1.43	0.27	0.33	0.42	4.36	1.29
Glutinous rice, paddy	1.24	0.00	0.00	552.27	-0.26	0.00	1.24
Maize	2.79	-0.07	0.11	23.17	2.42	-	2.21
Sorghum	0.00	169.67	0.00	-	-7.87	-	10.05
Mung beans	4.36	0.00	0.00	0.01	1.05	0.00	3.80
Soy beans	0.28	18.75	0.00	3.21	0.00	-	9.52
Sesame	0.75	-	0.00	-	-	-	0.62
Ground nuts	-0.81	6.60	0.00	0.00	0.00	0.00	0.68
Kenaf	-	0.28	-	-	-	-	0.28
Cotton	0.00	0.00	0.00	6.60	1.00	-	0.39
Castor beans	0.00	0.41	0.00	-	0.00	-	0.41
Cassava, raw	0.00	0.71	0.00	-0.01	0.00	-	0.45
Sugarcane	-1.02	0.00	-14.92	0.00	0.26	-	0.13
Tobacco	0.00	0.00	-	-	-	-	0.31
Coconuts	-	-	-	0.00	0.00	0.00	0.00
Rubber	-	-	-	0.00	-	0.00	0.00
Wood products	-	70.90	-	-	-	-	70.90
Livestock and livestock products:							
Cattle	0.00	0.00	0.00	0.00	9.96	0.00	1.28
Buffalo	0.00	1.81	0.00	0.00	0.00	0.00	1.28
Swine	0.00	3.41	0.00	0.00	0.00	-	1.22
Chicken & Ducks	0.00	-2.27	0.00	0.00	0.00	23.40	2.46

Source: Appendix Tables B.1 - B.3.

Table 3.2: Average rate of growth of agricultural production, Solution A (at medium targets), 1987-1992. (A87M - A92M).

unit:percent

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains	East	West	South	
Crops:							
Non-glutinuous rice, paddy	5.16	1.90	0.04	0.05	5.20	13.15	3.96
Glutinous rice, paddy	-2.75	4.33	0.00	0.00	-0.03	0.00	1.24
Maize	7.78	3.43	0.01	15.85	-13.52	-	3.56
Sorghum	0.00	19.06	0.00	-	0.00	-	6.54
Mung beans	3.42	0.00	19.51	-0.2	0.00	5.98	4.65
Soy beans	3.11	1.29	0.00	0.00	0.00	-	13.24
Sesame	3.59	-	0.00	-	-	-	2.97
Ground nuts	-2.39	16.26	0.00	0.00	0.00	0.00	1.31
Kenaf	-	1.56	-	-	-	-	1.53
Cotton	0.00	0.00	18.49	0.00	-9.05	-	2.24
Castor beans	15.67	-7.54	0.00	-	0.00	-	1.59
Cassava, raw	0.08	1.33	0.00	0.00	37.14	-	2.12
Sugarcane	-7.48	14.93	0.01	0.00	1.15	-	0.67
Tobacco	6.53	31.71	-	-	-	-	2.31
Coconuts	-	-	-	0.00	0.00	0.00	0.00
Rubber	-	-	-	0.00	-	0.00	0.00
Wood products	-	70.90	-	-	-	-	70.90
Livestock and livestock products:							
Cattle	0.00	0.00	0.00	0.00	9.96	0.00	1.27
Buffalo	0.00	-1.11	0.00	0.00	23.87	0.00	1.28
Swine	0.00	-3.99	0.00	0.00	30.98	-	1.24
Chicken & Ducks	0.00	2.39	0.00	0.00	33.07	16.77	2.46

Source: Appendix Tables B.4 - B.6.

Table 3.3: Average rate of growth of agricultural production, Solution A (at high targets), 1987-1992. (A87H - A92H).

unit:percent

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains	East	West	South	
Crops:							
Non-glutinuous rice, paddy	3.76	9.60	1.05	0.45	9.46	12.26	4.45
Glutinous rice, paddy	-6.00	5.45	-2.73	3.74	-16.51	-15.31	1.24
Maize	3.84	-0.84	-0.25	15.89	3.99	-	3.73
Sorghum	0.00	26.16	0.00	-	0.00	-	9.40
Mung beans	-5.77	384.56	0.00	-0.19	3.20	0.00	4.65
Soy beans	2.26	30.89	0.00	0.00	0.00	-	16.66
Sesame	3.44	-	0.00	-	-	-	2.97
Ground nuts	-0.86	16.21	0.00	0.00	0.00	0.00	2.14
Kenaf	-	1.56	-	-	-	-	1.56
Cotton	0.00	0.00	20.97	0.00	-10.12	-	2.28
Castor beans	17.08	-8.08	0.00	-	0.00	-	1.55
Cassava, raw	99.25	-2.49	27.28	0.01	2.23	-	2.12
Sugarcane	-8.64	15.57	3.71	0.00	0.20	-	0.67
Tobacco	-6.76	33.72	-	-	-	-	2.42
Coconuts	-	-	-	0.00	0.00	0.00	0.00
Rubber	-	-	-	0.00	-	0.00	0.00
Wood products	-	70.90	-	-	-	-	70.90
Livestock and livestock products:							
Cattle	0.00	0.00	0.00	0.00	9.96	0.00	1.28
Buffalo	0.00	0.00	0.00	0.00	10.24	0.00	1.28
Swine	0.00	0.00	0.00	0.00	7.14	-	1.24
Chicken & Ducks	0.47	0.00	0.00	0.00	374.87	23.40	2.46

Source: Appendix Tables B.7 - B.9.

3.2.2 Solution B

Alternative Solution B is analyzed to show the effects of dropping out the national agricultural production targets from the programming model. Comparison of alternative Solution B to alternative Solution A shows that the growth of production at national levels, except in the case of poultry, is below the production targets specified in Solution A. However, due to unlimited production target constraints, the optimum amounts of production of each commodity of Solution B are much lower than in solution A. (For details see Appendix Tables B.10 to B.12.)

When considering geographical distribution of the major commodities, the optimal solutions indicate that non-glutinous rice continues to expand in all regions. The Central Plains has the largest annual growth rate of non-glutinous rice while glutinous rice can only be expanded in the North. There, too, cattle, buffalo and poultry production have high potential growth rates. Swine production can be expanded at the annual rate of 3.4 percent in the Northeast. The major regional contributions to national production targets of poultry came from all regions, except the Central Plains, which showed no signs of growth during the study period.

3.2.3 Solution C

Solution C is very similar to Solution A. With the introduction of a higher participation rate, there is a higher projection of the economically active population. The patterns of annual growth rate of optimal production in Solution C are slightly higher than those in Solution A. Optimum Solution C indicates that the production reaches the national target restrictions. Four non-glutinous rice producing regions, the South, the Northeast, the West, and the North have relatively higher annual growth rates as

compared to the other regions. Growth rates of glutinous rice drop sharply in the East, the West, and the North, while the Northeast has the highest annual growth rate (6.9 percent) during 1987 to 1992. Maize continues to expand in the East and the North. Negative annual growth rates of maize can be found in the West and Northeast. Sorghum, soybeans, and kenaf have good potential to develop in the Northeast. Cotton, castor beans, and cassava demonstate high levels of growth in the West. Tobacco can only be expanded in the North, according to the optimum solutions.

Considering livestock production, the Northeast has annual growth rates of 5.5 and 3.4 percent for buffalo and swine, while poultry production drops more than 5 percent annually in this region. The West, the Optimal Solution C, has a high potential to expand cattle and poultry production at annual rates of 10 and 3 percent, respectively. Buffalo production drops more than 12 percent annually in the same region.

These discussions have focused only on the optimal solutions at medium targets. More details related to low and high production targets (Solutions A and C) can be found in Tables 3.1, 3.3, 3.5 and 3.7.

3.3 Optimum Pattern of Land Use

This section briefly discusses the optimum pattern of land use under different production alternatives. The presentation is limited only to the medium national production targets. Details of these solutions are presented in Appendix Table C.1 - Appendix Table C.146.

3.3.1 Solution A

At the national level, the programming results suggest that, in

Table 3.4: Average rate of growth of optimal agricultural production, Solution B (at medium targets), 1987-1992. (B87M - B92M).

unit:percent

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains	East	West	South	
Crops:							
Non-glutinuous rice, paddy	0.35	0.67	2.50	1.22	1.98	0.74	1.25
Glutinous rice, paddy	1.70	0.00	0.00	0.00	0.00	0.00	0.72
Maize	0.30	0.00	0.00	0.00	0.00	-	0.18
Sorghum	0.00	0.00	0.00	-	0.00	-	0.00
Mung beans	0.00	0.67	0.00	0.00	0.00	0.00	0.46
Soy beans	0.00	0.00	0.00	0.00	0.00	-	0.00
Sesame	0.00	-	0.00	-	-	-	0.00
Ground nuts	0.05	0.00	0.00	0.00	0.00	0.00	0.00
Kenaf	-	0.00	-	-	-	-	0.00
Cotton	0.00	-9.79	0.00	0.00	0.00	-	0.00
Castor beans	0.00	0.00	0.00	-	0.00	-	0.00
Cassava, raw	0.00	0.14	0.00	0.00	0.00	-	0.001
Sugarcane	0.00	0.00	-0.19	1.92	-2.78	-	-0.68
Tobacco	0.00	1.21	-	-	-	-	1.15
Coconuts	-	-	-	0.00	0.00	0.00	0.00
Rubber	-	-	-	0.00	-	0.00	0.00
Wood products	-	70.90	-	-	-	-	70.90
Livestock and livestock products:							
Cattle	5.06	0.00	0.00	0.00	0.00	0.00	1.28
Buffalo	4.32	0.00	0.00	0.00	0.00	0.00	1.28
Swine	0.00	3.41	0.00	0.00	0.00	-	1.23
Chicken & Ducks	6.71	38.44	0.00	23.00	4.02	3.67	9.98

Source: Appendix Tables B.10 - B.12.

Table 3.5: Average rate of growth of agricultural production, Solution C (at low targets), 1987-1992. (C87L - C92L).

unit:percent

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains	East	West	South	
Crops:							
Non-glutinuous rice, paddy	2.01	1.44	0.29	0.05	0.42	4.35	1.29
Glutinous rice, paddy	1.58	0.00	0.00	380.09	-0.26	0.00	1.24
Maize	2.84	0.00	0.10	5.31	2.96	-	2.21
Sorghum	0.00	156.09	0.00	-	39.44	-	10.05
Mung beans	4.37	0.00	0.00	0.06	0.00	0.00	3.80
Soy beans	0.28	18.78	0.00	-1.78	0.00	-	9.52
Sesame	0.75	-	0.00	-	-	-	0.62
Ground nuts	-0.42	5.31	0.00	0.00	0.00	0.00	0.68
Kenaf	-	0.28	-	-	-	-	0.28
Cotton	0.00	0.00	0.00	31.26	-7.37	-	0.39
Castor beans	0.00	1.14	0.00	-	0.00	-	0.41
Cassava, raw	0.00	0.00	0.00	0.03	0.00	-	0.45
Sugarcane	-1.02	0.00	0.81	0.00	0.26	-	0.13
Tobacco	0.41	0.00	-	-	-	-	0.31
Coconuts	-	-	-	0.00	0.00	0.00	0.00
Rubber	-	-	-	0.00	-	0.00	0.00
Wood products	-	70.90	-	-	-	-	70.90
Livestock and livestock products:							
Cattle	0.00	0.00	0.00	0.00	9.96	0.00	1.28
Buffalo	0.00	5.56	0.00	0.00	-12.01	0.00	1.27
Swine	0.00	3.41	0.00	0.00	0.00	-	1.23
Chicken & Ducks	-2.55	3.25	0.00	0.00	0.00	16.77	2.46

Source: Appendix Tables B.13 - B.15.

Table 3.6: Average rate of growth of agricultural production, Solution C (at medium targets), 1987-1992. (C87M - C92M).

unit:percent

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains	East	West	South	
Crops:							
Non-glutinuous rice, paddy	3.50	8.28	0.49	0.40	4.16	13.14	3.96
Glutinous rice, paddy	-3.21	6.87	0.00	-9.54	-0.26	0.00	1.24
Maize	7.49	-3.41	0.54	19.05	-12.62	-	1.24
Sorghum	0.00	19.06	0.00	-	0.00	-	6.54
Mung beans	5.15	0.00	1.93	-0.02	0.00	5.98	4.65
Soy beans	0.28	25.47	0.00	-2.69	0.00	-	13.24
Sesame	3.59	-	0.00	-	-	-	2.97
Ground nuts	2.22	0.03	0.00	0.00	0.00	0.00	1.31
Kenaf	-	1.56	-	-	-	-	1.56
Cotton	0.00	0.00	0.00	-10.07	40.85	-	2.24
Castor beans	0.00	-7.54	0.00	-	23.39	-	1.59
Cassava, raw	0.78	2.23	0.00	-0.02	19.88	-	2.12
Sugarcane	0.31	0.00	0.81	0.00	1.22	-	0.67
Tobacco	3.01	0.00	-	-	-	-	2.31
Coconuts	-	-	-	0.00	0.00	0.00	0.00
Rubber	-	-	-	0.00	-	0.00	0.00
Wood products	-	70.90	-	-	-	-	70.90
Livestock and livestock products:							
Cattle	0.00	0.00	0.00	0.00	9.96	0.00	1.28
Buffalo	0.00	5.56	0.00	0.00	-12.01	0.00	1.27
Swine	0.00	3.41	0.00	0.00	0.00	-	1.23
Chicken & Ducks	0.00	-5.19	0.00	0.00	3.11	0.00	2.46

Source: Appendix Tables B.14 - B.16.

Table 3.7: Average rate of growth of agricultural production, Solution C (at high targets), 1987-1992 (C87H - C92H).

unit:percent

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains	East	West	South	
Crops:							
Non-glutinuous rice, paddy	2.14	12.04	0.38	0.41	10.31	13.15	4.45
Glutinous rice, paddy	11.49	4.88	0.00	0.00	-9.35	0.00	1.24
Maize	-5.45	-2.45	0.29	16.69	-15.53	-	3.73
Sorghum	0.00	26.16	0.00	-	0.00	-	9.40
Mung beans	-0.33	113.23	19.00	0.02	0.00	0.00	4.65
Soy beans	-1.99	30.91	0.00	2.69	0.00	-	16.71
Sesame	0.00	-	0.00	-	-	-	2.97
Ground nuts	-2.96	0.00	0.00	0.00	0.00	0.00	2.14
Kenaf	-	1.56	-	-	-	-	1.56
Cotton	0.00	0.00	4.96	-11.29	-0.07	-	2.28
Castor beans	17.08	-8.09	0.00	-	0.00	-	1.55
Cassava, raw	-10.47	-0.11	0.00	-0.03	41.08	-	2.12
Sugarcane	18.21	0.65	20.97	4.86	1.40	-	0.67
Tobacco	11.38	33.72	-	-	-	-	2.42
Coconuts	-	-	-	0.00	0.00	0.00	0.00
Rubber	-	-	-	0.00	-	0.00	0.00
Wood products	-	70.90	-	-	-	-	70.90
Livestock and livestock products:							
Cattle	0.00	0.00	0.00	0.00	9.96	0.00	1.28
Buffalo	0.00	-2.81	0.00	0.00	434.37	2.51	1.28
Swine	0.00	-3.99	0.00	0.00	30.98	-	1.23
Chicken & Ducks	0.00	-0.16	0.00	0.00	3.11	16.76	2.46

Source: Appendix Tables B.19 - B.21.

most cases, land will be more fully utilized during the end of the Sixth Plan and the beginning of the Seventh Plan. For example, during the wet season the utilization of land Types II, III and IV are about 2 to 6 percent higher at the end than at the beginning. In most cases, lands are utilized up to 100 percent in both the wet and dry seasons, especially land Types II and IV (Table 3.8).

Table 3.8: Optimum pattern of land use for agricultural production in the Whole Kingdom at medium targets, 1987-1992, (Solution A).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)		
	1987	1991	1992	1987	1991	1992
Rainy Season						
Type I	2,296	2,120	12,037	100.00	92.36	88.72
Type II	16,093	18,863	8,702	85.86	87.78	84.40
Type III	24,858	25,318	21,996	72.59	80.21	71.10
Type IV	18,781	19,095	19,098	98.40	100.00	100.00
Type V upland	9,240	9,807	9,954	87.30	87.30	87.30
Type V lowland	13,832	12,072	14,527	79.84	65.66	77.84
Dry Season						
Type I	0	0	0	0.00	0.00	0.00
Type II	4,051	4,736	4,857	95.31	100.00	100.00
Type III	0	0	0	0.00	0.00	0.00
Type IV	14,981	18,923	18,926	78.49	99.10	99.10
Type V upland	4,293	6,217	7,881	40.56	55.34	69.12
Type V lowland	0	0	0	0.00	0.00	0.00

Source: Appendix Tables C.8, C.29 and C.50.

An examination of the optimum patterns of land use in each region reveals that the degree of scarcity of land in each region increases from the beginning to the end of the Sixth Plan.

In the North, land Types IV and V (upland) are exhausted. The shadow prices in 1991 are about 280 baht per rai as compared to about 48 baht per rai in 1987. The shadow prices of land Types II and IV in the dry season of 1991 are 278 and 27 baht per rai, respectively (Table 3.9).

Land Type IV during the wet season in the Northeast is fully utilized in both 1991 and 1992 with the shadow prices of 257 and 250 baht per rai respectively. Lands Types II, IV and V (upland) are also fully utilized, especially during the years 1991 and 1992 (Table 3.10).

The degree of scarcity in several types of land is critical in the Central Plains, East, and West, and South. The scarcity of land in most cases is deteriorating at the end of the Sixth Plan. For example, land Types II, III and IV of these regions are fully utilized in wet season. Land Type II is also utilized up to 100 percent during the dry season.

In summary, the results have shown that most types of land are fully utilized in all of the solutions considered. Paddy land, which includes land Types I, II, III and V (lowland) is nearly fully utilized during the study period. Land used to grow field crops (land Types IV and IV (upland)) is also fully utilized during the wet season and nearly fully utilized during the dry season (Table 3.11 - Table 3.14).

3.3.2 Solution B

Since there are no production constraints imposed under this

Table 3.9: Optimum pattern of land use for agricultural production in the North at medium targets, 1987-1992, (Solution A).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	1,285	1,109	1,026	100.00	86.34	79.84	32.64	0.00	0.00
Type II	4,395	5,158	4,783	85.34	86.68	77.77	0.00	0.00	0.00
Type III	3,415	2,789	2,337	85.06	86.74	77.52	0.00	0.00	0.00
Type IV	4,539	4,534	4,534	100.00	100.00	100.00	48.16	282.53	274.08
Type V upland	3,955	4,198	4,261	100.00	100.00	100.00	64.03	321.77	321.48
Type V lowland	5,651	4,746	5,031	87.63	69.35	72.41	0.00	0.00	0.00
Dry Season									
Type I	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type II	502	580	600	100.00	100.00	100.00	70.14	278.82	273.43
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	3,653	4,534	4,534	80.49	100.00	100.00	0.00	27.85	27.64
Type V upland	0	891	2,312	0.00	21.24	54.27	0.00	0.00	0.00
Type V low land	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00

Source: Appendix Tables C.9, C.30 and C.51.

Table 3.10: Optimum pattern of land use for agricultural production in the Northeast at medium targets, 1987-1992, (Solution A).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	2,003	2,514	2,497	67.60	69.99	66.60	0.00	0.00	0.00
Type III	17,049	19,102	16,515	66.72	76.64	66.68	0.00	0.00	0.00
Type IV	8,436	8,741	8,741	96.51	100.00	100.00	0.00	257.37	250.27
Type V upland	2,884	3,061	3,107	100.00	100.00	100.00	0.00	0.00	0.00
Type V lowland	5,671	4,208	6,331	71.46	49.95	74.05	0.00	0.00	0.00
Dry Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	236	286	298	100.00	100.00	100.00	49.93	209.88	202.99
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	6,084	8,741	8,741	69.61	100.00	100.00	0.00	78.71	82.32
Type V upland	2,884	3,061	3,107	100.00	100.00	100.00	28.14	447.84	441.81
Type V low land	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00

Source: Appendix Tables C.10, C.31 and C.52.

Table 3.11: Optimum pattern of land use for agricultural production in the Central Plains at medium targets, 1987-1992, (Solution A).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	1,011	1,011	1,011	100.00	100.00	100.00	424.83	261.73	266.07
Type II	5,587	6,022	6,100	100.00	97.97	97.03	119.54	0.00	0.00
Type III	908	348	208	100.00	100.00	100.00	236.77	105.82	106.95
Type IV	2,129	2,143	2,146	100.00	100.00	100.00	62.26	205.90	193.19
Type V upland	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type V lowland	-	-	-	-	-	-	-	-	-
Dry Season									
Type I	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type II	2,473	2,721	2,783	100.00	100.00	100.00	87.09	263.62	234.95
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	1,712	2,143	2,146	80.40	100.00	100.00	0.00	28.72	29.81
Type V upland	0	50	65	0.00	3.49	4.46	0.00	0.00	0.00
Type V low land	-	-	-	-	-	-	-	-	-

Source: Appendix Tables C.11, C.32 and C.53.

Table 3.12: Optimum pattern of land use for agricultural production in the East at medium targets, 1987-1992, (Solution A).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	989	991	998	65.19	61.13	60.57	0.00	0.00	0.00
Type III	2,214	2,110	2,084	100.00	100.00	100.00	38.69	34.87	37.56
Type IV	2,350	2,350	2,350	100.00	100.00	100.00	48.66	297.41	188.32
Type V upland	1,738	1,845	1,872	100.00	100.00	100.00	45.44	277.88	269.51
Type V lowland	722	766	778	100.00	100.00	100.00	58.51	94.26	93.35
Dry Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	453	484	492	100.00	100.00	100.00	51.04	375.62	357.93
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	2,336	2,309	2,309	99.39	98.25	98.25	0.00	0.00	0.00
Type V upland	746	1,511	1,683	42.90	81.92	89.88	0.00	0.00	0.00
Type V low land	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00

Source: Appendix Tables C.12, C.33 and C.54.

Table 3.13: Optimum pattern of land use for agricultural production in the West at medium targets, 1987-1992, (Solution A).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	1,600	1,736	1,770	100.00	100.00	100.00	38.24	139.69	132.19
Type III	359	223	189	100.00	100.00	100.00	63.58	156.37	152.87
Type IV	1,196	1,196	1,196	100.00	100.00	100.00	70.07	247.04	240.05
Type V upland	663	704	714	100.00	100.00	100.00	94.41	326.86	318.48
Type V lowland	412	437	444	100.00	100.00	100.00	83.99	221.66	213.81
Dry Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	387	420	428	100.00	100.00	100.00	312.46	833.93	823.65
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	1,296	1,196	1,196	100.00	100.00	100.00	49.99	272.88	264.23
Type V upland	663	704	714	100.00	100.00	100.00	77.27	290.79	283.09
Type V low land	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00

Source: Appendix Tables C.13, C.34 and C.55.

Table 3.14: Optimum pattern of land use for agricultural production in the South at medium targets, 1987-1992, (Solution A).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	1,520	2,442	2,555	76.30	100.00	100.00	0.00	237.06	225.09
Type III	914	747	634	76.38	100.00	100.00	0.00	202.94	193.99
Type IV	131	131	131	100.00	100.00	100.00	199.18	391.66	384.72
Type V upland	-	-	-	-	-	-	-	-	-
Type V lowland	1,375	1,915	1,943	76.23	100.00	100.00	0.00	241.59	230.09
Dry Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	0	244	256	0.00	100.00	100.00	0.00	285.06	269.93
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type V upland	-	-	-	-	-	-	-	-	-
Type V low land	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00

Source: Appendix Tables C.14, C.35 and C.56.

model, the optimum solutions eventually represent typical programming solutions. Optimum patterns of land use at the national level indicate that none of the types of land which are suitable to grow paddy are fully utilized in the wet season in most solutions. However in dry season, land Type II (irrigated paddy land) is fully utilized during the study period. These optimum patterns of land use at national level are very similar to the regional level patterns.

As to optimum patterns of land use for field crops at regional level, land Types IV and V (upland) are fully utilized in the wet season. The shadow prices of field crop land range from 0 to 3,300 baht per rai. The details of regional solutions are presented in Tables 3.15 to 3.21.

3.3.3 Solution C

The only difference between Solution C and Solution A is the value of the right hand side (RHS) of the labor. The RHS under Alternative Solution C is higher than that of Solution A due to the assumption of high labor force participation rates. According to the optimum programming solutions in general, the patterns of land use under Solution C are similar to those in Solution A.

For the whole kingdom, the utilization of paddy land ranges from 79 to 100 percent during wet and dry seasons. The amount of land used is slightly greater at the end of the Sixth Plan. Field crop land is utilized ranging from 87 to 100 percent in the wet season. In the dry season the new settlement land (land Type V upland) is up to 71 percent in use at the end of the Plan as compared to 41 percent at the beginning of the Plan (Table 3.22).

In the North, the field crop lands (land Types IV and V (upland)) are fully utilized in both seasons, except land Type V (upland) in

Table 3.15: Optimum pattern of land use for agricultural production in the Whole Kingdom at medium targets, 1987-1992, (Solution B).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)		
	1987	1991	1992	1987	1991	1992
Rainy Season						
Type I	1,011	2,120	1,011	44.03	92.36	44.03
Type II	16,321	18,391	17,891	86.78	85.59	80.74
Type III	24,269	24,528	21,478	70.87	77.70	69.51
Type IV	19,086	19,095	19,098	100.00	100.00	100.00
Type V upland	9,240	9,807	9,954	87.30	87.30	87.30
Type V lowland	12,426	13,501	12,397	71.73	73.43	66.43
Dry Season						
Type I	0	0	0	0.00	0.00	0.00
Type II	4,251	4,736	4,857	100.00	100.00	100.00
Type III	0	0	0	0.00	0.00	0.00
Type IV	15,822	15,611	15,663	82.90	81.75	82.01
Type V upland	4,908	5,232	5,316	46.37	46.58	46.62
Type V lowland	0	0	0	0.00	0.00	0.00

Source: Appendix Tables C.64, C.71 and C.78.

Table 3.16: Optimum pattern of land use for agricultural production in the North at medium targets, 1987-1992, (Solution B).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	0	1,109	0	0.00	86.34	0.00	0.00	0.00	0.00
Type II	4,395	5,158	4,783	85.34	86.68	77.77	0.00	0.00	0.00
Type III	3,415	2,789	2,337	85.06	86.74	77.52	0.00	0.00	0.00
Type IV	4,539	4,534	4,534	100.00	100.00	100.00	3,220.84	1,411.70	3,220.84
Type V upland	3,955	4,198	4,261	100.00	100.00	100.00	3,317.84	1,508.70	3,317.84
Type V lowland	4,929	5,937	5,391	76.43	86.74	77.59	0.00	0.00	0.00
Dry Season									
Type I	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type II	502	580	600	100.00	100.00	100.00	3,210.22	1,378.86	3,210.22
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	1,923	1,704	1,753	42.37	37.59	38.67	0.00	0.00	0.00
Type V upland	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type V low land	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00

Source: Appendix Tables C.65, C.72 and C.79.

Table 3.17: Optimum pattern of land use for agricultural production in the Northeast at medium targets, 1987-1992, (Solution B).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	2,003	2,745	2,497	67.60	76.42	66.00	0.00	0.00	0.00
Type III	17,095	19,102	16,538	66.90	76.64	66.77	0.00	0.00	0.00
Type IV	8,741	8,741	8,741	100.00	100.00	100.00	2,607.30	2,607.30	2,607.30
Type V upland	2,884	3,061	3,107	100.00	100.00	100.00	0.00	0.00	0.00
Type V lowland	5,390	5,637	5,390	67.90	66.91	63.03	0.00	0.00	0.00
Dry Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	236	286	298	100.00	100.00	100.00	4,052.55	1,131.55	4,052.56
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	8,741	8,741	8,741	100.00	100.00	100.00	75.73	75.73	75.73
Type V upland	2,884	3,061	3,107	100.00	100.00	100.00	2,934.90	2,934.90	2,934.90
Type V low land	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00

Source: Appendix Tables C.66, C.73 and C.80.

Table 3.18: Optimum pattern of land use for agricultural production in the Central Plains at medium targets, 1987-1992, (Solution B).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	1,011	1,011	1,011	100.00	100.00	100.00	2,454.16	2,179.61	495.71
Type II	5,587	5,877	5,948	100.00	95.62	94.62	274.56	0.00	0.00
Type III	908	348	208	100.00	100.00	100.00	1,046.67	772.12	424.47
Type IV	2,129	2,143	2,146	100.00	100.00	100.00	3,397.89	2,845.78	2,848.78
Type V upland	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type V lowland	-	-	-	-	-	-	-	-	-
Dry Season									
Type I	1,011	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type II	2,473	2,721	2,783	100.00	100.00	100.00	4,708.54	4,433.99	4,433.99
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	1,712	1,719	1,723	80.40	80.24	80.27	0.00	0.00	0.00
Type V upland	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type V low land	-	-	-	-	-	-	-	-	-

Source: Appendix Tables C.67, C.74 and C.81.

Table 3.19: Optimum pattern of land use for agricultural production in the East at medium targets, 1987-1992, (Solution B).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	1,484	1,571	1,588	97.79	96.88	96.41	0.00	0.00	0.00
Type III	1,709	1,556	1,838	77.21	73.77	88.19	0.00	0.00	0.00
Type IV	2,350	2,350	2,350	100.00	100.00	100.00	2,799.61	2,511.69	2,511.68
Type V upland	1,738	1,845	1,872	100.00	100.00	100.00	2,098.85	1,867.17	1,867.18
Type V lowland	705	740	433	97.66	96.56	55.71	0.00	0.00	0.00
Dry Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	453	484	492	100.00	100.00	100.00	3,340.08	3,318.18	3,364.78
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	2,350	2,350	2,350	100.00	100.00	100.00	254.21	254.21	254.21
Type V upland	1,361	1,468	1,495	78.30	79.55	79.85	0.00	0.00	0.00
Type V low land	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00

Source: Appendix Tables C.68, C.75 and C.82.

Table 3.20: Optimum pattern of land use for agricultural production in the West at medium targets, 1987-1992, (Solution B).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	1,333	1,219	1,178	83.32	70.25	66.53	0.00	0.00	0.00
Type III	229	177	85	63.72	79.49	45.06	0.00	0.00	0.00
Type IV	1,196	1,196	1,196	100.00	100.00	100.00	1,429.66	1,307.77	1,305.50
Type V upland	663	704	714	100.00	100.00	100.00	1,631.65	1,614.78	1,612.50
Type V lowland	227	0	0	55.11	0.00	0.00	0.00	0.00	0.00
Dry Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	387	420	428	100.00	100.00	100.00	2,857.62	2,655.56	2,653.26
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	1,096	1,096	1,096	91.63	91.63	91.63	0.00	0.00	0.00
Type V upland	663	704	714	100.00	100.00	100.00	122.08	0.00	0.00
Type V low land	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00

Source: Appendix Tables C.69, C.76 and C.83

Table 3.21: Optimum pattern of land use for agricultural production in the South at medium targets, 1987-1992, (Solution B).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	1,520	1,821	1,897	76.30	74.56	74.56	0.00	0.00	0.00
Type III	914	556	472	76.38	74.46	74.45	0.00	0.00	0.00
Type IV	131	131	131	100.00	100.00	100.00	239.30	239.30	239.30
Type V upland	-	-	-	-	-	-	-	-	-
Type V lowland	1,176	1,188	1,184	65.18	62.04	60.94	0.00	0.00	0.00
Dry Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	199	244	256	100.00	100.00	100.00	3,799.99	3,799.99	3,799.99
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type V upland	-	-	-	-	-	-	-	-	-
Type V low land	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00

Source: Appendix Tables C.70, C.77 and C.84.

Table 3.22: Optimum pattern of land use for agricultural production in the Whole Kingdom at medium targets, 1987-1992, (Solution C).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)		
	1987	1991	1992	1987	1991	1992
Rainy Season						
Type I	2,296	2,120	2,037	100.00	92.36	88.72
Type II	16,136	18,863	18,743	85.79	87.78	84.59
Type III	25,140	25,318	21,966	73.41	80.21	71.10
Type IV	18,778	19,095	19,098	98.39	100.00	100.00
Type V upland	9,240	9,807	9,954	87.30	87.30	87.30
Type V lowland	13,737	15,959	17,267	79.29	86.80	92.52
Dry Season						
Type I	0	0	0	0.00	0.00	0.00
Type II	4,051	4,736	4,857	95.31	100.00	100.00
Type III	0	0	0	0.00	0.00	0.00
Type IV	14,942	18,355	18,392	78.29	96.12	96.30
Type V upland	4,335	6,510	8,091	40.96	57.95	70.96
Type V lowland	0	0	0	0.00	0.00	0.00

Source: Appendix Tables C.92, C.113 and C.134.

the dry season. Paddy lands are not fully utilized during the year except land Type II in the dry season. Shadow prices of land indicate a higher level of scarcity toward the beginning of the Seventh Plan.

The optimum pattern of paddy land use in the Northeast is similar to that in the North. All land types suitable to grow field crops are fully utilized in both seasons. The shadow prices of upland areas in the wet season are slightly higher than those in the North.

During the two seasons in the Central Plains, only land Type IV in the dry season are not fully utilized during the study period. In the East, all land types except land Type II in the wet season and Type V (upland) are fully utilized.

In the West, all types of land are fully utilized in both seasons. The shadow prices of all types of land at the end of the Sixth Plan are about double the shadow prices at the beginning. This situation also occurs in the South. All types of land are also fully utilized in the years 1991 and 1992 in both wet and dry seasons.

In conclusion, it is clear that the patterns of optimum land use consistently show that all types of land are used intensively in order to achieve the proposed national targets. But when the targets are relaxed, the degrees of land use for agricultural production drop considerably, and production of several crops also drops below the national targets in the Sixth Plan. If the proposed targets are to be maintained, the strategies related to land (e.g. expansion of small irrigation, new improved seeds, and other technology packages) have to be implemented seriously to increase the intensity of existing land use.

Table 3.23: Optimum pattern of land use for agricultural production in the North at medium targets, 1987-1992, (Solution C).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	1,285	1,101	1,026	100.00	86.34	79.84	35.97	0.00	0.00
Type II	4,395	5,158	4,783	85.34	86.68	77.77	0.00	0.00	0.00
Type III	3,415	2,789	2,337	85.06	86.74	77.52	0.00	0.00	0.00
Type IV	4,539	4,534	4,534	100.00	100.00	100.00	33.67	145.21	130.97
Type V upland	3,955	4,198	4,261	100.00	100.00	100.00	48.09	170.76	155.10
Type V lowland	5,835	4,825	5,552	90.53	70.50	79.91	0.00	0.00	0.00
Dry Season									
Type I	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type II	502	580	600	100.00	100.00	100.00	55.65	149.72	137.06
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	3,603	4,534	4,534	79.38	100.00	100.00	0.00	24.42	24.07
Type V upland	0	1,126	2,565	0.00	26.82	60.20	0.00	0.00	0.00
Type V low land	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00

Source: Appendix Tables C.93, C.114 and C.135.

Table 3.24: Optimum pattern of land use for agricultural production in the Northeast at medium targets, 1987-1992, (Solution C).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	2,003	2,514	2,497	67.60	69.99	66.60	0.00	0.00	0.00
Type III	17,330	19,105	16,515	67.82	76.64	66.68	0.00	0.00	0.00
Type IV	8,433	8,741	8,741	96.48	100.00	100.00	0.00	144.59	133.49
Type V upland	2,884	3,061	3,107	100.00	100.00	100.00	0.00	298.33	0.00
Type V lowland	5,390	8,016	8,550	67.90	95.15	100.00	0.00	0.00	12.99
Dry Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	236	286	298	100.00	100.00	100.00	48.92	107.88	97.99
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	6,081	8,741	8,741	69.57	100.00	100.00	0.00	76.63	81.51
Type V upland	2,884	3,061	3,107	100.00	100.00	100.00	28.14	0.00	284.21
Type V low land	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00

Source: Appendix Tables C.94, C.115 and C.136.

Table 3.25: Optimum pattern of land use for agricultural production in the Central Plains at medium targets, 1987-1992, (Solution C).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	1,011	1,011	1,011	100.00	100.00	100.00	422.77	277.91	274.64
Type II	5,587	6,022	6,100	100.00	97.97	97.03	112.89	0.00	0.00
Type III	908	348	208	100.00	100.00	100.00	231.32	110.06	109.21
Type IV	2,129	2,143	2,146	100.00	100.00	100.00	59.65	23.46	63.91
Type V upland	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type V lowland	-	-	-	-	-	-	-	-	-
Dry Season									
Type I	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type II	2,473	2,721	2,783	100.00	100.00	100.00	75.89	34.43	4.42
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	1,712	1,575	1,571	80.40	73.49	73.20	0.00	0.00	0.00
Type V upland	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type V low land	-	-	-	-	-	-	-	-	-

Source: Appendix Tables C.95, C.116 and C.137.

Table 3.26: Optimum pattern of land use for agricultural production in the East at medium targets, 1987-1992, (Solution C).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	1,031	991	1,039	67.98	61.13	63.06	0.00	0.00	0.00
Type III	2,214	2,110	2,084	100.00	100.00	100.00	34.27	35.85	35.29
Type IV	2,350	2,350	2,350	100.00	100.00	100.00	26.39	141.76	122.14
Type V upland	1,738	1,845	1,872	100.00	100.00	100.00	31.06	141.69	127.57
Type V lowland	722	766	778	100.00	100.00	100.00	51.95	68.60	65.77
Dry Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	453	484	492	100.00	100.00	100.00	10.09	149.05	126.49
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	2,350	2,309	2,350	100.00	98.25	100.00	0.00	0.00	3.32
Type V upland	788	1,620	1,705	45.36	87.80	91.06	0.00	0.00	0.00
Type V low land	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00

Source: Appendix Tables C.96, A.117 and C.138.

Table 3.27: Optimum pattern of land use for agricultural production in the West at medium targets, 1987-1992, (Solution C).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	1,600	1,736	1,770	100.00	100.00	100.00	28.54	71.41	61.78
Type III	359	223	189	100.00	100.00	100.00	55.56	111.85	99.05
Type IV	1,196	1,196	1,196	100.00	100.00	100.00	58.90	141.41	130.81
Type V upland	663	704	714	100.00	100.00	100.00	80.04	190.67	176.54
Type V lowland	412	437	444	100.00	100.00	100.00	74.15	147.32	132.06
Dry Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	387	420	428	100.00	100.00	100.00	281.90	552.15	522.73
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	1,196	1,196	1,196	100.00	100.00	100.00	35.99	140.35	126.96
Type V upland	663	704	714	100.00	100.00	100.00	64.07	165.69	152.71
Type V low land	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00

Source: Appendix Tables C.97, C.118 and C.139.

Table 3.28: Optimum pattern of land use for agricultural production in the South at medium targets, 1987-1992, (Solution C).

Land Type	Land use (1,000 rai)			Percent of total land Available (%)			Shadow price of land (Baht/rai)		
	1987	1991	1992	1987	1991	1992	1987	1991	1992
Rainy Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	1,520	2,442	2,555	76.30	100.00	100.00	0.00	50.82	42.43
Type III	914	747	634	76.38	100.00	100.00	0.00	37.43	30.75
Type IV	131	131	131	100.00	100.00	100.00	187.28	278.88	267.19
Type V upland	-	-	-	-	-	-	-	-	-
Type V lowland	1,375	1,915	1,943	76.23	100.00	100.00	0.00	58.60	50.47
Dry Season									
Type I	-	-	-	-	-	-	-	-	-
Type II	0	244	256	0.00	100.00	100.00	0.00	77.12	66.92
Type III	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type IV	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Type V upland	-	-	-	-	-	-	-	-	-
Type V low land	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00

Source: Appendix Tables C.98, C.119 and C.140.

4. OPTIMAL PATTERN OF LABOR USE

4.1 Solution A - 1987

4.1.1 Whole Kingdom

Alternatives A87L, A87M and A87H are analyzed to demonstrate the effects of changes in national production targets at low, medium and high levels at the beginning of the Sixth Five-Year Plan (1987). A comparison of the results of the three submodels shows that high production targets resulting from the favorable demand for farm products have had little effect on employment. Under conditions of these three alternatives, the peak total demand for labor at national level varies from 76-77 percent during the wet season to 29-30 percent during the dry season. About 4.0-4.1 million people remained idle during the peak month of November. The idle labor increases to 12.4-12.5 million during the peak month of May. (Table 4.1.)

4.1.2 North

Table 4.1 also demonstrates the optimum patterns of labor utilization according to different alternatives in 1987. Table 4.1 illustrates that all the economically active rural population is employed up to 99 percent under A87L, a figure which increases to 100 percent under alternatives A87L and A87H. As a result, the supply of labor in the two alternatives is fully utilized, and the shadow price (opportunity cost) of labor is positive. This is equal to marginal revenue from the use one more unit of man-hour in all production activities. Labor costs of different regions have already been included in the optimizing process. Hence, in regions where available labor has been fully utilized, the opportunity cost is positive. As mentioned in the previous section, shadow prices reflects the scarcity of labor of that

Table 4.1: Utilization of labor in producing agricultural products during the peak months, classified by region, Solution A, 1987.

Region	Low target (A87L)			Medium target (A87M)			High target (A87H)		
	use	idle	% use	use	idle	% use	use	idle	% use
Whole Kingdom									
May	5.2	12.5	29.46	5.3	12.41	30.09	5.3	12.4	29.89
November	13.6	4.1	76.88	13.7	4.0	77.43	13.7	4.0	77.19
North									
May	1.3	3.2	29.31	1.3	3.2	29.80	1.4	3.2	30.39
December	4.5	0.01	99.72	4.6	0.0	100.00 (1.10)*	4.5	0.0	100.00 (1.04)*
Northeast									
May	2.1	5.6	27.40	2.1	5.7	27.13	2.0	5.7	26.26
November	7.7	0.1	98.68	7.7	0.0	100.00	7.7	10.0	100.00 (1.68)*
Central Plains									
April	0.8	0.0	100.00 (5.63)*	0.8	0.0	100.00 (5.63)*	0.8	0.0	100.00 (5.63)*
November**	0.8	0.0	100.00	0.8	0.0	100.00 (5.63)*	0.8	0.0	100.00 (6.69)*
East									
May	0.5	0.5	48.87	0.5	0.5	50.10	0.5	0.5	50.10
November**	1.0	0.0	100.00	1.0	0.0	100.00 (2.05)*	1.0	0.0	100.00 (2.93)*
West									
May	0.3	0.6	33.77	0.3	0.6	38.11	0.4	0.6	42.19
November	0.6	0.3	64.11	0.7	0.3	69.01	0.7	0.2	74.86
South									
March	1.3	1.2	53.55	1.3	1.1	53.44	1.5	0.9	61.20
October	1.0	1.4	41.57	1.0	1.4	41.46	1.1	1.3	46.90

Note: *Shadow prices of labor are in parenthesis.
**More than one peak month.

Source: Appendix Tables D.1 - D.21.

region in one period of time. According to the alternative solutions of A87M and A87H, opportunity costs of labor are more than one baht per hour during the peak month of December. However, during the peak month of the dry season (May), the rural people in this region used up to 30 percent.

4.1.3 Northeast

The seasonality of employment can be observed under the three alternatives of the agricultural production targets in 1987. The months of peak demand are May and November. The economically active rural population are utilized ranging from 98 to 100 percent (in November). As a result, the number of used laborers can be as high as 100 percent. This full utilization of labor in the region may be misleading. According to the models, about 1.1 million people (about 14 percent of the available labor in the region) are mobilized in the Central Region in November due to the heavy shortage of labor in that period.[1] The models assumed the mobilization only of labor from the Northeast to the Central regions due to wage differentials.[2] Hence, there may be an over-estimation of the number of migrants from the Northeast since the models do not allow for the potential mobilization of migrants from any other regions to the Central region (Central Plains, East and West) (Table 4.1).

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[1] The solutions to labor use in the Northeast have already taken into account the number of rural people who migrate out to the Central regions. This results in a high percentage of labor utilization during the month when migration has occured. This applies to all solutions for the Northeast.

[2] The shadow prices during the peak months range from 5-6 baht per hour in the Central Plains as compared to 0-1 baht per hour in the Northeast.

4.1.4 Central Plains

Table 4.1 shows that utilization of labor would reach 100 percent in April and November according to results of analyses conducted for alternatives A87L, A87M, and A87H. The shadow prices range from 5.63 to 6.69 baht per hour. These cause a large number of rural people in the Northeast to migrate to the Central Plains. The level of labor utilization throughout the year is highest in the Central Plains under all optimum conditions being considered in this study.

4.1.5 East

Labor utilization in the East during the peak months is similar to that in the Central Plains, through levels of labor shortage are slightly lower. Under the three alternatives being considered, labor is fully utilized in November with a shadow price of 2-3 baht per hour. The levels of labor utilization also seem to be much higher in the harvesting season than in the planting season. In planting season, the employment level reaches only 50 percent of the total available labor (Table 4.1).

4.1.6 West

The level of labor utilization in this region is surprisingly low. Monthly employment varies from 34 to 42 percent of the total available labor during the planting season (May) under alternatives A87L to A87H. The level of employment is highest in November under all conditions. During the peak season of alternative A87H, there are about 0.2 million people left idle (Table 4.1).

4.1.7 South

As presented in Table 4.1 under alternatives A87L, A87M and A87H, the Southern employment situations show a relatively large number of under-employed people. About 41 percent of the total available labor force is utilized during the peak season (October) under alternative A87L. The employment situation improves slightly under alternative A87H. The level of unused labor is highest in the South under all conditions. Furthermore, there were higher employment levels in the dry season than in the wet season.

In summary, results of analyses conducted at the beginning of the Sixth Five-Year Plan indicate that: (1) Seasonality of employment in the agricultural sector will continue to be very high, especially in the Northeast, the North and the South; (2) With higher assumed production targets, the employment level in alternative A87H is slightly higher than in alternatives A87M and A87L. The high national agricultural targets can improve employment by at least 2 percent; (3) Nationally, some 13 to 15 percent or 4.0 to 4.1 million of the total economically active rural people have to look for jobs in non-agricultural sectors at the beginning of the Sixth Five-Year Plan (details see Appendix Table D.1 - Appendix Table D.21).

4.2 Solution A - 1991

4.2.1 Whole Kingdom

There are three different alternatives. Low, medium and high national agricultural targets are analyzed at the end of the Sixth Five-Year Plan. These are models A91L, A91M and A91H. Nationally, the employment situation in 1991 continues to show high levels of unused labor force as compared to the 1987 solutions. Under alternatives A91L, A91M and A91H, labor used

during peak seasons (in November) totals 73.6, 77.3 and 77.7 percent, respectively. Under the three alternatives mentioned above, some 4.3-5.1 million people would remain idle during the peak harvesting period of the wet season. There are much lower levels of employment in the planting season as compared to the harvesting season (Tables 4.2).

4.2.2 North

Comparison of results of alternatives A91L to A91H illustrate the influence of government programs on increasing agricultural output targets (Tables 4.2). The seasonality of employment is still a common phenomenon. Peak demand for labor is in December when the opportunity cost of labor is more than twelve baht per man-hour. Some 72-73 percent of the total economically active population is idle at the beginning of the planting season (May). The levels of labor utilization are higher during the harvesting season.

4.2.3 Northeast

The optimum patterns of labor utilization at different levels of alternatives are also analyzed and illustrated in Table 4.2. The economically active population in this sector of the peak periods are employed up to 92 percent under alternative A91L, 100 percent with shadow price of 6.29 baht per man-hour under alternative A91M, and 100 percent with shadow price of 7.11 baht per man-hour under alternative A91H. If the government is unable to maintain the agricultural target at a medium or high alternative, there is a probability that some 0.87 million people will have little or no work to do during the peak season. The number of persons migrating to the Central Plains is estimated at about 1 million, which is higher than in the 1987 solutions due to lower demand for labor in this region.

Table 4.2: Utilization of labor in producing agricultural products during the peak months classified by region, Solution A, 1991.

Region	Low target (A91L)			Medium target (A91M)			High target (A91H)		
	use	idle	% use	use	idle	% use	use	idle	% use
Whole Kingdom									
May	5.6	13.9	28.79	5.6	13.9	28.52	5.5	13.9	28.42
November	14.3	5.1	73.68	15.1	4.4	77.35	15.1	4.3	77.77
North									
May	1.4	3.5	28.27	1.4	3.5	27.87	1.3	3.6	27.03
December	4.9	0.0	100.00 (0.80)*	4.9	0.0	100.00 (6.29)*	4.9	0.0	100.00 (12.25)*
Northeast									
May	2.3	6.4	26.36	2.1	6.6	24.03	2.1	6.6	24.45
November	8.0	0.7	91.87	8.7	0.0	100.00 (6.29)*	8.7	0	100.00 (7.11)*
Central Plains									
April	0.9	0.0	100.00 (5.63)*	0.9	0.0	100.00 (5.63)*	0.9	0.0	100.00 (5.63)*
November**	0.9	0.0	100.00 (5.63)*	0.0	0.0	100.00 (8.68)*	0.9	0.0	100.00 (12.74)*
East									
May	0.7	0.4	58.01	0.7	0.5	59.77	0.7	0.5	59.77
November**	1.1	0	100.00 (1.23)*	1.1	0	100.00 (6.63)*	1.1	0	100.00 (12.5)*
West									
May	0.4	0.7	34.27	0.5	0.6	43.05	0.4	0.7	34.30
June (Nov.)	0.7	0.4	62.98	0.8	0.3	72.56	0.7	0.4	64.31
South									
March	1.6	1.1	59.27	2.2	0.6	78.92	0.5	0.5	82.20
October	1.1	1.6	41.03	1.4	1.4	51.00	1.5	1.3	54.90

Note: * Shadow prices of labor are in parenthesis.
** More than one peak month.

Source: Appendix Tables D.21 - D.42.

4.2.4 Central Plains

The levels of employment in this period are slightly higher than in 1987. However, level of utilization is still the highest as compared to other regions. The results of analyses for alternatives A91L, A91M and A91H show that zero levels of unused labor are found in April, June, October, November, and December. The highest of shadow price of labor is 5.63 baht per man-hour in November under alternative A91L, increasing to 8.68 and 12.74 baht per man-hour under alternatives A91M and A91H, respectively. As a result, the equivalent of about 1 million full-time-persons would be mobilized from the Northeast to alleviate the labor shortage problem (Table 4.2).

4.2.5 East

This region faces the situation of labor shortage in October and November. As production targets rise the scarcity of labor during these two months increases. For example, under the first alternative the shadow price is only 1 baht per man-hour in November. This increases to 6.63 and 12.5 baht per man-hour in the same period for the medium and high production targets. At the end of the dry season (April), the levels of employment range from 58 to 60 percent of the total available labor. As a result, about 0.4-0.5 million people are left idle in this peak month (Table 4.2).

4.2.6 West

The situation of labor utilization in the West is similar to that of the previous period (1987). In the same year, the levels of labor utilization are relatively high in June and November. This is due to the nature of agricultural production activities which require more labor during planting and harvesting. The

percentages of total labor utilization in these two months range from 0.3 to 0.4 million. At the beginning of planting season (May), labor utilization range from 34-36 percent under different alternatives (Table 4.2).

4.2.7 South

Limitation on agricultural activities in this region contribute to low levels of employment throughout the year. Peak demand in the three alternative solutions, A91L, A91M and A91H, accurs in March and October. The highest total labor use is 59 percent under alternative A91L, 79 percent under alternative A91M, and 82 percent under alternative A91H. Unused labor during these peak periods ranges from 1.1 million under alternative A91L to 0.5 million under alternative A91H (Table 4.2).

In summary, at the end of the Sixth Five-Year Plan, the results indicate that: (1) The level of employment during this period is lower as compared to the results of the beginning of the Sixth Plan in all conditions being considered, (2) Seasonality of employment is still a common phenomenon and is very high in the North, Northeast, and South, (3) Nationally, more than 4 million people (4.3 to 5.1 million) have to find jobs in the non-agricultural sectors at the end of the Sixth Plan (for details, see Appendix Tables D.22 - D.42).

4.3 Solution A - 1992

4.3.1 Whole Kingdom

To shed some light for policy makers in preparation for the Seventh Plan, the same methodology has been applied to present the employment situation in the agricultural sector during the period of 1992. Nationally, the employment situation in this period is

getting worse as compared to the two previous periods, if the same level of technology continues to be used in agricultural production processes. About 5.4 million persons, or about 73 percent of the total available labor, are used during the peak demand period of alternative A92L, when higher targets of agricultural production can be achieved through favorable export markets. Employment level tends to improve drastically. The total unused labor drops to 4.5 and 4.4 million under alternatives A92M and A92H. Also, there is much lower level of utilization in the planting season (May) as compared to that of the harvesting season (November) (Tables 4.3).

4.3.2 North

Table 4.3 illustrates the optimum patterns of labor utilization at three different levels of alternatives, namely: low production target (A92L), medium production target (A92M), and high production target (A92H). The results show that the economically active population in this region is employed up to 100 percent under the three alternative solutions. The shadow prices are estimated at 0.75 baht per man-hour under alternative A92L, 6.08 baht per man-hour under alternative A92M, and 12.25 baht per man-hour under alternative A92H. At the high level of production target, the scarcity of labor during the harvesting season is very high. This creates a very different wage rate - say, 17.85 baht per man-hour (shadow wage rate) - in the labor market of this region.

4.3.3 Northeast

Seasonality of employment is also observed under the three alternative solutions in 1992. The economically active people being used in agricultural production go up to 100 percent under alternatives A92M and A92H. However, for low targets of

Table 4.3: Utilization of labor in producing agricultural products during the peak months, classified by region, Solution A, 1992.

Region	Low target (A92L)			Medium target (A92M)			High target (A92H)		
	use	idle	% use	use	idle	% use	use	idle	% use
Whole Kingdom									
May	5.6	14.1	28.66	5.6	14.2	28.21	5.5	14.2	28.19
November	14.4	5.4	72.77	15.3	4.5	77.14	15.4	4.4	77.98
North									
May	1.3	3.5	27.93	1.3	3.6	27.20	1.3	3.6	26.53
December	4.9	0.0	100.00 (0.75)*	4.9	0.0	100.00 (6.08)*	4.9	0.0	100.00 (12.25)*
Northeast									
May	2.2	6.6	25.69	2.1	6.7	23.91	2.1	6.7	24.16
November	7.9	0.9	89.37	8.8	0.0	100.00 (2.75)*	8.8	0.0	100.00 (7.23)*
Central Plains									
April	0.9	0.0	100.00 (5.63)*	0.9	0.0	100.00 (5.63)*	0.9	0.0	100.00 (5.63)*
November**	0.9	0.0	100.00 (5.63)*	0.9	0.0	100.00 (8.38)*	0.9	0.0	100.00 (12.86)*
East									
May	0.6	0.5	59.51	0.6	0.4	59.14	0.6	0.4	59.14
November**	1.1	0.0	100.00 (1.21)*	1.1	0.0	100.00 (6.48)*	1.1	0.0	100.00 (12.62)*
West									
May	0.3	0.7	34.38	(Mar.) 0.5	0.6	47.53	0.4	0.6	45.08
November	0.7	0.4	62.82	(Oct.) 0.8	0.3	72.97	0.8	0.3	72.61
South									
March	1.7	1.0	62.51	2.2	0.5	80.33	2.3	0.5	81.80
October	1.2	1.6	42.60	1.4	1.4	49.55	1.4	1.4	51.14

Note: * Shadow prices of labor are in parenthesis.
** More than one peak month.

Source: Appendix Tables D.43 - D.63.

production (A92L), unused labor during the peak season can be as high as 0.9 million people. This situation can be worse if an additional 0.76 million people are not able to migrate out to the Central regions (Tables 4.3).

4.3.4 Central Plains

According to the results from Table 4.3, the level of labor utilization in the Central Plain is still the highest as compared to those of the other regions. The results of analyses for alternatives A92L, A92M, and A92H show that shortages of labor occur in April, June, October, November and December. The opportunity costs of labor are high enough to attract labor from the Northeast, especially under alternatives A92M and A92H.

4.3.5 East

Solutions under the three alternatives show peak demand for labor in April and November. The shortages of labor are not very high except under alternative A92H where the opportunity cost of labor in November is as high as 12.62 baht per man-hour. The level of labor scarcity of labor tends to decline as compared to the alternative solutions in 1987 (Table 4.3).

4.3.6 West

The situation of labor utilization in the West is almost the same as in 1991. The peak months of demand for labor are in May and November. If the high target of agricultural production can be maintained, the percentage of labor utilization can reach 73 percent. Even though the percentage of unused labor is high, this situation will not be serious as in other regions, e.g. the Northeast, because the population is smaller (Table 4.3).

4.3.7 South

The results of analyses for alternatives A92L, A92M, and A92H indicate that the level of labor utilization in the South can reach 81 percent under alternative A92H. This will leave about 0.5 million people who will have to find jobs elsewhere. The level of employment fluctuates and is low throughout the year, especially during the wet season when there is no work on rubber plantations. Unfavorable weather keeps more than 1.4 million people idle in October under alternative solution A92H (Table 4.3).

In summary, analyses conducted at the beginning of the Seventh Plan indicate that: (1) Nationally, some 12 to 17 percent of the total economically active rural population can be expected to seek employment in non-agricultural sectors; (2) Employment problems tend to be higher at the beginning of the Seventh Plan as compared to previous plans (For details, see Appendix Tables D.43 - D.63).

4.4 Solution B

Solution B analyses the situation in which there is no constraint in the model on demand for farm products.[1] Only three alternatives, B87M, B91M, and B91H, are compared.

At the beginninng of the Sixth Five-Year Plan (B87M) the total national demand for labor in the peak month is 90.2 percent, increasing to 91.4 percent at the beginning of the Seventh Five-Year Plan (B92M). The effects on employment of relaxing crop production targets would be substantial. Agricultural employment is estimated at 15.9 million. Approximately 1.7 million persons

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[1] To prevent from having unrealistic solutions, only targets of farm products are allowed to drop from the model.

are still idle under alternative B87M. The employment level increases to 18.1 million persons but excludes another 1.6 million persons under alternative B92M (Table 4.4).

In summary, the employment effects of no limitation on production targets are substantial. In comparison with alternative Solution A, agricultural employment in each region is higher with Solution B. Levels of labor scarcity increase in all regions, especially in the Central region (i.e., East, Central Plains and West), where severe shortages of labor are apparent. The effects on employment of unlimited crop demands are critical to the general well-being of the farmers. It has been consistently demonstrated that the agricultural sector can absorb a large proportion of rural labor, if the export market for each product can be maintained at high levels. (For details of employment analyses, see Appendix Tables D.64 to D.84.

4.5 Solution C

The difference between alternative Solutions C and A is only the value of the RHS of labor. The availability of labor under alternative solution C is higher than under solution A. This is because of the assumption of higher level of labor force participation, causing a higher projection of economically active rural population. It is hypothesized that larger amounts of available labor can affect the level of employment in the agricultural sector. The comparison of results from alternatives C and A at national level shows that the effect of higher participation rates (higher economically active rural population) on demand for labor would not be small over the Sixth Five-Year Plan and the beginning of the Seventh Five-Year Plan. The level of scarcity of labor utilization in each period, as indicated by shadow prices, is practically lower under alternative solution C as compared to A.

Table 4.4: Utilization of labor in producing agricultural products during the peak months, classified by region, Solution B, 1987-1992.

Region	Medium target (B87M)			Medium target (B91M)			Medium target (B92M)		
	use	idle	% use	use	idle	% use	use	idle	% use
Whole Kingdom									
May	8.3	9.3	47.09	0.9	0.9	49.60	11.1	8.7	56.20
November	15.9	1.7	90.20	17.5	1.8	90.24	18.1	1.6	91.48
North									
May	2.0	2.6	43.62	1.8	3.0	38.74	2.4	2.4	50.18
December	4.6	0.0	100.00 (108.77)*	4.9	0.0	100.00 (108.77)*	4.9	0.0	100.00 (108.77)*
Northeast									
February	2.9	4.8	37.90	3.8	4.8	40.49	4.6	4.3	51.62
November	7.7	0.0	100.00 (108.77)*	8.6	0.0	100.00 (108.77)*	8.8	0.0	100.00 (108.77)*
Central Plains									
April	0.8	0.0	100.00 (5.63)*	0.8	0.0	100.00 (5.63)*	0.9	0.0	100.00 (5.63)*
November**	0.8	0.0	100.00 (114.40)*	0.8	0.0	100.00 (114.40)*	0.9	0.0	100.00 (114.40)*
East									
May	0.6	0.3	59.91	0.6	0.4	58.43	0.8	0.3	70.61
November	1.0	0.0	100.00 (103.14)*	1.1	0.0	100.00 (97.50)*	1.1	0.0	100.00 (97.50)*
West									
February**	0.9	0.01	98.33	1.0	0.0	100.00 (5.63)*	1.1	0.0	100.00 (5.63)*
November**	0.9	0.0	100.00 (97.51)*	1.0	0.0	100.00 (86.87)*	1.1	0.0	100.00 (86.02)*
South									
March	2.4	0.0	100.00 (16.19)*	2.7	0.0	100.00 (16.19)*	2.8	0.0	100.00 (16.19)*
October	2.4	0.0	100.00 (92.58)*	2.7	0.0	100.00 (92.57)*	2.8	0.0	100.00 (92.58)*

Note: * Shadow prices of labor are in parenthesis.
** More than one peak month.

Source: Appendix Tables D.64 - D.84.

Table 4.5: Utilization of labor in producing agricultural products during the peak months, classified by region, Solution C, 1987.

Region	Low target (C87L)			Medium target (C87M)			High target (C87H)		
	use	idle	% use	use	idle	% use	use	idle	% use
Whole Kingdom									
May	5.2	13.4	27.98	5.2	13.3	28.29	5.3	13.3	28.58
November	13.6	5.0	73.08	13.7	4.9	73.62	13.9	4.6	74.98
North									
May	1.3	3.2	29.79	1.3	3.2	29.53	1.3	3.2	30.15
December	4.6	0.02	99.49	4.6	0.002	99.94	4.6	0.0	100.00 (0.0)*
Northeast									
May	2.0	6.6	23.46	2.1	6.5	24.50	2.1	6.5	24.81
November	7.5	1.0	87.34	7.7	0.9	89.58	8.1	0.5	93.81
Central Plains									
April	0.8	0.0	100.00 (5.63)*	0.8	0.0	100.00 (5.63)*	0.8	0.0	100.00 (5.63)*
November**	0.8	0.0	100.00 (5.63)*	0.8	0.0	100.00 (5.63)*	0.8	0.0	100.00 (5.63)*
East									
May	0.6	0.4	58.18	0.6	0.4	59.38	0.6	0.4	59.13
November	1.0	0.0	100.00 (2.58)*	1.0	0.0	100.00 (1.28)*	1.0	0.0	100.00 (1.58)*
West									
May	0.4	0.5	40.73	0.3	0.6	37.73	0.3	0.6	37.73
November	0.7	0.2	71.68	0.6	0.3	67.69	0.6	0.3	67.69
South									
March	1.3	1.1	53.58	1.3	1.1	53.58	1.3	1.1	53.58
October	1.0	1.4	41.56	1.0	1.4	41.56	1.0	1.4	41.56

Note: * Shadow prices of labor are in parentheses.
** More than one peak month.

Source: Appendix Tables D.85 - D.105.

Hence, in this section details of employment at the national rather than the regional level will be discussed.

4.5.1 Solution C - 1987

Nationally, the employment situation in the agricultural sector in this period continues to repeat its past performance. Under alternatives C87L, C87M, and C87H, employment continues to show the same of seasonality of labor utilization throughout the year. About 73.0 percent of the available labor, about 13.6 million people, are employed under alternative C87L. This will increase slightly to 73.6 percent under alternative C87M, to 74.9 percent under alternative C87H. During the peak month of the planting season the level of employment is much lower than that during the harvesting season. For example, under alternatives C87L to C87H, the utilization of labor during May ranges from 27.9 percent to 28.5 percent, respectively. This means that more than 13.3 million people are idle during these periods. Details of national and regional variations in employment can be seen in Appendix Tables D.85 - D.105.

4.5.2 Solution C - 1991

Under alternatives C91L, C91M, and C91H, the employment situation continues to show a high level of untapped labor. Idle labor during the peak demand was about 14.3 percent under alternative C91L. This is equivalent to 5.7 million persons. Under alternative C91M, the level of employment increases to 78.5 percent of the total available labor. This still leaves about 4.3 million people idle during the peak month (November). This employment situation is slightly improved to about 78.1 percent under solution C91H leaving about 4.3 million people to find jobs elsewhere. (Table 4.6.) The details of patterns of labor use classified by region are presented in Appendix Tables D.106 to

Table 4.6: Utilization of labor in producing agricultural products during the peak months, classified by region, Solution C, 1991.

Region	low target (C91L)			medium target (C91M)			high target (C91H)		
	use	idle	Z use	use	idle	Z use	use	idle	Z use
Whole Kingdom									
May	5.5	14.4	27.87	5.6	14.4	28.0	5.5	14.5	27.66
November	14.3	5.7	71.50	15.7	4.3	78.50	15.7	4.3	78.18
North									
May	1.3	3.3	28.90	1.4	3.3	29.45	1.3	3.4	28.40
December	4.7	0.0	100.00 (1.23)*	4.7	0.0	100.00 (2.90)*	4.7	0.0	100.00 (9.79)*
Northeast									
May	2.2	7.1	24.37	2.1	7.2	22.81	2.1	7.2	22.76
November	8.0	1.3	85.69	9.3	0.0	100.00 (0.42)*	9.3	0.0	100.00 (4.26)*
Central Plains									
April	0.9	0.0	100.00 (5.63)*	0.9	0.0	100.00 (5.63)*	0.9	0.0	100.00 (5.63)*
November	0.9	0.0	100.00 (5.63)*	0.9	0.0	100.00 (6.05)*	0.9	0.0	100.00 (9.89)*
East									
April	0.6	0.4	57.21	0.6	0.4	58.95	0.6	0.5	57.50
November	1.1	0.0	100.00 (1.52)*	1.1	0.0	100.00 (1.13)*	1.1	0.0	100.00 (9.89)*
West									
May	0.3	0.7	33.79	0.5	0.6	45.54	0.4	0.6	43.49
November	0.6	0.4	62.10	0.8	0.2	75.99	(Oct.) 0.7	0.3	70.74
South									
March	1.6	1.1	59.42	2.1	0.6	77.79	2.1	0.6	78.45
October	1.1	1.6	41.13	1.3	1.3	49.69	1.3	1.3	50.48

Note: * Shadow prices of labor are in parenthesis.
** More than one peak month.

Source: Appendix Tables D.106 - D.126.

D.126.

4.5.3 Solution C - 1992

The employment situation under this alternative is weaker than those situations in 1987 and 1991. Nationally, about 69.4 percent of the total available labor is employed during the peak month of November under alternative C92L. This leaves about 6.3 million persons jobless during the peak month. As a result of higher production targets, the percentage of employed persons increases to 75.7 percent under alternative C92M and to 77.83 under alternative C92H. The last two alternatives have contributed for more than 5.1 and 4.6 million persons, respectively, to unuse in the agricultural sector (Table 4.7). (For details of seasonal patterns of labor use by region see Appendix Tables D.106 to D.126.)

In summary, when higher projections of the economically active rural population are used in the optimum solutions of LP, the seasonal pattern of optimum labor use does not change much. In general, however, higher levels of unused labor are observed among various alternatives proposed in the study.

Table 4.7: Utilization of labor in producing agricultural products during the peak months, classified by region, Solution C, 1992.

Region	Low target (C92L)			Medium target (C92M)			High target (C92H)		
	use	idle	% use	use	idle	% use	use	idle	% use
Whole Kingdom									
May	5.6	15.1	27.26	5.6	15.1	27.21	5.6	15.2	26.96
November	14.4	6.3	69.46	15.7	5.1	75.73	16.2	4.6	77.83
North									
May	1.3	3.6	27.78	1.3	3.6	29.81	1.3	3.7	26.53
December	5.0	0.0	100.00 (0.60)*	5.0	0.0	100.00 (2.55)*	5.0	0.0	100.00 (7.32)*
Northeast									
May	2.3	7.4	23.81	2.4	7.3	25.30	2.1	7.6	22.17
November	7.9	1.8	81.34	9.5	0.2	97.51	9.7	0.0	100.00 (3.39)*
Central Plains									
April	0.9	0.0	100.00 (5.63)*	0.9	0.0	100.00 (5.67)*	0.9	0.0	100.00 (5.63)*
November**	0.9	0.0	100.00 (5.63)*	0.9	0.0	100.00 (5.63)*	0.9	0.0	100.00 (9.02)*
East									
May	0.5	0.6	47.99	0.6	0.5	57.02	0.6	0.5	56.00
November**	1.2	0.0	100.00 (0.65)*	1.1	0.0	100.00 (3.02)*	1.1	0.0	100.00 (5.62)*
West									
May	0.4	0.7	34.28	0.3	0.7	33.10	0.5	0.6	45.53
November	0.7	0.4	61.65	0.6	0.4	62.13	(Oct.) 0.8	0.2	75.55
South									
March	1.7	1.1	61.18	2.1	0.6	76.15	2.3	0.5	81.19
October	1.1	1.6	41.11	1.2	1.5	44.96	1.4	1.4	50.47

Note: * Shadow prices of labor are in parenthesis.
** More than one peak month.

Source: Appendix Tables D.127 - D.147.

5. SUMMARY AND POLICY IMPLICATIONS

5.1 Summary

The purposes of this study are (1) to assess the likely pattern of labor absorption over a medium term by using linear programming technique; and (2) to compare the performance of labor absorption among different regions as consequences of demographic change, technological change and exhausting of land frontier. The six regions are used in setting the production levels of crops and livestock best suited to regional conditions. Some regions may, in fact, be suitable for certain crops. Under, however, the principle of comparative advantage adopted in this study, only regions with lower unit cost of production and higher output prices (because they are located near the market) would be chosen in optimal solutions of the linear programming models.

Three periods, 1987, 1991, and 1992 are covered in this study. Each period adopts three alternative solutions, namely, low, medium, and high agricultural production targets. Two estimates of the available labor are also used in each period and for each alternative solution. One alternative solution (B) is also analyzed when constraints on agricultural production targets are released. Solution B will be analyzed only with a medium production target. These criteria altogether contribute to 21 solutions in this study.

5.1.1 Optimal Production and Land Use

The proposed alternatives of optimal production and land use can be summarized as follows:

(1) For all optimal solutions, agricultural outputs have reached the proposed agricultural production target

constraints except Solution B. The model assumes that (1) certain parts of land could be adjusted to use new improved rice varieties; (2) the yield of field crops can increase during 1987-1992; and (3) new land settlement area (Land Type 5) could increase 1.5 percent per annum.

(2) Nationally, land in the wet season tends to be fully utilized. More than 80 percent of the total available land in each category is being used in the optimal solutions, both with and without restrictions on agricultural production targets.

(3) At the national level, both irrigated paddy land and field crop land are also fully utilized during the dry season. Irrigated land appears to be fully utilized in all alternative solutions. In upland areas, land usage, especially land Type IV, is very close to 100 percent.

(4) At the regional level, it is clear that the degree of land scarcity increases from 1987 to 1992 as a result of increases in the value of the opportunity cost of land in the optimal solutions.

(5) The Central and Northern regions face more land constraints than the Northeast and South. There is a potential to expand production in the Northeast and South through improvement of irrigation facilities.

5.1.2 Optimal Pattern of Labor Use

This section summarizes the optimal patterns of labor use based on results of Inter-regional linear programming Solutions A,B, and C.

(1) At the beginning of the Sixth Five-Year Plan, the results of solution A show that:

(a) Nationally, seasonally idled labor in the agricultural sector will be very high, especially in the North, Northeast, and South.

(b) As agricultural production targets at the national level increase, the employment level also increases in the same direction.

(c) Nationally, from 4.0 to 4.1 million (13 to 14 percent) of the total, economically active, rural population need to be absorbed in non-agricultural activities. However, the study of Onchan and Chalamwong (1983) found that more than 10 percent of rural laborers have already been absorbed in non-agricultural activities during peak months. Therefore, the figures on unused labor for this period may not be completely accurate.[1]

(d) The economically active, rural population in the Northeast is almost fully utilized (98-100 percent) at peak period (November) when agricultural targets are increased. Up to 1.1 million persons could flow into the Central region during the peak month.

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[1] Tongroj Onchan and Yongyuth Chalamwong, "Rural Income and Employment in Thailand," in Rural Off-Farm Employment in Thailand, edited by Akrasanee and others, The Industrial Management Co., Ltd., September 1983. pp.11-64.

(e) Labor scarcity appears in November as a result of the optimal solution in the North.

(f) Among all alternative solutions, the level of utilization is highest in the Central Plains. Peak demands occur in 5 out of 12 months. The level of employment is higher in the wet than in the dry season.

(g) The level of labor utilization in the East is very similar to that of the Central region. There is no unused labor in the peak months of October and November.

(h) During the period of peak demand in the West, only 64 to 74 percent of the total available labor is utilized. About 0.2-0.3 million persons are still jobless during the peak season.

(i) There are few jobs for farmers in the South even during the peak season. Only 53 to 61 percent of the total available labor can find work because of the limited land area.

(2) The results of Solution A at the end of the Sixth Five-Year Plan can be summarized as follows:

(a) Nationally, the level of unused labor is higher during the end than at the beginning of the Sixth Plan.

(b) Unused labor during the period of peak demand is 4.3 million with high agricultural production

targets. This increases to 5.1 million jobless when the national targets are low. The results suggest that about 0.8 million persons can easily be absorbed into the agricultural sector if the government can succeed in maintaining a high level of export demand.

(c) Demand for labor in the Northeast can meet the supply of labor in November, when about 1 million persons are allowed to seek employment in the Central regions. Scarcity of labor during the peak demand period drives the shadow price up to 7.11 baht per man-hour when high production targets can be maintained. However, this is lower than the opportunity cost of labor in the Central Plains during the same period.

(d) In the North, seasonality of labor is clearly observable. During the slack season about 71-87 percent of the total available labor is idle. December appears to be the peak demand in this region when level of utilization reaches 100 percent, regardless of the level of agricultural production targets. The opportunity costs of labor range from 0.8 to 12.15 baht per man-hour when changing from low to high targets.

(e) The demand for labor in the Central Plains (in the 1991) is slightly lower than in 1987. The shortage of labor remains quite substantial. This cause the shadow price of labor to reach 12.74 baht per man-hour.

(f) The shortage of labor in the East appears in

October and November. The shadow price of labor increases from 1.23 to 12.5 baht per man-hour as production targets increase from low to high.

(g) The number of unemployed persons (full time equivalent) in the West increases from 0.32 to 0.45 million persons when production targets drop from high to low levels.

(h) The highest level of unemployment is in the South. The figures reach 1.1 million jobless persons with low production targets and 0.53 million persons when production targets are high.

(3) Results of the analysis of Solution A indicate that the optimal patterns of labor use at the beginning of the Seventh Five-Year Plan are as follows:

(a) Nationally, some 14.1 to 14.2 percent of the total available labor have to find jobs in the non-agricultural sector. The problem of unused labor in the agricultural sector is escalating in 1992 as compared to 1987. The jobless number about 5.4 million when production targets are low and about 4.4 million with high production targets.

(b) The patterns of labor use at the regional level are very similar to those previously discussed. The seasonality of employment is high in the North, Northeast and South. Levels of employment throughout the year in these three regions are lower than in the rest of the

country.

(4) When production targets are dropped from the consideration, the results of Solution B are slightly different from Solution A. Nationally, levels of employment in the agricultural sector are much higher than in Solution A, once production targets have been dropped.

In 1987, during the peak month, the total available labor force include some 90.2 percent, leaving about 1.7 million persons idle.

In 1991, agricultural employment is estimated at 90 percent of the total available labor. Unused labor during this period is estimated at about 1.8 million persons.

In 1992, the total utilization of labor, during the peak month, is 91.4 percent. The number of jobless in the same period is about 1.6 million persons.

(5) The summary of Solution C follows the same patterns of labor utilization as in Solution A. The only difference between the two is that Solution C adopts higher levels of available labor force as a consequence of higher labor force participation rates. The results at the national level are presented below:

(a) In 1987, with medium production targets, about 73.6 percent of the total available labor is utilized in the optimal solution. This leaves about 4.9 million people idle during the period of peak demand.

(b) In 1991, with medium production targets, about 4.3 million persons were left idle in the optimal solution. This is equivalent to about 21.5 percent of the total available labor during the highest demand of the year.

(c) In 1992, with medium production targets, about 5.1 million persons are idle during the peak month. The percentage of total available labor unused during the same period is 75.7 percent.

5.2 Discussion and Policy Implications

The results of the programming indicate that agricultural output targets could be reached during the period of 1987 to 1992. Under the optimum solutions, almost all types of lands are close to being fully utilized during both the wet and dry seasons. It was assumed that irrigated land can be increased by at least 0.2 million rai per annum in the North and the Central, by about 0.157 million rai per annum in the Northeast, and by about 0.112 million rai per annum during the study periods. If these targeted areas are not irrigated, there will be some doubt as to whether the national agricultural targets can be achieved. Therefore, irrigation facilities are one of the very important factors in determining agricultural output in this study.

The key to success of the project is also based partly on technological development, especially the introduction of new rice varieties in each region. In the past there has not been effective dissimination to farmers or distribution of all inputs, including, for example, multiplied seeds. This type of deficiency has to be carefully eliminated during the Sixth Five-Year Plan.

Experiences elsewhere have indicated that Thai farmers have to

improve production efficiency by the adoption of land augmenting technology and farm mechanization. However, if the effects of this implementation on labor policy are taken into accounts, the type of mechanization must be carefully selected in order to insure that the desired technological development really occurs. Experiences of Thai agriculture in the past show clearly that new improved seed, cheap fertilizer, and the availability of credit have always been important in effecting higher yield and labor input demand.

The diffusion of government investment has been important in the past, contributing to the development of the agricultural sector in Thailand. There must be continued improvement in irrigation (even small, nationwide irrigation projects), transportation, communication and equal access to credit (i.e. regardless of whether a farmer own land or not), widespread extension service and better support for agricultural research.

Agricultural diversification programs need to be accelerated to improve employment and income, and to alliviate the poverty of the rural people. As recommended by the World Bank, livestock, fishery, tree crop and sericulture development programs need to be implemented in addition to productivity improvements.[1] In short, if all these points are seriously implemented during the Sixth Plan, the chance to achieve production targets will be even better.

The results of the study show clearly that labor in agriculture is highly seasonal. This seasonality of labor can be reduced by hiring in labor to lessen the burden at peak demand and by hiring out labor during slack periods.

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[1] For details on this see Squire, (1981).

In short, job opportunities both within and without agriculture have to be created. As confirmed by the rural off-farm employment study in Thailand,[1] rural non-agricultural activities provide a primary source of employment for more than 15 percent during slack season. The development of non-farm enterprises in rural areas can increase rural labor demand and also can help lessen the problem of seasonality in agriculture.

A study by Chalamwong (1983) indicates that the rural labor force responds positively to the prospect of high returns. This is consistant with the findings of Bertrand and Squire (1980). During the peak rainy season, women and children have to withdraw from other non-agricultural activities to work in the agricultural labor force. This implies that the creation of rural job opportunities has to be complementary to the agricultural sector. Rural non-farm enterprise should provide the answer.[2] Farmers can work in non-farm enterprises during the slack season and return to work on the farm during the peak season. Some people can be left at work on non-farm activities.

However, as found in the same study, income from agricultural activities and cottage industrial works is not stable. Rural households have to participate in wage earning activities. Therefore, job opportunities outside agriculture still have to be promoted to absorb some of the idle agricultural labor and provide a sort of supplementary income to rural households.

Experiences in the past have shown that the potential demand for hired labor still exists in agricultural sector. A study done by

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[1] See Tongroj Onchan and Yongyuth Chalamwong, "Rural Income and Employment in Thailand," op.cit.

[2] For further discussion see Akrasanee and others (1983) and World Bank, Thailand: Rural Growth and Employment, 1983.

Panpiemras and Krusuansombat (1985) show that farmers who grow sugarcane, tapioca, pineapple and dry season rice encounter shortages of labor during planting and harvesting. So labor must move from labor surplus agricultural areas in the Northeast to alleviate the situation. However, the whole surplus could not be absorbed. Neither could the total demand of labor demanding agricultural areas be met, unless the period coincided with the slack period of the potential migrants.

With regard to seasonal migration, this study suggests that social costs suffered by migrants and their families should be minimized. This means the continued creation of seasonal job opportunities in rural areas (e.g. the government's Rural Job Creation program). Closer linkage of such programs with normal governmental activities would create a longer sustainable impact.

There are large numbers of rural people idle and awaiting the working season. According to this study, it is plausible to follow the suggestions of Panpiemrat and Krusuansombat on the necessity of directly increasing the productivity of poor rural areas in order to reduce such unemployment. A strong, rural anti-poverty program, covering all poverty areas was implemented during the past development plan. Undoubtedly, this has to continue in future development planning. This study strongly suggests that if the government wants to generate rural employment opportunities, it is certain that rural industry and some kinds of off-farm activities require extensive promotion in the Sixth Five-Year Plan.

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APPENDIX

Table A.1: Study areas classified by region.

1. Northern

1.1 Kamphaeng Phet	1.7 Payao	1.13 Lampang
1.2 Chiang Rai	1.8 Phrae	1.14 Lamphun
1.3 Chiang Mai	1.9 Phichit	1.15 Sukhothai
1.4 Tak	1.10 Phitsanulok	1.16 Uttaradit
1.5 Nakhon Sawan	1.11 Phetchabun	1.17 Uthai Thani
1.6 Nan	1.12 Mae Hong Son	

2. Northeastern

2.1 Kalasin	2.7 Maha Sarakham	2.13 Surin
2.2 Khon Kaen	2.8 Yasothon	2.14 Nong Khai
2.3 Chaiyaphum	2.9 Roi Et	2.15 Udon Thani
2.4 Nakhon Phanom	2.10 Loei	2.16 Ubon Ratchathani
2.5 Nakhon Ratchasima	2.11 Si Sa Ket	2.17 Mukdahan
2.6 Buri Ram	2.12 Sakon Nakhon	

3. Central Plains

3.1 Bangkok Metropolis	3.7 Pathum Thani	3.13 Samut Songkhram
3.2 Chachoengsao	3.8 Prachin Buri	3.14 Saraburi
3.3 Chai Nat	3.9 Ayuthaya	3.15 Sing Buri
3.4 Nakhon Nayok	3.10 Lop Buri	3.16 Suphan Buri
3.5 Nakhon Pathom	3.11 Samut Prakan	3.17 Ang Thong
3.6 Nonthaburi	3.12 Samut Sakhon	

4. Eastern

4.1 Chon Buri	4.3 Rayong
4.2 Trat	4.4 Chanthaburi

5. Western

5.1 Kanchanaburi	5.3 Phetchaburi
5.2 Ratchaburi	5.4 Prachuap Khiri Khan

6. Southern

6.1 Krabi	6.6 Pattani	6.11 Ranong
6.2 Chumphon	6.7 Phangnga	6.12 Songkhla
6.3 Trang	6.8 Phatthalung	6.13 Satun
6.4 Nakhon Si Thammarat	6.9 Phuket	6.14 Surat Thani
6.5 Narathiwat	6.10 Yala	

Table A.2: Projected agricultural land area by type and by region, 1987.

Region	Land Type									
	I	II : Irrigation		III	IV	V[1]		VI	VII	Total
		Wet season	Dry season			Upland	Lowland			
North	1,284,955	5,149,963	502,121	4,014,917	4,538,985	3,955,260	6,448,770	-	892,463	26,787,434
Northeast	-	2,962,189	235,790	25,551,976	8,741,131	2,883,840	7,936,854	12,886,000	3,535,406	64,733,186
Central Plains*	1,010,974	5,586,720	2,473,241	907,686	1,904,260	1,343,909	224,816	4,620,495[2]	891,563	18,963,664
East	290,210	1,517,307	453,371	1,923,354	2,349,957	1,738,135	721,762	3,373,075[3]	650,863	13,018,034
West	27,363	1,600,025	386,886	331,271	1,195,898	663,148	412,077	1,264,430[4]	243,982	6,125,080
South	-	1,992,140	199,413	1,196,981	130,829	-	1,803,981	7,786,000[4]	855,902	13,965,246
Total	2,613,502	18,808,344	4,250,822	33,926,185	18,861,060	10,584,292	17,548,260	29,930,000	7,070,179	143,592,644

Note:
1. Land Type V increased by 1.5% perannum from year 1983.
2. Exclude rubber tree area (880,494 rais), coconut tree area (156,391 rais).
3. Exclude coconut tree area (401,422 rais).
4. Exclude rubber tree area of 8,607,049 rais and only 7,786,000 rais of these can be used for animal raising and exclude area of growing coconut tree for 910,787 rais.

*Exclude Bangkok Metropolis.

Source: Office of Agricultural Economics, Agricultural Statistics, 1983/84, Ministry of Agriculture and Cooperatives, Bangkok, 1985.

Table A.3: Projected agricultural land area by type and by region, 1991.

Region	Land Type									
	I	II : Irrigation		III	IV	V[1]		VI	VII	Total
		Wet season	Dry season			Upland	Lowland			
North	1,284,955	5,949,963	580,121	3,214,917	4,533,985	4,197,969	6,844,489	-	947,227	27,553,626
Northeast	-	3,592,189	285,938	24,923,976	8,741,131	3,060,803	8,423,888	12,886,000	3,752,350	65,666,275
Central Plains*	1,010,974	6,146,720	2,721,153	347,686	1,904,260	1,426,376	238,612	4,620,495[2]	946,802	19,363,078
East	290,210	1,621,307	484,447	1,819,354	2,349,957	1,844,793	766,052	3,373,075[2]	690,802	13,239,997
West	27,363	1,736,025	419,771	195,271	1,195,898	703,841	437,364	1,264,430[3]	258,953	6,238,916
South	-	2,442,140	244,458	746,981	130,829	-	1,914,679	7,786,000[4]	508,423	13,773,510
Total	2,613,502	21,488,344	4,735,888	31,248,185	18,856,060	11,233,782	18,625,084	29,930,000	7,104,557	145,835,402

Note: Same as Table 2.2 and also exclude area of growing coconut tree for 910,787 rais.

*Exclude Bangkok Metropolis.

Source: Office of Agricultural Economics, Agricultural Statistics, 1983/84, Ministry of Agriculture and Cooperatives, Bangkok, 1985.

Table A.4: Projected agricultural land area by type and by region, 1992.

Region	Land Type									
	I	II : Irrigation		III	IV	V[1]		VI	VII	Total
		Wet season	Dry season			Upland	Lowland			
North	1,284,955	6,149,963	599,621	3,014,917	4,533,985	4,260,938	6,947,157	-	961,435	27,752,971
Northeast	-	3,749,189	298,435	24,766,976	8,741,131	3,106,714	8,550,246	12,882,000	3,808,635	65,903,326
Central Plains*	1,010,974	6,286,720	2,783,131	207,686	1,904,260	1,447,717	242,191	4,620,495[2]	960,466	19,463,640
East	290,210	1,647,307	492,215	1,793,354	2,349,957	1,872,465	777,543	3,373,075[3]	701,164	13,297,290
West	27,363	1,770,025	427,992	161,271	1,195,898	713,990	443,923	1,264,430[4]	262,837	6,267,729
South	-	2,554,640	255,719	634,481	130,829	-	1,943,399	7,786,000[4]	516,049	13,821,117
Total	2,613,502	22,157,844	4,857,113	30,578,685	18,856,060	11,401,824	18,904,459	29,926,000	7,210,586	146,506,073

Note: Same as Table 2.2.

*Exclude Bangkok Metropolis.

Source: Office of Agricultural Economics, Agricultural Statistics, 1983/84, Ministry of Agriculture and Cooperatives, Bangkok, 1985.

Table B.1: Optimum agricultural commodity produced under low level of production targets, 1987. (Solution A87L).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	2,965,708	2,150,454	3,955,049	1,669,496	410,713	1,269,580	12,421,000
Glutinous rice, paddy	2,921,004	2,206,914	13,152	5,693	161,675	18,562	5,417,000
Maize	1,866,072	567,498	564,971	305,716	450,743	-	3,755,000
Sorghum	91,901	16,564	159,482	-	4,051	-	272,000
Mung beans	342,324	10,159	33,519	5,684	1,860	474	394,020
Soy beans	107,902	118,111	8,291	260	1,316	-	235,880
Sesame	22,221	-	4,779	-	-	-	27,000
Ground nuts	83,704	25,468	51,146	9,586	2,059	21,307	147,000
Kenaf	-	238,000	-	-	-	-	238,000
Cotton	50,114	32,332	24,884	5,235	15,435	-	128,000
Castor beans	11,790	14,665	6,031	-	8,514	-	41,000
Cassava, raw	672,111	13,691,500	499,220	5,870,378	732,787	-	21,466,000
Sugarcane	4,047,453	2,225,580	6,324,890	4,669,151	9,932,925	-	27,200,000
Tobacco	40,516	12,484	-	-	-	-	53,000
Coconuts	-	-	-	85,859	220,381	520,970	827,209
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	100,620	-	-	-	-	100,620
Livestock and livestock products: (ton)							
Cattle	11,609	19,195	5,357	2,258	6,949	8,730	54,098
Buffalo	31,529	125,809	8,325	6,224	1,081	5,464	178,432
Swine	96,545	133,212	72,706	36,471	31,831	-	370,765
Chicken & Ducks	69,603	92,030	32,152	8,283	37,537	37,537	271,398

Table B.2: Optimum agricultural commodity produced under low level of production targets, 1991. (Solution A91L).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	3,670,313	2,424,904	4,010,821	1,688,045	419,006	1,523,911	13,737,000
Glutinous rice, paddy	3,097,457	2,296,914	13,152	153,331	159,585	18,562	5,739,000
Maize	2,138,096	567,498	568,415	411,241	508,750	-	4,194,000
Sorghum	91,901	169,009	159,482	-	2,137	-	422,530
Mung beans	412,361	10,159	33,519	5,810	1,977	474	464,300
Soy beans	109,111	219,572	8,291	310	1,316	-	338,600
Sesame	23,221	-	4,779	-	-	-	28,000
Ground nuts	81,726	33,446	5,146	9,586	2,059	21,037	153,000
Kenaf	-	242,000	-	-	-	-	242,000
Cotton	50,114	32,332	24,884	8,493	15,177	-	131,000
Castor beans	11,790	15,665	6,031	-	8,514	-	42,000
Cassava, raw	672,111	14,276,440	499,220	5,867,446	732,787	-	22,048,000
Sugarcane	3,837,973	2,225,580	6,631,504	4,669,151	10,047,790	-	27,412,000
Tobacco	41,516	12,484	-	-	-	-	54,000
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	427,976	-	-	-	-	427,976
Livestock and livestock products: (ton)							
Cattle	11,609	19,195	5,357	2,259	10,246	8,730	57,376
Buffalo	31,529	136,684	8,325	6,224	1,081	5,464	178,432
Swine	96,545	154,879	72,706	36,471	31,831	-	392,432
Chicken & Ducks	69,603	93,941	32,152	31,793	8,283	66,079	301,853

Table B.3: Optimum agricultural commodity produced under low level of production targets, 1992. (Solution A92L).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	5,302,644	2,334,757	4,028,972	1,702,601	421,080	1,600,946	13,381,000
Glutinous rice, paddy	3,138,907	2,296,914	13,152	194,338	159,127	18,562	5,821,000
Maize	2,198,187	566,167	568,578	424,982	516,086	-	4,254,000
Sorghum	91,901	183,199	159,482	-	2,137	-	436,720
Mung beans	431,841	10,159	33,519	5,810	1,977	474	483,780
Soy beans	109,742	251,002	8,291	310	1,316	-	370,660
Sesame	23,221	-	4,779	-	-	-	28,000
Ground nuts	79,619	35,553	5,146	9,586	2,059	21,037	153,000
Kenaf	-	242,000	-	-	-	-	242,000
Cotton	56,114	32,332	24,884	7,309	16,361	-	131,000
Castor beans	11,789	15,665	6,031	-	8,514	-	42,000
Cassava, raw	572,111	14,277,780	499,220	5,866,099	732,787	-	22,048,000
Sugarcane	3,799,754	2,225,580	663,150	4,669,151	10,086,010	-	27,412,000
Tobacco	41,516	12,484	-	-	-	-	54,000
Coconuts	-	-	-	85,859	220,381	520,970	827,209
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	528,660	-	-	-	-	528,660
Livestock and livestock products: (ton)							
Cattle	11,609	19,195	5,357	2,259	11,101	8,730	58,250
Buffalo	31,529	139,505	8,325	6,224	1,081	5,464	192,128
Swine	96,545	160,491	72,705	36,471	31,831	-	398,044
Chicken & Ducks	69,603	79,479	32,152	31,793	8,283	90,231	311,541

Table B.4: Optimum agricultural commodity produced under medium level of production targets, 1987. (Solution A87M).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	3,293,296	2,117,227	3,955,049	1,634,134	410,713	1,269,580	12,680,000
Glutinous rice, paddy	2,763,611	2,454,306	13,152	5,693	161,675	18,562	5,417,000
Maize	2,034,424	567,498	564,971	373,894	439,213	-	3,980,000
Sorghum	91,901	132,479	159,482	-	2,137	-	386,000
Mung beans	346,109	10,159	33,519	5,761	1,977	474	398,000
Soy beans	107,902	125,231	8,291	260	1,316	-	243,000
Sesame	23,221	-	4,779	-	-	-	28,000
Ground nuts	89,704	25,468	5,146	9,586	2,059	21,037	153,000
Kenaf	-	242,000	-	-	-	-	242,000
Cotton	50,114	32,332	24,884	5,235	18,435	-	131,000
Castor beans	11,790	15,665	6,031	-	8,514	-	42,000
Cassava, raw	672,111	14,277,590	499,220	5,866,294	732,787	-	22,048,000
Sugarcane	4,244,124	2,225,580	6,324,890	4,669,151	9,948,254	-	27,412,000
Tobacco	41,516	12,484	-	-	-	-	54,000
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	100,620	-	-	-	-	100,620
Livestock and livestock products: (ton)							
Cattle	11,609	19,195	5,357	2,259	6,949	8,730	54,099
Buffalo	31,529	112,099	8,325	6,224	14,791	5,464	178,432
Swine	96,545	133,212	72,706	36,471	31,831	-	370,765
Chicken & Ducks	69,604	92,786	32,152	31,794	8,283	36,782	271,401

Table B.5: Optimum agricultural commodity produced under medium level of production targets, 1991. (Solution A91M).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	4,363,876	2,593,038	4,039,373	1,669,090	686,779	2,145,843	15,498,000
Glutinous rice, paddy	2,506,721	3,149,184	13,152	5,693	45,688	18,562	5,739,000
Maize	2,616,468	454,426	581,793	659,734	333,579	-	4,646,000
Sorghum	91,901	249,479	159,482	-	2,137	-	503,000
Mung beans	309,569	10,947	74,179	5,684	1,978	644	484,000
Soy beans	128,024	250,109	8,291	260	1,316	-	388,000
Sesame	27,221	-	4,779	-	-	-	32,000
Ground nuts	76,960	48,212	5,146	9,586	2,059	21,037	163,000
Kenaf	-	260,000	-	-	-	-	260,000
Cotton	50,114	32,332	48,892	5,235	8,427	-	145,000
Castor beans	21,874	8,581	6,031	-	8,514	-	45,000
Cassava, raw	703,638	15,729,380	499,220	5,870,738	1,454,385	-	24,257,000
Sugarcane	2,238,740	4,379,920	6,631,504	4,661,191	10,280,680	-	28,300,000
Tobacco	25,261	34,739	-	-	-	-	60,000
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	427,976	-	-	-	-	427,976
Livestock and livestock products: (ton)							
Cattle	11,610	19,195	5,357	2,259	10,246	8,730	57,397
Buffalo	31,529	104,608	8,325	6,224	33,157	5,464	189,307
Swine	96,545	101,323	72,706	36,471	85,387	-	392,432
Chicken & Ducks	69,603	79,479	32,152	31,794	8,283	80,541	272,912

Table B.6: Optimum agricultural commodity produced under medium level of production targets, 1992. (Solution A92M).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	4,312,268	2,358,738	4,058,979	1,676,902	539,061	2,271,165	15,689,000
Glutinous rice, paddy	2,307,629	3,316,837	13,152	5,693	159,127	18,562	5,821,000
Maize	2,984,677	450,604	581,340	729,546	82,834	-	4,829,000
Sorghum	91,901	283,984	159,482	-	2,137	-	537,505
Mung beans	417,054	10,947	72,763	5,684	1,978	644	509,070
Soy beans	128,024	298,209	8,291	260	1,316	-	436,100
Sesame	28,221	-	4,779	-	-	-	33,000
Ground nuts	76,853	50,319	5,146	9,586	2,059	21,037	165,000
Kenaf	-	264,600	-	-	-	-	264,600
Cotton	50,114	32,332	52,492	5,235	8,427	-	148,600
Castor beans	22,874	8,581	6,031	-	8,514	-	46,000
Cassava, raw	703,638	15,417,030	499,220	5,870,378	2,365,731	-	24,856,000
Sugarcane	2,338,740	4,219,578	6,631,504	4,669,151	10,662,030	-	28,521,000
Tobacco	25,261	36,239	-	-	-	-	61,500
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	528,660	-	-	-	-	528,660
Livestock and livestock products: (ton)							
Cattle	11,610	19,195	5,357	2,259	11,101	8,730	57,892
Buffalo	31,529	104,608	8,325	6,224	35,978	5,464	192,128
Swine	96,545	101,322	72,706	36,741	90,999	-	398,313
Chicken & Ducks	69,603	79,479	32,152	31,793	24,718	73,796	311,541

Table B.7: Optimum agricultural commodity produced under high level of production targets, 1987. (Solution A87H).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	3,674,907	1,916,908	3,966,144	1,634,134	487,212	1,308,695	12,988,000
Glutinous rice, paddy	3,183,121	2,824,636	13,152	5,693	161,175	228,723	5,417,000
Maize	2,340,228	567,498	583,225	373,894	424,155	-	4,289,000
Sorghum	91,901	142,139	159,482	-	2,137	-	395,660
Mung beans	351,073	10,186	38,308	5,761	1,977	1 644	407,950
Soy beans	112,714	126,488	8,291	260	1,316	-	249,070
Sesame	24,221	-	4,779	-	-	-	29,000
Ground nuts	92,660	25,512	5,146	9,586	2,059	21,037	156,000
Kenaf	-	248,000	-	-	-	-	248,000
Cotton	50,114	32,332	24,884	5,235	21,435	-	134,000
Castor beans	11,790	16,665	6,031	-	8,514	-	43,000
Cassava, raw	700,576	14,800,120	499,220	5,866,294	732,787	-	22,599,000
Sugarcane	4,856,336	2,278,348	6,324,890	4,669,151	9,968,275	-	28,097,000
Tobacco	42,516	12,484	-	-	-	-	55,000
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	100,620	-	-	-	-	100,620
Livestock and livestock products: (ton)							
Cattle	11,609	19,195	5,357	2,259	6,949	8,730	54,099
Buffalo	31,529	104,608	8,325	6,224	22,282	5,464	236,688
Swine	96,545	101,323	72,706	36,471	63,720	-	370,765
Chicken & Ducks	69,603	79,479	32,152	31,794	20,834	37,538	271,400

Table B.8: Optimum agricultural commodity produced under high level of production targets, 1991. (Solution A91H).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	4,469,863	2,801,050	4,175,406	1,710,201	748,636	2,145,843	16,051,000
Glutinous rice, paddy	2,240,266	3,462,983	10,977	4,649	1,543	18,562	5,739,000
Maize	2,701,098	534,470	726,110	612,039	518,284	-	5,092,000
Sorghum	91,901	312,400	159,482	-	2,137	-	565,921
Mung beans	226,185	222,923	38,308	5,684	2,356	644	496,100
Soy beans	128,024	296,109	8,291	260	1,316	-	434,000
Sesame	28,221	-	4,779	-	-	-	33,000
Ground nuts	85,960	48,212	5,146	9,586	2,059	21,037	172,000
Kenaf	-	266,000	-	-	-	-	266,000
Cotton	50,114	32,332	52,492	5,235	8,427	-	148,600
Castor beans	11,790	8,581	6,031	-	8,514	-	34,915
Cassava, raw	4,422,580	13,260,480	499,220	5,870,378	810,346	-	24,863,000
Sugarcane	2,338,740	4,584,339	7,366,978	4,669,151	10,047,790	-	29,007,000
Tobacco	25,261	36,239	-	-	-	-	61,500
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	427,976	-	-	-	-	427,976
Livestock and livestock products: (ton)							
Cattle	11,609	19,195	5,357	2,259	10,246	8,730	57,936
Buffalo	31,529	104,608	8,325	6,224	1,081	37,540	189,307
Swine	96,545	101,323	72,706	36,471	85,387	-	392,432
Chicken & Ducks	69,604	79,479	32,152	31,794	8,282	80,541	301,852

Table B.9: Optimum agricultural commodity produced under high level of production targets, 1992. (Solution A92H).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	4,502,884	3,021,095	4,217,116	1,677,856	763,883	2,271,165	16,454,000
Glutinous rice, paddy	2,036,865	3,748,384	10,997	4,649	1,543	18,562	5,821,000
Maize	2,879,741	538,913	574,386	730,340	525,620	-	5,249,000
Sorghum	91,901	365,279	159,482	-	2,137	-	618,800
Mung beans	229,593	245,215	38,308	5,684	2,356	644	521,800
Soy beans	128,024	360,909	8,291	260	1,316	-	498,000
Sesame	29,221	-	4,779	-	-	-	34,000
Ground nuts	87,853	50,319	5,146	9,586	2,059	21,037	176,000
Kenaf	-	271,000	-	-	-	-	271,000
Cotton	50,114	32,332	56,192	5,235	8,427	-	152,300
Castor beans	23,874	8,581	6,031	-	8,514	-	47,000
Cassava, raw	4,872,680	12,587,650	1,316,430	5,870,378	830,857	-	25,478,000
Sugarcane	2,338,740	4,407,140	7,732,958	4,669,151	10,086,010	-	29,234,000
Tobacco	25,261	37,739	-	-	-	-	63,000
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	528,660	-	-	-	-	528,660
Livestock and livestock products: (ton)							
Cattle	11,609	19,195	5,357	2,258	11,101	8,729	58,249
Buffalo	31,529	104,608	8,325	6,224	35,978	5,464	250,384
Swine	96,545	101,323	72,706	36,471	90,999	-	398,044
Chicken & Ducks	69,603	79,479	32,152	31,793	48,944	90,231	352,202

Table B.10: Optimum agricultural commodity produced under medium level of production targets, 1987. (Solution B87M).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	3,871,305	2,221,400	4,050,561	1,691,098	494,471	1,105,996	13,434,830
Glutinous rice, paddy	1,720,867	2,296,914	10,997	4,649	1,207	18,562	4,053,195
Maize	1,837,316	567,498	583,179	142,1331	27,285	-	3,157,410
Sorghum	91,901	5,127	159,482	-	2,137	-	258,648
Mung beans	271,629	686,712	38,308	5,684	1,860	644	1,004,837
Soy beans	128,024	7,634	9,167	4,816	1,316	-	150,957
Sesame	27,003	-	4,779	-	-	-	31,782
Ground nuts	75,850	23,334	5,146	9,586	2,059	21,037	137,011
Kenaf	-	155,107	-	-	-	-	155,107
Cotton	47,182	32,332	24,884	5,235	8,427	-	118,060
Castor beans	11,790	8,581	6,031	-	8,514	-	34,915
Cassava, raw	672,111	10,790,640	499,220	5,870,378	732,787	-	18,565,130
Sugarcane	2,338,740	2,225,580	6,324,890	9,448,647	14,699,110	-	35,036,970
Tobacco	25,261	521,878	-	-	-	-	547,139
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	100,620	-	-	-	-	100,620
Livestock and livestock products: (ton)							
Cattle	13,673	19,195	5,357	2,259	4,885	8,730	54,099
Buffalo	52,731	104,608	8,325	6,224	1,081	5,464	178,433
Swine	96,545	133,212	72,706	36,471	31,831	-	370,765
Chicken & Ducks	357,941	206,468	14,194	47,797	238,362	597,283	1,462,045

Table B.11: Optimum agricultural commodity produced under medium level of production targets, 1991. (Solution B91M).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	4,675,401	2,703,830	4,552,533	1,798,202	535,391	1,145,807	15,411,160
Glutinous rice, paddy	1,713,441	2,296,914	10,997	4,649	1,207	18,562	4,045,769
Maize	1,875,268	567,498	583,321	142,133	27,285	-	3,195,505
Sorghum	91,901	5,127	159,482	-	2,137	-	258,648
Mung beans	270,784	708,833	38,308	5,684	1,861	644	1,026,112
Soy beans	128,024	25,636	9,167	4,816	1,316	-	168,959
Sesame	65,045	-	4,779	-	-	-	69,824
Ground nuts	75,794	25,512	5,146	9,586	2,059	21,037	139,134
Kenaf	-	155,107	-	-	-	-	155,107
Cotton	47,182	32,332	24,884	5,235	8,427	-	118,060
Castor beans	11,790	8,581	6,031	-	8,514	-	34,915
Cassava, raw	672,111	10,862,310	499,220	5,870,378	732,787	-	18,636,800
Sugarcane	2,338,740	2,225,580	6,271,857	10,314,920	12,906,860	-	34,057,960
Tobacco	25,261	583,749	-	-	-	-	609,010
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	427,976	-	-	-	-	427,976
Livestock and livestock products: (ton)							
Cattle	16,970	19,195	5,357	2,259	4,885	8,730	57,395
Buffalo	63,605	104,608	8,325	6,224	1,081	5,464	189,307
Swine	96,545	101,323	72,706	90,027	31,831	-	392,432
Chicken & Ducks	271,349	428,676	14,194	83,933	284,614	703,068	1,785,834

Table B.12: Optimum agricultural commodity produced under medium level of production targets, 1992. (Solution B92M).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	3,951,720	2,308,980	4,657,743	1,814,583	553,112	1,155,325	14,441,460
Glutinous rice, paddy	1,896,783	2,296,914	10,997	4,649	1,207	18,562	4,229,111
Maize	1,871,219	567,498	583,321	142,133	27,285	-	3,191,456
Sorghum	91,901	5,127	159,482	-	2,137	-	258,648
Mung beans	271,629	714,571	38,308	5,684	1,860	644	1,032,696
Soy beans	128,024	7,634	9,167	4,816	1,316	-	150,957
Sesame	27,003	-	4,779	-	-	-	31,782
Ground nuts	76,086	23,334	5,146	9,586	2,059	21,037	137,247
Kenaf	-	155,107	-	-	-	-	155,107
Cotton	47,182	13,332	24,884	5,235	8,427	-	118,060
Castor beans	11,790	8,581	6,031	-	8,514	-	34,915
Cassava, raw	672,111	10,880,900	499,220	5,870,378	732,787	-	18,655,390
Sugarcane	2,338,740	2,225,580	6,254,066	10,539,680	12,246,960	-	33,605,020
Tobacco	25,261	559,767	-	-	-	-	585,028
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	528,660	-	-	-	-	528,660
Livestock and livestock products: (ton)							
Cattle	17,826	19,195	5,357	2,259	4,885	8,730	58,252
Buffalo	66,426	104,608	8,325	6,224	1,081	5,464	192,128
Swine	96,545	160,491	72,706	36,471	31,831	-	398,044
Chicken & Ducks	502,095	682,690	14,194	113,754	295,884	728,883	2,337,500

Table B.13: Optimum agricultural commodity produced under low level of production targets, 1987. (Solution C87L).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	2,965,708	2,148,730	3,955,255	1,671,014	410,713	1,269,580	12,421,000
Glutinous rice, paddy	2,921,004	2,296,914	13,152	5,693	161,675	18,562	5,417,000
Maize	1,866,072	567,498	564,971	305,716	450,743	-	3,755,000
Sorghum	91,901	16,565	159,482	-	4,051	-	272,000
Mung beans	342,219	10,159	33,519	5,789	1,860	474	394,020
Soy beans	107,902	118,024	8,291	347	1,316	-	235,880
Sesame	22,221	-	4,779	-	-	-	27,000
Ground nuts	83,704	25,468	5,146	9,586	2,059	21,037	147,000
Kenaf	-	238,000	-	-	-	-	238,000
Cotton	50,114	32,332	24,884	5,235	15,435	-	128,000
Castor beans	11,789	14,665	6,031	-	8,514	-	41,000
Cassava, raw	672,111	13,696,670	499,220	5,865,215	732,787	-	21,466,000
Sugarcane	4,047,453	2,225,580	6,324,890	4,669,151	9,932,925	-	27,200,000
Tobacco	40,516	12,484	-	-	-	-	53,000
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	100,620	-	-	-	-	100,620
Livestock and livestock products: (ton)							
Cattle	11,609	19,195	5,357	2,259	6,949	8,730	54,099
Buffalo	31,529	104,608	8,325	6,224	22,282	5,464	178,432
Swine	96,545	133,212	72,706	36,471	31,831	-	370,765
Chicken & Ducks	82,154	80,235	32,152	31,793	8,283	36,782	271,399

Table B.14: Optimum agricultural commodity produced under low level of production targets, 1991. (Solution C91L).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	3,585,606	2,496,726	4,016,137	1,695,614	419,006	1,523,911	13,737,000
Glutinous rice, paddy	3,001,739	2,368,273	13,152	177,690	159,585	18,562	5,739,000
Maize	2,133,212	567,498	573,299	411,240	508,750	-	4,194,000
Sorghum	91,901	169,009	159,482	-	2,137	-	422,530
Mung beans	412,907	10,158	33,519	5,810	1,977	644	464,300
Soy beans	109,111	219,572	8,291	310	1,316	-	338,600
Sesame	23,221	-	4,779	-	-	-	28,000
Ground nuts	81,726	33,446	5,146	9,586	2,059	21,037	153,000
Kenaf	-	242,000	-	-	-	-	242,000
Cotton	50,114	32,332	24,884	8,493	15,177	-	131,000
Castor beans	11,789	15,665	6,031	-	8,514	-	42,000
Cassava, raw	672,111	14,276,440	499,220	5,867,446	732,787	-	22,048,000
Sugarcane	3,837,973	2,225,580	6,631,504	4,669,151	10,047,790	-	27,412,000
Tobacco	41,516	12,484	-	-	-	-	54,000
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	427,976	-	-	-	-	427,976
Livestock and livestock products: (ton)							
Cattle	11,609	19,195	5,357	2,259	10,246	8,730	57,396
Buffalo	31,529	136,684	8,325	6,224	1,081	5,464	189,307
Swine	96,545	154,879	72,706	36,471	31,831	-	392,432
Chicken & Ducks	69,603	93,941	32,152	31,793	8,283	66,073	301,845

Table B.15: Optimum agricultural commodity produced under low level of production targets, 1992. (Solution C92L).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	3,324,103	2,334,757	4,024,369	1,675,744	421,083	1,600,946	13,381,000
Glutinous rice, paddy	3,197,722	2,296,914	13,152	135,523	159,127	18,562	5,821,000
Maize	2,183,785	567,498	568,578	403,284	530,855	-	4,254,000
Sorghum	91,901	171,698	159,482	-	13,638	-	436,720
Mung beans	431,958	10,159	33,519	5,810	1,860	474	483,780
Soy beans	109,742	251,002	8,291	310	1,316	-	370,660
Sesame	23,221	-	4,779	-	-	-	28,000
Ground nuts	81,583	33,589	5,146	9,586	2,059	21,037	153,000
Kenaf	-	242,000	-	-	-	-	242,000
Cotton	50,114	32,332	24,884	15,055	8,614	-	131,000
Castor beans	11,790	15,665	6,031	-	8,514	-	42,000
Cassava, raw	672,111	14,268,970	499,220	5,874,911	732,787	-	22,048,000
Sugarcane	3,799,754	2,225,580	6,631,504	4,669,151	10,086,010	-	27,412,000
Tobacco	41,516	12,484	-	-	-	-	54,000
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	528,660	-	-	-	-	528,660
Livestock and livestock products: (ton)							
Cattle	11,609	19,195	5,357	2,259	11,101	8,730	58,251
Buffalo	31,529	139,505	8,325	6,224	1,081	5,464	192,038
Swine	96,545	160,491	72,706	36,471	31,831	-	398,044
Chicken & Ducks	69,603	95,904	32,152	31,793	8,283	73,796	311,630

Table B.16: Optimum agricultural commodity produced under medium level of production targets, 1987. (Solution C87M).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	3,264,503	2,142,172	3,955,255	1,637,206	410,713	1,269,580	12,680,000
Glutinous rice, paddy	2,866,199	2,344,100	13,151	13,312	161,675	18,562	5,417,000
Maize	2,010,402	567,498	564,971	357,793	479,337	-	3,980,000
Sorghum	91,901	132,479	159,482	-	2,137	-	386,000
Mung beans	346,061	10,159	33,519	5,810	1,977	474	398,000
Soy beans	107,902	125,182	8,291	310	1,316	-	243,000
Sesame	23,221	-	4,779	-	-	-	28,000
Ground nuts	89,704	25,468	5,146	9,586	2,059	21,037	153,000
Kenaf	-	242,000	-	-	-	-	242,000
Cotton	50,114	32,332	24,884	13,228	10,441	-	131,000
Castor beans	11,790	15,665	6,031	-	8,154	-	42,000
Cassava, raw	672,111	14,271,050	499,220	5,872,732	732,787	-	22,048,000
Sugarcane	4,297,469	2,225,580	6,324,890	4,669,151	9,894,910	-	27,412,000
Tobacco	41,516	12,484	-	-	-	-	54,000
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	100,620	-	-	-	-	100,620
Livestock and livestock products: (ton)							
Cattle	11,609	19,195	5,357	2,259	6,949	8,730	54,099
Buffalo	31,529	125,809	8,325	6,224	1,081	5,464	178,432
Swine	96,545	133,212	72,706	36,471	31,831	-	370,765
Chicken & Ducks	70,603	80,235	32,152	31,793	20,834	36,782	272,399

Table B.17: Optimum agricultural commodity produced under medium level of production targets, 1991. (Solution C91M).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	3,836,849	3,277,582	4,049,928	1,672,698	515,099	2,145,843	15,498,000
Glutinous rice, paddy	2,357,938	3,186,071	13,152	5,693	159,585	18,562	5,739,000
Maize	2,558,074	448,542	583,321	697,225	358,838	-	4,646,000
Sorghum	91,901	249,479	159,482	-	2,137	-	503,000
Mung beans	428,096	10,159	37,439	5,684	1,977	644	484,000
Soy beans	110,336	267,796	8,291	260	1,316	-	388,000
Sesame	27,221	-	4,779	-	-	-	32,000
Ground nuts	99,659	25,512	5,146	9,586	2,059	21,037	163,000
Kenaf	-	260,000	-	-	-	-	260,000
Cotton	50,114	32,332	24,884	5,235	32,435	-	145,000
Castor beans	11,790	8,580	6,031	-	18,599	-	45,000
Cassava, raw	703,638	16,382,310	499,220	5,870,378	801,458	-	24,257,000
Sugarcane	4,526,663	2,225,580	6,631,504	4,669,151	10,247,100	-	28,300,000
Tobacco	25,261	34,739	-	-	-	-	60,000
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	427,976	-	-	-	-	427,976
Livestock and livestock products: (ton)							
Cattle	11,609	19,195	5,357	2,259	10,246	8,730	57,396
Buffalo	31,529	104,608	8,325	6,224	33,157	5,464	189,307
Swine	96,545	101,323	72,706	36,471	85,387	-	392,432
Chicken & Ducks	69,603	79,497	32,152	31,793	22,745	66,079	301,869

Table B.18: Optimum agricultural commodity produced under medium level of production targets, 1992. (Solution C92M).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	3,950,741	3,207,483	4,070,354	1,676,056	513,201	2,271,165	15,689,000
Glutinous rice, paddy	2,314,176	3,310,290	13,151	5,693	159,127	18,562	5,821,000
Maize	2,910,960	451,508	583,321	766,845	116,365	-	4,829,000
Sorghum	91,901	283,984	159,482	-	2,137	-	537,505
Mung beans	453,090	10,159	37,396	5,803	1,978	644	509,070
Soy beans	109,742	316,491	8,291	260	1,316	-	436,100
Sesame	28,221	-	4,779	-	-	-	33,000
Ground nuts	101,660	25,512	5,146	9,587	2,059	21,037	165,000
Kenaf	-	264,600	-	-	-	-	264,000
Cotton	50,114	32,332	24,884	5,235	36,035	-	148,600
Castor beans	11,790	8,581	6,031	-	19,599	-	46,000
Cassava, raw	703,638	16,182,020	499,220	5,864,098	1,607,026	-	24,856,000
Sugarcane	4,377,318	2,225,580	6,631,504	4,669,151	10,617,450	-	28,521,000
Tobacco	49,016	12,484	-	-	-	-	61,500
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	528,660	-	-	-	-	528,660
Livestock and livestock products: (ton)							
Cattle	11,609	19,195	5,357	2,259	11,101	8,730	58,251
Buffalo	31,529	139,505	8,325	6,224	1,081	5,464	192,038
Swine	96,545	160,491	72,706	36,471	31,831	-	398,044
Chicken & Ducks	70,603	116,493	32,152	31,793	24,718	36,782	312,541

Table B.19: Optimum agricultural commodity produced under high level of production targets, 1987. (Solution C87H).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	3,563,821	2,152,819	3,955,255	1,635,803	410,713	1,269,580	12,988,000
Glutinous rice, paddy	3,318,275	2,899,643	13,151	5,693	161,675	18,562	5,417,000
Maize	2,319,513	567,498	570,983	351,670	479,337	-	4,289,000
Sorghum	91,909	142,139	159,482	-	2,137	-	395,660
Mung beans	355,813	10,186	33,159	5,810	1,977	644	407,950
Soy beans	112,714	126,439	8,291	310	1,316	-	249,070
Sesame	24,221	-	4,779	-	-	-	29,000
Ground nuts	92,660	25,512	5,146	9,586	2,059	21,037	156,000
Kenaf	-	248,000	-	-	-	-	248,000
Cotton	50,114	32,332	24,884	16,228	10,441	-	134,000
Castor beans	11,790	16,665	6,031	-	8,514	-	43,000
Cassava, raw	700,012	14,790,740	499,220	5,876,245	732,787	-	22,599,000
Sugarcane	4,894,440	2,313,609	6,324,890	4,669,151	9,894,910	-	28,097,000
Tobacco	42,516	12,484	-	-	-	-	55,000
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,112	-	568,065	626,178
Wood products (1,000 m^3)	-	100,620	-	-	-	-	100,620
Livestock and livestock products: (ton)							
Cattle	11,609	19,195	5,357	2,259	6,949	8,730	54,099
Buffalo	31,529	125,809	8,325	6,224	1,081	5,464	178,432
Swine	96,545	133,212	72,706	36,471	31,831	-	370,765
Chicken & Ducks	69,603	80,235	32,152	31,793	20,834	36,782	271,399

Table B.20: Optimum agricultural commodity produced under high level of production targets, 1991. (Solution C91H).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	4,136,330	3,373,177	4,023,621	1,708,733	663,296	2,145,843	16,051,000
Glutinous rice, paddy	2,177,208	3,462,983	13,152	4,649	62,447	18,562	5,739,000
Maize	3,157,017	510,717	668,414	607,912	147,941	-	5,092,000
Sorghum	91,901	312,400	159,482	-	2,137	-	565,921
Mung beans	257,216	158,159	72,420	5,684	1,977	644	496,000
Soy beans	128,024	296,109	8,291	260	1,316	-	434,000
Sesame	28,221	-	4,779	-	-	-	33,000
Ground nuts	85,960	48,212	5,146	9,586	2,059	21,037	172,000
Kenaf	-	266,000	-	-	-	-	266,000
Cotton	50,114	32,332	52,492	5,235	8,427	-	148,600
Castor beans	22,874	8,581	6,031	-	8,514	-	46,000
Cassava, raw	1,929,982	14,470,200	499,220	5,870,378	2,095,164	-	24,863,000
Sugarcane	2,338,740	2,225,580	7,366,978	6,548,028	10,527,490	-	29,007,000
Tobacco	25,261	36,239	-	-	-	-	61,500
Coconuts	-	-	-	85,859	220,381	502,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	427,976	-	-	-	-	427,976
Livestock and livestock products: (ton)							
Cattle	11,609	19,195	5,357	2,259	10,246	8,730	57,396
Buffalo	31,529	104,608	8,325	6,224	26,641	11,980	189,307
Swine	96,545	101,323	72,706	36,471	85,387	-	392,432
Chicken & Ducks	69,603	79,479	32,152	31,793	22,745	66,079	301,851

Table B.21: Optimum agricultural commodity produced under high level of production targets, 1992. (Solution C92H).

Commodity	Regions						Whole Kingdom
	North	Northeast	Central Plains*	East	West	South	
Crops: (ton)							
Non-glutinuous rice, paddy	4,088,401	3,708,513	4,045,027	1,676,056	664,839	2,271,165	16,454,000
Glutinous rice, paddy	1,964,243	3,748,384	13,152	5,693	70,966	18,562	5,821,000
Maize	3,447,738	484,097	580,763	703,744	32,685	-	5,249,000
Sorghum	91,901	365,279	159,482	-	2,137	-	618,800
Mung beans	363,029	79,390	70,956	5,803	1,977	644	521,800
Soy beans	128,024	360,909	8,291	260	1,316	-	498,800
Sesame	29,221	-	4,779	-	-	-	34,000
Ground nuts	112,660	25,512	5,146	9,586	2,059	21,307	176,000
Kenaf	-	271,200	-	-	-	-	271,200
Cotton	50,114	32,232	56,192	5,235	8,427	-	152,300
Castor beans	23,874	8,580	6,031	-	8,514	-	47,000
Cassava, raw	1,882,182	14,693,580	499,220	5,864,098	2,538,923	-	25,478,000
Sugarcane	2,338,740	2,404,082	7,732,958	6,029,484	10,728,740	-	29,234,000
Tobacco	25,261	37,739	-	-	-	-	63,000
Coconuts	-	-	-	85,859	220,381	520,970	827,210
Rubber	-	-	-	58,113	-	568,065	626,178
Wood products (1,000 m^3)	-	528,660	-	-	-	-	528,660
Livestock and livestock products: (ton)							
Cattle	11,609	19,195	5,357	2,259	11,101	8,730	58,251
Buffalo	31,529	104,608	8,325	6,224	29,254	12,188	192,128
Swine	96,545	101,323	72,706	36,471	90,999	-	398,045
Chicken & Ducks	69,603	79,479	32,152	31,793	24,717	73,769	311,513

Table C.1: Optimum pattern of land use for agricultural production at low target in the Whole Kingdom, 1987, (Solution A87L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,296	0	100.00	
TYPE II	18,808	16,588	2,220	88.19	
TYPE III	34,244	24,618	9,625	71.89	
TYPE IV	19,086	18,437	649	96.60	
TYPE V UPLAND	10,584	9,086	1,498	85.85	
TYPE V LOWLAND	17,323	13,727	3,596	79.24	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,251	4,051	199	95.31	
TYPE III	34,244	0	34,244	0.	
TYPE IV	19,086	13,538	5,548	70.93	
TYPE V UPLAND	10,584	4,319	6,265	40.81	
TYPE V LOWLAND	17,323	0	17,323	0.	
FALLOW LAND	7,070	2,573	4,497	36.39	
FOREST LAND	22,144	559	21,585	2.52	

Table C.2: Optimum pattern of land use for agricultural production at low target in the North, 1987, (Solution A87L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,285	0	100.00	50.02640
TYPE II	5,150	4,395	755	85.34	0.
TYPE III	4,015	3,415	600	85.06	0.
TYPE IV	4,539	4,539	0	100.00	4.81571
TYPE V UPLAND	3,955	3,955	0	100.00	16.11407
TYPE V LOWLAND	6,449	5,829	620	90.38	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	502	502	0	100.00	26.79569
TYPE III	4,015	0	4,015	0.	0.
TYPE IV	4,539	3,053	1,486	67.25	0.
TYPE V UPLAND	3,955	0	3,955	0.	0.
TYPE V LOWLAND	6,449	0	6,449	0.	0.
FALLOW LAND	892	0	892	0.	0.

Table C.3: Optimum pattern of land use for agricultural production at low target in the Northeast, 1987, (Solution A87L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	2,962	2,007	960	67.60	0.
TYPE III	25,552	17,330	8,221	67.82	0.
TYPE IV	8,741	8,092	649	92.57	0.
TYPE V UPLAND	2,884	2,884	0	100.00	0.
TYPE V LOWLAND	7,937	5,390	2,547	67.90	0.
DRY SEASON					
TYPE II	276	236	0	100.00	46.91022
TYPE III	25,552	0	25,552	0.	0.
TYPE IV	8,741	5,268	3,473	60.27	0.
TYPE V UPLAND	2,884	2,884	0	100.00	28.13762
TYPE V LOWLAND	7,937	0	7,937	0.	0.
FALLOW LAND	3,535	1,678	1,857	47.46	0.
FOREST LAND	12,886	559	12,327	4.34	0.

Table C.4: Optimum pattern of land use for agricultural production at low target in the Central Plains, 1987, (Solution A87L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	425.47712
TYPE II	5,587	5,587	0	100.00	101.82432
TYPE III	908	908	0	100.00	227.85713
TYPE IV	2,129	2,129	0	100.00	53.26861
TYPE V UPLAND	1,344	0	1,344	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,473	2,473	0	100.00	47.26573
TYPE III	908	0	908	0.	0.
TYPE IV	2,129	1,712	417	80.40	0.
TYPE V UPLAND	1,344	0	1,344	0.	0.
FALLOW LAND	892	0	892	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.5: Optimum pattern of land use for agricultural production at low target in the East, 1987, (Solution A87L).

(unit : 1,000 rais)

LAND TYPE	AVAILABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,517	1,484	34	97.79	0.
TYPE III	2,214	1,692	521	76.45	0.
TYPE IV	2,350	2,350	0	100.00	39.96937
TYPE V UPLAND	1,738	1,584	154	91.12	0.
TYPE V LOWLAND	722	722	0	100.00	17.15929
DRY SEASON					
TYPE II	453	453	0	100.00	131.71655
TYPE III	2,214	0	2,214	0.	0.
TYPE IV	2,350	2,309	41	98.25	0.
TYPE V UPLAND	1,738	772	966	44.44	0.
TYPE V LOWLAND	722	0	722	0.	0.
FALLOW LAND	651	651	0	100.00	0.
FOREST LAND	2,373	0	2,373	0.	0.

Table C.6: Optimum pattern of land use for agricultural production at low target in the West, 1987, (Solution A87L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,600	1,600	0	100.00	7.23234
TYPE III	359	359	0	100.00	39.26366
TYPE IV	1,196	1,196	0	100.00	19.33240
TYPE V UPLAND	663	663	0	100.00	48.97750
TYPE V LOWLAND	412	412	0	100.00	52.39922
DRY SEASON					
TYPE II	787	787	0	100.00	220.27116
TYPE III	359	0	359	0.	0.
TYPE IV	1,196	1,196	0	100.00	22.93833
TYPE V UPLAND	663	663	0	100.00	35.53388
TYPE V LOWLAND	412	0	412	0.	0.
FALLOW LAND	244	244	0	100.00	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.7: Optimum pattern of land use for agricultural production at low target in the South, 1987, (Solution A87L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	1,992	1,520	472	76.30	0.
TYPE III	1,197	914	283	76.38	0.
TYPE IV	131	131	0	100.00	163.58207
TYPE V LOWLAND	1,804	1,375	429	76.23	0.
DRY SEASON					
TYPE II	199	0	199	0.	0.
TYPE III	1,197	0	1,197	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,804	0	1,804	0.	0.
FALLOW LAND	856	0	856	0.	0.

Table C.8: Optimum pattern of land use for agricultural production at medium target in the Whole Kingdom, 1987, (Solution A87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,296	0	100.00	
TYPE II	18,808	16,093	2,715	85.56	
TYPE III	34,244	24,858	9,386	72.59	
TYPE IV	19,086	18,781	305	98.40	
TYPE V UPLAND	10,584	9,240	1,344	87.30	
TYPE V LOWLAND	17,323	13,832	3,492	79.84	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,251	4,051	199	95.31	
TYPE III	34,244	0	34,244	0.	
TYPE IV	19,086	14,981	4,105	78.49	
TYPE V UPLAND	10,584	4,293	6,292	40.56	
TYPE V LOWLAND	17,323	0	17,323	0.	
FALLOW LAND	7,070	1,678	5,392	23.73	
FOREST LAND	22,144	559	21,585	2.52	

Table C.9: Optimum pattern of land use for agricultural production at medium target in the North, 1987, (Solution A87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,285	0	100.00	32.63748
TYPE II	5,150	4,395	755	85.34	0.
TYPE III	4,015	3,415	600	85.06	0.
TYPE IV	4,539	4,539	0	100.00	48.16191
TYPE V UPLAND	3,955	3,955	0	100.00	64.02990
TYPE V LOWLAND	6,449	5,651	797	87.63	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	502	502	0	100.00	70.14189
TYPE III	4,015	0	4,015	0.	0.
TYPE IV	4,539	3,653	886	80.49	0.
TYPE V UPLAND	3,955	0	3,955	0.	0.
TYPE V LOWLAND	6,449	0	6,449	0.	0.
FALLOW LAND	892	0	892	0.	0.

Table C.10: Optimum pattern of land use for agricultural production at medium target in the Northeast, 1987, (Solution A87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	2,962	2,003	960	67.60	0.
TYPE III	25,552	17,049	8,503	66.72	0.
TYPE IV	8,741	8,436	305	96.51	0.
TYPE V UPLAND	2,884	2,884	0	100.00	0.
TYPE V LOWLAND	7,937	5,671	2,266	71.46	0.
DRY SEASON					
TYPE II	236	236	0	100.00	49.92561
TYPE III	25,552	0	25,552	0.	0.
TYPE IV	8,741	6,084	2,657	69.61	0.
TYPE V UPLAND	2,884	2,884	0	100.00	28.13762
TYPE V LOWLAND	7,937	0	7,937	0.	0.
FALLOW LAND	3,535	1,678	1,857	47.46	0.
FOREST LAND	12,886	559	12,327	4.34	0.

Table C.11: Optimum pattern of land use for agricultural production at medium target in the Central Plains, 1987, (Solution A87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	424.82715
TYPE II	5,587	5,587	0	100.00	119.54201
TYPE III	908	908	0	100.00	236.76854
TYPE IV	2,129	2,129	0	100.00	62.26064
TYPE V UPLAND	1,344	0	1,344	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,473	2,473	0	100.00	87.08549
TYPE III	908	0	908	0.	0.
TYPE IV	2,129	1,712	417	80.40	0.
TYPE V UPLAND	1,344	0	1,344	0.	0.
FALLOW LAND	892	0	892	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.12: Optimum pattern of land use for agricultural production at medium target in the East, 1987, (Solution A87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USE$_D$	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,517	989	528	65.19	0.
TYPE III	2,214	2,214	0	100.00	38.68621
TYPE IV	2,350	2,350	0	100.00	48.65503
TYPE V UPLAND	1,738	1,738	0	100.00	45.43698
TYPE V LOWLAND	722	722	0	100.00	58.51209
DRY SEASON					
TYPE II	453	453	0	100.00	51.04049
TYPE III	2,214	0	2,214	0.	0.
TYPE IV	2,350	2,336	14	99.39	0.
TYPE V UPLAND	1,738	746	992	42.90	0.
TYPE V LOWLAND	722	0	722	0.	0.
FALLOW LAND	651	0	651	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.13: Optimum pattern of land use for agricultural production at medium target in the West, 1987, (Solution A87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,600	1,600	0	100.00	38.23755
TYPE III	359	359	0	100.00	63.58364
TYPE IV	1,196	1,196	0	100.00	70.06902
TYPE V UPLAND	663	663	0	100.00	94.41447
TYPE V LOWLAND	412	412	0	100.00	83.98939
DRY SEASON					
TYPE II	387	387	0	100.00	312.45581
TYPE III	359	0	359	0.	0.
TYPE IV	1,196	1,196	0	100.00	49.99072
TYPE V UPLAND	663	663	0	100.00	77.27077
TYPE V LOWLAND	412	0	412	0.	0.
FALLOW LAND	244	0	244	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.14: Optimum pattern of land use for agricultural production at medium target in the South, 1987, (Solution A87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	1,992	1,520	472	76.30	0.
TYPE III	1,197	914	283	76.38	0.
TYPE IV	131	131	0	100.00	199.18041
TYPE V LOWLAND	1,804	1,375	429	76.23	0.
DRY SEASON					
TYPE II	199	0	199	0.	0.
TYPE III	1,197	0	1,197	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,804	0	1,804	0.	0.
FALLOW LAND	856	0	856	0.	0.

Table C.15: Optimum pattern of land use for agricultural production at high target in the Whole Kingdom, 1987, (Solution A87H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,296	0	100.00	
TYPE II	18,808	16,013	2,795	85.14	
TYPE III	34,244	25,374	8,870	74.10	
TYPE IV	19,086	19,086	0	100.00	
TYPE V UPLAND	10,584	9,240	1,344	87.30	
TYPE V LOWLAND	17,323	13,096	4,228	75.59	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,251	4,251	0	100.00	
TYPE III	34,244	0	34,244	0.	
TYPE IV	19,086	16,211	2,875	84.94	
TYPE V UPLAND	10,584	4,548	6,037	42.97	
TYPE V LOWLAND	17,323	0	17,323	0.	
FALLOW LAND	7,070	1,678	5,392	23.73	
FOREST LAND	22,144	559	21,585	2.52	

Table C.16: Optimum pattern of land use for agricultural production at high target in the North, 1987, (Solution A87H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,285	0	100.00	30.79733
TYPE II	5,150	4,315	835	83.79	0.
TYPE III	4,015	3,415	600	85.06	0.
TYPE IV	4,539	4,539	0	100.00	92.49961
TYPE V UPLAND	3,955	3,955	0	100.00	112.79016
TYPE V LOWLAND	6,449	4,768	1,681	73.94	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	502	502	0	100.00	108.89789
TYPE III	4,015	0	4,015	0.	0.
TYPE IV	4,539	4,539	0	100.00	19.98407
TYPE V UPLAND	3,955	252	3,703	6.37	0.
TYPE V LOWLAND	6,449	0	6,449	0.	0.
FALLOW LAND	892	0	892	0.	0.

Table C.17: Optimum pattern of land use for agricultural production at high target in the Northeast, 1987, (Solution A87H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	2,962	2,003	960	67.60	0.
TYPE III	25,552	17,330	8,221	67.82	0.
TYPE IV	8,741	8,741	0	100.00	61.15131
TYPE V UPLAND	2,884	2,884	0	100.00	107.55977
TYPE V LOWLAND	7,937	5,390	2,547	67.90	0.
DRY SEASON					
TYPE II	236	236	0	100.00	67.58954
TYPE III	25,552	0	25,552	0.	0.
TYPE IV	8,741	6,432	2,310	73.58	0.
TYPE V UPLAND	2,884	2,884	0	100.00	0.
TYPE V LOWLAND	7,937	0	7,937	0.	0.
FALLOW LAND	3,535	1,678	1,857	47.46	0.
FOREST LAND	12,886	559	12,327	4.34	0.

Table C.18: Optimum pattern of land use for agricultural production at high target in the Central Plains, 1987, (Solution A87H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	460.75014
TYPE II	5,587	5,587	0	100.00	137.76078
TYPE III	908	908	0	100.00	259.61641
TYPE IV	2,129	2,129	0	100.00	102.06409
TYPE V UPLAND	1,344	0	1,344	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,473	2,473	0	100.00	166.65451
TYPE III	908	0	908	0.	0.
TYPE IV	2,129	1,709	420	80.26	0.
TYPE V UPLAND	1,344	3	1,341	0.23	0.
FALLOW LAND	892	0	892	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.19: Optimum pattern of land use for agricultural production at high target in the East, 1987, (Solution A87H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,517	989	528	65.19	0.
TYPE III	2,214	2,214	0	100.00	43.83107
TYPE IV	2,350	2,350	0	100.00	94.84339
TYPE V UPLAND	1,738	1,738	0	100.00	89.41167
TYPE V LOWLAND	722	722	0	100.00	66.10530
DRY SEASON					
TYPE II	453	453	0	100.00	98.27847
TYPE III	2,214	0	2,214	0.	0.
TYPE IV	2,350	2,336	14	99.39	0.
TYPE V UPLAND	1,738	746	992	42.90	0.
TYPE V LOWLAND	722	0	722	0.	0.
FALLOW LAND	651	0	651	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.20: Optimum pattern of land use for agricultural production at high target in the West, 1987, (Solution A87H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,600	1,600	0	100.00	54.20616
TYPE III	359	359	0	100.00	77.66012
TYPE IV	1,196	1,196	0	100.00	102.30513
TYPE V UPLAND	663	663	0	100.00	138.38917
TYPE V LOWLAND	412	412	0	100.00	100.46341
DRY SEASON					
TYPE II	387	387	0	100.00	423.87435
TYPE III	359	0	359	0.	0.
TYPE IV	1,196	1,196	0	100.00	90.91339
TYPE V UPLAND	663	663	0	100.00	117.66446
TYPE V LOWLAND	412	0	412	0.	0.
FALLOW LAND	244	0	244	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.21: Optimum pattern of land use for agricultural production at high target in the South, 1987, (Solution A87H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	1,992	1,520	472	76.30	0.
TYPE III	1,197	1,149	48	95.97	0.
TYPE IV	131	131	0	100.00	235.59301
TYPE V LOWLAND	1,804	1,804	0	100.00	15.16264
DRY SEASON					
TYPE II	199	199	0	100.00	12.97631
TYPE III	1,197	0	1,197	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,804	0	1,804	0.	0.
FALLOW LAND	856	0	856	0.	0.

Table C.22: Optimum pattern of land use for agricultural production at low target in the Whole Kingdom, 1991, (Solution A91L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,296	0	100.00	
TYPE II	21,488	18,844	2,645	87.69	
TYPE III	31,566	22,733	8,833	72.02	
TYPE IV	19,095	19,016	78	99.59	
TYPE V UPLAND	11,234	9,807	1,426	87.30	
TYPE V LOWLAND	18,386	13,964	4,423	75.95	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,736	4,611	125	97.37	
TYPE III	31,566	0	31,566	0.	
TYPE IV	19,095	15,135	3,960	79.26	
TYPE V UPLAND	11,234	4,518	6,716	40.22	
TYPE V LOWLAND	18,386	0	18,386	0.	
FALLOW LAND	7,105	1,678	5,427	23.62	
FOREST LAND	22,144	2,378	19,766	10.74	

Table C.23: Optimum pattern of land use for agricultural production at low target in the North, 1991, (Solution A91L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,285	0	100.00	33.94780
TYPE II	5,950	5,254	696	88.30	0.
TYPE III	3,215	2,809	406	87.37	0.
TYPE IV	4,534	4,534	0	100.00	36.29297
TYPE V UPLAND	4,198	4,198	0	100.00	50.97706
TYPE V LOWLAND	6,844	5,936	908	86.73	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	580	580	0	100.00	58.27295
TYPE III	3,215	0	3,215	0.	0.
TYPE IV	4,534	3,982	552	87.83	0.
TYPE V UPLAND	4,198	0	4,198	0.	0.
TYPE V LOWLAND	6,844	0	6,844	0.	0.
FALLOW LAND	947	0	947	0.	0.

Table C.24: Optimum pattern of land use for agricultural production at low target in the Northeast, 1991, (Solution A91L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	3,592	2,398	1,194	66.76	0.
TYPE III	24,924	16,688	8,236	66.95	0.
TYPE IV	8,741	8,663	78	99.10	0.
TYPE V UPLAND	3,061	3,061	0	100.00	0.
TYPE V LOWLAND	8,424	5,637	2,787	66.91	0.
DRY SEASON					
TYPE II	286	286	0	100.00	9.30823
TYPE III	24,924	0	24,924	0.	0.
TYPE IV	8,741	6,032	2,709	69.01	0.
TYPE V UPLAND	3,061	3,061	0	100.00	28.13762
TYPE V LOWLAND	8,424	0	8,424	0.	0.
FALLOW LAND	3,752	1,678	2,074	44.72	0.
FOREST LAND	12,886	2,378	10,508	18.45	0.

Table C.25: Optimum pattern of land use for agricultural production at low target in the Central Plains, 1991, (Solution A91L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	344.09979
TYPE II	6,147	6,147	0	100.00	35.92894
TYPE III	348	348	0	100.00	153.91058
TYPE IV	2,143	2,143	0	100.00	60.28677
TYPE V UPLAND	1,426	0	1,426	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,721	2,597	125	95.42	0.
TYPE III	348	0	348	0.	0.
TYPE IV	2,143	1,575	568	73.49	0.
TYPE V UPLAND	1,426	0	1,426	0.	0.
FALLOW LAND	947	0	947	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.26: Optimum pattern of land use for agricultural production at low target in the East, 1991, (Solution A91L1).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,621	1,488	133	91.78	0.
TYPE III	2,110	2,110	0	100.00	33.29534
TYPE IV	2,350	2,350	0	100.00	28.54979
TYPE V UPLAND	1,845	1,845	0	100.00	33.66521
TYPE V LOWLAND	766	766	0	100.00	51.47811
DRY SEASON					
TYPE II	484	484	0	100.00	9.55906
TYPE III	2,110	0	2,110	0.	0.
TYPE IV	2,350	2,350	0	100.00	0.
TYPE V UPLAND	1,845	753	1,092	40.83	0.
TYPE V LOWLAND	766	0	766	0.	0.
FALLOW LAND	691	0	691	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.27: Optimum pattern of land use for agricultural production at low target in the West, 1991, (Solution A91L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,736	1,736	0	100.00	26.77056
TYPE III	223	223	0	100.00	53.16696
TYPE IV	1,196	1,196	0	100.00	59.38890
TYPE V UPLAND	704	704	0	100.00	82.64271
TYPE V LOWLAND	437	437	0	100.00	72.43050
DRY SEASON					
TYPE II	420	420	0	100.00	287.80568
TYPE III	223	0	223	0.	0.
TYPE IV	1,196	1,196	0	100.00	36.98526
TYPE V UPLAND	704	704	0	100.00	66.45762
TYPE V LOWLAND	437	0	437	0.	0.
FALLOW LAND	259	0	259	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.28: Optimum pattern of land use for agricultural production at low target in the South, 1991, (Solution A91L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	2,442	1,821	621	74.56	0.
TYPE III	747	557	190	74.53	0.
TYPE IV	131	131	0	100.00	189.43297
TYPE V LOWLAND	1,915	1,187	727	62.01	0.
DRY SEASON					
TYPE II	244	244	0	100.00	5.18650
TYPE III	747	0	747	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,915	0	1,915	0.	0.
FALLOW LAND	508	0	508	0.	0.

Table C.29: Optimum pattern of land use for agricultural production at medium target in the Whole Kingdom, 1991, (Solution A91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,120	175	92.36	
TYPE II	21,488	18,863	2,625	87.78	
TYPE III	31,566	25,318	6,248	80.21	
TYPE IV	19,095	19,095	0	100.00	
TYPE V UPLAND	11,234	9,807	1,426	87.30	
TYPE V LOWLAND	18,386	12,072	6,314	65.66	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,736	4,736	0	100.00	
TYPE III	31,566	0	31,566	0.	
TYPE IV	19,095	18,923	172	99.10	
TYPE V UPLAND	11,234	6,217	5,016	55.34	
TYPE V LOWLAND	18,386	0	18,386	0.	
FALLOW LAND	7,105	3,752	3,352	52.82	
FOREST LAND	22,144	12,886	9,258	58.19	

Table C.30: Optimum pattern of land use for agricultural production at medium target in the North, 1991, (Solution A91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,109	175	86.34	0.
TYPE II	5,950	5,158	792	86.68	0.
TYPE III	3,215	2,789	426	86.74	0.
TYPE IV	4,534	4,534	0	100.00	282.52795
TYPE V UPLAND	4,198	4,198	0	100.00	321.77331
TYPE V LOWLAND	6,844	4,746	2,098	69.35	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	580	580	0	100.00	278.82188
TYPE III	3,215	0	3,215	0.	0.
TYPE IV	4,534	4,534	0	100.00	27.85117
TYPE V UPLAND	4,198	891	3,306	21.24	0.
TYPE V LOWLAND	6,844	0	6,844	0.	0.
FALLOW LAND	947	0	947	0.	0.

Table C.31: Optimum pattern of land use for agricultural production at medium target in the Northeast, 1991, (Solution A91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	3,592	2,514	1,078	69.99	0.
TYPE III	24,924	19,102	5,822	76.64	0.
TYPE IV	8,741	8,741	0	100.00	257.36925
TYPE V UPLAND	3,061	3,061	0	100.00	0.
TYPE V LOWLAND	8,424	4,208	4,216	49.95	0.
DRY SEASON					
TYPE II	286	286	0	100.00	209.87673
TYPE III	24,924	0	24,924	0.	0.
TYPE IV	8,741	8,741	0	100.00	78.70710
TYPE V UPLAND	3,061	3,061	0	100.00	447.84114
TYPE V LOWLAND	8,424	0	8,424	0.	0.
FALLOW LAND	3,752	3,752	0	100.00	0.
FOREST LAND	12,886	12,886	0	100.00	0.

Table C.32: Optimum pattern of land use for agricultural production at medium target in the Central Plains, 1991, (Solution A91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	261.73271
TYPE II	6,147	6,022	125	97.97	0.
TYPE III	348	348	0	100.00	105.81961
TYPE IV	2,143	2,143	0	100.00	205.89585
TYPE V UPLAND	1,426	0	1,426	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,721	2,721	0	100.00	263.62227
TYPE III	348	0	348	0.	0.
TYPE IV	2,143	2,143	0	100.00	28.72299
TYPE V UPLAND	1,426	50	1,377	3.49	0.
FALLOW LAND	947	0	947	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.33: Optimum pattern of land use for agricultural production at medium target in the East, 1991, (Solution A91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,621	991	630	61.13	0.
TYPE III	2,110	2,110	0	100.00	34.86811
TYPE IV	2,350	2,350	0	100.00	297.41320
TYPE V UPLAND	1,845	1,845	0	100.00	277.88420
TYPE V LOWLAND	766	766	0	100.00	94.26070
DRY SEASON					
TYPE II	484	484	0	100.00	375.62171
TYPE III	2,110	0	2,110	0.	0.
TYPE IV	2,350	2,309	41	98.25	0.
TYPE V UPLAND	1,845	1,511	333	81.92	0.
TYPE V LOWLAND	766	0	766	0.	0.
FALLOW LAND	691	0	691	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.34: Optimum pattern of land use for agricultural production at medium target in the West, 1991, (Solution A91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,736	1,736	0	100.00	139.69186
TYPE III	223	223	0	100.00	156.37280
TYPE IV	1,196	1,196	0	100.00	247.03801
TYPE V UPLAND	704	704	0	100.00	326.86170
TYPE V LOWLAND	437	437	0	100.00	221.66035
DRY SEASON					
TYPE II	420	420	0	100.00	833.92548
TYPE III	223	0	223	0.	0.
TYPE IV	1,196	1,196	0	100.00	272.87632
TYPE V UPLAND	704	704	0	100.00	290.78905
TYPE V LOWLAND	437	0	437	0.	0.
FALLOW LAND	259	0	259	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.35: Optimum pattern of land use for agricultural production at medium target in the South, 1991, (Solution A91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	2,442	2,442	0	100.00	237.06171
TYPE III	747	747	0	100.00	202.94231
TYPE IV	131	131	0	100.00	391.65493
TYPE V LOWLAND	1,915	1,915	0	100.00	241.58691
DRY SEASON					
TYPE II	244	244	0	100.00	285.06354
TYPE III	747	0	747	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,915	0	1,915	0.	0.
FALLOW LAND	508	0	508	0.	0.

Table C.36: Optimum pattern of land use for agricultural production at high target in the Whole Kingdom, 1991, (Solution A91H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,017	279	87.84	
TYPE II	21,488	18,785	2,703	87.42	
TYPE III	31,566	22,065	9,501	69.90	
TYPE IV	19,095	19,095	0	100.00	
TYPE V UPLAND	11,234	9,807	1,426	87.30	
TYPE V LOWLAND	18,386	14,812	3,575	80.56	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,736	4,736	0	100.00	
TYPE III	31,566	0	31,566	0.	
TYPE IV	19,095	18,567	527	97.24	
TYPE V UPLAND	11,234	8,942	2,292	79.60	
TYPE V LOWLAND	18,386	0	18,386	0.	
FALLOW LAND	7,105	3,752	3,352	52.82	
FOREST LAND	22,144	2,378	19,766	10.74	

Table C.37: Optimum pattern of land use for agricultural production at high target in the North, 1991, (Solution A91H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,006	279	78.28	0.
TYPE II	5,950	4,438	1,512	74.60	0.
TYPE III	3,215	2,400	815	74.65	0.
TYPE IV	4,534	4,534	0	100.00	524.32177
TYPE V UPLAND	4,198	4,198	0	100.00	587.68540
TYPE V LOWLAND	6,844	5,422	1,423	79.22	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	580	580	0	100.00	548.57102
TYPE III	3,215	0	3,215	0.	0.
TYPE IV	4,534	4,534	0	100.00	27.99508
TYPE V UPLAND	4,198	3,317	881	79.02	0.
TYPE V LOWLAND	6,844	0	6,844	0.	0.
FALLOW LAND	947	0	947	0.	0.

Table C.38: Optimum pattern of land use for agricultural production at high target in the Northeast, 1991, (Solution A91H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	3,592	2,451	1,141	68.23	0.
TYPE III	24,924	16,818	8,106	67.48	0.
TYPE IV	8,741	8,741	0	100.00	436.70379
TYPE V UPLAND	3,061	3,061	0	100.00	0.
TYPE V LOWLAND	8,424	6,272	2,152	74.45	0.
DRY SEASON					
TYPE II	286	286	0	100.00	406.82773
TYPE III	24,924	0	24,924	0.	0.
TYPE IV	8,741	8,741	0	100.00	79.81018
TYPE V UPLAND	3,061	3,061	0	100.00	688.58737
TYPE V LOWLAND	8,424	0	8,424	0.	0.
FALLOW LAND	3,752	3,752	0	100.00	0.
FOREST LAND	12,886	2,378	10,508	18.45	0.

Table C.39: Optimum pattern of land use for agricultural production at high target in the Central Plains, 1991, (Solution A91H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	200.29970
TYPE II	6,147	6,147	0	100.00	4.04779
TYPE III	348	348	0	100.00	92.73841
TYPE IV	2,143	2,143	0	100.00	364.20082
TYPE V UPLAND	1,426	0	1,426	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,721	2,721	0	100.00	524.60230
TYPE III	348	0	348	0.	0.
TYPE IV	2,143	1,788	355	83.42	0.
TYPE V UPLAND	1,426	487	940	34.13	0.
FALLOW LAND	947	0	947	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.40: Optimum pattern of land use for agricultural production at high target in the East, 1991, (Solution A91H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,621	1,571	51	96.88	0.
TYPE III	2,110	1,530	580	72.52	0.
TYPE IV	2,350	2,350	0	100.00	575.51289
TYPE V UPLAND	1,845	1,845	0	100.00	517.69841
TYPE V LOWLAND	766	766	0	100.00	101.29642
DRY SEASON					
TYPE II	484	484	0	100.00	725.13067
TYPE III	2,110	0	2,110	0.	0.
TYPE IV	2,350	2,309	41	98.25	0.
TYPE V UPLAND	1,845	1,373	471	74.45	0.
TYPE V LOWLAND	766	0	766	0.	0.
FALLOW LAND	691	0	691	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.41: Optimum pattern of land use for agricultural production at high target in the West, 1991, (Solution A91H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,736	1,736	0	100.00	408.26067
TYPE III	223	223	0	100.00	382.55898
TYPE IV	1,196	1,196	0	100.00	431.08738
TYPE V UPLAND	704	704	0	100.00	566.67591
TYPE V LOWLAND	437	437	0	100.00	493.92067
DRY SEASON					
TYPE II	420	420	0	100.00	1047.70056
TYPE III	223	0	223	0.	0.
TYPE IV	1,196	1,196	0	100.00	460.35784
TYPE V UPLAND	704	704	0	100.00	511.07440
TYPE V LOWLAND	437	0	437	0.	0.
FALLOW LAND	259	0	259	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.42: Optimum pattern of land use for agricultural production at high target in the South, 1991, (Solution A91H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	2,442	2,442	0	100.00	524.90316
TYPE III	747	747	0	100.00	458.74430
TYPE IV	131	131	0	100.00	590.22956
TYPE V LOWLAND	1,915	1,915	0	100.00	524.39956
DRY SEASON					
TYPE II	244	244	0	100.00	606.45587
TYPE III	747	0	747	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,915	0	1,915	0.	0.
FALLOW LAND	508	0	508	0.	0.

Table C.43: Optimum pattern of land use for agricultural production at low target in the Whole Kingdom, 1992, (Solution A92L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,296	0	100.00	
TYPE II	22,158	19,491	2,667	87.96	
TYPE III	30,896	22,132	8,764	71.63	
TYPE IV	19,098	19,098	0	100.00	
TYPE V UPLAND	11,402	9,954	1,448	87.30	
TYPE V LOWLAND	18,662	13,876	4,786	74.36	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,857	4,671	187	96.16	
TYPE III	30,896	0	30,896	0.	
TYPE IV	19,098	15,316	3,782	80.20	
TYPE V UPLAND	11,402	4,565	6,837	40.04	
TYPE V LOWLAND	18,662	0	18,662	0.	
FALLOW LAND	7,211	1,941	5,270	26.92	
FOREST LAND	22,140	14,146	7,994	63.90	

Table C.44: Optimum pattern of land use for agricultural production at low target in the North, 1992, (Solution A92L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,285	0	100.00	37.02688
TYPE II	6,150	5,420	730	88.13	0.
TYPE III	3,015	2,665	350	88.40	0.
TYPE IV	4,534	4,534	0	100.00	34.64677
TYPE V UPLAND	4,261	4,261	0	100.00	49.16666
TYPE V LOWLAND	6,947	5,760	1,187	82.91	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	600	600	0	100.00	55.66599
TYPE III	3,015	0	3,015	0.	0.
TYPE IV	4,534	4,145	389	91.42	0.
TYPE V UPLAND	4,261	0	4,261	0.	0.
TYPE V LOWLAND	6,947	0	6,947	0.	0.
FALLOW LAND	961	0	961	0.	0.

Table C.45: Optimum pattern of land use for agricultural production at low target in the Northeast, 1992, (Solution A92L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	3,749	2,497	1,252	66.60	0.
TYPE III	24,767	16,515	8,252	66.68	0.
TYPE IV	8,741	8,741	0	100.00	28.71837
TYPE V UPLAND	3,107	3,107	0	100.00	0.
TYPE V LOWLAND	8,550	5,711	2,839	66.79	0.
DRY SEASON					
TYPE II	298	298	0	100.00	7.96733
TYPE III	24,767	0	24,767	0.	0.
TYPE IV	8,741	6,054	2,687	69.26	0.
TYPE V UPLAND	3,107	3,107	0	100.00	62.34229
TYPE V LOWLAND	8,550	0	8,550	0.	0.
FALLOW LAND	3,809	1,678	2,131	44.06	0.
FOREST LAND	12,882	12,882	0	100.00	0.

Table C.46: Optimum pattern of land use for agricultural production at low target in the Central Plains, 1992, (Solution A92L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	348.94699
TYPE II	6,287	6,287	0	100.00	38.57618
TYPE III	208	208	0	100.00	157.13348
TYPE IV	2,146	2,146	0	100.00	59.67114
TYPE V UPLAND	1,448	0	1,448	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,783	2,597	187	93.30	0.
TYPE III	208	0	208	0.	0.
TYPE IV	2,146	1,571	575	73.20	0.
TYPE V UPLAND	1,448	0	1,448	0.	0.
FALLOW LAND	960	0	960	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.47: Optimum pattern of land use for agricultural production at low target in the East, 1992, (Solution A92L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,647	1,620	27	98.35	0.
TYPE III	2,084	2,084	0	100.00	33.85036
TYPE IV	2,350	2,350	0	100.00	24.51468
TYPE V UPLAND	1,872	1,872	0	100.00	32.03249
TYPE V LOWLAND	778	778	0	100.00	51.30317
DRY SEASON					
TYPE II	492	492	0	100.00	6.01606
TYPE III	2,084	0	2,084	0.	0.
TYPE IV	2,350	2,350	0	100.00	0.
TYPE V UPLAND	1,872	744	1,128	39.76	0.
TYPE V LOWLAND	778	0	778	0.	0.
FALLOW LAND	701	0	701	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.48: Optimum pattern of land use for agricultural production at low target in the West, 1992, (Solution A92L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,770	1,770	0	100.00	25.49731
TYPE III	189	189	0	100.00	52.69442
TYPE IV	1,196	1,196	0	100.00	56.50330
TYPE V UPLAND	714	714	0	100.00	81.00999
TYPE V LOWLAND	444	444	0	100.00	71.08718
DRY SEASON					
TYPE II	428	428	0	100.00	281.26097
TYPE III	189	0	189	0.	0.
TYPE IV	1,196	1,196	0	100.00	33.77713
TYPE V UPLAND	714	714	0	100.00	64.95785
TYPE V LOWLAND	444	0	444	0.	0.
FALLOW LAND	263	263	0	100.00	0.
FOREST LAND	1,264	1,264	0	100.00	0.

Table C.49: Optimum pattern of land use for agricultural production at low target in the South, 1992, (Solution A92L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	2,555	1,897	658	74.26	0.
TYPE III	634	472	162	74.45	0.
TYPE IV	131	131	0	100.00	188.08102
TYPE V LOWLAND	1,943	1,184	759	60.94	0.
DRY SEASON					
TYPE II	256	256	0	100.00	4.44731
TYPE III	634	0	634	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,943	0	1,943	0.	0.
FALLOW LAND	516	0	516	0.	0.

Table C.50: Optimum pattern of land use for agricultural production at medium target in the Whole Kingdom, 1992, (Solution A92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,037	259	88.72	
TYPE II	22,158	18,702	3,456	84.40	
TYPE III	30,896	21,966	8,930	71.10	
TYPE IV	19,098	19,098	0	100.00	
TYPE V UPLAND	11,402	9,954	1,448	87.30	
TYPE V LOWLAND	18,662	14,527	4,135	77.84	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,857	4,857	0	100.00	
TYPE III	30,896	0	30,896	0.	
TYPE IV	19,098	18,926	172	99.10	
TYPE V UPLAND	11,402	7,881	3,521	69.12	
TYPE V LOWLAND	18,662	0	18,662	0.	
FALLOW LAND	7,211	1,678	5,533	23.27	
FOREST LAND	22,140	2,937	19,203	13.27	

Table C.51: Optimum pattern of land use for agricultural production at medium target in the North, 1992, (Solution A92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,026	259	79.84	0.
TYPE II	6,150	4,783	1,367	77.77	0.
TYPE III	3,015	2,337	678	77.52	0.
TYPE IV	4,534	4,534	0	100.00	274.08199
TYPE V UPLAND	4,261	4,261	0	100.00	312.48489
TYPE V LOWLAND	6,947	5,031	1,917	72.41	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	600	600	0	100.00	273.42739
TYPE III	3,015	0	3,015	0.	0.
TYPE IV	4,534	4,534	0	100.00	27.64023
TYPE V UPLAND	4,261	2,312	1,949	54.27	0.
TYPE V LOWLAND	6,947	0	6,947	0.	0.
FALLOW LAND	961	0	961	0.	0.

Table C.52: Optimum pattern of land use for agricultural production at medium target in the Northeast, 1992, (Solution A92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	3,749	2,497	1,252	66.60	0.
TYPE III	24,767	16,515	8,252	66.68	0.
TYPE IV	8,741	8,741	0	100.00	250.26693
TYPE V UPLAND	3,107	3,107	0	100.00	0.
TYPE V LOWLAND	8,550	6,331	2,219	74.05	0.
DRY SEASON					
TYPE II	298	298	0	100.00	202.99715
TYPE III	24,767	0	24,767	0.	0.
TYPE IV	8,741	8,741	0	100.00	82.31820
TYPE V UPLAND	3,107	3,107	0	100.00	441.81307
TYPE V LOWLAND	8,550	0	8,550	0.	0.
FALLOW LAND	3,809	1,678	2,131	44.06	0.
FOREST LAND	12,882	2,937	9,945	22.80	0.

Table C.53: Optimum pattern of land use for agricultural production at medium target in the Central Plains, 1992, (Solution A92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	266.06779
TYPE II	6,287	6,100	187	97.03	0.
TYPE III	208	208	0	100.00	106.95499
TYPE IV	2,146	2,146	0	100.00	193.19470
TYPE V UPLAND	1,448	0	1,448	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,783	2,783	0	100.00	234.94810
TYPE III	208	0	208	0.	0.
TYPE IV	2,146	2,146	0	100.00	29.80722
TYPE V UPLAND	1,448	65	1,383	4.46	0.
FALLOW LAND	960	0	960	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.54: Optimum pattern of land use for agricultural production at medium target in the East, 1992, (Solution A92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,647	998	649	60.57	0.
TYPE III	2,084	2,084	0	100.00	37.56124
TYPE IV	2,350	2,350	0	100.00	288.31830
TYPE V UPLAND	1,872	1,872	0	100.00	269.50740
TYPE V LOWLAND	778	778	0	100.00	93.35412
DRY SEASON					
TYPE II	492	492	0	100.00	357.92866
TYPE III	2,084	0	2,084	0.	0.
TYPE IV	2,350	2,309	41	98.25	0.
TYPE V UPLAND	1,872	1,683	190	89.88	0.
TYPE V LOWLAND	778	0	778	0.	0.
FALLOW LAND	701	0	701	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.55: Optimum pattern of land use for agricultural production at medium target in the West, 1992, (Solution A92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,770	1,770	0	100.00	132.19103
TYPE III	189	189	0	100.00	152.87145
TYPE IV	1,196	1,196	0	100.00	240.05124
TYPE V UPLAND	714	714	0	100.00	318.48490
TYPE V LOWLAND	444	444	0	100.00	213.81118
DRY SEASON					
TYPE II	428	428	0	100.00	823.65397
TYPE III	189	0	189	0.	0.
TYPE IV	1,196	1,196	0	100.00	264.23483
TYPE V UPLAND	714	714	0	100.00	283.09440
TYPE V LOWLAND	444	0	444	0.	0.
FALLOW LAND	263	0	263	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.56: Optimum pattern of land use for agricultural production at medium target in the South, 1992, (Solution A92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	2,555	2,555	0	100.00	225.09410
TYPE III	634	634	0	100.00	193.99813
TYPE IV	131	131	0	100.00	384.71864
TYPE V LOWLAND	1,943	1,943	0	100.00	230.09386
DRY SEASON					
TYPE II	256	256	0	100.00	269.92987
TYPE III	634	0	634	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,943	0	1,943	0.	0.
FALLOW LAND	516	0	516	0.	0.

Table C.57: Optimum pattern of land use for agricultural production at high target in the Whole Kingdom, 1992, (Solution A92H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	1,967	329	85.68	
TYPE II	22,158	19,932	2,226	89.96	
TYPE III	30,896	22,995	7,901	74.43	
TYPE IV	19,098	19,098	0	100.00	
TYPE V UPLAND	11,402	9,954	1,448	87.30	
TYPE V LOWLAND	18,662	12,970	5,692	69.50	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,857	4,857	0	100.00	
TYPE III	30,896	0	30,896	0.	
TYPE IV	19,098	18,914	185	99.03	
TYPE V UPLAND	11,402	10,188	1,214	89.36	
TYPE V LOWLAND	18,662	0	18,662	0.	
FALLOW LAND	7,211	1,678	5,533	23.27	
FOREST LAND	22,140	2,937	19,203	13.27	

Table C.58: Optimum pattern of land use for agricultural production at high target in the North, 1992, (Solution A92H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	956	329	74.41	0.
TYPE II	6,150	4,574	1,576	74.37	0.
TYPE III	3,015	2,235	780	74.14	0.
TYPE IV	4,534	4,534	0	100.00	528.36467
TYPE V UPLAND	4,261	4,261	0	100.00	592.13158
TYPE V LOWLAND	6,947	5,083	1,864	73.17	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	600	600	0	100.00	549.00756
TYPE III	3,015	0	3,015	0.	0.
TYPE IV	4,534	4,534	0	100.00	31.53688
TYPE V UPLAND	4,261	4,261	0	100.00	3.49262
TYPE V LOWLAND	6,947	0	6,947	0.	0.
FALLOW LAND	961	0	961	0.	0.

Table C.59: Optimum pattern of land use for agricultural production at high target in the Northeast, 1992, (Solution A92H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	3,749	3,749	0	100.00	0.41308
TYPE III	24,767	17,646	7,121	71.25	0.
TYPE IV	8,741	8,741	0	100.00	440.28538
TYPE V UPLAND	3,107	3,107	0	100.00	692.49276
TYPE V LOWLAND	8,550	4,722	3,828	55.23	0.
DRY SEASON					
TYPE II	298	298	0	100.00	410.12084
TYPE III	24,767	0	24,767	0.	0.
TYPE IV	8,741	8,741	0	100.00	78.86490
TYPE V UPLAND	3,107	3,107	0	100.00	0.
TYPE V LOWLAND	8,550	0	8,550	0.	0.
FALLOW LAND	3,809	1,678	2,131	44.06	0.
FOREST LAND	12,882	2,937	9,945	22.80	0.

Table C.60: Optimum pattern of land use for agricultural production at high target in the Central Plains, 1992, (Solution A92H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	204.57592
TYPE II	6,287	6,287	0	100.00	4.39619
TYPE III	208	208	0	100.00	94.11429
TYPE IV	2,146	2,146	0	100.00	368.21062
TYPE V UPLAND	1,448	0	1,448	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,783	2,783	0	100.00	529.03638
TYPE III	208	0	208	0.	0.
TYPE IV	2,146	2,134	13	99.41	0.
TYPE V UPLAND	1,448	421	1,026	29.11	0.
FALLOW LAND	960	0	960	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.61: Optimum pattern of land use for agricultural production at high target in the East, 1992, (Solution A92H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,647	998	649	60.57	0.
TYPE III	2,084	2,084	0	100.00	41.38030
TYPE IV	2,350	2,350	0	100.00	580.29229
TYPE V UPLAND	1,872	1,872	0	100.00	521.70821
TYPE V LOWLAND	778	778	0	100.00	142.31131
DRY SEASON					
TYPE II	492	492	0	100.00	769.46435
TYPE III	2,084	0	2,084	0.	0.
TYPE IV	2,350	2,309	41	98.25	0.
TYPE V UPLAND	1,872	1,685	187	90.00	0.
TYPE V LOWLAND	778	0	778	0.	0.
FALLOW LAND	701	0	701	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.62: Optimum pattern of land use for agricultural production at high target in the West, 1992, (Solution A92H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,770	1,770	0	100.00	412.57645
TYPE III	189	189	0	100.00	387.42333
TYPE IV	1,196	1,196	0	100.00	434.30097
TYPE V UPLAND	714	714	0	100.00	570.68571
TYPE V LOWLAND	444	444	0	100.00	498.18866
DRY SEASON					
TYPE II	428	428	0	100.00	1052.82197
TYPE III	189	0	189	0.	0.
TYPE IV	1,196	1,196	0	100.00	464.96237
TYPE V UPLAND	714	714	0	100.00	514.75766
TYPE V LOWLAND	444	0	444	0.	0.
FALLOW LAND	263	0	263	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.63: Optimum pattern of land use for agricultural production at high target in the South, 1992, (Solution A92H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	2,555	2,555	0	100.00	551.01805
TYPE III	634	634	0	100.00	485.27390
TYPE IV	131	131	0	100.00	593.54982
TYPE V LOWLAND	1,943	1,943	0	100.00	550.57955
DRY SEASON					
TYPE II	256	256	0	100.00	632.13650
TYPE III	634	0	634	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,943	0	1,943	0.	0.
FALLOW LAND	516	0	516	0.	0.

Table C.64: Optimum pattern of land use for agricultural production at medium target in the Whole Kingdom, 1987, (Solution B87M).

(unit : 1,000 rais)

LAND TYPE	AVAILABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	1,011	1,285	44.03	
TYPE II	18,808	16,321	2,487	86.78	
TYPE III	34,244	24,269	9,974	70.87	
TYPE IV	19,086	19,086	0	100.00	
TYPE V UPLAND	10,584	9,240	1,344	87.30	
TYPE V LOWLAND	17,323	12,426	4,897	71.73	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,251	4,251	0	100.00	
TYPE III	34,244	0	34,244	0.	
TYPE IV	19,086	15,822	3,264	82.90	
TYPE V UPLAND	10,584	4,908	5,676	46.37	
TYPE V LOWLAND	17,323	0	17,323	0.	
FALLOW LAND	7,070	1,678	5,392	23.73	
FOREST LAND	22,144	14,067	8,077	63.53	

Table C.65: Optimum pattern of land use for agricultural production at medium target in the North, 1987, (Soultion B87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	5,150	4,395	755	85.34	0.
TYPE III	4,015	3,415	600	85.06	0.
TYPE IV	4,539	4,539	0	100.00	3220.84268
TYPE V UPLAND	3,955	3,955	0	100.00	3317.84106
TYPE V LOWLAND	6,449	4,929	1,520	76.43	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	502	502	0	100.00	3210.21865
TYPE III	4,015	0	4,015	0.	0.
TYPE IV	4,539	1,923	2,616	42.37	0.
TYPE V UPLAND	3,955	0	3,955	0.	0.
TYPE V LOWLAND	6,449	0	6,449	0.	0.
FALLOW LAND	892	0	892	0.	0.

Table C.66: Optimum pattern of land use for agricultural production at medium target in the Northeastern, 1987, (Solution B87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	2,962	2,003	960	67.60	0.
TYPE III	25,552	17,095	8,457	66.90	0.
TYPE IV	8,741	8,741	0	100.00	2607.30050
TYPE V UPLAND	2,884	2,884	0	100.00	0.
TYPE V LOWLAND	7,937	5,390	2,547	67.90	0.
DRY SEASON					
TYPE II	236	236	0	100.00	4052.55487
TYPE III	25,552	0	25,552	0.	0.
TYPE IV	8,741	8,741	0	100.00	75.73532
TYPE V UPLAND	2,884	2,884	0	100.00	2934.89581
TYPE V LOWLAND	7,937	0	7,937	0.	0.
FALLOW LAND	3,535	1,678	1,857	47.46	0.
FOREST LAND	12,886	12,886	0	100.00	0.

Table C.67: Optimum pattern of land use for agricultural production at medium target in the Central Plains, 1987, (Solution B87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	2454.16149
TYPE II	5,587	5,587	0	100.00	274.55548
TYPE III	908	908	0	100.00	1046.67463
TYPE IV	2,129	2,129	0	100.00	3397.88699
TYPE V UPLAND	1,344	0	1,344	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,473	2,473	0	100.00	4708.54089
TYPE III	908	0	908	0.	0.
TYPE IV	2,129	1,712	417	80.40	0.
TYPE V UPLAND	1,344	0	1,344	0.	0.
FALLOW LAND	892	0	892	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.68: Optimum pattern of land use for agricultural production at medium target in the East, 1987, (Solution B87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,517	1,484	34	97.79	0.
TYPE III	2,214	1,709	504	77.21	0.
TYPE IV	2,350	2,350	0	100.00	2799.60592
TYPE V UPLAND	1,738	1,738	0	100.00	2098.84997
TYPE V LOWLAND	722	705	17	97.66	0.
DRY SEASON					
TYPE II	453	453	0	100.00	3340.08276
TYPE III	2,214	0	2,214	0.	0.
TYPE IV	2,350	2,350	0	100.00	254.21080
TYPE V UPLAND	1,738	1,361	377	78.30	0.
TYPE V LOWLAND	722	0	722	0.	0.
FALLOW LAND	651	0	651	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.69: Optimum pattern of land use for agricultural production at medium target in the West, 1987, (Solution B87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,600	1,333	267	83.32	0.
TYPE III	359	229	130	63.72	0.
TYPE IV	1,196	1,196	0	100.00	1429.65599
TYPE V UPLAND	663	663	0	100.00	1631.65298
TYPE V LOWLAND	412	227	185	55.11	0.
DRY SEASON					
TYPE II	387	387	0	100.00	2857.62255
TYPE III	359	0	359	0.	0.
TYPE IV	1,196	1,096	100	91.63	0.
TYPE V UPLAND	663	663	0	100.00	122.07800
TYPE V LOWLAND	412	0	412	0.	0.
FALLOW LAND	244	0	244	0.	0.
FOREST LAND	1,264	1,181	83	93.42	0.

Table C.70: Optimum pattern of land use for agricultural production at medium target in the South, 1987, (Solution B87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	1,992	1,520	472	76.30	0.
TYPE III	1,197	914	283	76.38	0.
TYPE IV	131	131	0	100.00	239.29726
TYPE V LOWLAND	1,804	1,176	628	65.18	0.
DRY SEASON					
TYPE II	199	199	0	100.00	3799.99636
TYPE III	1,197	0	1,197	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,804	0	1,804	0.	0.
FALLOW LAND	856	0	856	0.	0.

Table C.71: Optimum pattern of land use for agricultural production at medium target in the Whole Kingdom, 1991, (Solution B91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,120	175	92.36	
TYPE II	21,488	18,391	3,097	85.59	
TYPE III	31,566	24,528	7,038	77.70	
TYPE IV	19,095	19,095	0	100.00	
TYPE V UPLAND	11,234	9,807	1,426	87.30	
TYPE V LOWLAND	18,386	13,501	4,885	73.43	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,736	4,736	0	100.00	
TYPE III	31,566	0	31,566	0.	
TYPE IV	19,095	15,611	3,484	81.75	
TYPE V UPLAND	11,234	5,232	6,002	46.58	
TYPE V LOWLAND	18,386	0	18,386	0.	
FALLOW LAND	7,105	1,678	5,427	23.62	
FOREST LAND	22,144	2,378	19,766	10.74	

Table C.72: Optimum pattern of land use for agricultural production at medium target in the North, 1991, (Solution B91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,109	175	86.34	0.
TYPE II	5,950	5,158	792	86.68	0.
TYPE III	3,215	2,789	426	86.74	0.
TYPE IV	4,534	4,534	0	100.00	1411.69999
TYPE V UPLAND	4,198	4,198	0	100.00	1508.69839
TYPE V LOWLAND	6,844	5,937	907	86.74	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	580	580	0	100.00	1378.85809
TYPE III	3,215	0	3,215	0.	0.
TYPE IV	4,534	1,704	2,830	37.59	0.
TYPE V UPLAND	4,198	0	4,198	0.	0.
TYPE V LOWLAND	6,844	0	6,844	0.	0.
FALLOW LAND	947	0	947	0.	0.

Table C.73: Optimum pattern of land use for agricultural production at medium target in the Northeast, 1991; (Solution B91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	3,592	2,745	847	76.42	0.
TYPE III	24,924	19,102	5,822	76.64	0.
TYPE IV	8,741	8,741	0	100.00	2607.30050
TYPE V UPLAND	3,061	3,061	0	100.00	0.
TYPE V LOWLAND	8,424	5,637	2,787	66.91	0.
DRY SEASON					
TYPE II	286	286	0	100.00	1131.54998
TYPE III	24,924	0	24,924	0.	0.
TYPE IV	8,741	8,741	0	100.00	75.73532
TYPE V UPLAND	3,061	3,061	0	100.00	2934.89581
TYPE V LOWLAND	8,424	0	8,424	0.	0.
FALLOW LAND	3,752	1,678	2,074	44.72	0.
FOREST LAND	12,886	2,378	10,508	18.45	0.

Table C.74: Optimum pattern of land use for agricultural production at medium target in the Central Plains, 1991, (Solution B91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	2179.60601
TYPE II	6,147	5,877	269	95.62	0.
TYPE III	348	348	0	100.00	772.11916
TYPE IV	2,143	2,143	0	100.00	2848.77603
TYPE V UPLAND	1,426	0	1,426	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,721	2,721	0	100.00	4433.98541
TYPE III	348	0	348	0.	0.
TYPE IV	2,143	1,719	423	80.24	0.
TYPE V UPLAND	1,426	0	1,426	0.	0.
FALLOW LAND	947	0	947	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.75: Optimum pattern of land use for agricultural production at medium target in the East, 1991, (Solution B91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,621	1,571	51	96.88	0.
TYPE III	2,110	1,556	553	73.77	0.
TYPE IV	2,350	2,350	0	100.00	2511.68771
TYPE V UPLAND	1,845	1,845	0	100.00	1867.17547
TYPE V LOWLAND	766	740	26	96.56	0.
DRY SEASON					
TYPE II	484	484	0	100.00	3318.18206
TYPE III	2,110	0	2,110	0.	0.
TYPE IV	2,350	2,350	0	100.00	254.21080
TYPE V UPLAND	1,845	1,468	377	79.55	0.
TYPE V LOWLAND	766	0	766	0.	0.
FALLOW LAND	691	0	691	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.76: Optimum pattern of land use for agricultural production at medium target in the West, 1991, (Solution B91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,736	1,219	517	70.25	0.
TYPE III	223	177	46	79.49	0.
TYPE IV	1,196	1,196	0	100.00	1307.76647
TYPE V UPLAND	704	704	0	100.00	1614.78257
TYPE V LOWLAND	437	0	437	0.	0.
DRY SEASON					
TYPE II	420	420	0	100.00	2655.56185
TYPE III	223	0	223	0.	0.
TYPE IV	1,196	1,096	100	91.63	0.
TYPE V UPLAND	704	704	0	100.00	0.
TYPE V LOWLAND	437	0	437	0.	0.
FALLOW LAND	259	0	259	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.77: Optimum pattern of land use for agricultural production at medium target in the South, 1991, (Solution B91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	2,442	1,821	621	74.56	0.
TYPE III	747	556	191	74.46	0.
TYPE IV	131	131	0	100.00	239.29726
TYPE V LOWLAND	1,915	1,188	727	62.04	0.
DRY SEASON					
TYPE II	244	244	0	100.00	3799.99636
TYPE III	747	0	747	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,915	0	1,915	0.	0.
FALLOW LAND	. 508	0	508	0.	0.

Table C.78: Optimum pattern of land use for agricultural production at medium target in the Whole Kingdom, 1992, (Solution B92M).

(Unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	1,011	1,285	44.03	
TYPE II	22,158	17,891	4,267	80.74	
TYPE III	30,896	21,478	9,419	69.51	
TYPE IV	19,098	19,098	0	100.00	
TYPE V UPLAND	11,402	9,954	1,448	87.30	
TYPE V LOWLAND	18,662	12,397	6,265	66.43	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,857	4,857	0	100.00	
TYPE III	30,896	0	30,896	0.	
TYPE IV	19,098	15,663	3,435	82.01	
TYPE V UPLAND	11,402	5,316	6,086	46.62	
TYPE V LOWLAND	18,662	0	18,662	0.	
FALLOW LAND	7,211	3,809	3,402	52.82	
FOREST LAND	22,140	12,882	9,258	58.18	

Table C.79: Optimum pattern of land use for agricultural production at medium target in the North, 1992, (Solution B92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	6,150	4,783	1,367	77.77	0.
TYPE III	3,015	2,337	678	77.52	0.
TYPE IV	4,534	4,534	0	100.00	3220.84268
TYPE V UPLAND	4,261	4,261	0	100.00	3317.84106
TYPE V LOWLAND	6,947	5,391	1,557	77.59	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	600	600	0	100.00	3210.21865
TYPE III	3,015	0	3,015	0.	0.
TYPE IV	4,534	1,753	2,781	38.67	0.
TYPE V UPLAND	4,261	0	4,261	0.	0.
TYPE V LOWLAND	6,947	0	6,947	0.	0.
FALLOW LAND	961	0	961	0.	0.

Table C.80: Optimum pattern of land use for agricultural production at medium target in the Northeast, 1992, (Solution B92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	3,749	2,497	1,252	66.60	0.
TYPE III	24,767	16,538	8,229	66.77	0.
TYPE IV	8,741	8,741	0	100.00	2607.30050
TYPE V UPLAND	3,107	3,107	0	100.00	0.
TYPE V LOWLAND	8,550	5,390	3,161	63.03	0.
DRY SEASON					
TYPE II	298	298	0	100.00	4052.55487
TYPE III	24,767	0	24,767	0.	0.
TYPE IV	8,741	8,741	0	100.00	75.73532
TYPE V UPLAND	3,107	3,107	0	100.00	2934.89581
TYPE V LOWLAND	8,550	0	8,550	0.	0.
FALLOW LAND	3,809	3,809	0	100.00	0.
FOREST LAND	12,882	12,882	0	100.00	0.

Table C.81: Optimum pattern of land use for agricultural production at medium target in the Central Plains, 1992, (Solution B92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	495.70551
TYPE II	6,287	5,948	338	94.62	0.
TYPE III	208	208	0	100.00	424.46752
TYPE IV	2,146	2,146	0	100.00	2848.77603
TYPE V UPLAND	1,448	0	1,448	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,783	2,783	0	100.00	4433.98541
TYPE III	208	0	208	0.	0.
TYPE IV	2,146	1,723	423	80.27	0.
TYPE V UPLAND	1,448	0	1,448	0.	0.
FALLOW LAND	960	0	960	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.82: : Optimum pattern of land use for agricultural production at medium target in the East, 1992, (Solution B92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,647	1,588	59	96.41	0.
TYPE III	2,084	1,838	246	88.19	0.
TYPE IV	2,350	2,350	0	100.00	2511.68771
TYPE V UPLAND	1,872	1,872	0	100.00	1867.17547
TYPE V LOWLAND	778	433	344	55.71	0.
DRY SEASON					
TYPE II	492	492	0	100.00	3364.77984
TYPE III	2,084	0	2,084	0.	0.
TYPE IV	2,350	2,350	0	100.00	254.21080
TYPE V UPLAND	1,872	1,495	377	79.85	0.
TYPE V LOWLAND	778	0	778	0.	0.
FALLOW LAND	701	0	701	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.83: Optimum pattern of land use for agricultural production at medium target in the West, 1992, (Solution B92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,770	1,178	593	66.53	0.
TYPE III	189	85	104	45.06	0.
TYPE IV	1,196	1,196	0	100.00	1305.46922
TYPE V UPLAND	714	714	0	100.00	1612.48532
TYPE V LOWLAND	444	0	444	0.	0.
DRY SEASON					
TYPE II	428	428	0	100.00	2653.26461
TYPE III	189	0	189	0.	0.
TYPE IV	1,196	1,096	100	91.63	0.
TYPE V UPLAND	714	714	0	100.00	0.
TYPE V LOWLAND	444	0	444	0.	0.
FALLOW LAND	263	0	263	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.84: Optimum pattern of land use for agricultural production at medium target in the South, 1992, (Solution B92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	2,555	1,897	658	74.26	0.
TYPE III	634	472	162	74.45	0.
TYPE IV	131	131	0	100.00	239.29726
TYPE V LOWLAND	1,943	1,184	759	60.94	0.
DRY SEASON					
TYPE II	256	256	0	100.00	3799.99636
TYPE III	634	0	634	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,943	0	1,943	0.	0.
FALLOW LAND	516	0	516	0.	0.

Table C.85: Optimum pattern of land use for agricultural production at low target in the Whole Kingdom, 1987, (Solution C87L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,296	0	100.00	
TYPE II	18,808	16,588	2,220	88.19	
TYPE III	34,244	24,654	9,589	72.00	
TYPE IV	19,086	18,439	647	96.61	
TYPE V UPLAND	10,584	9,052	1,532	85.53	
TYPE V LOWLAND	17,323	13,727	3,596	79.24	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,251	4,051	199	95.31	
TYPE III	34,244	0	34,244	0.	
TYPE IV	19,086	13,573	5,513	71.11	
TYPE V UPLAND	10,584	4,286	6,299	40.49	
TYPE V LOWLAND	17,323	0	17,323	0.	
FALLOW LAND	7,070	3,535	3,535	50.00	
FOREST LAND	22,144	559	21,585	2.52	

Table C.86: Optimum pattern of land use for agricultural production at low target in the North, 1987, (Solution C87L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,285	0	100.00	50.02640
TYPE II	5,150	4,395	755	85.34	0.
TYPE III	4,015	3,415	600	85.06	0.
TYPE IV	4,539	4,539	0	100.00	4.81571
TYPE V UPLAND	3,955	3,955	0	100.00	16.11407
TYPE V LOWLAND	6,449	5,829	620	90.38	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	502	502	0	100.00	26.79569
TYPE III	4,015	0	4,015	0.	0.
TYPE IV	4,539	3,052	1,487	67.23	0.
TYPE V UPLAND	3,955	0	3,955	0.	0.
TYPE V LOWLAND	6,449	0	6,449	0.	0.
FALLOW LAND	892	0	892	0.	0.

Table C.87: Optimum pattern of land use for agricultural production at low target in the Northeast, 1987, (Solution C87L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	2,962	2,003	960	67.60	0.
TYPE III	25,552	17,330	8,221	67.82	0.
TYPE IV	8,741	8,094	647	92.59	0.
TYPE V UPLAND	2,884	2,884	0	100.00	0.
TYPE V LOWLAND	7,937	5,390	2,547	67.90	0.
DRY SEASON					
TYPE II	236	236	0	100.00	46.91022
TYPE III	25,552	0	25,552	0.	0.
TYPE IV	8,741	5,271	3,470	60.30	0.
TYPE V UPLAND	2,884	2,884	0	100.00	28.13762
TYPE V LOWLAND	7,937	0	7,937	0.	0.
FALLOW LAND	3,535	3,535	0	100.00	0.
FOREST LAND	12,886	559	12,327	4.34	0.

Table C.88: Optimum pattern of land use for agricultural production at low target in the Central Plains, 1987, (Solution C87L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	425.47712
TYPE II	5,587	5,587	0	100.00	101.82432
TYPE III	908	908	0	100.00	223.85713
TYPE IV	2,129	2,129	0	100.00	53.26861
TYPE V UPLAND	1,344	0	1,344	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,473	2,473	0	100.00	47.26573
TYPE III	908	0	908	0.	0.
TYPE IV	2,129	1,712	417	80.40	0.
TYPE V UPLAND	1,344	0	1,344	0.	0.
FALLOW LAND	892	0	892	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.89: Optimum pattern of land use for agricultural production at low target in the East, 1987, (Solution C87L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,517	1,484	34	97.79	0.
TYPE III	2,214	1,728	485	78.08	0.
TYPE IV	2,350	2,350	0	100.00	8.66683
TYPE V UPLAND	1,738	1,550	188	89.18	0.
TYPE V LOWLAND	722	722	0	100.00	14.44305
DRY SEASON					
TYPE II	453	453	0	100.00	10.02613
TYPE III	2,214	0	2,214	0.	0.
TYPE IV	2,350	2,343	7	99.69	0.
TYPE V UPLAND	1,738	739	999	42.50	0.
TYPE V LOWLAND	722	0	722	0.	0.
FALLOW LAND	651	0	651	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.90: Optimum pattern of land use for agricultural production at low target in the West, 1987, (Solution C87L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,600	1,600	0	100.00	7.23234
TYPE III	359	359	0	100.00	39.26366
TYPE IV	1,196	1,196	0	100.00	19.33240
TYPE V UPLAND	663	663	0	100.00	48.97750
TYPE V LOWLAND	412	412	0	100.00	52.39922
DRY SEASON					
TYPE II	387	387	0	100.00	220.27116
TYPE III	359	0	359	0.	0.
TYPE IV	1,196	1,196	0	100.00	22.93833
TYPE V UPLAND	663	663	0	100.00	35.53388
TYPE V LOWLAND	412	0	412	0.	0.
FALLOW LAND	244	0	244	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.91: Optimum pattern of land use for agricultural production at low target in the South, 1987, (Solution C87L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	1,992	1,520	472	76.30	0.
TYPE III	1,197	914	283	76.38	0.
TYPE IV	131	131	0	100.00	163.58207
TYPE V LOWLAND	1,804	1,375	429	76.23	0.
DRY SEASON					
TYPE II	199	0	199	0.	0.
TYPE III	1,197	0	1,197	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,804	0	1,804	0.	0.
FALLOW LAND	856	0	856	0.	0.

Table C.92: Optimum pattern of land use for agricultural production at medium target in the Whole Kingdom, 1987, (Solution C87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,296	0	100.00	
TYPE II	18,808	16,136	2,673	85.79	
TYPE III	34,244	25,140	9,104	73.41	
TYPE IV	19,086	18,778	308	98.39	
TYPE V UPLAND	10,584	9,240	1,344	87.30	
TYPE V LOWLAND	17,323	13,737	3,587	79.29	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,251	4,051	199	95.31	
TYPE III	34,244	0	34,244	0.	
TYPE IV	19,086	14,942	4,144	78.29	
TYPE V UPLAND	10,584	4,335	6,249	40.96	
TYPE V LOWLAND	17,323	0	17,323	0.	
FALLOW LAND	7,070	1,678	5,392	23.73	
FOREST LAND	22,144	559	21,585	2.52	

Table C.93: Optimum pattern of land use for agricultural production at medium target in the North, 1987, (Solution C87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,285	0	100.00	35.96882
TYPE II	5,150	4,395	755	85.34	0.
TYPE III	4,015	3,415	600	85.06	0.
TYPE IV	4,539	4,539	0	100.00	33.66697
TYPE V UPLAND	3,955	3,955	0	100.00	48.08912
TYPE V LOWLAND	6,449	5,838	611	90.53	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	502	502	0	100.00	55.64695
TYPE III	4,015	0	4,015	0.	0.
TYPE IV	4,539	3,603	936	79.38	0.
TYPE V UPLAND	3,955	0	3,955	0.	0.
TYPE V LOWLAND	6,449	0	6,449	0.	0.
FALLOW LAND	892	0	892	0.	0.

Table C.94: Optimum pattern of land use for agricultural production at medium target in the Northeast, 1987, (Solution C87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	2,962	2,003	960	67.60	0.
TYPE III	25,552	17,330	8,221	67.82	0.
TYPE IV	8,741	8,433	308	96.48	0.
TYPE V UPLAND	2,884	2,884	0	100.00	0.
TYPE V LOWLAND	7,937	5,390	2,547	67.90	0.
DRY SEASON					
TYPE II	236	236	0	100.00	48.91727
TYPE III	25,552	0	25,552	0.	0.
TYPE IV	8,741	6,081	2,660	69.57	0.
TYPE V UPLAND	2,884	2,884	0	100.00	28.13762
TYPE V LOWLAND	7,937	0	7,937	0.	0.
FALLOW LAND	3,535	1,678	1,857	47.46	0.
FOREST LAND	12,886	559	12,327	4.34	0.

Table C.95: Optimum pattern of land use for agricultural production at medium target in the Central Plains, 1987, (Solution C87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	422.76973
TYPE II	5,587	5,587	0	100.00	112.88511
TYPE III	908	908	0	100.00	231.31520
TYPE IV	2,129	2,129	0	100.00	59.64579
TYPE V UPLAND	1,344	0	1,344	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,473	2,473	0	100.00	74.89398
TYPE III	908	0	908	0.	0.
TYPE IV	2,129	1,712	417	80.40	0.
TYPE V UPLAND	1,344	0	1,344	0.	0.
FALLOW LAND	892	0	892	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.96: Optimum pattern of land use for agricultural production at medium target in the East, 1987, (Solution C87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,517	1,031	486	67.98	0.
TYPE III	2,214	2,214	0	100.00	34.27378
TYPE IV	2,350	2,350	0	100.00	26.39351
TYPE V UPLAND	1,738	1,738	0	100.00	31.06071
TYPE V LOWLAND	722	722	0	100.00	51.94910
DRY SEASON					
TYPE II	453	453	0	100.00	10.08635
TYPE III	2,214	0	2,214	0.	0.
TYPE IV	2,350	2,350	0	100.00	0.
TYPE V UPLAND	1,738	788	950	45.36	0.
TYPE V LOWLAND	722	0	722	0.	0.
FALLOW LAND	651	0	651	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.97: Optimum pattern of land use for agricultural production at medium target in the West, 1987, (Solution C87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,600	1,600	0	100.00	28.54352
TYPE III	359	359	0	100.00	55.56368
TYPE IV	1,196	1,196	0	100.00	58.90340
TYPE V UPLAND	663	663	0	100.00	80.03820
TYPE V LOWLAND	412	412	0	100.00	74.14888
DRY SEASON					
TYPE II	387	387	0	100.00	281.79676
TYPE III	359	0	359	0.	0.
TYPE IV	1,196	1,196	0	100.00	35.98527
TYPE V UPLAND	663	663	0	100.00	64.06521
TYPE V LOWLAND	412	0	412	0.	0.
FALLOW LAND	244	0	244	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.98: Optimum pattern of land use for agricultural production at medium target in the South, 1987, (Solution C87M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	1,992	1,520	472	76.30	0.
TYPE III	1,197	914	283	76.38	0.
TYPE IV	131	131	0	100.00	187.27635
TYPE V LOWLAND	1,804	1,375	429	76.23	0.
DRY SEASON					
TYPE II	199	0	199	0.	0.
TYPE III	1,197	0	1,197	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,804	0	1,804	0.	0.
FALLOW LAND	856	0	856	0.	0.

Table C.99: Optimum pattern of land use for agricultural production at high target in the Whole Kingdom, 1987, (Solution C87H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,296	0	100.00	
TYPE II	18,808	16,032	2,776	85.24	
TYPE III	34,244	22,592	11,651	65.98	
TYPE IV	19,086	19,086	0	100.00	
TYPE V UPLAND	10,584	9,240	1,344	87.30	
TYPE V LOWLAND	17,323	15,482	1,841	89.37	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,251	4,051	199	95.31	
TYPE III	34,244	0	34,244	0.	
TYPE IV	19,086	15,826	3,260	82.92	
TYPE V UPLAND	10,584	5,013	5,571	47.37	
TYPE V LOWLAND	17,323	0	17,323	0.	
FALLOW LAND	7,070	1,678	5,392	23.73	
FOREST LAND	22,144	12,886	9,258	58.19	

Table C.100: Optimum pattern of land use for agricultural production at high target in the North, 1987, (Solution C87H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,285	0	100.00	32.39803
TYPE II	5,150	4,315	835	83.79	0.
TYPE III	4,015	3,415	600	85.06	0.
TYPE IV	4,539	4,539	0	100.00	71.20648
TYPE V UPLAND	3,955	3,955	0	100.00	89.37311
TYPE V LOWLAND	6,449	5,036	1,412	78.10	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	502	502	0	100.00	92.63452
TYPE III	4,015	0	4,015	0.	0.
TYPE IV	4,539	4,539	0	100.00	21.58012
TYPE V UPLAND	3,955	247	3,708	6.24	0.
TYPE V LOWLAND	6,449	0	6,449	0.	0.
FALLOW LAND	892	0	892	0.	0.

Table C.101: Optimum pattern of land use for agricultural production at high target in the Northeast, 1987, (Solution C87H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	2,962	2,003	960	67.60	0.
TYPE III	25,552	14,783	10,769	57.86	0.
TYPE IV	8,741	8,741	0	100.00	25.84903
TYPE V UPLAND	2,884	2,884	0	100.00	0.
TYPE V LOWLAND	7,937	7,937	0	100.00	0.12447
DRY SEASON					
TYPE II	236	236	0	100.00	63.71979
TYPE III	25,552	0	25,552	0.	0.
TYPE IV	8,741	6,432	2,309	73.58	0.
TYPE V UPLAND	2,884	2,884	0	100.00	58.92479
TYPE V LOWLAND	7,937	0	7,937	0.	0.
FALLOW LAND	3,535	1,678	1,857	47.46	0.
FOREST LAND	12,886	12,886	0	100.00	0.

Table C.102: Optimum pattern of land use for agricultural production at high target in the Central Plains, 1987, (Solution C87H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	442.93646
TYPE II	5,587	5,587	0	100.00	137.84461
TYPE III	908	908	0	100.00	255.02057
TYPE IV	2,129	2,129	0	100.00	64.29607
TYPE V UPLAND	1,344	0	1,344	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,473	2,473	0	100.00	105.62068
TYPE III	908	0	908	0.	0.
TYPE IV	2,129	1,310	819	61.51	0.
TYPE V UPLAND	1,344	402	942	29.92	0.
FALLOW LAND	892	0	892	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.103: Optimum pattern of land use for agricultural production at high target in the East, 1987, (Solution C87H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,517	1,008	509	66.45	0.
TYPE III	2,214	2,214	0	100.00	34.92517
TYPE IV	2,350	2,350	0	100.00	49.18917
TYPE V UPLAND	1,738	1,738	0	100.00	68.29288
TYPE V LOWLAND	722	722	0	100.00	54.39924
DRY SEASON					
TYPE II	453	453	0	100.00	29.00493
TYPE III	2,214	0	2,214	0.	0.
TYPE IV	2,350	2,350	0	100.00	15.69184
TYPE V UPLAND	1,738	817	921	47.02	0.
TYPE V LOWLAND	722	0	722	0.	0.
FALLOW LAND	651	0	651	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.104: Optimum pattern of land use for agricultural production at high target in the West, 1987, (Solution C87H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,600	1,600	0	100.00	38.38601
TYPE III	359	359	0	100.00	63.66176
TYPE IV	1,196	1,196	0	100.00	81.51684
TYPE V UPLAND	663	663	0	100.00	117.27038
TYPE V LOWLAND	412	412	0	100.00	84.14401
DRY SEASON					
TYPE II	387	387	0	100.00	372.26587
TYPE III	359	0	359	0.	0.
TYPE IV	1,196	1,196	0	100.00	65.95340
TYPE V UPLAND	663	663	0	100.00	98.26544
TYPE V LOWLAND	412	0	412	0.	0.
FALLOW LAND	244	0	244	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.105: Optimum pattern of land use for agricultural production at high target in the South, 1987, (Solution C87H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	1,992	1,520	472	76.30	0.
TYPE III	1,197	914	283	76.38	0.
TYPE IV	131	131	0	100.00	218.10590
TYPE V LOWLAND	1,804	1,375	429	76.23	0.
DRY SEASON					
TYPE II	199	0	199	0.	0.
TYPE III	1,197	0	1,197	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,804	0	1,804	0.	0.
FALLOW LAND	856	0	856	0.	0.

Table C.106: Optimum pattern of land use for agricultural production at low target in the Whole Kingdom, 1991, (Solution C91L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,296	0	100.00	
TYPE II	21,488	18,918	2,570	88.04	
TYPE III	31,566	21,747	9,819	68.89	
TYPE IV	19,095	19,016	78	99.59	
TYPE V UPLAND	11,234	9,807	1,426	87.30	
TYPE V LOWLAND	18,386	14,673	3,713	79.80	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,736	4,611	125	97.37	
TYPE III	31,566	0	31,566	0.	
TYPE IV	19,095	14,793	4,302	77.47	
TYPE V UPLAND	11,234	4,845	6,389	43.13	
TYPE V LOWLAND	18,386	0	18,386	0.	
FALLOW LAND	7,105	1,678	5,427	23.62	
FOREST LAND	22,144	2,378	19,766	10.74	

Table C.107: Optimum pattern of land use for agricultural production at low target in the North, 1991, (Solution C91L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,285	0	100.00	34.14056
TYPE II	5,950	5,254	696	88.30	0.
TYPE III	3,215	2,809	406	87.37	0.
TYPE IV	4,534	4,534	0	100.00	53.51063
TYPE V UPLAND	4,198	4,198	0	100.00	69.91213
TYPE V LOWLAND	6,844	5,660	1,185	82.69	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	580	580	0	100.00	75.49061
TYPE III	3,215	0	3,215	0.	0.
TYPE IV	4,534	3,967	567	87.50	0.
TYPE V UPLAND	4,198	0	4,198	0.	0.
TYPE V LOWLAND	6,844	0	6,844	0.	0.
FALLOW LAND	947	0	947	0.	0.

Table C.108: Optimum pattern of land use for agricultural production at low target in the Northeast, 1991, (Solution C91L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	3,592	2,398	1,194	66.76	0.
TYPE III	24,924	15,702	9,222	63.00	0.
TYPE IV	8,741	8,663	78	99.10	0.
TYPE V UPLAND	3,061	3,061	0	100.00	0.
TYPE V LOWLAND	8,424	6,623	1,801	78.62	0.
DRY SEASON					
TYPE II	286	286	0	100.00	23.33272
TYPE III	24,924	0	24,924	0.	0.
TYPE IV	8,741	6,032	2,709	69.01	0.
TYPE V UPLAND	3,061	3,061	0	100.00	28.13762
TYPE V LOWLAND	8,424	0	8,424	0.	0.
FALLOW LAND	3,752	1,678	2,074	44.72	0.
FOREST LAND	12,886	2,378	10,508	18.45	0.

Table C.109: Optimum pattern of land use for agricultural production at low target in the Central Plains, 1991, (Solution C91L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USE$_D$	IDLE	% USED	SHAD$_0$^{W} PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	337.74166
TYPE II	6,147	6,147	0	100.00	32.45651
TYPE III	348	348	0	100.00	149.68305
TYPE IV	2,143	2,143	0	100.00	62.83012
TYPE V UPLAND	1,426	0	1,426	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,721	2,597	125	95.42	0.
TYPE III	348	0	348	0.	0.
TYPE IV	2,143	1,248	895	58.24	0.
TYPE V UPLAND	1,426	327	1,100	22.90	0.
FALLOW LAND	947	0	947	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.110: Optimum pattern of land use for agricultural production at low target in the East, 1991, (Solution C91L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,621	1,563	59	96.37	0.
TYPE III	2,110	2,110	0	100.00	34.50230
TYPE IV	2,350	2,350	0	100.00	33.45548
TYPE V UPLAND	1,845	1,845	0	100.00	50.74190
TYPE V LOWLAND	766	766	0	100.00	53.85939
DRY SEASON					
TYPE II	484	484	0	100.00	25.85458
TYPE III	2,110	0	2,110	0.	0.
TYPE IV	2,350	2,350	0	100.00	15.10212
TYPE V UPLAND	1,845	753	1,092	40.83	0.
TYPE V LOWLAND	766	0	766	0.	0.
FALLOW LAND	691	0	691	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.111: Optimum pattern of land use for agricultural production at low target in the West, 1991, (Solution C91L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,736	1,736	0	100.00	38.23755
TYPE III	223	223	0	100.00	63.58364
TYPE IV	1,196	1,196	0	100.00	73.48215
TYPE V UPLAND	704	704	0	100.00	99.71940
TYPE V LOWLAND	437	437	0	100.00	83.98939
DRY SEASON					
TYPE II	420	420	0	100.00	325.93223
TYPE III	223	0	223	0.	0.
TYPE IV	1,196	1,196	0	100.00	54.45176
TYPE V UPLAND	704	704	0	100.00	82.14370
TYPE V LOWLAND	437	0	437	0.	0.
FALLOW LAND	259	0	259	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.112: Optimum pattern of land use for agricultural production at low target in the South, 1991, (Solution C91L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	2,442	1,821	621	74.56	0.
TYPE III	747	557	190	74.53	0.
TYPE IV	131	131	0	100.00	203.57307
TYPE V LOWLAND	1,915	1,187	727	62.01	0.
DRY SEASON					
TYPE II	244	244	0	100.00	6.15611
TYPE III	747	0	747	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,915	0	1,915	0.	0.
FALLOW LAND	508	0	508	0.	0.

Table C.113: Optimum pattern of land use for agricultural production at medium target in the Whole Kingdom, 1991, (Solution C91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,120	175	92.36	
TYPE II	21,488	18,863	2,625	87.78	
TYPE III	31,566	25,318	6,248	80.21	
TYPE IV	19,095	19,095	0	100.00	
TYPE V UPLAND	11,234	9,807	1,426	87.30	
TYPE V LOWLAND	18,386	15,959	2,427	86.80	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,736	4,736	0	100.00	
TYPE III	31,566	0	31,566	0.	
TYPE IV	19,095	18,355	740	96.12	
TYPE V UPLAND	11,234	6,510	4,724	57.95	
TYPE V LOWLAND	18,386	0	18,386	0.	
FALLOW LAND	7,105	3,752	3,352	52.82	
FOREST LAND	22,144	12,886	9,258	58.19	

Table C.114: Optimum pattern of land use for agricultural production at medium target in the North, 1991, (Solution C91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,109	175	86.34	0.
TYPE II	5,950	5,158	792	86.68	0.
TYPE III	3,215	2,789	426	86.74	0.
TYPE IV	4,534	4,534	0	100.00	145.21361
TYPE V UPLAND	4,198	4,198	0	100.00	170.76224
TYPE V LOWLAND	6,844	4,825	2,019	70.50	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	580	580	0	100.00	149.72354
TYPE III	3,215	0	3,215	0.	0.
TYPE IV	4,534	4,534	0	100.00	24.42176
TYPE V UPLAND	4,198	1,126	3,072	26.82	0.
TYPE V LOWLAND	6,844	0	6,844	0.	0.
FALLOW LAND	947	0	947	0.	0.

Table C.115: Optimum pattern of land use for agricultural production at medium target in the Northeast, 1991, (Solution C91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	3,592	2,514	1,078	69.99	0.
TYPE III	24,924	19,102	5,822	76.64	0.
TYPE IV	8,741	8,741	0	100.00	144.59203
TYPE V UPLAND	3,061	3,061	0	100.00	294.32894
TYPE V LOWLAND	8,424	8,016	408	95.15	0.
DRY SEASON					
TYPE II	286	286	0	100.00	107.87524
TYPE III	24,924	0	24,924	0.	0.
TYPE IV	8,741	8,741	0	100.00	76.63121
TYPE V UPLAND	3,061	3,061	0	100.00	0.
TYPE V LOWLAND	8,424	0	8,424	0.	0.
FALLOW LAND	3,752	3,752	0	100.00	0.
FOREST LAND	12,886	12,886	0	100.00	0.

Table C.116: Optimum pattern of land use for agricultural production at medium target in the Central Plains, 1991, (Solution C91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	277.91015
TYPE II	6,147	6,022	125	97.97	0.
TYPE III	348	348	0	100.00	110.06184
TYPE IV	2,143	2,143	0	100.00	73.45561
TYPE V UPLAND	1,426	0	1,426	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,721	2,721	0	100.00	34.43194
TYPE III	348	0	348	0.	0.
TYPE IV	2,143	1,575	568	73.49	0.
TYPE V UPLAND	1,426	0	1,426	0.	0.
FALLOW LAND	947	0	947	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.117: Optimum pattern of land use for agricultural production at medium target in the East, 1991, (Solution C91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,621	991	630	61.13	0.
TYPE III	2,110	2,110	0	100.00	35.84757
TYPE IV	2,350	2,350	0	100.00	141.75474
TYPE V UPLAND	1,845	1,845	0	100.00	141.69410
TYPE V LOWLAND	766	766	0	100.00	68.59962
DRY SEASON					
TYPE II	484	484	0	100.00	149.04926
TYPE III	2,110	0	2,110	0.	0.
TYPE IV	2,350	2,309	41	98.25	0.
TYPE V UPLAND	1,845	1,620	225	87.80	0.
TYPE V LOWLAND	766	0	766	0.	0.
FALLOW LAND*	691	0	691	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.118: Optimum pattern of land use for agricultural production at medium target in the West, 1991, (Solution C91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,736	1,736	0	100.00	71.40844
TYPE III	223	223	0	100.00	111.84602
TYPE IV	1,196	1,196	0	100.00	141.40966
TYPE V UPLAND	704	704	0	100.00	190.67159
TYPE V LOWLAND	437	437	0	100.00	147.32274
DRY SEASON					
TYPE II	420	420	0	100.00	552.15111
TYPE III	223	0	223	0.	0.
TYPE IV	1,196	1,196	0	100.00	140.34556
TYPE V UPLAND	704	704	0	100.00	165.68936
TYPE V LOWLAND	437	0	437	0.	0.
FALLOW LAND	259	0	259	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.119: Optimum pattern of land use for agricultural production at medium target in the South, 1991, (Solution C91M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	2,442	2,442	0	100.00	50.82290
TYPE III	747	747	0	100.00	37.43363
TYPE IV	131	131	0	100.00	278.88470
TYPE V LOWLAND	1,915	1,915	0	100.00	58.60184
DRY SEASON					
TYPE II	244	244	0	100.00	77.11668
TYPE III	747	0	747	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,915	0	1,915	0.	0.
FALLOW LAND	508	0	508	0.	0.

Table C.120: Optimum pattern of land use for agricultural production at high target in the Whole Kingdom, 1991, (Solution C91H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,017	279	87.84	
TYPE II	21,488	18,785	2,703	87.42	
TYPE III	31,566	22,065	9,501	69.90	
TYPE IV	19,095	19,095	0	100.00	
TYPE V UPLAND	11,234	9,807	1,426	87.30	
TYPE V LOWLAND	18,386	16,607	1,779	90.32	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,736	4,736	0	100.00	
TYPE III	31,566	0	31,566	0.	
TYPE IV	19,095	18,923	172	99.10	
TYPE V UPLAND	11,234	8,604	2,630	76.59	
TYPE V LOWLAND	18,386	0	18,386	0.	
FALLOW LAND	7,105	3,752	3,352	52.82	
FOREST LAND	22,144	2,378	19,766	10.74	

Table C.121: Optimum pattern of land use for agricultural production at high target in the North, 1991, (Solution C91H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,006	279	78.28	0.
TYPE II	5,950	4,438	1,512	74.60	0.
TYPE III	3,215	2,400	815	74.65	0.
TYPE IV	4,534	4,534	0	100.00	424.38804
TYPE V UPLAND	4,198	4,198	0	100.00	477.78356
TYPE V LOWLAND	6,844	5,289	1,556	77.27	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	580	580	0	100.00	447.13053
TYPE III	3,215	0	3,215	0.	0.
TYPE IV	4,534	4,534	0	100.00	21.26162
TYPE V UPLAND	4,198	2,674	1,524	63.70	0.
TYPE V LOWLAND	6,844	0	6,844	0.	0.
FALLOW LAND	947	0	947	0.	0.

Table C.122: Optimum pattern of land use for agricultural production at high target in the Northeast, 1991, (Solution C91H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	3,592	2,451	1,141	68.23	0.
TYPE III	24,924	16,818	8,106	67.48	0.
TYPE IV	8,741	8,741	0	100.00	378.07412
TYPE V UPLAND	3,061	3,061	0	100.00	0.
TYPE V LOWLAND	8,424	8,200	224	97.34	0.
DRY SEASON					
TYPE II	286	286	0	100.00	325.42760
TYPE III	24,924	0	24,924	0.	0.
TYPE IV	8,741	8,741	0	100.00	129.28714
TYPE V UPLAND	3,061	3,061	0	100.00	659.58271
TYPE V LOWLAND	8,424	0	8,424	0.	0.
FALLOW LAND	3,752	3,752	0	100.00	0.
FOREST LAND	12,886	2,378	10,508	18.45	0.

Table C.123: Optimum pattern of land use for agricultural production at high target in the Central Plains, 1991, (Solution C91H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	258.38019
TYPE II	6,147	6,147	0	100.00	4.13224
TYPE III	348	348	0	100.00	107.98911
TYPE IV	2,143	2,143	0	100.00	265.08526
TYPE V UPLAND	1,426	0	1,426	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,721	2,721	0	100.00	373.79326
TYPE III	348	0	348	0.	0.
TYPE IV	2,143	2,143	0	100.00	45.42159
TYPE V UPLAND	1,426	320	1,106	22.44	0.
FALLOW LAND	947	0	947	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.124: Optimum pattern of land use for agricultural production at high target in the East, 1991, (Solution C91H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,621	1,571	51	96.88	0.
TYPE III	2,110	1,530	580	72.52	0.
TYPE IV	2,350	2,350	0	100.00	470.30327
TYPE V UPLAND	1,845	1,845	0	100.00	418.58286
TYPE V LOWLAND	766	766	0	100.00	73.27936
DRY SEASON					
TYPE II	484	484	0	100.00	515.97232
TYPE III	2,110	0	2,110	0.	0.
TYPE IV	2,350	2,309	41	98.25	0.
TYPE V UPLAND	1,845	1,845	0	100.00	13.72042
TYPE V LOWLAND	766	0	766	0.	0.
FALLOW LAND	691	0	691	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.125: Optimum pattern of land use for agricultural production at high target in the West, 1991, (Solution C91H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,736	1,736	0	100.00	220.08901
TYPE III	223	223	0	100.00	224.08254
TYPE IV	1,196	1,196	0	100.00	365.61203
TYPE V UPLAND	704	704	0	100.00	467.56035
TYPE V LOWLAND	437	437	0	100.00	303.16257
DRY SEASON					
TYPE II	420	420	0	100.00	1102.93370
TYPE III	223	0	223	0.	0.
TYPE IV	1,196	1,196	0	100.00	403.53531
TYPE V UPLAND	704	704	0	100.00	420.03015
TYPE V LOWLAND	437	0	437	0.	0.
FALLOW LAND	259	0	259	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.126: Optimum pattern of land use for agricultural production at high target in the South, 1991, (Solution C91H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	2,442	2,442	0	100.00	323.22821
TYPE III	747	747	0	100.00	279.51766
TYPE IV	131	131	0	100.00	508.15839
TYPE V LOWLAND	1,915	1,915	0	100.00	326.24802
DRY SEASON					
TYPE II	244	244	0	100.00	381.27363
TYPE III	747	0	747	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,915	0	1,915	0.	0.
FALLOW LAND	508	0	508	0.	0.

Table C.127: Optimum pattern of land use for agricultural production at low target in the Whole Kingdom, 1992, (Solution C92L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,296	0	100.00	
TYPE II	22,158	19,518	2,640	88.09	
TYPE III	30,896	22,132	8,764	71.63	
TYPE IV	19,098	19,098	0	100.00	
TYPE V UPLAND	11,402	9,954	1,448	87.30	
TYPE V LOWLAND	18,662	13,998	4,664	75.01	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,857	4,464	393	91.90	
TYPE III	30,896	0	30,896	0.	
TYPE IV	19,098	15,274	3,824	79.98	
TYPE V UPLAND	11,402	4,623	6,779	40.54	
TYPE V LOWLAND	18,662	0	18,662	0.	
FALLOW LAND	7,211	1,678	5,533	23.27	
FOREST LAND	22,140	2,937	19,203	13.27	

Table C.128: Optimum pattern of land use for agricultural production at low target in the North, 1992, (Solution C92L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,285	0	100.00	36.80745
TYPE II	6,150	5,420	730	88.13	0.
TYPE III	3,015	2,665	350	88.40	0.
TYPE IV	4,534	4,534	0	100.00	28.73673
TYPE V UPLAND	4,261	4,261	0	100.00	42.66711
TYPE V LOWLAND	6,947	5,882	1,066	84.66	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	600	600	0	100.00	50.01470
TYPE III	3,015	0	3,015	0.	0.
TYPE IV	4,534	4,171	363	92.00	0.
TYPE V UPLAND	4,261	0	4,261	0.	0.
TYPE V LOWLAND	6,947	0	6,947	0.	0.
FALLOW LAND	961	0	961	0.	0.

Table C.129: Optimum pattern of land use for agricultural production at low target in the Northeast, 1992, (Solution C92L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	3,749	2,497	1,252	66.60	0.
TYPE III	24,767	16,515	8,252	66.68	0.
TYPE IV	8,741	8,741	0	100.00	26.90228
TYPE V UPLAND	3,107	3,107	0	100.00	0.
TYPE V LOWLAND	8,550	5,711	2,839	66.79	0.
DRY SEASON					
TYPE II	298	298	0	100.00	3.15336
TYPE III	24,767	0	24,767	0.	0.
TYPE IV	8,741	5,986	2,755	68.48	0.
TYPE V UPLAND	3,107	3,107	0	100.00	60.17925
TYPE V LOWLAND	8,550	0	8,550	0.	0.
FALLOW LAND	3,809	1,678	2,131	44.06	0.
FOREST LAND	12,882	2,937	9,945	22.80	0.

Table C.130: Optimum pattern of land use for agricultural production at low target in the Central Plains, 1992, (Solution C92L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	350.91969
TYPE II	6,287	6,287	0	100.00	39.65354
TYPE III	208	208	0	100.00	158.44513
TYPE IV	2,146	2,146	0	100.00	58.79113
TYPE V UPLAND	1,448	0	1,448	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,783	2,597	187	93.30	0.
TYPE III	208	0	208	0.	0.
TYPE IV	2,146	1,571	575	73.20	0.
TYPE V UPLAND	1,448	0	1,448	0.	0.
FALLOW LAND	960	0	960	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.131: Optimum pattern of land use for agricultural production at low target in the East, 1992, (Solution C92L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,647	1,647	0	100.00	21.17216
TYPE III	2,084	2,084	0	100.00	50.97140
TYPE IV	2,350	2,350	0	100.00	11.42858
TYPE V UPLAND	1,872	1,872	0	100.00	26.17083
TYPE V LOWLAND	778	778	0	100.00	67.64792
DRY SEASON					
TYPE II	492	285	207	57.96	0.
TYPE III	2,084	0	2,084	0.	0.
TYPE IV	2,350	2,350	0	100.00	1.69873
TYPE V UPLAND	1,872	802	1,070	42.83	0.
TYPE V LOWLAND	778	0	778	0.	0.
FALLOW LAND	701	0	701	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.132: Optimum pattern of land use for agricultural production at low target in the West, 1992, (Solution C92L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,770	1,770	0	100.00	21.13197
TYPE III	189	189	0	100.00	48.65495
TYPE IV	1,196	1,196	0	100.00	37.16080
TYPE V UPLAND	714	714	0	100.00	75.14833
TYPE V LOWLAND	444	444	0	100.00	66.69333
DRY SEASON					
TYPE II	428	428	0	100.00	249.25483
TYPE III	189	0	189	0.	0.
TYPE IV	1,196	1,196	0	100.00	22.93833
TYPE V UPLAND	714	714	0	100.00	59.57353
TYPE V LOWLAND	444	0	444	0.	0.
FALLOW LAND	263	0	263	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.133: Optimum pattern of land use for agricultural production at low target in the South, 1992, (Solution C92L).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	2,555	1,897	658	74.26	0.
TYPE III	634	472	162	74.45	0.
TYPE IV	131	131	0	100.00	183.22736
TYPE V LOWLAND	1,943	1,184	759	60.94	0.
DRY SEASON					
TYPE II	256	256	0	100.00	4.14648
TYPE III	634	0	634	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,943	0	1,943	0.	0.
FALLOW LAND	516	0	516	0.	0.

Table C.134: Optimum pattern of land use for agricultural production at medium target in the Whole Kingdom, 1992, (Solution C92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	2,037	259	88.72	
TYPE II	22,158	18,743	3,415	84.59	
TYPE III	30,896	21,966	8,930	71.10	
TYPE IV	19,098	19,098	0	100.00	
TYPE V UPLAND	11,402	9,954	1,448	87.30	
TYPE V LOWLAND	18,662	17,267	1,396	92.52	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,857	4,857	0	100.00	
TYPE III	30,896	0	30,896	0.	
TYPE IV	19,098	18,392	706	96.30	
TYPE V UPLAND	11,402	8,091	3,311	70.96	
TYPE V LOWLAND	18,662	0	18,662	0.	
FALLOW LAND	7,211	1,678	5,533	23.27	
FOREST LAND	22,140	12,882	9,258	58.18	

Table C.135: Optimum pattern of land use for agricultural production at medium target in the North, 1992, (Solution C92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	1,026	259	79.84	0.
TYPE II	6,150	4,783	1,367	77.77	0.
TYPE III	3,015	2,337	678	77.52	0.
TYPE IV	4,534	4,534	0	100.00	130.96981
TYPE V UPLAND	4,261	4,261	0	100.00	155.09765
TYPE V LOWLAND	6,947	5,552	1,396	79.91	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	600	600	0	100.00	137.06210
TYPE III	3,015	0	3,015	0.	0.
TYPE IV	4,534	4,534	0	100.00	24.06602
TYPE V UPLAND	4,261	2,565	1,696	60.20	0.
TYPE V LOWLAND	6,947	0	6,947	0.	0.
FALLOW LAND	961	0	961	0.	0.

Table C.136: Optimum pattern of land use for agricultural production at medium target in the Northeast, 1992, (Solution C92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	3,749	2,497	1,252	66.60	0.
TYPE III	24,767	16,515	8,252	66.68	0.
TYPE IV	8,741	8,741	0	100.00	133.48584
TYPE V UPLAND	3,107	3,107	0	100.00	0.
TYPE V LOWLAND	8,550	8,550	0	100.00	12.98660
DRY SEASON					
TYPE II	298	298	0	100.00	97.99281
TYPE III	24,767	0	24,767	0.	0.
TYPE IV	8,741	8,741	0	100.00	81.51717
TYPE V UPLAND	3,107	3,107	0	100.00	284.21432
TYPE V LOWLAND	8,550	0	8,550	0.	0.
FALLOW LAND	3,809	1,678	2,131	44.06	0.
FOREST LAND	12,882	12,882	0	100.00	0.

Table C.137: Optimum pattern of land use for agricultural production at medium target in the Central Plains, 1992, (Solution C92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	274.64096
TYPE II	6,287	6,100	187	97.03	0.
TYPE III	208	208	0	100.00	109.20787
TYPE IV	2,146	2,146	0	100.00	63.90620
TYPE V UPLAND	1,448	0	1,448	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,783	2,783	0	100.00	4.41805
TYPE III	208	0	208	0.	0.
TYPE IV	2,146	1,571	575	73.20	0.
TYPE V UPLAND	1,448	0	1,448	0.	0.
FALLOW LAND	960	0	960	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.138: Optimum pattern of land use for agricultural production at medium target in the East, 1992, (Solution C92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,647	1,039	608	63.06	0.
TYPE III	2,084	2,084	0	100.00	35.28996
TYPE IV	2,350	2,350	0	100.00	122.14144
TYPE V UPLAND	1,872	1,872	0	100.00	127.56691
TYPE V LOWLAND	778	778	0	100.00	65.76956
DRY SEASON					
TYPE II	492	492	0	100.00	126.48724
TYPE III	2,084	0	2,084	0.	0.
TYPE IV	2,350	2,350	0	100.00	3.31792
TYPE V UPLAND	1,872	1,705	167	91.06	0.
TYPE V LOWLAND	778	0	778	0.	0.
FALLOW LAND	701	0	701	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.139: Optimum pattern of land use for agricultural production at medium target in the West, 1992, (Solution C92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,770	1,770	0	100.00	61.77559
TYPE III	189	189	0	100.00	99.04854
TYPE IV	1,196	1,196	0	100.00	130.80928
TYPE V UPLAND	714	714	0	100.00	176.54440
TYPE V LOWLAND	444	444	0	100.00	132.06245
DRY SEASON					
TYPE II	428	428	0	100.00	522.73496
TYPE III	189	0	189	0.	0.
TYPE IV	1,196	1,196	0	100.00	126.95457
TYPE V UPLAND	714	714	0	100.00	152.71259
TYPE V LOWLAND	444	0	444	0.	0.
FALLOW LAND	263	0	263	0.	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.140: Optimum pattern of land use for agricultural production at medium target in the South, 1992, (Solution C92M).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	2,555	2,555	0	100.00	42.42305
TYPE III	634	634	0	100.00	30.74639
TYPE IV	131	131	0	100.00	267.18689
TYPE V LOWLAND	1,943	1,943	0	100.00	50.47079
DRY SEASON					
TYPE II	256	256	0	100.00	66.92341
TYPE III	634	0	634	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,943	0	1,943	0.	0.
FALLOW LAND	516	0	516	0.	0.

Table C.141: Optimum pattern of land use for agricultural production at high target in the Whole Kingdom, 1992, (Solution C92H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
RAINY SEASON					
TYPE I	2,296	1,967	329	85.68	
TYPE II	22,158	18,866	3,292	85.14	
TYPE III	30,896	22,995	7,901	74.43	
TYPE IV	19,098	19,098	0	100.00	
TYPE V UPLAND	11,402	9,954	1,448	87.30	
TYPE V LOWLAND	18,662	16,517	2,146	88.50	
DRY SEASON					
TYPE I	2,296	0	2,296	0.	
TYPE II	4,857	4,857	0	100.00	
TYPE III	30,896	0	30,896	0.	
TYPE IV	19,098	18,967	131	99.31	
TYPE V UPLAND	11,402	10,038	1,364	88.03	
TYPE V LOWLAND	18,662	0	18,662	0.	
FALLOW LAND	7,211	1,941	5,270	26.92	
FOREST LAND	22,140	12,882	9,256	58.18	

Table C.142: Optimum pattern of land use for agricultural production at high target in the North, 1992, (Solution C92H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
RAINY SEASON					
TYPE I	1,285	956	329	74.41	0.
TYPE II	6,150	4,574	1,576	74.37	0.
TYPE III	3,015	2,235	780	74.14	0.
TYPE IV	4,534	4,534	0	100.00	338.73924
TYPE V UPLAND	4,261	4,261	0	100.00	383.59152
TYPE V LOWLAND	6,947	5,047	1,900	72.65	0.
DRY SEASON					
TYPE I	1,285	0	1,285	0.	0.
TYPE II	600	600	0	100.00	331.43403
TYPE III	3,015	0	3,015	0.	0.
TYPE IV	4,534	4,534	0	100.00	42.36469
TYPE V UPLAND	4,261	4,261	0	100.00	11.39420
TYPE V LOWLAND	6,947	0	6,947	0.	0.
FALLOW LAND	961	0	961	0.	0.

Table C.143: Optimum pattern of land use for agricultural production at high target in the Northeast, 1992, (Solution C92H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
RAINY SEASON					
TYPE II	3,749	2,642	1,107	70.46	0.
TYPE III	24,767	17,646	7,121	71.25	0.
TYPE IV	8,741	8,741	0	100.00	330.75481
TYPE V UPLAND	3,107	3,107	0	100.00	596.47522
TYPE V LOWLAND	8,550	8,305	246	97.13	0.
DRY SEASON					
TYPE II	298	298	0	100.00	273.52532
TYPE III	24,767	0	24,767	0.	0.
TYPE IV	8,741	8,741	0	100.00	128.25709
TYPE V UPLAND	3,107	3,107	0	100.00	0.
TYPE V LOWLAND	8,550	0	8,550	0.	0.
FALLOW LAND	3,809	1,678	2,131	44.06	0.
FOREST LAND	12,882	12,882	0	100.00	0.

Table C.144: Optimum pattern of land use for agricultural production at high target in the Central Plains, 1992, (Solution C92H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
RAINY SEASON					
TYPE I	1,011	1,011	0	100.00	274.82033
TYPE II	6,287	6,287	0	100.00	12.36495
TYPE III	208	208	0	100.00	118.37246
TYPE IV	2,146	2,146	0	100.00	223.54956
TYPE V UPLAND	1,448	0	1,448	0.	0.
DRY SEASON					
TYPE I	1,011	0	1,011	0.	0.
TYPE II	2,783	2,783	0	100.00	302.88201
TYPE III	208	0	208	0.	0.
TYPE IV	2,146	2,146	0	100.00	63.78155
TYPE V UPLAND	1,448	83	1,364	5.76	0.
FALLOW LAND	960	0	960	0.	0.
FOREST LAND	4,620	0	4,620	0.	0.

Table C.145: Optimum pattern of land use for agricultural production at high target in the East, 1992, (Solution C92H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
RAINY SEASON					
TYPE II	1,647	1,039	608	63.06	0.
TYPE III	2,084	2,084	0	100.00	30.88714
TYPE IV	2,350	2,350	0	100.00	364.20544
TYPE V UPLAND	1,872	1,872	0	100.00	333.63529
TYPE V LOWLAND	778	778	0	100.00	92.34366
DRY SEASON					
TYPE II	492	492	0	100.00	373.46987
TYPE III	2,084	0	2,084	0.	0.
TYPE IV	2,350	2,350	0	100.00	32.98846
TYPE V UPLAND	1,872	1,872	0	100.00	55.56257
TYPE V LOWLAND	778	0	778	0.	0.
FALLOW LAND	701	0	701	0.	0.
FOREST LAND	3,373	0	3,373	0.	0.

Table C.146: Optimum pattern of land use for agricultural production at high target in the West, 1992, (Solution C92H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
RAINY SEASON					
TYPE II	1,770	1,770	0	100.00	159.27157
TYPE III	189	189	0	100.00	173.37948
TYPE IV	1,196	1,196	0	100.00	320.68941
TYPE V UPLAND	714	714	0	100.00	416.09275
TYPE V LOWLAND	444	444	0	100.00	241.46417
DRY SEASON					
TYPE II	428	428	0	100.00	1048.16040
TYPE III	189	0	189	0.	0.
TYPE IV	1,196	1,196	0	100.00	357.54055
TYPE V UPLAND	714	714	0	100.00	375.48011
TYPE V LOWLAND	444	0	444	0.	0.
FALLOW LAND	263	263	0	100.00	0.
FOREST LAND	1,264	0	1,264	0.	0.

Table C.147: Optimum pattern of land use for agricultural production at high target in the South, 1992, (Solution C92H).

(unit : 1,000 rais)

LAND TYPE	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
RAINY SEASON					
TYPE II	2,555	2,555	0	100.00	271.83142
TYPE III	634	634	0	100.00	235.76692
TYPE IV	131	131	0	100.00	437.81880
TYPE V LOWLAND	1,943	1,943	0	100.00	276.05133
DRY SEASON					
TYPE II	256	256	0	100.00	321.87011
TYPE III	634	0	634	0.	0.
TYPE IV	131	0	131	0.	0.
TYPE V LOWLAND	1,943	0	1,943	0.	0.
FALLOW LAND	516	0	516	0.	0.

Table D.1: Optimum pattern of labor utilization for agricultural production at low target in the Whole Kingdom, 1987, (Solution A87L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	17,734,740	3,589,779	14,144,961	20.24	
FEBRUARY	17,734,739	3,620,845	14,113,894	20.42	
MARCH	17,734,736	4,144,343	13,590,393	23.37	
APRIL	17,734,736	4,697,624	12,037,112	26.48	
MAY	17,734,736	5,224,199	12,510,537	29.46	
JUNE	17,734,740	12,146,184	5,588,556	68.49	
JULY	17,734,735	5,973,887	11,760,848	33.68	
AUGUST	17,734,736	5,026,695	12,708,041	28.34	
SEPTEMBER	17,734,740	3,257,898	14,476,842	18.37	
OCTOBER	17,734,735	9,109,143	8,625,592	51.36	
NOVEMBER	17,734,735	13,635,152	4,099,583	76.88	
DECEMBER	17,734,740	9,458,249	8,276,492	53.33	

Table D.2: Optimum pattern of labor utilization for agricultural production at low target in the North, 1987, (Solution A87L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,588,077	713,438	3,874,638	15.55	0.
FEBRUARY	4,588,078	793,546	3,794,532	17.30	0.
MARCH	4,588,074	646,969	3,941,106	14.10	0.
APRIL	4,588,075	776,477	3,811,598	16.92	0.
MAY	4,588,078	1,344,696	3,243,383	29.31	0.
JUNE	4,588,077	2,776,415	1,811,662	60.51	0.
JULY	4,588,075	1,595,326	2,992,749	34.77	0.
AUGUST	4,588,074	1,855,139	2,732,935	40.43	0.
SEPTEMBER	4,588,077	749,057	3,839,020	16.33	0.
OCTOBER	4,588,075	631,377	3,956,698	13.76	0.
NOVEMBER	4,588,075	3,065,940	1,522,135	66.82	0.
DECEMBER	4,588,077	4,575,065	13,012	99.72	0.

Table D.3: Optimum pattern of labor utilization for agricultural production at low target in the Northeast, 1987, (Solution A87L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	7,780,293	1,478,432	6,301,861	19.00	0.
FEBRUARY	7,780,293	1,069,743	6,710,549	13.75	0.
MARCH	7,780,293	1,146,364	6,633,927	14.73	0.
APRIL	7,780,290	1,914,473	5,865,817	24.61	0.
MAY	7,780,292	2,131,413	5,648,879	27.40	0.
JUNE	7,780,293	6,545,243	1,235,050	84.13	0.
JULY	7,780,290	2,484,813	5,295,477	31.94	0.
AUGUST	7,780,292	1,779,721	6,000,571	22.87	0.
SEPTEMBER	7,780,293	1,206,293	6,574,000	15.50	0.
OCTOBER	7,780,290	5,313,246	2,467,044	68.29	0.
NOVEMBER	7,780,290	7,677,239	103,051	98.68	0.
DECEMBER	7,780,293	2,451,057	5,329,236	31.50	0.

Table D.4: Optimum pattern of labor utilization for agricultural production at low target in the Central Plains, 1987, (Solution A87L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	857,769	551,882	305,888	64.34	0.
FEBRUARY	857,771	383,458	474,313	44.70	0.
MARCH	857,773	381,419	476,355	44.47	0.
APRIL	857,770	857,770	0	100.00	5.63000
MAY	857,771	651,608	206,163	75.97	0.
JUNE	857,769	857,769	0	100.00	5.63000
JULY	857,770	663,838	193,932	77.39	0.
AUGUST	857,773	421,020	436,754	49.08	0.
SEPTEMBER	857,769	351,509	506,260	40.98	0.
OCTOBER	857,770	857,770	0	100.00	2.43561
NOVEMBER	857,770	857,770	0	100.00	5.63000
DECEMBER	857,769	857,769	0	100.00	5.63000

Table D.5: Optimum pattern of labor utilization for agricultural production at low target in the East, 1987, (Solution A87L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,016,957	322,993	693,964	31.76	0.
FEBRUARY	1,016,953	314,113	702,840	30.89	0.
MARCH	1,016,954	358,413	658,541	35.24	0.
APRIL	1,016,955	620,059	396,896	60.97	0.
MAY	1,016,955	496,603	520,352	48.87	0.
JUNE	1,016,957	912,568	104,388	89.74	0.
JULY	1,016,955	451,919	565,036	44.44	0.
AUGUST	1,016,954	284,393	732,561	27.97	0.
SEPTEMBER	1,016,957	236,523	780,434	23.26	0.
OCTOBER	1,016,955	1,016,955	0	100.00	0.64282
NOVEMBER	1,016,955	1,016,955	0	100.00	5.63000
DECEMBER	1,016,957	745,624	271,333	73.32	0.

Table D.6: Optimum pattern of labor utilization for agricultural production at low target in the West, 1987, (Solution A87L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	999,577	257,054	742,523	25.72	0.
FEBRUARY	999,578	274,599	724,979	27.47	0.
MARCH	999,579	276,785	722,793	27.69	0.
APRIL	999,580	270,941	728,639	27.11	0.
MAY	999,578	337,605	661,974	33.77	0.
JUNE	999,577	631,298	368,279	63.16	0.
JULY	999,580	329,125	670,455	32.93	0.
AUGUST	999,579	250,263	749,315	25.04	0.
SEPTEMBER	999,577	209,787	789,790	20.99	0.
OCTOBER	999,580	253,842	745,738	25.39	0.
NOVEMBER	999,580	640,839	358,741	64.11	0.
DECEMBER	999,577	501,933	497,644	50.21	0.

Table D.7: Optimum pattern of labor utilization for agricultural production at low target in the South, 1987, (Solution A87L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,492,067	265,979	2,226,088	10.67	0.
FEBRUARY	2,492,068	785,387	1,706,681	31.52	0.
MARCH	2,492,065	1,334,394	1,157,671	53.55	0.
APRIL	2,492,065	257,904	2,234,161	10.54	0.
MAY	2,492,068	262,375	2,229,693	10.53	0.
JUNE	2,492,067	422,890	2,069,177	16.97	0.
JULY	2,492,065	448,866	2,043,199	18.01	0.
AUGUST	2,492,065	436,160	2,055,905	17.50	0.
SEPTEMBER	2,492,067	504,730	1,987,338	20.25	0.
OCTOBER	2,492,065	1,035,953	1,456,112	41.57	0.
NOVEMBER	2,492,065	376,409	2,115,656	15.10	0.
DECEMBER	2,492,067	326,801	2,165,267	13.11	0.

Table D.8: Optimum pattern of labor utilization for agricultural production at medium target in the Whole Kingdom, 1987, (Solution A87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	17,734,740	3,613,779	14,120,961	20.38	
FEBRUARY	17,734,739	3,625,711	14,109,029	20.44	
MARCH	17,734,736	4,157,869	13,576,867	23.44	
APRIL	17,734,735	4,704,285	13,030,450	26.59	
MAY	17,734,739	5,279,487	12,455,252	30.09	
JUNE	17,734,740	12,195,727	5,539,013	68.77	
JULY	17,734,735	5,970,553	11,764,182	33.67	
AUGUST	17,734,736	5,127,656	12,607,080	28.91	
SEPTEMBER	17,734,740	3,296,208	14,438,532	18.59	
OCTOBER	17,734,735	9,191,540	8,543,195	51.83	
NOVEMBER	17,734,735	13,732,706	4,002,028	77.43	
DECEMBER	17,734,740	9,493,912	8,240,828	53.53	

Table D.9: Optimum pattern of labor utilization for agricultural production at medium target in the North, 1987, (Solution A87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,588,077	717,898	3,870,179	15.65	0.
FEBRUARY	4,588,078	801,603	3,786,475	17.47	0.
MARCH	4,588,074	652,471	3,935,603	14.22	0.
APRIL	4,588,075	761,871	3,826,204	16.61	0.
MAY	4,588,078	1,367,241	3,220,837	29.80	0.
JUNE	4,588,077	2,785,036	1,803,041	60.70	0.
JULY	4,588,075	1,551,819	3,036,256	33.82	0.
AUGUST	4,588,074	1,931,364	2,656,710	42.10	0.
SEPTEMBER	4,588,077	767,559	3,820,518	16.73	0.
OCTOBER	4,588,075	647,850	3,940,225	14.12	0.
NOVEMBER	4,588,075	3,014,250	1,573,825	65.70	0.
DECEMBER	4,588,077	4,588,077	0	100.00	1.09837

Table D.10: Optimum pattern of labor utilization for agricultural production at medium target in the Northeast, 1987, (Solution A87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	7,780,293	1,465,131	6,315,162	18.83	0.
FEBRUARY	7,780,292	1,032,793	6,747,499	13.27	0.
MARCH	7,780,292	1,118,587	6,661,705	14.38	0.
APRIL	7,780,290	1,885,679	5,894,611	24.24	0.
MAY	7,780,292	2,110,642	5,669,649	27.13	0.
JUNE	7,780,293	6,530,817	1,249,477	83.94	0.
JULY	7,780,290	2,452,867	5,327,423	31.53	0.
AUGUST	7,780,292	1,761,856	6,018,436	22.65	0.
SEPTEMBER	7,780,293	1,180,670	6,599,623	15.18	0.
OCTOBER	7,780,290	5,335,281	2,445,009	68.57	0.
NOVEMBER	7,780,290	7,780,290	0	100.00	0.
DECEMBER	7,780,293	2,438,378	5,341,915	31.34	0.

Table D.11: Optimum pattern of labor utilization for agricultural production at medium target in the Central Plains, 1987, (Solution A87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	857,769	551,882	305,888	64.34	0.
FEBRUARY	857,771	383,458	474,313	44.70	0.
MARCH	857,773	381,419	476,355	44.47	0.
APRIL	857,770	857,770	0	100.00	5.63000
MAY	857,771	651,608	206,163	75.97	0.
JUNE	857,769	857,769	0	100.00	5.63000
JULY	857,770	663,838	193,932	77.39	0.
AUGUST	857,773	421,020	436,754	49.08	0.
SEPTEMBER	857,769	351,509	506,260	40.98	0.
OCTOBER	857,770	857,770	0	100.00	2.66291
NOVEMBER	857,770	857,770	0	100.00	5.63000
DECEMBER	857,769	857,769	0	100.00	5.63000

Table D.12: Optimum pattern of labor utilization for agricultural production at medium target in the East, 1987, (Solution A87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,016,957	318,709	698,247	31.34	0.
FEBRUARY	1,016,953	310,669	706,284	30.55	0.
MARCH	1,016,954	357,632	659,322	35.17	0.
APRIL	1,016,955	628,836	388,119	61.84	0.
MAY	1,016,953	509,557	507,396	50.10	0.
JUNE	1,016,957	928,615	88,341	91.31	0.
JULY	1,016,955	478,935	538,020	47.09	0.
AUGUST	1,016,954	284,854	732,100	28.01	0.
SEPTEMBER	1,016,957	236,653	780,304	23.27	0.
OCTOBER	1,016,955	1,016,955	0	100.00	0.37604
NOVEMBER	1,016,955	1,016,955	0	100.00	2.04793
DECEMBER	1,016,957	738,462	278,495	72.61	0.

Table D.13: Optimum pattern of labor utilization for agricultural production at medium target in the West, 1987, (Solution A87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	999,577	296,806	702,771	29.69	0.
FEBRUARY	999,578	314,646	684,932	31.48	0.
MARCH	999,579	315,896	683,682	31.60	0.
APRIL	999,580	314,957	684,623	31.51	0.
MAY	999,578	380,909	618,669	38.11	0.
JUNE	999,577	673,227	326,350	67.35	0.
JULY	999,580	376,960	622,620	37.71	0.
AUGUST	999,579	294,933	704,646	29.51	0.
SEPTEMBER	999,577	257,714	741,863	25.78	0.
OCTOBER	999,580	300,462	699,118	30.06	0.
NOVEMBER	999,580	689,764	309,816	69.01	0.
DECEMBER	999,577	547,052	452,525	54.73	0.

Table D.14: Optimum pattern of labor utilization for agricultural production at medium target in the South, 1987, (Solution A87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,492,067	263,353	2,228,715	10.57	0.
FEBRUARY	2,492,068	782,541	1,709,526	31.40	0.
MARCH	2,492,065	1,331,864	1,160,200	53.44	0.
APRIL	2,492,065	255,172	2,191,893	10.43	0.
MAY	2,492,068	259,529	2,232,538	10.41	0.
JUNE	2,492,067	420,264	2,071,804	16.86	0.
JULY	2,492,065	446,134	2,045,931	17.90	0.
AUGUST	2,492,065	433,631	2,058,434	17.40	0.
SEPTEMBER	2,492,067	502,103	1,989,964	20.15	0.
OCTOBER	2,492,065	1,033,221	1,458,844	41.46	0.
NOVEMBER	2,492,065	373,677	2,118,388	14.99	0.
DECEMBER	2,492,067	324,174	2,167,893	13.01	0.

Table D.15: Optimum pattern of labor utilization for agricultural production at high target in the Whole Kingdom, 1987, (Solution A87H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	17,734,740	3,648,891	14,085,849	20.57	
FEBRUARY	17,734,739	3,715,934	14,018,805	20.95	
MARCH	17,734,736	4,375,269	13,359,467	24.67	
APRIL	17,734,735	4,708,727	13,026,008	26.55	
MAY	17,734,739	5,300,314	12,434,425	29.89	
JUNE	17,734,740	12,173,864	5,560,876	68.64	
JULY	17,734,735	5,908,141	11,826,594	33.31	
AUGUST	17,734,736	5,233,561	12,501,175	29.51	
SEPTEMBER	17,734,740	3,325,556	14,409,184	18.75	
OCTOBER	17,734,735	9,560,127	8,174,608	53.91	
NOVEMBER	17,734,735	13,689,640	4,045,095	77.19	
DECEMBER	17,734,740	9,469,990	8,264,750	53.40	

Table D.16: Optimum pattern of labor utilization for agricultural production at high target in the North, 1987, (Solution A87H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,588,077	729,526	3,858,551	15.90	0.
FEBRUARY	4,588,078	819,444	3,768,634	17.86	0.
MARCH	4,588,074	669,602	3,918,473	14.59	0.
APRIL	4,588,075	737,956	3,850,119	16.08	0.
MAY	4,588,078	1,394,464	3,193,614	30.39	0.
JUNE	4,588,077	2,721,371	1,866,706	59.31	0.
JULY	4,588,075	1,458,036	3,130,039	31.78	0.
AUGUST	4,588,074	2,040,861	2,547,213	44.48	0.
SEPTEMBER	4,588,077	796,850	3,791,227	17.37	0.
OCTOBER	4,588,075	680,074	3,908,001	14.82	0.
NOVEMBER	4,588,075	2,901,758	1,686,317	63.25	0.
DECEMBER	4,588,077	4,588,077	0	100.00	1.68711

Table D.17: Optimum pattern of labor utilization for agricultural production at high target in the Northeast, 1987, (Solution A87H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	7,780,293	1,406,099	6,374,194	18.07	0.
FEBRUARY	7,780,292	948,639	6,831,653	12.19	0.
MARCH	7,780,292	1,049,737	6,730,555	13.49	0.
APRIL	7,780,290	1,830,080	5,950,210	23.52	0.
MAY	7,780,292	2,043,489	5,736,803	26.26	0.
JUNE	7,780,293	6,490,922	1,289,372	83.43	0.
JULY	7,780,290	2,376,537	5,403,753	30.55	0.
AUGUST	7,780,292	1,687,622	6,092,670	21.69	0.
SEPTEMBER	7,780,293	1,099,287	6,681,006	14.13	0.
OCTOBER	7,780,290	5,306,619	2,473,671	68.21	0.
NOVEMBER	7,780,290	7,780,290	0	100.00	1.03507
DECEMBER	7,780,293	2,374,104	5,406,189	30.51	0.

Table D.18: Optimum pattern of labor utilization for agricultural production at high target in the Central Plains, 1987, (Solution A87H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	857,769	551,882	305,888	64.34	0.
FEBRUARY	857,771	383,458	474,313	44.70	0.
MARCH	857,773	381,419	476,355	44.47	0.
APRIL	857,770	857,770	0	100.00	5.63000
MAY	857,771	668,754	189,017	77.96	0.
JUNE	857,769	857,769	0	100.00	5.63000
JULY	857,770	680,564	177,206	79.34	0.
AUGUST	857,773	407,354	450,419	47.49	0.
SEPTEMBER	857,769	330,351	527,418	38.51	0.
OCTOBER	857,770	857,770	0	100.00	2.94829
NOVEMBER	857,770	857,770	0	100.00	6.66507
DECEMBER	857,769	857,769	0	100.00	5.63000

Table D.19: Optimum pattern of labor utilization for agricultural production at high target in the East, 1987, (Solution A87H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,016,957	318,709	698,247	31.34	0.
FEBRUARY	1,016,953	310,669	706,284	30.55	0.
MARCH	1,016,954	357,632	659,322	35.17	0.
APRIL	1,016,955	628,836	388,119	61.84	0.
MAY	1,016,953	509,557	507,396	50.10	0.
JUNE	1,016,957	928,615	88,341	91.31	0.
JULY	1,016,955	478,935	538,020	47.09	0.
AUGUST	1,016,954	284,854	732,100	28.01	0.
SEPTEMBER	1,016,957	236,653	780,304	23.27	0.
OCTOBER	1,016,955	1,016,955	0	100.00	0.59000
NOVEMBER	1,016,955	1,016,955	0	100.00	2.93066
DECEMBER	1,016,957	738,462	278,495	72.61	0.

Table D.20: Optimum pattern of labor utilization for agricultural production at high target in the West, 1987, (Solution A87H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	999,577	374,995	624,582	37.52	0.
FEBRUARY	999,578	397,703	601,875	39.79	0.
MARCH	999,579	391,639	607,940	39.18	0.
APRIL	999,580	396,181	603,399	39.63	0.
MAY	999,578	421,675	577,903	42.19	0.
JUNE	999,577	752,296	247,280	75.26	0.
JULY	999,580	465,202	534,378	46.54	0.
AUGUST	999,579	376,710	622,869	37.69	0.
SEPTEMBER	999,577	345,616	653,961	34.58	0.
OCTOBER	999,580	529,912	469,668	53.01	0.
NOVEMBER	999,580	748,268	251,312	74.86	0.
DECEMBER	999,577	576,525	423,052	57.68	0.

Table D.21 : Optimum pattern of labor utilization for agricultural production at high, target in the South, 1987, (Solution A87H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,492,067	267,680	2,224,388	10.74	0.
FEBRUARY	2,492,068	856,021	1,636,046	34.35	0.
MARCH	2,492,065	1,525,242	966,823	61.20	0.
APRIL	2,492,065	257,904	2,234,161	10.54	0.
MAY	2,492,068	262,375	2,229,693	10.53	0.
JUNE	2,492,067	422,890	2,069,177	16.97	0.
JULY	2,492,065	448,866	2,043,199	18.01	0.
AUGUST	2,492,065	436,160	2,055,905	17.50	0.
SEPTEMBER	2,492,067	516,798	1,975,269	20.74	0.
OCTOBER	2,492,065	1,168,797	1,323,268	46.90	0.
NOVEMBER	2,492,065	384,599	2,107,466	15.43	0.
DECEMBER	2,492,067	335,054	2,157,013	13.44	0.

Table D.22: Optimum pattern of labor utilization for agricultural production at low target in the Whole Kingdom, 1991, (Solution A91L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	19,457,356	3,880,746	15,576,609	19.94	
FEBRUARY	19,457,354	3,971,730	15,485,623	20.41	
MARCH	19,457,361	4,626,900	14,830,460	23.78	
APRIL	19,457,360	5,064,117	14,393,242	26.03	
MAY	19,457,354	5,601,814	13,855,539	28.79	
JUNE	19,457,356	12,591,030	6,866,326	64.71	
JULY	19,457,360	6,354,608	13,102,751	32.66	
AUGUST	19,457,361	5,555,270	13,902,091	28.55	
SEPTEMBER	19,457,356	3,631,600	15,825,756	18.66	
OCTOBER	19,457,360	9,714,707	9,742,653	49.93	
NOVEMBER	19,457,360	14,336,296	5,121,064	73.68	
DECEMBER	19,457,356	10,076,783	9,380,573	51.79	

Table D.23: Optimum pattern of labor utilization for agricultural production at low target in the North, 1991, (Solution A91L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,900,149	722,905	4,177,244	14.75	0.
FEBRUARY	4,900,151	796,735	4,103,416	16.26	0.
MARCH	4,900,153	649,640	4,250,513	13.26	0.
APRIL	4,900,155	780,868	4,119,287	15.94	0.
MAY	4,900,151	1,385,344	3,514,807	28.27	0.
JUNE	4,900,149	2,867,432	2,032,717	58.52	0.
JULY	4,900,155	1,595,167	3,304,988	32.55	0.
AUGUST	4,900,153	1,981,162	2,918,991	40.43	0.
SEPTEMBER	4,900,149	780,693	4,119,456	15.93	0.
OCTOBER	4,900,155	650,683	4,249,472	13.28	0.
NOVEMBER	4,900,155	3,183,543	1,716,612	64.97	0.
DECEMBER	4,900,149	4,900,149	0	100.00	0.79762

Table D.24: Optimum pattern of labor utilization for agricultural production at low target in the Northeast, 1991, (Solution A91L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	8,681,029	1,624,886	7,056,143	18.72	0.
FEBRUARY	8,681,026	1,214,398	7,466,628	13.99	0.
MARCH	8,681,028	1,285,952	7,395,076	14.81	0.
APRIL	8,681,025	2,069,770	6,611,255	23.84	0.
MAY	8,681,026	2,288,227	6,392,799	26.36	0.
JUNE	8,681,029	6,655,416	2,025,613	76.67	0.
JULY	8,681,025	2,654,416	6,026,609	30.58	0.
AUGUST	8,681,028	2,046,130	6,634,897	23.57	0.
SEPTEMBER	8,681,029	1,413,756	7,267,273	16.29	0.
OCTOBER	8,681,025	5,625,234	3,055,791	64.80	0.
NOVEMBER	8,681,025	7,975,607	705,418	91.87	0.
DECEMBER	8,681,029	2,556,649	6,124,380	29.45	0.

Table D.25: Optimum pattern of labor utilization for agricultural production at low target in the Central Plains, 1991, (Solution A91L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	899,481	563,577	335,903	62.66	0.
FEBRUARY	899,479	389,571	509,908	43.31	0.
MARCH	899,481	387,015	512,466	43.03	0.
APRIL	899,480	899,480	0	100.00	5.63000
MAY	899,479	661,529	237,951	73.55	0.
JUNE	899,481	899,481	0	100.00	5.63000
JULY	899,480	676,992	222,488	75.26	0.
AUGUST	899,481	415,215	484,266	46.16	0.
SEPTEMBER	899,481	345,711	553,770	38.43	0.
OCTOBER	899,480	899,480	0	100.00	2.62720
NOVEMBER	899,480	899,480	0	100.00	5.63000
DECEMBER	899,481	899,481	0	100.00	5.63000

Table D.26: Optimum pattern of labor utilization for agricultural production at low target in the East, 1991, (Solution A91L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,113,702	322,800	790,901	28.98	0.
FEBRUARY	1,113,703	312,767	800,936	28.08	0.
MARCH	1,113,704	358,290	755,414	32.17	0.
APRIL	1,113,705	646,022	467,683	58.01	0.
MAY	1,113,703	524,455	589,248	47.09	0.
JUNE	1,113,702	986,584	127,118	88.59	0.
JULY	1,113,705	507,160	606,545	45.54	0.
AUGUST	1,113,704	297,048	816,656	26.67	0.
SEPTEMBER	1,113,702	246,139	867,563	22.10	0.
OCTOBER	1,113,705	1,113,705	0	100.00	0.20872
NOVEMBER	1,113,705	1,113,705	0	100.00	1.23986
DECEMBER	1,113,702	763,640	350,062	68.57	0.

Table D.27: Optimum pattern of labor utilization for agricultural production at low target in the West, 1991, (Solution A91L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	1,086,510	281,343	805,167	25.89	0.
FEBRUARY	1,086,510	299,186	787,325	27.54	0.
MARCH	1,086,509	300,358	786,152	27.64	0.
APRIL	1,086,510	306,848	779,662	28.24	0.
MAY	1,086,510	372,358	714,153	34.27	0.
JUNE	1,086,510	659,972	426,537	60.74	0.
JULY	1,086,510	368,781	717,729	33.94	0.
AUGUST	1,086,509	283,975	802,534	26.14	0.
SEPTEMBER	1,086,510	242,170	844,339	22.29	0.
OCTOBER	1,086,510	286,427	800,083	26.36	0.
NOVEMBER	1,086,510	684,327	402,183	62.98	0.
DECEMBER	1,086,510	530,808	555,702	48.85	0.

Table D.28: Optimum pattern of labor utilization for agricultural production at low target in the South, 1991, (Solution A91L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,776,486	365,235	2,411,251	13.15	0.
FEBRUARY	2,776,484	959,073	1,817,411	34.54	0.
MARCH	2,776,486	1,645,645	1,130,841	59.27	0.
APRIL	2,776,485	361,129	2,415,356	13.01	0.
MAY	2,776,484	369,901	2,406,583	13.32	0.
JUNE	2,776,486	522,146	2,254,340	18.81	0.
JULY	2,776,485	552,092	2,224,393	19.88	0.
AUGUST	2,776,486	531,739	2,244,747	19.15	0.
SEPTEMBER	2,776,486	603,130	2,173,356	21.72	0.
OCTOBER	2,776,485	1,139,178	1,637,307	41.03	0.
NOVEMBER	2,776,485	479,634	2,296,851	17.27	0.
DECEMBER	2,776,486	426,056	2,350,430	15.35	0.

Table D.29: Optimum pattern of labor utilization for agricultural production at medium target in the Whole Kingdom, 1991, (Solution A91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	19,457,356	3,988,981	15,468,375	20.50	
FEBRUARY	19,457,354	4,169,334	15,288,020	21.43	
MARCH	19,457,361	5,145,251	14,312,110	26.44	
APRIL	19,457,360	5,038,957	14,418,403	25.90	
MAY	19,457,354	5,549,725	13,907,628	28.52	
JUNE	19,457,356	12,782,272	6,675,083	65.69	
JULY	19,457,360	6,379,881	13,077,478	32.79	
AUGUST	19,457,361	5,622,236	13,835,125	28.90	
SEPTEMBER	19,457,356	3,940,070	15,517,285	20.25	
OCTOBER	19,457,360	10,973,524	8,483,836	56.40	
NOVEMBER	19,457,360	15,050,088	4,407,272	77.35	
DECEMBER	19,457,356	10,294,268	9,163,087	52.91	

Table D.30: Optimum pattern of labor utilization for agricultural production at medium target in the North, 1991, (Solution A91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,900,149	671,354	4,228,795	13.70	0.
FEBRUARY	4,900,151	687,009	4,213,142	14.02	0.
MARCH	4,900,153	563,107	4,337,046	11.49	0.
APRIL	4,900,155	591,245	4,308,910	12.07	0.
MAY	4,900,151	1,365,675	3,534,476	27.87	0.
JUNE	4,900,149	2,845,576	2,054,573	58.07	0.
JULY	4,900,155	1,701,281	3,198,874	34.72	0.
AUGUST	4,900,153	2,070,017	2,830,136	42.24	0.
SEPTEMBER	4,900,149	890,338	4,009,811	18.17	0.
OCTOBER	4,900,155	836,847	4,063,308	17.08	0.
NOVEMBER	4,900,155	3,068,158	1,831,997	62.61	0.
DECEMBER	4,900,149	4,900,149	0	100.00	6.29182

Table D.31: Optimum pattern of labor utilization for agricultural production at medium target in the Northeast, 1991, (Solution A91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	8,681,029	1,588,945	7,092,084	18.30	0.
FEBRUARY	8,681,026	1,164,292	7,516,734	13.41	0.
MARCH	8,681,028	1,194,696	7,486,332	13.76	0.
APRIL	8,681,025	2,041,924	6,639,101	23.52	0.
MAY	8,681,026	2,109,163	6,571,863	24.30	0.
JUNE	8,681,029	6,760,162	1,920,867	77.87	0.
JULY	8,681,025	2,420,185	6,260,840	27.88	0.
AUGUST	8,681,028	1,789,385	6,891,643	20.61	0.
SEPTEMBER	8,681,029	1,356,000	7,325,029	15.62	0.
OCTOBER	8,681,025	5,966,760	2,714,265	68.73	0.
NOVEMBER	8,681,025	8,681,025	0	100.00	3.05149
DECEMBER	8,681,029	2,705,989	5,975,039	31.17	0.

Table D.32: Optimum pattern of labor utilization for agricultural production at medium target in the Central Plains, 1991, (Solution A91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	899,481	579,158	320,323	64.39	0.
FEBRUARY	899,479	393,211	506,268	43.72	0.
MARCH	899,481	391,715	507,767	43.55	0.
APRIL	899,480	899,480	0	100.00	5.63000
MAY	899,479	675,682	223,797	75.12	0.
JUNE	899,481	899,481	0	100.00	5.63000
JULY	899,480	689,468	210,012	76.65	0.
AUGUST	899,481	429,636	469,846	47.76	0.
SEPTEMBER	899,481	362,964	536,517	40.35	0.
OCTOBER	899,480	899,480	0	100.00	4.68906
NOVEMBER	899,480	899,480	0	100.00	8.68149
DECEMBER	899,481	899,481	0	100.00	5.63000

Table D.33: Optimum pattern of labor utilization for agricultural production at medium target in the East, 1991, (Solution A91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,113,702	326,881	786,821	29.35	0.
FEBRUARY	1,113,703	315,021	798,682	28.29	0.
MARCH	1,113,704	359,585	754,119	32.29	0.
APRIL	1,113,705	665,646	448,059	59.77	0.
MAY	1,113,703	520,136	593,568	46.70	0.
JUNE	1,113,702	928,344	185,357	83.36	0.
JULY	1,113,705	495,799	617,906	44.52	0.
AUGUST	1,113,704	367,353	746,351	32.98	0.
SEPTEMBER	1,113,702	294,897	818,804	26.48	0.
OCTOBER	1,113,705	1,113,705	0	100.00	2.76931
NOVEMBER	1,113,705	1,113,705	0	100.00	6.63699
DECEMBER	1,113,702	718,633	395,069	64.53	0.

Table D.34: Optimum pattern of labor utilization for agricultural production at medium target in the West, 1991, (Solution A91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	1,086,510	416,135	670,375	38.30	0.
FEBRUARY	1,086,510	438,152	648,358	40.33	0.
MARCH	1,086,509	444,917	641,592	40.95	0.
APRIL	1,086,510	439,762	646,748	40.47	0.
MAY	1,086,510	467,740	618,770	43.05	0.
JUNE	1,086,510	788,323	298,187	72.56	0.
JULY	1,086,510	481,287	605,223	44.30	0.
AUGUST	1,086,509	397,283	689,227	36.57	0.
SEPTEMBER	1,086,510	373,310	713,200	34.36	0.
OCTOBER	1,086,510	740,806	345,704	68.18	0.
NOVEMBER	1,086,510	753,938	332,572	69.39	0.
DECEMBER	1,086,510	590,997	495,512	54.39	0.

Table D.35: Optimum pattern of labor utilization for agricultural production at medium target in the South, 1991, (Solution A91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,776,486	406,509	2,369,977	14.64	0.
FEBRUARY	2,776,484	1,171,649	1,604,835	42.20	0.
MARCH	2,776,486	2,191,231	585,255	78.92	0.
APRIL	2,776,485	400,900	2,375,585	14.44	0.
MAY	2,776,484	411,329	2,365,155	14.81	0.
JUNE	2,776,486	560,387	2,216,099	20.18	0.
JULY	2,776,485	591,862	2,184,623	21.32	0.
AUGUST	2,776,486	568,564	2,207,922	20.48	0.
SEPTEMBER	2,776,486	662,561	2,113,924	23.86	0.
OCTOBER	2,776,485	1,415,927	1,360,558	51.00	0.
NOVEMBER	2,776,485	533,782	2,242,703	19.23	0.
DECEMBER	2,776,486	479,019	2,297,466	17.25	0.

Table D.36: Optimum pattern of labor utilization for agricultural production at high target in the Whole Kingdom, 1991, (Solution A91H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	19,457,356	4,121,811	15,335,544	21.18	
FEBRUARY	19,457,354	4,310,347	15,147,007	22.15	
MARCH	19,457,361	5,194,354	14,263,007	26.70	
APRIL	19,457,360	5,105,850	14,351,510	26.24	
MAY	19,457,354	5,530,232	13,927,122	28.42	
JUNE	19,457,356	12,614,017	6,843,338	64.83	
JULY	19,457,360	6,519,868	12,937,492	33.51	
AUGUST	19,457,361	5,699,165	13,758,196	29.29	
SEPTEMBER	19,457,356	4,138,069	15,319,287	21.27	
OCTOBER	19,457,360	11,761,123	7,696,236	60.45	
NOVEMBER	19,457,360	15,132,223	4,325,137	77.77	
DECEMBER	19,457,356	10,272,301	9,185,054	52.79	

Table D.37: Optimum pattern of labor utilization for agricultural production at high target in the North, 1991, (Solution A91H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,900,149	898,407	4,001,742	18.33	0.
FEBRUARY	4,900,151	813,730	4,086,421	16.61	0.
MARCH	4,900,153	651,455	4,248,698	13.29	0.
APRIL	4,900,155	722,316	4,177,839	14.74	0.
MAY	4,900,151	1,324,453	3,575,698	27.03	0.
JUNE	4,900,149	2,783,480	2,116,670	56.80	0.
JULY	4,900,155	1,596,576	3,303,579	32.58	0.
AUGUST	4,900,153	1,910,929	2,989,224	39.00	0.
SEPTEMBER	4,900,149	998,590	3,901,559	20.38	0.
OCTOBER	4,900,155	959,133	3,941,021	19.57	0.
NOVEMBER	4,900,155	3,119,620	1,780,535	63.66	0.
DECEMBER	4,900,149	4,900,149	0	100.00	12.25717

Table D.38: Optimum pattern of labor utilization for agricultural production at high target in the Northeast, 1991, (Solution A91H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	8,681,029	1,495,297	7,185,732	17.22	0.
FEBRUARY	8,681,026	1,172,588	7,508,438	13.51	0.
MARCH	8,681,028	1,161,822	7,519,205	13.38	0.
APRIL	8,681,025	1,959,275	6,721,750	22.57	0.
MAY	8,681,026	2,122,532	6,558,494	24.45	0.
JUNE	8,681,029	6,646,112	2,034,916	76.56	0.
JULY	8,681,025	2,609,702	6,071,323	30.06	0.
AUGUST	8,681,028	1,985,235	6,695,793	22.87	0.
SEPTEMBER	8,681,029	1,396,636	7,284,393	16.09	0.
OCTOBER	8,681,025	6,638,623	2,042,402	76.47	0.
NOVEMBER	8,681,025	8,681,025	0	100.00	7.11068
DECEMBER	8,681,029	2,704,057	5,976,971	31.15	0.

Table D.39: Optimum pattern of labor utilization for agricultural production at high target in the Central Plains, 1991, (Solution A91H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	899,481	582,113	317,368	64.72	0.
FEBRUARY	899,479	403,032	496,447	44.81	0.
MARCH	899,481	400,151	499,330	44.49	0.
APRIL	899,480	899,480	0	100.00	5.63000
MAY	899,479	674,392	225,087	74.98	0.
JUNE	899,481	899,481	0	100.00	5.63000
JULY	899,480	701,620	197,860	78.00	0.
AUGUST	899,481	456,853	442,629	50.79	0.
SEPTEMBER	899,481	402,216	497,265	44.72	0.
OCTOBER	899,480	899,480	0	100.00	5.63000
NOVEMBER	899,480	899,480	0	100.00	12.74068
DECEMBER	899,481	899,481	0	100.00	2.17776

Table D.40: Optimum pattern of labor utilization for agricultural production at high target in the East, 1991, (Solution A91H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,113,702	326,881	786,821	29.35	0.
FEBRUARY	1,113,703	315,021	798,682	28.29	0.
MARCH	1,113,704	359,585	754,119	32.29	0.
APRIL	1,113,705	665,646	448,059	59.77	0.
MAY	1,113,703	520,136	593,568	46.70	0.
JUNE	1,113,702	928,344	185,357	83.36	0.
JULY	1,113,705	496,054	617,651	44.54	0.
AUGUST	1,113,704	352,175	761,529	31.62	0.
SEPTEMBER	1,113,702	284,578	829,124	25.55	0.
OCTOBER	1,113,705	1,113,705	0	100.00	5.41462
NOVEMBER	1,113,705	1,113,705	0	100.00	12.50313
DECEMBER	1,113,702	726,442	387,259	65.23	0.

Table D.41: Optimum pattern of labor utilization for agricultural production at high target in the West, 1991, (Solution A91H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	1,086,510	320,146	766,364	29.47	0.
FEBRUARY	1,086,510	341,222	745,289	31.41	0.
MARCH	1,086,509	339,111	747,399	31.21	0.
APRIL	1,086,510	350,351	736,159	32.25	0.
MAY	1,086,510	372,685	713,825	34.30	0.
JUNE	1,086,510	698,713	387,797	64.31	0.
JULY	1,086,510	411,575	674,935	37.88	0.
AUGUST	1,086,509	322,683	763,827	29.70	0.
SEPTEMBER	1,086,510	285,110	801,400	26.24	0.
OCTOBER	1,086,510	625,666	460,844	57.58	0.
NOVEMBER	1,086,510	671,132	415,378	61.77	0.
DECEMBER	1,086,510	462,762	623,747	42.59	0.

Table D.42: Optimum pattern of labor utilization for agricultural production at high target in the South, 1991, (Solution A91H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,776,486	498,968	2,277,518	17.97	0.
FEBRUARY	2,776,484	1,264,755	1,511,730	45.55	0.
MARCH	2,776,486	2,282,230	494,256	82.20	0.
APRIL	2,776,485	508,782	2,267,703	18.32	0.
MAY	2,776,484	516,034	2,260,450	18.59	0.
JUNE	2,776,486	657,888	2,118,598	23.69	0.
JULY	2,776,485	704,340	2,072,145	25.37	0.
AUGUST	2,776,486	671,292	2,105,194	24.18	0.
SEPTEMBER	2,776,486	770,940	2,005,546	27.77	0.
OCTOBER	2,776,485	1,524,516	1,251,969	54.91	0.
NOVEMBER	2,776,485	647,262	2,129,223	23.31	0.
DECEMBER	2,776,486	579,410	2,197,076	20.87	0.

Table D.43: Optimum pattern of labor utilization for agricultural production at low target in the Whole Kingdom, 1992, (Solution A92L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	19,851,197	3,955,351	15,895,846	19.92	
FEBRUARY	19,851,187	4,068,131	15,783,056	20.49	
MARCH	19,851,291	4,766,895	15,084,396	24.01	
APRIL	19,851,195	5,158,634	14,692,560	25.99	
MAY	19,851,140	5,688,808	14,162,332	28.66	
JUNE	19,851,133	12,667,146	6,837,897	64.94	
JULY	19,851,195	6,439,379	13,411,816	32.44	
AUGUST	19,851,291	5,672,469	14,178,823	28.57	
SEPTEMBER	19,851,197	3,730,725	16,120,472	18.79	
OCTOBER	19,851,195	9,826,384	10,024,811	49.50	
NOVEMBER	19,851,195	14,445,334	5,405,860	72.77	
DECEMBER	19,851,197	10,220,958	9,630,239	51.49	

Table D.44: Optimum pattern of labor utilization for agricultural production at low target in the North, 1992, (Solution A92L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,967,159	724,983	4,242,175	14.60	0.
FEBRUARY	4,967,156	796,861	4,170,295	16.04	0.
MARCH	4,967,157	650,704	4,316,453	13.10	0.
APRIL	4,967,160	785,001	4,182,159	15.80	0.
MAY	4,967,156	1,387,206	3,579,951	27.93	0.
JUNE	4,967,159	2,854,383	2,112,776	57.47	0.
JULY	4,967,160	1,595,625	3,371,535	32.12	0.
AUGUST	4,967,157	1,988,445	2,978,712	40.03	0.
SEPTEMBER	4,967,159	782,969	4,184,190	15.76	0.
OCTOBER	4,967,160	652,351	4,314,809	13.13	0.
NOVEMBER	4,967,160	3,210,918	1,756,242	64.64	0.
DECEMBER	4,967,159	4,967,159	0	100.00	0.75591

Table D.45: Optimum pattern of labor utilization for agricultural production at low target in the Northeast, 1992, (Solution A92L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	8,889,885	1,620,764	7,269,121	18.23	0.
FEBRUARY	8,889,885	1,212,748	7,677,138	13.64	0.
MARCH	8,889,884	1,285,129	7,604,755	14.46	0.
APRIL	8,889,885	2,066,167	6,823,718	23.24	0.
MAY	8,889,885	2,283,513	6,606,373	25.69	0.
JUNE	8,889,885	6,646,778	2,243,106	74.77	0.
JULY	8,889,885	2,647,158	6,242,727	29.78	0.
AUGUST	8,889,884	2,078,412	6,811,472	23.38	0.
SEPTEMBER	8,889,885	1,431,842	7,458,043	16.11	0.
OCTOBER	8,889,885	5,625,643	3,264,242	63.28	0.
NOVEMBER	8,889,885	7,944,861	945,024	89.37	0.
DECEMBER	8,889,885	2,545,086	6,344,799	28.63	0.

Table D.46: Optimum pattern of labor utilization for agricultural production at low target in the Central Plains, 1992, (Solution A92L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	904,380	563,577	340,803	62.32	0.
FEBRUARY	904,380	389,571	514,809	43.08	0.
MARCH	904,477	387,015	517,461	42.79	0.
APRIL	904,380	904,380	0	100.00	5.63000
MAY	904,380	661,829	242,552	73.18	0.
JUNE	904,380	904,380	0	100.00	5.63000
JULY	904,380	677,853	226,527	74.95	0.
AUGUST	904,477	414,979	489,498	45.88	0.
SEPTEMBER	904,380	345,425	558,954	38.19	0.
OCTOBER	904,380	904,380	0	100.00	2.59997
NOVEMBER	904,380	904,380	0	100.00	5.63000
DECEMBER	904,380	904,380	0	100.00	5.63000

Table D.47: Optimum pattern of labor utilization for agricultural production at low target in the East, 1992, (Solution A92L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,137,091	322,728	814,363	28.38	0.
FEBRUARY	1,137,089	311,863	825,226	27.43	0.
MARCH	1,137,093	358,573	778,520	31.53	0.
APRIL	1,137,090	653,936	483,154	57.51	0.
MAY	1,137,089	529,698	607,390	46.58	0.
JUNE	1,137,091	1,001,837	135,255	88.11	0.
JULY	1,137,090	514,696	622,394	45.26	0.
AUGUST	1,137,093	298,589	838,504	26.26	0.
SEPTEMBER	1,137,091	245,953	891,138	21.63	0.
OCTOBER	1,137,090	1,137,090	0	100.00	0.17050
NOVEMBER	1,137,090	1,137,090	0	100.00	1.20912
DECEMBER	1,137,091	768,807	368,284	67.61	0.

Table D.48: Optimum pattern of labor utilization for agricultural production at low target in the West, 1992, (Solution A92L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	1,106,827	287,771	819,056	26.00	0.
FEBRUARY	1,106,823	305,702	801,121	27.62	0.
MARCH	1,106,824	306,594	800,230	27.70	0.
APRIL	1,106,825	314,917	791,908	28.45	0.
MAY	1,106,776	380,511	726,265	34.38	0.
JUNE	1,106,827	667,329	439,498	60.29	0.
JULY	1,106,825	378,850	727,975	34.23	0.
AUGUST	1,106,824	292,615	814,209	26.44	0.
SEPTEMBER	1,106,827	250,963	855,864	22.67	0.
OCTOBER	1,106,825	294,637	812,188	26.62	0.
NOVEMBER	1,106,825	695,346	411,479	62.82	0.
DECEMBER	1,106,827	539,178	567,649	48.71	0.

Table D.49: Optimum pattern of labor utilization for agricultural production at low target in the South, 1992, (Solution A92L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,845,856	435,528	2,410,328	15.30	0.
FEBRUARY	2,845,854	1,051,387	1,794,468	36.94	0.
MARCH	2,845,857	1,778,880	1,066,977	62.51	0.
APRIL	2,845,855	434,234	2,411,621	15.26	0.
MAY	2,845,854	446,052	2,399,802	15.67	0.
JUNE	2,845,852	592,439	2,353,413	20.70	0.
JULY	2,845,855	625,196	2,220,659	21.97	0.
AUGUST	2,845,857	599,429	2,246,428	21.06	0.
SEPTEMBER	2,845,856	673,573	2,172,283	23.67	0.
OCTOBER	2,845,855	1,212,283	1,633,572	42.60	0.
NOVEMBER	2,845,855	552,739	2,293,116	19.42	0.
DECEMBER	2,845,856	496,349	2,349,507	17.44	0.

Table D.50: Optimum pattern of labor utilization for agricultural production at medium target in the Whole Kingdom, 1992, (Solution A92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	19,851,197	4,067,682	15,783,515	20.49	
FEBRUARY	19,851,187	4,288,225	15,562,962	21.60	
MARCH	19,851,291	5,341,327	14,509,965	26.91	
APRIL	19,851,195	5,129,486	14,721,709	25.84	
MAY	19,851,140	5,600,914	14,250,226	28.21	
JUNE	19,851,140	12,663,735	7,187,405	63.93	
JULY	19,851,195	6,446,968	13,404,226	32.48	
AUGUST	19,851,291	5,694,721	14,156,571	28.69	
SEPTEMBER	19,851,197	4,131,546	15,719,651	20.81	
OCTOBER	19,851,195	11,337,188	8,514,006	57.11	
NOVEMBER	19,851,195	15,312,616	4,538,579	77.14	
DECEMBER	19,851,197	10,473,335	9,377,862	52.76	

Table D.51: Optimum pattern of labor utilization for agricultural production at medium target in the North, 1992, (Solution A92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,967,159	673,825	4,293,333	13.57	0.
FEBRUARY	4,967,156	687,414	4,279,743	13.84	0.
MARCH	4,967,157	563,742	4,403,415	11.35	0.
APRIL	4,967,160	599,022	4,368,138	12.06	0.
MAY	4,967,156	1,351,045	3,616,112	27.20	0.
JUNE	4,967,159	2,770,731	2,196,427	55.78	0.
JULY	4,967,160	1,719,135	3,248,025	34.61	0.
AUGUST	4,967,157	2,026,830	2,940,328	40.80	0.
SEPTEMBER	4,967,159	980,487	3,986,672	19.74	0.
OCTOBER	4,967,160	948,775	4,018,385	19.10	0.
NOVEMBER	4,967,160	3,077,678	1,889,482	61.96	0.
DECEMBER	4,967,159	4,967,159	0	100.00	6.08345

Table D.52: Optimum pattern of labor utilization for agricultural production at medium target in the Northeast, 1992, (Solution A92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	8,889,885	1,600,493	7,289,391	18.00	0.
FEBRUARY	8,889,885	1,194,116	7,695,769	13.43	0.
MARCH	8,889,884	1,211,592	7,678,293	13.63	0.
APRIL	8,889,885	2,083,304	6,806,581	23.43	0.
MAY	8,889,885	2,125,672	6,764,214	23.91	0.
JUNE	8,889,885	6,668,379	2,221,506	75.01	0.
JULY	8,889,885	2,469,873	6,420,012	27.78	0.
AUGUST	8,889,884	1,874,047	7,015,837	21.08	0.
SEPTEMBER	8,889,885	1,415,099	7,474,786	15.92	0.
OCTOBER	8,889,885	6,129,124	2,760,761	68.94	0.
NOVEMBER	8,889,885	8,889,885	0	100.00	2.75773
DECEMBER	8,889,885	2,722,636	6,167,249	30.63	0.

Table D.53: Optimum pattern of labor utilization for agricultural production at medium target in the Central Plains, 1992, (Solution A92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	904,380	586,911	317,468	64.90	0.
FEBRUARY	904,380	395,022	509,359	43.68	0.
MARCH	904,477	394,053	510,423	43.57	0.
APRIL	904,380	904,380	0	100.00	5.63000
MAY	904,380	678,055	226,325	74.97	0.
JUNE	904,380	904,380	0	100.00	5.63000
JULY	904,380	688,887	215,493	76.17	0.
AUGUST	904,477	430,823	473,653	47.63	0.
SEPTEMBER	904,380	366,649	537,731	40.54	0.
OCTOBER	904,380	904,380	0	100.00	4.49225
NOVEMBER	904,380	904,380	0	100.00	8.38773
DECEMBER	904,380	904,380	0	100.00	5.63000

Table D.54: Optimum pattern of labor utilization for agricultural production at medium target in the East, 1992, (Solution A92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,137,091	327,852	809,239	28.83	0.
FEBRUARY	1,137,089	315,248	821,841	27.72	0.
MARCH	1,137,093	359,878	777,214	31.65	0.
APRIL	1,137,090	672,507	464,583	59.14	0.
MAY	1,137,089	522,869	614,219	45.98	0.
JUNE	1,137,091	929,517	207,575	81.75	0.
JULY	1,137,090	500,513	636,577	44.02	0.
AUGUST	1,137,093	386,629	750,463	34.00	0.
SEPTEMBER	1,137,091	308,482	828,609	27.13	0.
OCTOBER	1,137,090	1,137,090	0	100.00	2.58029
NOVEMBER	1,137,090	1,137,090	0	100.00	6.48050
DECEMBER	1,137,091	714,424	422,667	62.83	0.

Table D.55: Optimum pattern of labor utilization for agricultural production at medium target in the West, 1992, (Solution A92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	1,106,827	483,417	623,410	43.68	0.
FEBRUARY	1,106,823	509,973	596,850	46.08	0.
MARCH	1,106,824	526,062	580,762	47.53	0.
APRIL	1,106,825	481,234	625,591	43.48	0.
MAY	1,106,776	524,300	582,476	47.37	0.
JUNE	1,106,827	841,746	265,080	76.05	0.
JULY	1,106,825	488,559	618,266	44.14	0.
AUGUST	1,106,824	418,810	688,014	37.84	0.
SEPTEMBER	1,106,827	408,913	697,914	36.94	0.
OCTOBER	1,106,825	807,596	299,229	72.97	0.
NOVEMBER	1,106,825	781,295	325,530	70.59	0.
DECEMBER	1,106,827	696,739	410,087	62.95	0.

Table D.56: Optimum pattern of labor utilization for agricultural production at medium target in the South, 1992, (Solution A92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,845,856	395,183	2,450,673	13.89	0.
FEBRUARY	2,845,854	1,186,453	1,659,401	41.69	0.
MARCH	2,845,857	2,286,000	559,857	80.33	0.
APRIL	2,845,855	389,039	2,456,816	13.67	0.
MAY	2,845,854	398,974	2,446,880	14.02	0.
JUNE	2,845,854	548,982	2,296,872	19.26	0.
JULY	2,845,855	580,002	2,265,853	20.38	0.
AUGUST	2,845,857	557,582	2,288,275	19.59	0.
SEPTEMBER	2,845,856	651,916	2,193,939	22.91	0.
OCTOBER	2,845,855	1,410,223	1,435,632	49.55	0.
NOVEMBER	2,845,855	522,288	2,323,567	18.35	0.
DECEMBER	2,845,856	467,997	2,377,858	16.44	0.

Table D.57: Optimum pattern of labor utilization for agricultural production at high target in the Whole Kingdom, 1992, (Solution A92H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	19,851,197	4,209,593	15,641,604	21.21	
FEBRUARY	19,851,187	4,443,566	15,407,621	22.38	
MARCH	19,851,291	5,390,877	14,460,414	27.16	
APRIL	19,851,195	5,199,385	14,651,810	26.19	
MAY	19,851,140	5,596,336	14,254,804	28.19	
JUNE	19,851,140	12,724,059	7,127,081	64.09	
JULY	19,851,195	6,632,824	13,218,370	33.41	
AUGUST	19,851,291	5,893,762	13,957,530	29.69	
SEPTEMBER	19,851,197	4,344,537	15,506,660	21.89	
OCTOBER	19,851,195	12,382,115	7,469,079	62.37	
NOVEMBER	19,851,195	15,440,759	4,410,436	77.78	
DECEMBER	19,851,197	10,424,121	9,427,076	52.51	

Table D.58: Optimum pattern of labor utilization for agricultural production at high target in the North, 1992, (Solution A92H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,967,159	928,361	4,038,797	18.69	0.
FEBRUARY	4,967,156	829,471	4,137,685	16.70	0.
MARCH	4,967,157	662,500	4,304,657	13.34	0.
APRIL	4,967,160	739,254	4,227,906	14.88	0.
MAY	4,967,156	1,317,788	3,649,368	26.53	0.
JUNE	4,967,159	2,742,480	2,224,679	55.21	0.
JULY	4,967,160	1,594,609	3,372,551	32.10	0.
AUGUST	4,967,157	1,889,052	3,078,105	38.03	0.
SEPTEMBER	4,967,159	1,051,302	3,915,856	21.17	0.
OCTOBER	4,967,160	1,020,131	3,947,029	20.54	0.
NOVEMBER	4,967,160	3,138,272	1,828,888	63.18	0.
DECEMBER	4,967,159	4,967,159	0	100.00	12.249938

Table D.59: Optimum pattern of labor utilization for agricultural production at high target in the Northeast, 1992, (Solution A92H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	8,889,885	1,492,174	7,397,710	16.79	0.
FEBRUARY	8,889,885	1,202,150	7,687,735	13.52	0.
MARCH	8,889,884	1,173,164	7,716,721	13.20	0.
APRIL	8,889,885	1,968,596	6,921,289	22.14	0.
MAY	8,889,885	2,147,658	6,742,228	24.16	0.
JUNE	8,889,885	6,739,261	2,150,623	75.81	0.
JULY	8,889,885	2,714,827	6,175,058	30.54	0.
AUGUST	8,889,884	2,116,381	6,773,503	23.81	0.
SEPTEMBER	8,889,885	1,471,111	7,418,774	16.55	0.
OCTOBER	8,889,885	7,078,847	1,811,038	79.63	0.
NOVEMBER	8,889,885	8,889,885	0	100.00	7.23093
DECEMBER	8,889,885	2,753,000	6,136,885	30.97	0.

Table D.60: Optimum pattern of labor utilization for agricultural production at high target in the Central Plains, 1992, (Solution A92H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	904,380	591,337	313,043	65.39	0.
FEBRUARY	904,380	409,730	494,650	45.31	0.
MARCH	904,477	418,859	485,618	46.31	0.
APRIL	904,380	904,380	0	100.00	5.63000
MAY	904,380	663,084	241,296	73.32	0.
JUNE	904,380	904,380	0	100.00	5.63000
JULY	904,380	649,824	254,556	71.85	0.
AUGUST	904,477	455,441	449,036	50.35	0.
SEPTEMBER	904,380	402,465	501,915	44.50	0.
OCTOBER	904,380	904,380	0	100.00	5.63000
NOVEMBER	904,380	904,380	0	100.00	12.86093
DECEMBER	904,380	904,380	0	100.00	2.15907

Table D.61: Optimum pattern of labor utilization for agricultural production at high target in the East, 1992, (Solution A92H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,137,091	327,852	809,239	28.83	0.
FEBRUARY	1,137,089	315,248	821,841	27.72	0.
MARCH	1,137,093	359,878	777,214	31.65	0.
APRIL	1,137,090	672,507	464,583	59.14	0.
MAY	1,137,089	522,869	614,219	45.98	0.
JUNE	1,137,091	929,517	207,575	81.75	0.
JULY	1,137,090	500,509	636,581	44.02	0.
AUGUST	1,137,093	386,882	750,210	34.02	0.
SEPTEMBER	1,137,091	308,654	828,438	27.14	0.
OCTOBER	1,137,090	1,137,090	0	100.00	5.41063
NOVEMBER	1,137,090	1,137,090	0	100.00	12.62538
DECEMBER	1,137,091	714,295	422,797	62.82	0.

Table D.62: Optimum pattern of labor utilization for agricultural production at high target in the West, 1992, (Solution A92H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	1,106,827	431,229	675,598	38.96	0.
FEBRUARY	1,106,823	453,436	653,387	40.97	0.
MARCH	1,106,824	448,629	658,195	40.53	0.
APRIL	1,106,825	480,415	626,410	43.40	0.
MAY	1,106,776	498,885	607,891	45.08	0.
JUNE	1,106,827	815,983	290,844	73.72	0.
JULY	1,106,825	547,860	558,965	49.50	0.
AUGUST	1,106,824	446,576	660,248	40.35	0.
SEPTEMBER	1,106,827	415,633	691,194	37.55	0.
OCTOBER	1,106,825	786,249	320,576	71.04	0.
NOVEMBER	1,106,825	803,650	303,175	72.61	0.
DECEMBER	1,106,827	573,834	532,992	51.85	0.

Table D.63: Optimum pattern of labor utilization for agricultural production at high target in the South, 1992, (Solution A92H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,845,856	438,640	2,407,216	15.41	0.
FEBRUARY	2,845,854	1,233,531	1,612,324	43.34	0.
MARCH	2,845,857	2,327,846	518,010	81.80	0.
APRIL	2,845,855	434,234	2,411,621	15.26	0.
MAY	2,845,854	446,052	2,399,802	15.67	0.
JUNE	2,845,854	592,439	2,253,415	20.80	0.
JULY	2,845,855	625,196	2,220,659	21.97	0.
AUGUST	2,845,857	599,429	2,246,428	21.06	0.
SEPTEMBER	2,845,856	695,373	2,150,483	24.43	0.
OCTOBER	2,845,855	1,455,418	1,390,437	51.14	0.
NOVEMBER	2,845,855	567,482	2,278,373	19.94	0.
DECEMBER	2,845,856	511,454	2,334,402	17.97	0.

Table D.64: Optimum pattern of labor utilization for agricultural production at medium target in the Whole Kingdom, 1987, (Solution B87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	17,734,740	7,620,702	10,114,038	42.97	
FEBRUARY	17,734,739	8,350,976	9,383,763	47.09	
MARCH	17,734,736	6,620,139	11,114,597	37.33	
APRIL	17,734,735	7,419,841	10,269,894	41.94	
MAY	17,734,739	8,144,788	9,402,451	46.42	
JUNE	17,734,740	14,734,776	2,999,964	83.08	
JULY	17,734,735	8,832,722	8,902,013	49.80	
AUGUST	17,734,736	7,325,113	10,409,623	41.30	
SEPTEMBER	17,734,740	6,121,514	11,613,226	34.52	
OCTOBER	17,734,735	12,370,165	5,364,570	69.75	
NOVEMBER	17,734,735	15,997,134	1,737,601	90.20	
DECEMBER	17,734,740	12,774,555	4,960,185	72.03	

Table D.65: Optimum pattern of labor utilization for agricultural production at medium target in the North, 1987, (Solution B87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,588,077	1,402,279	3,185,798	30.56	0.
FEBRUARY	4,588,078	1,487,209	3,100,870	32.41	0.
MARCH	4,588,074	1,287,911	3,300,163	28.07	0.
APRIL	4,588,075	1,536,834	3,051,241	33.50	0.
MAY	4,588,078	2,001,249	2,586,829	43.62	0.
JUNE	4,588,077	3,342,559	1,245,518	72.85	0.
JULY	4,588,075	2,445,697	2,142,378	53.31	0.
AUGUST	4,588,074	2,368,668	2,219,406	51.63	0.
SEPTEMBER	4,588,077	1,479,193	3,108,884	32.24	0.
OCTOBER	4,588,075	1,479,981	3,108,094	32.26	0.
NOVEMBER	4,588,075	3,482,820	1,105,255	75.91	0.
DECEMBER	4,588,077	4,588,077	0	100.00	108.76927

Table D.66: Optimum pattern of labor utilization for agricultural production at medium target in the Northeast, 1987 (Solution B87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	7,780,293	2,762,501	5,017,792	35.51	0.
FEBRUARY	7,780,292	2,949,058	4,831,234	37.90	0.
MARCH	7,780,292	1,197,638	6,582,654	15.39	0.
APRIL	7,780,290	1,849,129	5,931,161	23.77	0.
MAY	7,780,292	2,332,124	5,448,168	29.97	0.
JUNE	7,780,293	6,609,010	1,171,283	84.95	0.
JULY	7,780,290	2,587,535	5,192,755	33.26	0.
AUGUST	7,780,292	1,765,830	6,014,462	22.70	0.
SEPTEMBER	7,780,293	1,478,693	6,301,600	19.01	0.
OCTOBER	7,780,290	5,567,096	2,213,194	71.55	0.
NOVEMBER	7,780,290	7,780,290	0	100.00	108.76927
DECEMBER	7,780,293	3,825,309	3,954,984	49.17	0.

Table D.67: Optimum pattern of labor utilization for agricultural production at medium target in the Central Plains, 1987, (Solution B87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	857,769	459,857	397,912	53.61	0.
FEBRUARY	857,771	283,765	574,006	33.08	0.
MARCH	857,773	292,803	564,971	34.14	0.
APRIL	857,770	857,770	0	100.00	5.63000
MAY	857,771	569,061	288,710	66.34	0.
JUNE	857,769	857,769	0	100.00	5.63000
JULY	857,770	591,757	266,013	68.99	0.
AUGUST	857,773	322,372	535,401	37.58	0.
SEPTEMBER	857,769	243,809	613,961	28.42	0.
OCTOBER	857,770	857,770	0	100.00	5.63000
NOVEMBER	857,770	857,770	0	100.00	114.39927
DECEMBER	857,769	830,833	26,937	96.86	0.

Table D.68: Optimum pattern of labor utilization for agricultural production at medium target in the East, 1987, (Solution B87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,016,957	392,930	624,026	38.64	0.
FEBRUARY	1,016,953	389,878	627,075	38.34	0.
MARCH	1,016,954	435,267	581,686	42.80	0.
APRIL	1,016,955	597,230	419,725	58.73	0.
MAY	1,016,953	686,912	332,541	59.91	0.
JUNE	1,016,957	997,059	19,698	98.04	0.
JULY	1,016,955	407,927	609,028	40.11	0.
AUGUST	1,016,954	295,859	721,095	29.09	0.
SEPTEMBER	1,016,957	244,885	772,071	24.08	0.
OCTOBER	1,016,955	1,016,955	0	100.00	5.63000
NOVEMBER	1,016,955	1,016,955	0	100.00	103.13927
DECEMBER	1,016,957	778,138	238,818	76.52	0.

Table D.69: Optimum pattern of labor utilization for agricultural production at medium target in the West, 1987, (Solution B87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	999,577	909,819	89,758	91.02	0.
FEBRUARY	999,578	982,842	16,736	98.33	0.
MARCH	999,579	914,456	85,123	91.48	0.
APRIL	999,580	835,728	163,852	83.61	0.
MAY	999,578	908,890	90,688	90.93	0.
JUNE	999,577	999,577	0	100.00	5.63000
JULY	999,580	846,311	153,269	84.67	0.
AUGUST	999,579	732,940	266,639	73.32	0.
SEPTEMBER	999,577	743,511	256,066	74.38	0.
OCTOBER	999,580	956,298	43,282	95.67	0.
NOVEMBER	999,580	999,580	0	100.00	97.50927
DECEMBER	999,577	999,577	0	100.00	5.63000

Table D.70: Optimum pattern of labor utilization for agricultural production at medium target in the South, 1987, (Soultion B87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,492,067	1,693,315	798,752	67.95	0.
FEBRUARY	2,492,068	2,258,225	233,842	90.62	0.
MARCH	2,492,065	2,492,065	0	100.00	16.19012
APRIL	2,492,065	1,743,150	703,915	71.23	0.
MAY	2,492,068	1,836,552	655,516	73.70	0.
JUNE	2,492,067	1,928,802	563,265	77.40	0.
JULY	2,492,065	1,953,496	538,569	78.39	0.
AUGUST	2,492,065	1,839,445	652,620	73.81	0.
SEPTEMBER	2,492,067	1,931,423	560,645	77.50	0.
OCTOBER	2,492,065	2,492,065	0	100.00	92.57916
NOVEMBER	2,492,065	1,859,719	632,346	74.63	0.
DECEMBER	2,492,067	1,752,622	739,446	70.33	0.

Table D.71: Optimum pattern of labor utilization for agricultural production at medium target in the Whole Kingdom, 1991, (Solution B91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	19,457,356	8,791,628	10,665,727	45.18	
FEBRUARY	19,457,354	9,655,259	9,802,095	49.62	
MARCH	19,457,361	7,613,749	11,843,611	39.13	
APRIL	19,457,360	8,733,078	10,724,281	44.88	
MAY	19,457,354	9,364,353	10,093,001	48.13	
JUNE	19,457,356	16,417,600	3,039,755	84.38	
JULY	19,457,360	9,959,686	9,497,674	51.19	
AUGUST	19,457,361	8,426,912	11,030,449	43.31	
SEPTEMBER	19,457,356	7,104,425	12,352,931	36.51	
OCTOBER	19,457,360	15,040,559	4,416,801	77.30	
NOVEMBER	19,457,360	17,559,225	1,898,135	90.24	
DECEMBER	19,457,356	13,902,823	5,554,533	71.45	

Table D.72: Optimum pattern of labor utilization for agricultural production at medium target in the North, 1991, (Solution B91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,900,149	1,219,185	3,680,964	24.88	0.
FEBRUARY	4,900,151	1,299,480	3,600,671	26.52	0.
MARCH	4,900,153	1,122,017	3,778,136	22.90	0.
APRIL	4,900,155	1,396,465	3,503,690	28.50	0.
MAY	4,900,151	1,898,100	3,002,051	38.74	0.
JUNE	4,900,149	3,360,589	1,539,561	68.58	0.
JULY	4,900,155	2,262,135	2,638,020	46.16	0.
AUGUST	4,900,153	2,345,772	2,554,380	47.87	0.
SEPTEMBER	4,900,149	1,316,340	3,583,809	26.86	0.
OCTOBER	4,900,155	1,294,878	3,605,277	26.43	0.
NOVEMBER	4,900,155	3,628,290	1,271,865	74.04	0.
DECEMBER	4,900,149	4,900,149	0	100.00	108.76927

Table D.73: Optimum pattern of labor utilization for agricultural production at medium target in the Northeast, 1991, (Solution B91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	8,681,029	3,531,621	5,149,408	40.68	0.
FEBRUARY	8,681,026	3,862,321	4,818,705	44.49	0.
MARCH	8,681,028	1,819,099	6,861,929	20.95	0.
APRIL	8,681,025	2,598,822	6,082,203	29.94	0.
MAY	8,681,026	3,041,970	5,639,056	35.04	0.
JUNE	8,681,029	7,731,137	949,892	89.06	0.
JULY	8,681,025	3,313,947	5,367,078	38.17	0.
AUGUST	8,681,028	2,354,394	6,326,633	27.12	0.
SEPTEMBER	8,681,029	2,057,576	6,623,453	23.70	0.
OCTOBER	8,681,025	7,869,501	811,524	90.65	0.
NOVEMBER	8,681,025	8,681,025	0	100.00	108.76927
DECEMBER	8,681,029	4,616,676	4,064,353	53.18	0.

Table D.74: Optimum pattern of labor utilization for agricultural production at medium target in the Central Plains, 1991, (Solution B91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	899,481	491,517	407,964	54.64	0.
FEBRUARY	899,479	290,575	608,904	32.30	0.
MARCH	899,481	301,994	597,488	33.57	0.
APRIL	899,480	899,480	0	100.00	5.63000
MAY	899,479	584,380	315,099	64.97	0.
JUNE	899,481	899,481	0	100.00	5.63000
JULY	899,480	613,118	286,362	68.16	0.
AUGUST	899,481	336,008	563,474	37.36	0.
SEPTEMBER	899,481	269,891	629,590	30.01	0.
OCTOBER	899,480	899,480	0	100.00	5.63000
NOVEMBER	899,480	899,480	0	100.00	114.39927
DECEMBER	899,481	422,971	476,509	47.02	0.

Table D.75: Optimum pattern of labor utilization for agricultural production at medium target in the East, 1991, (Solution B91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,113,702	543,826	569,876	48.83	0.
FEBRUARY	1,113,703	550,045	563,658	49.39	0.
MARCH	1,113,704	579,727	533,977	52.05	0.
APRIL	1,113,705	756,381	357,324	67.92	0.
MAY	1,113,703	650,747	462,957	58.43	0.
JUNE	1,113,702	1,113,702	0	100.00	5.63000
JULY	1,113,705	556,343	557,362	49.95	0.
AUGUST	1,113,704	429,878	683,825	38.60	0.
SEPTEMBER	1,113,702	386,387	727,315	34.69	0.
OCTOBER	1,113,705	1,113,705	0	100.00	5.63000
NOVEMBER	1,113,705	1,113,705	0	100.00	97.50927
DECEMBER	1,113,702	844,606	269,096	75.84	0.

Table D.76: Optimum pattern of labor utilization for agricultural production at medium target in the West, 1991, (Solution B91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	1,086,510	1,032,535	53,975	95.03	0.
FEBRUARY	1,086,510	1,086,510	0	100.00	5.63000
MARCH	1,086,509	1,014,428	72,081	93.37	0.
APRIL	1,086,510	1,047,779	38,731	96.44	0.
MAY	1,086,510	1,043,369	43,141	96.03	0.
JUNE	1,086,510	1,086,510	0	100.00	5.63000
JULY	1,086,510	965,269	121,241	88.84	0.
AUGUST	1,086,509	845,632	240,878	77.83	0.
SEPTEMBER	1,086,510	863,322	223,187	79.46	0.
OCTOBER	1,086,510	1,086,510	0	100.00	5.00649
NOVEMBER	1,086,510	1,086,510	0	100.00	86.87278
DECEMBER	1,086,510	1,086,510	0	100.00	5.63000

Table D.77: Optimum pattern of labor utilization for agricultural production at medium target in the South, 1991, (Solution B91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,776,486	1,972,946	803,540	71.06	0.
FEBRUARY	2,776,484	2,566,327	210,157	92.43	0.
MARCH	2,776,486	2,776,486	0	100.00	16.19012
APRIL	2,776,485	2,034,151	742,334	73.26	0.
MAY	2,776,484	2,145,787	630,697	77.28	0.
JUNE	2,776,486	2,226,183	550,303	80.18	0.
JULY	2,776,485	2,248,875	527,610	81.00	0.
AUGUST	2,776,486	2,115,228	661,258	76.18	0.
SEPTEMBER	2,776,486	2,210,909	565,577	79.63	0.
OCTOBER	2,776,485	2,776,485	0	100.00	92.57916
NOVEMBER	2,776,485	2,150,216	626,269	77.44	0.
DECEMBER	2,776,486	2,031,911	744,575	73.18	0.

Table D.78: Optimum patttern of labor utilization for agricultural production at medium target in the Whole Kingdom, 1992, (Solution B92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	19,851,197	10,249,890	9,601,307	51.63	
FEBRUARY	19,851,187	11,155,375	8,695,812	56.20	
MARCH	19,851,291	9,018,540	10,832,751	45.43	
APRIL	19,851,195	10,257,068	9,594,127	51.67	
MAY	19,851,140	10,958,657	8,892,483	55.20	
JUNE	19,851,140	17,166,299	2,338,741	88.01	
JULY	19,851,195	11,538,892	8,312,303	58.13	
AUGUST	19,851,291	9,803,619	10,047,672	49.39	
SEPTEMBER	19,851,197	8,631,541	11,219,655	43.48	
OCTOBER	19,851,195	16,456,253	3,394,941	82.90	
NOVEMBER	19,851,195	18,160,184	1,691,011	91.48	
DECEMBER	19,851,197	14,635,582	5,215,615	73.73	

Table D.79: Optimum pattern of labor utilization for agricultural production at medium target in the North, 1992, (Solution B92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,967,159	1,826,382	3,140,776	36.77	0.
FEBRUARY	4,967,156	1,928,555	3,038,601	38.83	0.
MARCH	4,967,157	1,684,963	3,282,195	33.92	0.
APRIL	4,967,160	1,935,908	3,031,252	38.97	0.
MAY	4,967,156	2,492,309	2,474,847	50.18	0.
JUNE	4,967,159	3,799,674	1,167,485	76.50	0.
JULY	4,967,160	2,987,199	1,979,961	60.14	0.
AUGUST	4,967,157	2,849,968	2,117,189	57.38	0.
SEPTEMBER	4,967,159	1,895,437	3,071,722	38.16	0.
OCTOBER	4,967,160	1,908,609	3,058,551	38.42	0.
NOVEMBER	4,967,160	3,900,899	1,066,261	78.53	0.
DECEMBER	4,967,159	4,967,159	0	100.00	108.76927

Table D.80: Optimum pattern of labor utilization for agricultural production at medium target in the Northeast, 1992, (Solution B92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	8,889,885	4,233,117	4,656,767	47.62	0.
FEBRUARY	8,889,885	4,589,115	4,300,771	51.62	0.
MARCH	8,889,884	2,525,002	6,364,882	28.40	0.
APRIL	8,889,885	3,401,846	5,488,039	38.27	0.
MAY	8,889,885	3,884,662	5,005,223	43.70	0.
JUNE	8,889,885	7,919,467	970,418	89.08	0.
JULY	8,889,885	4,019,738	4,870,147	45.22	0.
AUGUST	8,889,884	3,090,135	5,799,750	34.76	0.
SEPTEMBER	8,889,885	2,861,101	6,028,783	32.18	0.
OCTOBER	8,889,885	8,553,495	336,390	96.22	0.
NOVEMBER	8,889,885	8,889,885	0	100.00	106.76927
DECEMBER	8,889,885	5,261,609	3,628,276	59.19	0.

Table D.81: Optimum pattern of labor utilization for agricultural production at medium target in the Central Plains, 1992, (Solution B92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	904,380	499,487	404,893	55.23	0.
FEBRUARY	904,380	292,240	612,140	32.31	0.
MAPCH	904,377	304,277	600,199	33.64	0.
APRIL	904,380	904,380	0	100.00	5.63000
MAY	904,380	588,198	316,183	65.04	0.
JUNE	904,380	904,380	0	100.00	5.63000
JULY	904,380	616,703	287,677	68.19	0.
AUGUST	904,377	338,554	565,923	37.43	0.
SEPTEMBER	904,380	275,113	629,267	30.42	0.
OCTOBER	904,380	904,380	0	100.00	5.63000
NOVEMBER	904,380	904,380	0	100.00	114.39927
DECEMBER	904,380	343,249	561,131	37.95	0.

Table D.82: Optimum pattern of labor utilization for agricultural production at medium target in the East, 1992, (Solution B92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,137,091	588,134	548,957	51.72	0.
FEBRUARY	1,137,089	597,220	539,869	52.52	0.
MARCH	1,137,093	622,198	514,894	54.72	0.
APRIL	1,137,090	802,942	334,148	70.61	0.
MAY	1,137,089	696,271	440,817	61.23	0.
JUNE	1,137,091	1,137,091	0	100.00	5.63000
JULY	1,137,090	601,168	535,922	52.87	0.
AUGUST	1,137,093	469,866	667,226	41.32	0.
SEPTEMBER	1,137,091	428,611	708,480	37.69	0.
OCTOBER	1,137,090	1,137,090	0	100.00	5.63000
NOVEMBER	1,137,090	1,137,090	0	100.00	97.50927
DECEMBER	1,137,091	856,674	280,417	75.34	0.

Table D.83: Optimum pattern of labor utilization for agricultural production at medium target in the West, 1992, (Solution B92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	1,106,827	1,061,584	45,242	95.91	0.
FEBRUARY	1,106,823	1,106,823	0	100.00	5.63000
MARCH	1,106,824	1,036,243	70,581	93.62	0.
APRIL	1,106,825	1,106,825	0	100.00	0.22927
MAY	1,106,776	1,075,928	30,848	97.21	0.
JUNE	1,106,827	1,106,827	0	100.00	5.63000
JULY	1,106,825	993,098	113,727	89.72	0.
AUGUST	1,106,824	872,529	234,295	78.83	0.
SEPTEMBER	1,106,827	892,168	214,659	80.61	0.
OCTOBER	1,106,825	1,106,825	0	100.00	5.63000
NOVEMBER	1,106,825	1,106,825	0	100.00	86.02000
DECEMBER	1,106,827	1,106,827	0	100.00	5.63000

Table D.84: Optimum pattern of labor utilization for agricultural production at medium target in the South, 1992,, (Solution B92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,845,856	2,041,186	804,670	71.72	0.
FEBRUARY	2,845,854	2,641,423	204,431	92.82	0.
MARCH	2,845,857	2,845,857	0	100.00	16.19012
APRIL	2,845,855	2,105,167	740,688	73.97	0.
MAY	2,845,854	2,221,289	624,565	79.05	0.
JUNE	2,845,852	2,298,860	200,842	91.97	0.
JULY	2,845,855	2,320,985	524,870	81.56	0.
AUGUST	2,845,857	2,182,567	663,289	76.69	0.
SEPTEMBER	2,845,856	2,279,112	566,744	80.09	0.
OCTOBER	2,845,855	2,845,855	0	100.00	92.57916
NOVEMBER	2,845,855	2,221,105	624,750	78.05	0.
DECEMBER	2,845,856	2,100,065	745,791	73.79	0.

Table D.85: Optimum pattern of labor utilization for agricultural production at low target in the Whole Kingdom, 1987, (Solution C87L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	18,661.573	3,584,473	15,077,100	19.21	
FEBRUARY	18,661,573	3,616,491	15,045,082	19.38	
MARCH	18,661,565	4,143,365	14,518,199	22.20	
APRIL	18,661,565	4,680,073	13,981,492	25.08	
MAY	18,661,573	5,221,437	13,440,136	27.98	
JUNE	18,661,573	12,150,024	6,511,549	65.12	
JULY	18,661,565	5,969,847	12,691,718	31.99	
AUGUST	18,661,565	5,027,583	13,633,982	26.94	
SEPTEMBER	18,661,565	3,258,612	15,402,963	17.46	
OCTOBER	18,661,565	9,127,383	9,534,182	48.91	
NOVEMBER	18,661,565	13,637,301	5,024,264	73.08	
DECEMBER	18,661,563	9,455,346	9,206,227	50.67	

Table D.86: Optimum pattern of labor utilization for agricultural production at low target in the North, 1987, (Solution C87L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,634,310	746,626	3,887,684	16.12	0.
FEBRUARY	4,634,313	829,499	3,804,814	17.90	0.
MARCH	4,634,310	678,927	3,955,383	14.65	0.
APRIL	4,634,310	810,992	3,823,318	17.50	0.
MAY	4,634,313	1,380,649	3,253,664	29.79	0.
JUNE	4,634,313	2,809,603	1,824,708	60.66	0.
JULY	4,634,310	1,629,841	3,004,469	35.17	0.
AUGUST	4,634,310	1,867,097	2,747,213	40.72	0.
SEPTEMBER	4,634,310	782,215	3,852,095	16.89	0.
OCTOBER	4,634,310	665,866	3,968,444	14.37	0.
NOVEMBER	4,634,310	3,100,440	1,533,870	66.90	0.
DECEMBER	4,634,310	4,608,090	26,220	99.49	0.

Table D.87: Optimum pattern of labor utilization for agricultural production at low target in the Northeast, 1987, (Solution C87L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	8,649,058	1,386,966	7,262,092	16.04	0.
FEBRUARY	8,649,063	975,095	7,673,968	11.27	0.
MARCH	8,649,060	1,056,864	7,592,197	12.22	0.
APRIL	8,649,060	1,811,001	6,838,059	20.94	0.
MAY	8,649,063	2,029,235	6,619,827	23.46	0.
JUNE	8,649,058	6,449,929	2,199,129	74.57	0.
JULY	8,649,060	2,378,485	6,270,575	27.50	0.
AUGUST	8,649,060	1,682,229	6,966,832	19.45	0.
SEPTEMBER	8,649,058	1,104,031	7,545,027	12.76	0.
OCTOBER	8,649,060	5,209,030	3,440,030	60.23	0.
NOVEMBER	8,649,060	7,553,687	1,095,373	87.34	0.
DECEMBER	8,649,058	2,353,490	6,295,568	27.21	0.

Table D.88: Optimum pattern of labor utilization for agricultural production at low target in the Central Plains, 1987, (Solution C87L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	858,274	551,882	306,392	64.30	0.
FEBRUARY	858,276	383,458	474,818	44.68	0.
MARCH	858,273	381,419	476,855	44.44	0.
APRIL	858,275	858,275	0	100.00	5.63000
MAY	858,276	651,608	206,668	75.92	0.
JUNE	858,274	858,274	0	100.00	5.63000
JULY	858,275	663,851	194,424	77.35	0.
AUGUST	858,273	421,029	437,245	49.06	0.
SEPTEMBER	858,274	351,522	506,752	40.96	0.
OCTOBER	858,275	858,275	0	100.00	2.43561
NOVEMBER	858,275	858,275	0	100.00	5.63000
DECEMBER	858,274	858,274	0	100.00	5.63000

Table D.89: Optimum pattern of labor utilization for agricultural production at low target in the East, 1987, (Solution C87L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,035,375	317,479	717,896	30.66	0.
FEBRUARY	1,035,375	309,758	725,617	29.92	0.
MARCH	1,035,375	357,359	678,016	34.51	0.
APRIL	1,035,375	602,385	432,990	58.18	0.
MAY	1,035,375	493,604	541,771	47.67	0.
JUNE	1,035,375	916,211	119,164	88.49	0.
JULY	1,035,375	448,066	587,309	43.28	0.
AUGUST	1,035,375	285,434	749,941	27.57	0.
SEPTEMBER	1,035,375	237,318	798,057	22.92	0.
OCTOBER	1,035,375	1,035,375	0	100.00	0.17857
NOVEMBER	1,035,375	1,035,375	0	100.00	2.58828
DECEMBER	1,035,375	743,029	292,346	71.76	0.

Table D.90: Optimum pattern of labor utilization for agricultural production at low target in the West, 1987, (Solution C87L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	998,683	318,167	680,516	31.86	0.
FEBRUARY	998,688	336,139	662,548	33.66	0.
MARCH	998,685	336,933	661,752	33.74	0.
APRIL	998,685	342,248	656,437	34.27	0.
MAY	998,688	406,812	591,876	40.73	0.
JUNE	998,683	695,743	302,939	69.67	0.
JULY	998,685	403,470	595,215	40.40	0.
AUGUST	998,685	318,164	680,522	31.86	0.
SEPTEMBER	998,683	281,422	717,261	28.18	0.
OCTOBER	998,685	325,617	673,068	32.60	0.
NOVEMBER	998,685	715,846	282,839	71.68	0.
DECEMBER	998,683	568,289	430,394	56.90	0.

Table D.91: Optimum pattern of labor utilization for agricultural production at low target in the South, 1987, (Solution C87L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,485,861	263,353	2,222,508	10.59	0.
FEBRUARY	2,485,859	782,541	1,703,318	31.48	0.
MARCH	2,485,861	1,331,864	1,153,997	53.58	0.
APRIL	2,485,860	255,172	2,230,688	10.26	0.
MAY	2,485,859	259,529	2,226,330	10.44	0.
JUNE	2,485,861	420,264	2,065,597	16.91	0.
JULY	2,485,860	446,134	2,039,726	17.95	0.
AUGUST	2,485,861	433,631	2,052,230	17.44	0.
SEPTEMBER	2,485,861	502,103	1,983,758	20.20	0.
OCTOBER	2,485,860	1,033,221	1,452,639	41.56	0.
NOVEMBER	2,485,860	373,677	2,112,183	15.03	0.
DECEMBER	2,485,861	324,174	2,161,686	13.04	0.

Table D.92: Optimum pattern of labor utilization for agricultural production at medium target in the Whole Kingdom, 1987, (Solution C87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	18,661,565	3,617,784	15,043,791	19.39	
FEBRUARY	18,661,573	3,631,682	15,029,891	19.46	
MARCH	18,661,565	4,158,038	14,503,527	22.28	
APRIL	18,661,565	4,699,407	13,962,157	25.18	
MAY	18,661,573	5,279,757	13,381,815	28.29	
JUNE	18,661,565	12,221,153	6,440,422	65.50	
JULY	18,661,565	5,971,073	12,690,492	32.00	
AUGUST	18,661,565	5,127,318	13,534,246	27.48	
SEPTEMBER	18,661,565	3,303,072	15,358,503	17.70	
OCTOBER	18,661,565	9,182,443	9,479,122	49.21	
NOVEMBER	18,661,565	13,739,536	4,922,029	73.62	
DECEMBER	18,661,565	9,534,388	9,127,187	51.10	

Table D.93: Optimum pattern of labor utilization for agricultural production at medium target in the North, 1987, (Solution C87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,634,310	718,594	3,915,716	15.51	0.
FEBRUARY	4,634,313	802,734	3,831,578	17.32	0.
MARCH	4,634,310	653,964	3,980,346	14.11	0.
APRIL	4,634,310	764,428	3,869,682	16.49	0.
MAY	4,634,313	1,368,294	3,266,018	29.53	0.
JUNE	4,634,310	2,805,255	1,829,055	60.57	0.
JULY	4,634,310	1,558,968	3,075,342	33.64	0.
AUGUST	4,634,310	1,926,594	2,707,716	41.57	0.
SEPTEMBER	4,634,310	767,413	3,866,897	16.57	0.
OCTOBER	4,634,310	646,705	3,987,605	13.95	0.
NOVEMBER	4,634,310	3,048,646	1,585,664	65.78	0.
DECEMBER	4,634,310	4,631,716	2,594	99.94	0.

Table D.94: Optimum pattern of labor utilization for agricultural production at medium target in the Northeast, 1987, (Solution C87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	8,649,058	1,471,199	7,177,858	17.01	0.
FEBRUARY	8,649,063	1,036,635	7,612,427	11.99	0.
MARCH	8,649,060	1,125,427	7,523,633	13.01	0.
APRIL	8,649,060	1,896,615	6,752,445	21.93	0.
MAY	8,649,063	2,118,696	6,530,366	24.50	0.
JUNE	8,649,058	6,538,549	2,110,509	75.60	0.
JULY	8,649,060	2,458,616	6,190,444	28.43	0.
AUGUST	8,649,060	1,771,260	6,877,801	20.48	0.
SEPTEMBER	8,649,058	1,193,116	7,455,942	13.79	0.
OCTOBER	8,649,060	5,319,772	3,329,288	61.51	0.
NOVEMBER	8,649,060	7,747,573	901,486	89.58	0.
DECEMBER	8,649,058	2,442,027	6,207,031	28.23	0.

Table D.95: Optimum pattern of labor utilization for agricultural production at medium target in the Central Plains, 1987, (Solution C87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	858,274	551,882	306,392	64.30	0.
FEBRUARY	858,276	383,458	474,818	44.68	0.
MARCH	858,273	381,419	476,855	44.44	0.
APRIL	858,275	858,275	0	100.00	5.63000
MAY	858,276	651,608	206,668	75.92	0.
JUNE	858,274	858,274	0	100.00	5.63000
JULY	858,275	663,851	194,424	77.35	0.
AUGUST	858,273	421,029	437,245	49.06	0.
SEPTEMBER	858,274	351,522	506,752	40.96	0.
OCTOBER	858,275	858,275	0	100.00	2.60599
NOVEMBER	858,275	858,275	0	100.00	5.63000
DECEMBER	858,274	858,274	0	100.00	5.63000

Table D.96: Optimum pattern of labor utilization for agricultural production at medium target in the East, 1987, (Solution C87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,035,375	323,091	712,284	31.21	0.
FEBRUARY	1,035,375	316,385	718,990	30.56	0.
MARCH	1,035,375	357,156	678,219	34.50	0.
APRIL	1,035,375	614,854	420,521	59.38	0.
MAY	1,035,375	504,866	530,509	48.76	0.
JUNE	1,035,375	934,087	101,288	90.22	0.
JULY	1,035,375	479,449	555,926	46.31	0.
AUGUST	1,035,375	292,483	742,892	28.25	0.
SEPTEMBER	1,035,375	247,737	787,638	23.93	0.
OCTOBER	1,035,375	1,035,375	0	100.00	0.18941
NOVEMBER	1,035,375	1,035,375	0	100.00	1.28443
DECEMBER	1,035,375	746,659	288,716	72.11	0.

Table D.97: Optimum pattern of labor utilization for agricultural production at medium target in the West, 1987, (Solution C87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	998,683	289,666	709,017	29.00	0.
FEBRUARY	998,688	309,928	688,759	31.03	0.
MARCH	998,685	308,207	690,478	30.86	0.
APRIL	998,685	310,063	688,622	31.05	0.
MAY	998,688	376,764	621,923	37.73	0.
JUNE	998,683	664,724	333,958	66.56	0.
JULY	998,685	364,054	634,631	36.45	0.
AUGUST	998,685	282,323	716,363	28.27	0.
SEPTEMBER	998,683	241,181	757,502	24.15	0.
OCTOBER	998,685	289,094	709,591	28.95	0.
NOVEMBER	998,685	675,990	322,695	67.69	0.
DECEMBER	998,683	531,537	467,146	53.22	0.

Table D.98: Optimum pattern of labor utilization for agricultural production at medium target in the South, 1987, (Solution C87M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,485,861	263,353	2,222,508	10.59	0.
FEBRUARY	2,485,859	782,541	1,703,318	31.48	0.
MARCH	2,485,861	1,331,864	1,153,997	53.58	0.
APRIL	2,485,860	255,172	2,230,688	10.26	0.
MAY	2,485,859	259,529	2,226,330	10.44	0.
JUNE	2,485,861	420,264	2,065,597	16.91	0.
JULY	2,485,860	446,134	2,039,726	17.95	0.
AUGUST	2,485,861	433,631	2,052,230	17.44	0.
SEPTEMBER	2,485,861	502,103	1,983,758	20.20	0.
OCTOBER	2,485,860	1,033,221	1,452,639	41.56	0.
NOVEMBER	2,485,860	373,677	2,112,183	15.03	0.
DECEMBER	2,485,861	324,174	2,161,686	13.04	0.

Table D.99: Optimum pattern of labor utilization for agricultural production at high target in the Whole Kingdom, 1987, (Solution C87H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	18,661.565	3,653,527	15,008,038	19.58	
FEBRUARY	18,661,573	3,654,014	15,007,559	19.58	
MARCH	18,661,565	4,184,434	14,477,130	22.42	
APRIL	18,661,565	4,687,888	13,973,676	25.12	
MAY	18,661,573	5,333,527	13,328,045	28.58	
JUNE	18,661,565	12,189,278	6,472,287	65.33	
JULY	18,661,565	5,924,831	12,736,734	31.75	
AUGUST	18,661,565	5,259,321	13,402,243	28.18	
SEPTEMBER	18,661,565	3,344,233	15,317,332	17.92	
OCTOBER	18,661,565	9,404,787	9,256,778	50.40	
NOVEMBER	18,661,565	13,988,942	4,672,623	74.96	
DECEMBER	18,661,565	9,586,580	9,074,985	51.38	

Table D.100: Optimum pattern of labor utilization for agricultural production at high target in the North, 1987, (Solution C87H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,634,310	729,989	3,904,321	15.76	0.
FEBRUARY	4,634,313	820,233	3,814,079	17.70	0.
MARCH	4,634,310	670,668	3,963,642	14.47	0.
APRIL	4,634,310	740,116	3,894,194	15.97	0.
MAY	4,634,313	1,397,083	3,237,230	30.15	0.
JUNE	4,634,310	2,752,272	1,882,038	59.42	0.
JULY	4,634,310	1,464,684	3,169,626	31.61	0.
AUGUST	4,634,310	2,037,170	2,597,140	43.96	0.
SEPTEMBER	4,634,310	798,146	3,836,164	17.23	0.
OCTOBER	4,634,310	680,376	3,953,934	14.68	0.
NOVEMBER	4,634,310	2,931,477	1,702,833	63.26	0.
DECEMBER	4,634,310	4,634,310	0	100.00	0.

Table D.101: Optimum pattern of labor utilization for agricultural production at high target in the Northeast, 1987, (Solution C87H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	8,649,058	1,492,901	7,156,156	17.26	0.
FEBRUARY	8,649,063	1,038,601	7,610,461	12.01	0.
MARCH	8,649,060	1,135,095	7,513,965	13.12	0.
APRIL	8,649,060	1,912,075	6,736,985	22.11	0.
MAY	8,649,063	2,145,851	6,503,211	24.81	0.
JUNE	8,649,058	6,562,383	2,086,675	75.87	0.
JULY	8,649,060	2,507,434	6,141,626	28.99	0.
AUGUST	8,649,060	1,789,833	6,859,227	20.69	0.
SEPTEMBER	8,649,058	1,199,299	7,449,758	13.87	0.
OCTOBER	8,649,060	5,508,446	3,140,614	63.69	0.
NOVEMBER	8,649,060	8,113,851	535,209	93.81	0.
DECEMBER	8,649,058	2,493,339	6,155,719	28.83	0.

Table D.102: Optimum pattern of labor utilization for agricultural production at high target in the Central Plains, 1987, (Solution C87H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	858,274	551,882	306,392	64.30	0.
FEBRUARY	858,276	383,458	474,818	44.68	0.
MARCH	858,273	381,419	476,855	44.44	0.
APRIL	858,275	858,275	0	100.00	5.63000
MAY	858,276	651,608	206,668	75.92	0.
JUNE	858,274	858,274	0	100.00	5.63000
JULY	858,275	663,851	194,424	77.35	0.
AUGUST	858,273	421,029	437,245	49.06	0.
SEPTEMBER	858,274	351,522	506,752	40.96	0.
OCTOBER	858,275	858,275	0	100.00	2.66530
NOVEMBER	858,275	858,275	0	100.00	5.63000
DECEMBER	858,274	858,274	0	100.00	5.63000

Table D.103: Optimum pattern of labor utilization for agricultural production at high target in the East, 1987, (Solution C87H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,035,375	325,737	709,638	31.46	0.
FEBRUARY	1,035,375	319,252	716,123	30.83	0.
MARCH	1,035,375	357,181	678,194	34.50	0.
APRIL	1,035,375	612,187	423,188	59.13	0.
MAY	1,035,375	502,692	532,683	48.55	0.
JUNE	1,035,375	931,362	104,013	89.95	0.
JULY	1,035,375	478,673	556,702	46.23	0.
AUGUST	1,035,375	295,336	740,039	28.52	0.
SEPTEMBER	1,035,375	251,982	783,393	24.34	0.
OCTOBER	1,035,375	1,035,375	0	100.00	0.30831
NOVEMBER	1,035,375	1,035,375	0	100.00	1.58485
DECEMBER	1,035,375	747,540	287,835	72.20	0.

Table D.104: Optimum pattern of labor utilization for agricultural production at high target in the West, 1987, (Solution C87H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	998,683	289,666	709,017	29.00	0.
FEBRUARY	998,688	309,928	688,759	31.03	0.
MARCH	998,685	308,207	690,478	30.86	0.
APRIL	998,685	310,063	688,622	31.05	0.
MAY	998,688	376,764	621,923	37.73	0.
JUNE	998,683	664,724	333,958	66.56	0.
JULY	998,685	364,054	634,631	36.45	0.
AUGUST	998,685	282,323	716,363	28.27	0.
SEPTEMBER	998,683	241,181	757,502	24.15	0.
OCTOBER	998,685	289,094	709,591	28.95	0.
NOVEMBER	998,685	675,990	322,695	67.69	0.
DECEMBER	998,683	531,537	467,146	53.22	0.

Table D.105: Optimum pattern of labor utilization for agricultural production at high target in the South, 1987, (Solution C87H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,485,861	263,353	2,222,508	10.59	0.
FEBRUARY	2,485,859	782,541	1,703,318	31.48	0.
MARCH	2,485,861	1,331,865	1,153,996	53.58	0.
APRIL	2,485,860	255,172	2,230,688	10.26	0.
MAY	2,485,859	259,529	2,226,330	10.44	0.
JUNE	2,485,861	420,264	2,065,597	16.91	0.
JULY	2,485,860	446,134	2,039,726	17.95	0.
AUGUST	2,485,861	433,631	2,052,230	17.44	0.
SEPTEMBER	2,485,861	502,103	1,983,758	20.20	0.
OCTOBER	2,485,860	1,033,221	1,452,639	41.56	0.
NOVEMBER	2,485,860	373,974	2,111,886	15.04	0.
DECEMBER	2,485,861	324,174	2,161,686	13.04	0.

Table D.106: Optimum pattern of labor utilization for agricultural production at low target in the Whole Kingdom, 1991, (Solution C91L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	20,250,400	3,880,746	16,369,654	19.16	
FEBRUARY	20,250,400	3,971,730	16,278,679	19.61	
MARCH	20,250,400	4,626,900	15,623,500	22.85	
APRIL	20,250,400	5,064,552	15,185,848	25.01	
MAY	20,250,400	5,599,650	14,650,750	27.65	
JUNE	20,250,400	12,563,484	7,686,916	62.04	
JULY	20,250,400	6,363,002	13,887,398	31.42	
AUGUST	20,250,400	5,546,546	14,703,854	27.39	
SEPTEMBER	20,250,400	3,629,608	16,620,792	17.92	
OCTOBER	20,250,400	9,786,713	10,463,687	48.33	
NOVEMBER	20,250,400	14,363,694	5,886,706	70.93	
DECEMBER	20,250,400	10,127,454	10,122,946	50.01	

Table D.107: Optimum pattern of labor utilization for agricultural production at low target in the North, 1991, (Solution C91L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,943,843	722,905	4,220,938	14.62	0.
FEBRUARY	4,943,843	796,735	4,147,108	16.12	0.
MARCH	4,943,843	649,640	4,294,203	13.14	0.
APRIL	4,943,843	781,302	4,162,541	15.81	0.
MAY	4,943,843	1,380,118	3,563,725	27.92	0.
JUNE	4,943,843	2,831,550	2,112,293	57.27	0.
JULY	4,943,843	1,588,433	3,355,410	32.13	0.
AUGUST	4,943,843	1,966,422	2,977,421	39.78	0.
SEPTEMBER	4,943,843	776,359	4,167,484	15.70	0.
OCTOBER	4,943,843	648,712	4,295,131	13.12	0.
NOVEMBER	4,943,843	3,103,254	1,840,589	62.77	0.
DECEMBER	4,943,843	4,943,843	0	100.00	1.23391

Table D.108: Optimum pattern of labor utilization for agricultural production at low target in the Northeast, 1991, (Solution C91L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUAPY	9,399,216	1,624,886	7,774,330	17.29	0.
FEBRUARY	9,399,214	1,214,398	8,184,816	12.92	0.
MARCH	9,399,218	1,285,952	8,113,265	13.68	0.
APRIL	9,399,215	2,056,740	7,342,475	21.88	0.
MAY	9,399,214	2,290,230	7,108,984	24.37	0.
JUNE	9,399,216	6,642,387	2,756,830	70.67	0.
JULY	9,399,215	2,667,436	6,731,784	28.38	0.
AUGUST	9,399,218	2,050,293	7,348,925	21.81	0.
SEPTEMBER	9,399,216	1,414,879	7,984,337	15.05	0.
OCTOBER	9,399,215	5,670,687	3,728,528	60.33	0.
NOVEMBER	9,399,215	8,054,472	1,344,743	85.69	0.
DECEMBER	9,399,216	2,546,842	6,852,374	27.10	0.

Table D.109: Optimum pattern of labor utilization for agricultural production at low target in the Central Plains, 1991, (Solution C91L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	912,510	563,577	348,932	61.76	0.
FEBRUARY	912,510	389,571	522,939	42.69	0.
MARCH	912,509	387,015	525,494	42.41	0.
APRIL	912,510	912,510	0	100.00	5.63000
MAY	912,510	661,529	250,982	72.50	0.
JUNE	912,510	912,510	0	100.00	5.63000
JULY	912,510	677,320	235,190	74.23	0.
AUGUST	912,509	415,448	497,061	45.53	0.
SEPTEMBER	912,510	346,062	566,448	37.92	0.
OCTOBER	912,510	912,510	0	100.00	2.66291
NOVEMBER	912,510	912,510	0	100.00	5.63000
DECEMBER	912,510	912,510	0	100.00	5.63000

Table D.110: Optimum pattern of labor utilization for agricultural production at low target in the East, 1991, (Solution C91L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,129,202	322,800	806,401	28.59	0.
FEBRUARY	1,129,203	312,767	816,436	27.70	0.
MARCH	1,129,204	358,290	770,914	31.73	0.
APRIL	1,129,200	646,022	483,178	57.21	0.
MAY	1,129,203	525,514	603,689	46.54	0.
JUNE	1,129,202	994,920	134,282	88.11	0.
JULY	1,129,200	508,946	620,254	45.07	0.
AUGUST	1,129,204	298,670	830,534	26.45	0.
SEPTEMBER	1,129,202	247,008	882,194	21.87	0.
OCTOBER	1,129,200	1,129,200	0	100.00	0.29592
NOVEMBER	1,129,200	1,129,200	0	100.00	1.52297
DECEMBER	1,129,202	767,395	361,807	67.96	0.

Table D.111: Optimum pattern of labor utilization for agricultural production at low target in the West, 1991, (Solution C91L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	1,101,981	281,343	820,638	25.53	0.
FEBRUARY	1,101,984	299,166	802,799	27.15	0.
MARCH	1,101,981	300,358	801,624	27.26	0.
APRIL	1,101,980	306,848	795,132	27.85	0.
MAY	1,101,984	372,358	729,627	33.79	0.
JUNE	1,101,981	659,972	442,009	59.89	0.
JULY	1,101,980	368,781	733,199	33.47	0.
AUGUST	1,101,981	283,975	818,007	25.77	0.
SEPTEMBER	1,101,981	242,170	859,810	21.98	0.
OCTOBER	1,101,980	286,427	815,553	25.99	0.
NOVEMBER	1,101,980	684,327	417,653	62.10	0.
DECEMBER	1,101,981	530,808	571,173	48.17	0.

Table D.112: Optimum pattern of labor utilization for agricultural production at low target in the South, 1991, (Solution C91L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,769,649	365,235	2,404,414	13.19	0.
FEBRUARY	2,769,646	959,073	1,810,572	34.63	0.
MARCH	2,769,648	1,645,645	1,124,003	59.42	0.
APRIL	2,769,650	361,129	2,408,521	13.04	0.
MAY	2,769,646	369,901	2,399,745	13.36	0.
JUNE	2,769,649	522,146	2,247,503	18.85	0.
JULY	2,769,650	552,092	2,217,558	19.93	0.
AUGUST	2,769,648	531,739	2,237,909	19.20	0.
SEPTEMBER	2,769,649	603,130	2,166,519	21.78	0.
OCTOBER	2,769,650	1,139,178	1,630,472	41.13	0.
NOVEMBER	2,769,650	479,932	2,289,718	17.33	0.
DECEMBER	2,769,649	426,056	2,343,593	15.38	0.

Table D.113: Optimum pattern of labor utilization for agricultural production at medium target in the Whole Kingdom, 1991, (Solution C91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	20,250,400	4,027,520	16,222,880	19.89	
FEBRUARY	20,250,400	4,184,013	16,066,387	20.66	
MARCH	20,250,400	5,190,487	15,059,913	25.63	
APRIL	20,250,400	5,168,180	15,082,220	25.52	
MAY	20,250,400	5,625,195	17,625,205	27.78	
JUNE	20,250,400	13,413,189	6,837,211	66.24	
JULY	20,250,400	6,362,802	13,887,598	31.42	
AUGUST	20,250,400	5,641,207	14,609,193	27.86	
SEPTEMBER	20,250,400	3,912,503	16,337,897	19.32	
OCTOBER	20,250,400	11,278,379	8,971,021	55.69	
NOVEMBER	20,250,400	15,770,058	4,480,342	77.88	
DECEMBER	20,250,400	10,489,432	9,760,968	51.80	

Table D.114: Optimum pattern of labor utilization for agricultural production at medium target in the North, 1991, (Solution C91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,943,843	703,066	4,240,777	14.22	0.
FEBRUARY	4,943,843	749,244	4,194,599	15.16	0.
MARCH	4,943,843	668,910	4,274,933	13.53	0.
APRIL	4,943,843	771,138	4,172,705	15.60	0.
MAY	4,943,843	1,406,471	3,537,372	28.45	0.
JUNE	4,943,843	2,749,545	2,194,298	55.62	0.
JULY	4,943,843	1,532,870	3,410,973	31.01	0.
AUGUST	4,943,843	2,040,366	2,903,477	41.27	0.
SEPTEMBER	4,943,843	851,233	4,092,610	17.22	0.
OCTOBER	4,943,843	736,401	4,207,442	14.90	0.
NOVEMBER	4,943,843	2,997,673	1,946,170	60.63	0.
DECEMBER	4,943,843	4,943,843	0	100.00	2.90411

Table D.115: Optimum pattern of labor utilization for agricultural production at medium target in the Northeast, 1991, (Solution C91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	9,399,216	1,596,280	7,802,936	16.98	0.
FEBRUARY	9,399,214	1,117,288	8,281,926	11.89	0.
MARCH	9,399,218	1,146,282	8,252,935	12.20	0.
APRIL	9,399,215	1,985,571	7,413,644	21.12	0.
MAY	9,399,214	2,144,042	7,255,171	22.81	0.
JUNE	9,399,216	7,470,352	1,928,864	79.48	0.
JULY	9,399,215	2,540,312	6,858,903	27.03	0.
AUGUST	9,399,218	1,829,192	7,570,026	19.46	0.
SEPTEMBER	9,399,216	1,367,313	8,031,903	14.55	0.
OCTOBER	9,399,215	6,465,116	2,934,099	68.78	0.
NOVEMBER	9,399,215	9,399,215	0	100.00	0.42513
DECEMBER	9,399,216	2,808,187	6,591,029	29.88	0.

Table D.116: Optimum pattern of land use for agricultural production at medium target in the Central Plains, 1991, (Solution C91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	912,510	579,158	333,351	63.47	0.
FEBRUARY	912,510	393,211	519,300	43.09	0.
MARCH	912,509	391,715	520,794	42.93	0.
APRIL	912,510	912,510	0	100.00	5.63000
MAY	912,510	682,818	229,692	74.83	0.
JUNE	912,510	912,510	0	100.00	5.63000
JULY	912,510	688,653	223,857	75.47	0.
AUGUST	912,509	402,110	510,399	44.07	0.
SEPTEMBER	912,510	328,137	584,373	35.96	0.
OCTOBER	912,510	912,510	0	100.00	3.20886
NOVEMBER	912,510	912,510	0	100.00	6.05513
DECEMBER	912,510	912,510	0	100.00	5.63000

Table D.117: Optimum pattern of labor utilization for agricultural production at medium target in the East, 1991, (Solution C91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,129,202	326,881	802,321	28.95	0.
FEBRUARY	1,129,203	315,021	814,182	27.90	0.
MARCH	1,129,204	359,585	769,619	31.84	0.
APRIL	1,129,200	665,646	463,554	58.95	0.
MAY	1,129,203	520,136	609,068	46.06	0.
JUNE	1,129,202	928,344	200,857	82.21	0.
JULY	1,129,200	495,972	633,228	43.92	0.
AUGUST	1,129,204	379,622	749,582	33.62	0.
SEPTEMBER	1,129,202	303,519	825,682	26.88	0.
OCTOBER	1,129,200	1,129,200	0	100.00	1.13843
NOVEMBER	1,129,200	1,129,200	0	100.00	3.37008
DECEMBER	1,129,202	716,155	413,047	63.42	0.

Table D.118: Optimum pattern of labor utilization for agricultural production at medium target in the West, 1991, (Solution C91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	1,101,981	453,866	648,114	41.19	0.
FEBRUARY	1,101,984	479,028	622,956	43.47	0.
MARCH	1,101,981	469,588	632,393	42.61	0.
APRIL	1,101,980	472,186	629,794	42.85	0.
MAY	1,101,984	501,826	600,158	45.54	0.
JUNE	1,101,981	830,292	271,689	75.35	0.
JULY	1,101,980	552,904	549,076	50.17	0.
AUGUST	1,101,981	458,178	643,804	41.58	0.
SEPTEMBER	1,101,981	437,980	664,001	39.74	0.
OCTOBER	1,101,980	658,997	442,983	59.80	0.
NOVEMBER	1,101,980	837,449	264,531	75.99	0.
DECEMBER	1,101,981	667,959	434,021	60.61	0.

Table D.119: Optimum pattern of labor utilization for agricultural production at medium target in the South, 1991, (Solution C91M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,769,649	368,268	2,401,381	13.30	0.
FEBRUARY	2,769,646	1,130,222	1,639,424	40.81	0.
MARCH	2,769,648	2,154,407	615,241	77.79	0.
APRIL	2,769,650	361,129	2,408,521	13.04	0.
MAY	2,769,646	369,901	2,399,745	13.36	0.
JUNE	2,769,649	522,146	2,247,503	18.85	0.
JULY	2,769,650	552,092	2,217,558	19.93	0.
AUGUST	2,769,648	531,739	2,237,909	19.20	0.
SEPTEMBER	2,769,649	624,320	2,145,329	22.54	0.
OCTOBER	2,769,650	1,376,156	1,393,494	49.69	0.
NOVEMBER	2,769,650	494,012	2,275,638	17.84	0.
DECEMBER	2,769,649	440,778	2,328,871	15.91	0.

Table D.120: Optimum pattern of labor utilization for agricultural production at high target in the Whole Kingdom, 1991, (Solution C91H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	20,250,400	4,030,415	16,219,985	19.90	
FEBRUARY	20,250,400	4,226,380	16,024,020	20.87	
MARCH	20,250,400	5,175,943	15,074,457	25.56	
APRIL	20,250,400	4,942,831	15,307,569	24.41	
MAY	20,250,400	5,555,648	14,694,752	27.43	
JUNE	20,250,400	13,018,674	7,231,726	64.29	
JULY	20,250,400	6,480,419	13,769,981	32.00	
AUGUST	20,250,400	5,775,115	14,475,285	28.52	
SEPTEMBER	20,250,400	4,111,578	16,138,822	20.30	
OCTOBER	20,250,400	11,781,317	8,469,083	58.18	
NOVEMBER	20,250,400	15,704,964	4,545,436	77.55	
DECEMBER	20,250,400	10,564,947	9,685,453	52.17	

Table D.121: Optimum pattern of labor utilization for agricultural production at high target in the North, 1991, (Solution C91H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	4,943,843	746,092	4,197,751	15.09	0.
FEBRUARY	4,943,843	728,726	4,215,117	14.74	0.
MARCH	4,943,843	593,518	4,350,325	12.01	0.
APRIL	4,943,843	629,203	4,314,640	12.73	0.
MAY	4,943,843	1,356,328	3,587,515	27.43	0.
JUNE	4,943,843	2,785,855	2,157,988	56.35	0.
JULY	4,943,843	1,634,356	3,309,487	33.06	0.
AUGUST	4,943,843	2,032,238	2,911,605	41.11	0.
SEPTEMBER	4,943,843	1,006,328	3,937,515	20.36	0.
OCTOBER	4,943,843	976,658	3,967,185	19.76	0.
NOVEMBER	4,943,843	3,009,650	1,934,193	60.88	0.
DECEMBER	4,943,843	4,943,843	0	100.00	9.79168

Table D.122: Optimum pattern of labor utilization for agricultural production at high target in the Northeast, 1991, (Solution C91H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	9,399,216	1,521,494	7,877,723	16.19	0.
FEBRUARY	9,399,214	1,136,008	8,263,205	12.09	0.
MARCH	9,399,218	1,141,423	8,257,795	12.14	0.
APRIL	9,399,215	1,929,788	7,469,427	20.53	0.
MAY	9,399,214	2,139,377	7,259,837	22.76	0.
JUNE	9,399,216	7,021,609	2,377,607	74.70	0.
JULY	9,399,215	2,658,526	6,740,689	28.28	0.
AUGUST	9,399,218	1,974,786	7,424,432	21.01	0.
SEPTEMPER	9,399,216	1,396,608	8,002,608	14.86	0.
OCTOBER	9,399,215	6,585,191	2,814,024	70.06	0.
NOVEMBER	9,399,215	9,399,215	0	100.00	4.26663
DECEMBER	9,399,216	2,866,528	6,532,688	30.50	0.

Table D.123: Optimum pattern of labor utilization for agricultural production at high target in the Central Plains, 1991, (Solution C91H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	912,510	582,113	330,396	63.79	0.
FEBRUARY	912,510	403,032	509,478	44.17	0.
MARCH	912,509	400,151	512,358	43.85	0.
APRIL	912,510	912,510	0	100.00	5.63000
MAY	912,510	674,392	238,118	73.91	0.
JUNE	912,510	912,510	0	100.00	5.63000
JULY	912,510	692,312	220,198	75.87	0.
AUGUST	912,509	449,861	462,649	49.30	0.
SEPTEMBER	912,510	387,448	525,061	42.46	0.
OCTOBER	912,510	912,510	0	100.00	5.37391
NOVEMBER	912,510	912,510	0	100.00	9.89663
DECEMBER	912,510	912,510	0	100.00	5.63000

Table D.124: Optimum pattern of land use for agricultural production at high target in the East, 1991, (Solution C91H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,129,202	354,332	774,870	31.38	0.
FEBRUARY	1,129,203	344,759	784,444	30.53	0.
MARCH	1,129,204	389,758	739,446	34.52	0.
APRIL	1,129,200	649,301	479,899	57.50	0.
MAY	1,129,203	515,123	614,080	45.62	0.
JUNE	1,129,202	957,041	172,161	84.75	0.
JULY	1,129,200	465,179	664,021	41.20	0.
AUGUST	1,129,204	381,304	747,899	33.77	0.
SEPTEMBER	1,129,202	305,512	823,690	27.06	0.
OCTOBER	1,129,200	1,129,200	0	100.00	3.79068
NOVEMBER	1,129,200	1,129,200	0	100.00	9.89663
DECEMBER	1,129,202	749,862	379,339	66.41	0.

Table D.125: Optimum pattern of land use for agricultural production at high target in the West, 1991, (Solution C91H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	1,101,981	439,335	662,646	39.87	0.
FEBRUARY	1,101,984	464,719	637,265	42.17	0.
MARCH	1,101,981	478,202	623,780	43.39	0.
APRIL	1,101,980	438,984	662,996	39.84	0.
MAY	1,101,984	479,257	622,728	43.49	0.
JUNE	1,101,981	799,707	302,274	72.57	0.
JULY	1,101,980	455,106	646,874	41.30	0.
AUGUST	1,101,981	384,319	717,663	34.88	0.
SEPTEMBER	1,101,981	369,345	732,635	33.52	0.
OCTOBER	1,101,980	779,543	322,437	70.74	0.
NOVEMBER	1,101,980	737,325	364,655	66.91	0.
DECEMBER	1,101,981	631,033	470,948	57.26	0.

Table D.126: Optimum pattern of labor utilization for agricultural production at high target in the South, 1991, (Solution C91H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,769,649	387,050	2,382,599	13.97	0.
FEBRUARY	2,769,646	1,149,135	1,620,511	41.49	0.
MARCH	2,769,648	2,172,892	596,756	78.45	0.
APRIL	2,769,650	383,045	2,386,605	13.83	0.
MAY	2,769,646	391,171	2,378,474	14.12	0.
JUNE	2,769,649	541,952	2,227,697	19.57	0.
JULY	2,769,650	574,941	2,194,709	20.76	0.
AUGUST	2,769,648	552,608	2,217,041	19.95	0.
SEPTEMBER	2,769,649	646,336	2,123,313	23.34	0.
OCTOBER	2,769,650	1,398,215	1,371,435	50.48	0.
NOVEMBER	2,769,650	517,064	2,252,586	18.67	0.
DECEMBER	2,769,649	461,172	2,308,477	16.65	0.

Table D.127: Optimum pattern of labor utilization for agricultural production at low target in the Whole Kingdom, 1992, (Solution C92L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	20,835,129	3,935,943	16,899,187	18.89	
FEBRUARY	20,835,130	4,070,333	16,764,797	19.54	
MARCH	20,835,129	4,757,701	16,077,429	22.83	
APRIL	20,835,135	5,058,468	15,776,667	24.28	
MAY	20,835,151	5,679,866	15,155,284	27.26	
JUNE	20,835,129	12,686,320	8,148,809	60.89	
JULY	20,835,135	6,441,516	14,393,619	30.92	
AUGUST	20,835,129	5,681,963	15,153,166	27.27	
SEPTEMBER	20,835,110	3,734,082	17,101,028	17.92	
OCTOBER	20,835,135	9,851,151	10,983,984	47.28	
NOVEMBER	20,835,135	14,472,268	6,362,866	69.46	
DECEMBER	20,835,135	10,257,560	10,577,575	49.24	

Table D.128: Optimum pattern of labor utilization for agricultural production at low target in the North, 1992, (Solution C92L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	5,009,942	724,983	4,284,959	14.47	0.
FEBRUARY	5,009,943	796,861	4,213,082	15.91	0.
MARCH	5,009,944	650,704	4,359,240	12.99	0.
APRIL	5,009,945	784,182	4,225,763	15.65	0.
MAY	5,009,943	1,391,544	3,618,399	27.78	0.
JUNE	5,009,942	2,871,264	2,138,678	57.31	0.
JULY	5,009,945	1,596,402	3,413,543	31.86	0.
AUGUST	5,009,944	1,997,725	3,012,219	39.88	0.
SEPTEMBER	5,009,942	785,051	4,224,892	15.67	0.
OCTOBER	5,009,945	653,611	4,356,334	13.05	0.
NOVEMBER	5,009,945	3,236,451	1,773,494	64.60	0.
DECEMBER	5,009,942	5,009,942	0	100.00	0.60615

Table D.129: Optimum pattern of labor utilization for agricultural production at low target in the Northeast, 1992, (Solution C92L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	9,793,115	1,663,865	8,129,250	16.99	0.
FEBRUARY	9,793,115	1,260,670	8,532,444	12.87	0.
MARCH	9,793,116	1,325,525	8,467,590	13.54	0.
APRIL	9,793,115	2,095,859	7,697,256	21.40	0.
MAY	9,793,115	2,331,416	7,461,699	23.81	0.
JUNE	9,793,115	6,676,825	3,116,291	68.18	0.
JULY	9,793,115	2,694,309	7,098,806	27.51	0.
AUGUST	9,793,116	2,118,592	7,674,523	21.63	0.
SEPTEMBER	9,793,115	1,471,819	8,321,297	15.03	0.
OCTOBER	9,793,115	5,668,881	4,124,234	57.89	0.
NOVEMBER	9,793,115	7,965,849	1,827,266	81.34	0.
DECEMBER	9,793,115	2,568,069	7,225,047	26.22	0.

Table D.130: Optimum pattern of labor utilization for agricultural production at low target in the Central Plains, 1992, (Solution C92L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	917,611	563,577	354,033	61.42	0.
FEBRUARY	917,615	389,571	528,043	42.45	0.
MARCH	917,611	387,015	530,596	42.18	0.
APRIL	917,610	917,610	0	100.00	5.63000
MAY	917,635	661,829	255,807	72.12	0.
JUNE	917,611	917,611	0	100.00	5.63000
JULY	917,610	678,187	239,423	73.91	0.
AUGUST	917,611	415,215	502,396	45.25	0.
SEPTEMBER	917,611	345,781	571,829	37.68	0.
OCTOBER	917,610	917,610	0	100.00	2.58889
NOVEMBER	917,610	917,610	0	100.00	5.63000
DECEMBER	917,611	917,611	0	100.00	5.63000

Table D.131: Optimum pattern of labor utilization for agricultural production at low target in the East, 1992, (Solution C92L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,152,822	303,675	849,148	26.34	0.
FEBRUARY	1,152,823	313,220	839,603	27.17	0.
MARCH	1,152,824	350,829	801,995	30.43	0.
APRIL	1,152,825	553,287	599,538	47.99	0.
MAY	1,152,823	511,380	641,443	44.36	0.
JUNE	1,152,822	1,004,574	148,248	87.14	0.
JULY	1,152,825	514,756	638,069	44.65	0.
AUGUST	1,152,824	305,932	846,892	26.54	0.
SEPTEMBER	1,152,822	256,578	896,244	22.26	0.
OCTOBER	1,152,825	1,152,825	0	100.00	0.07304
NOVEMBER	1,152,825	1,152,825	0	100.00	0.65997
DECEMPER	1,152,822	775,872	376,951	67.30	0.

Table D.132: Optimum pattern of labor utilization for agricultural production at low target in the West, 1992, (Solution C92L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	1,122,462	287,771	834,690	25.64	0.
FEBRUARY	1,122,458	305,702	816,757	27.24	0.
MARCH	1,122,458	306,594	815,865	27.31	0.
APRIL	1,122,460	318,490	803,970	28.37	0.
MAY	1,122,458	384,723	737,735	34.28	0.
JUNE	1,122,462	667,065	455,396	59.43	0.
JULY	1,122,460	377,861	744,599	33.66	0.
AUGUST	1,122,458	286,917	835,542	25.56	0.
SEPTEMBER	1,122,462	244,736	877,726	21.80	0.
OCTOBER	1,122,460	291,136	831,324	25.94	0.
NOVEMBER	1,122,460	691,989	430,471	61.65	0.
DECEMBER	1,122.460	533,175	589,285	47.50	0.

Table D.133: Optimum pattern of labor utilization for agricultural production at low target in the South, 1992, (Solution C92L).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,839,178	392,071	2,447,107	13.81	0.
FEBRUARY	2,839,177	1,004,309	1,834,868	35.37	0.
MARCH	2,839,176	1,737,033	1,102,143	61.18	0.
APRIL	2,839,180	389,039	2,450,141	13.70	0.
MAY	2,839,177	398,974	2,440,203	14.05	0.
JUNE	2,839,178	548,982	2,290,196	19.34	0.
JULY	2,839,180	580,002	2,259,178	20.43	0.
AUGUST	2,839,176	557,582	2,281,594	19.64	0.
SEPTEMBER	2,839,159	630,117	2,209,042	22.19	0.
OCTOBER	2,839,180	1,167,088	1,672,092	41.11	0.
NOVEMBER	2,839,180	507,544	2,331,635	17.88	0.
DECEMBER	2,839,178	452,893	2,386,285	15.95	0.

Table D.134: Optimum pattern of labor utilization for agricultural production at medium target in the Whole Kingdom, 1992, (Solution C92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	20,835,129	4,088,705	16,746,424	19.62	
FEBRUARY	20,835,130	4,309,334	16,525,796	20.68	
MARCH	20,835,129	5,383,450	15,451,679	25.84	
APRIL	20,835,135	5,248,734	15,586,401	25.19	
MAY	20,835,151	5,668,968	15,166,182	27.21	
JUNE	20,835,129	13,054,473	7,780,657	62.66	
JULY	20,835,135	6,376,921	14,458,213	30.61	
AUGUST	20,835,129	5,707,166	15,127,963	27.39	
SEPTEMBER	20,835,110	4,094,499	16,740,611	19.65	
OCTOBER	20,835,135	11,457,531	9,377,604	54.99	
NOVEMBER	20,835,135	15,778,589	5,056,546	75.73	
DECEMBER	20,835,135	10,562,149	10,272,986	50.70	

Table D.135: Optimum pattern of labor utilization for agricultural production at medium target in the North, 1992, (Solution C92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	5,009,942	748,647	4,261,296	14.94	0.
FEBRUARY	5,009,943	839,332	4,170,611	16.75	0.
MARCH	5,009,944	666,865	4,343,080	13.31	0.
APRIL	5,009,945	779,977	4,229,968	15.57	0.
MAY	5,009,943	1,393,360	3,616,582	27.81	0.
JUNE	5,009,942	2,719,965	2,289,977	54.29	0.
JULY	5,009,945	1,538,938	3,471,007	30.72	0.
AUGUST	5,009,944	2,003,590	3,006,355	39.99	0.
SEPTEMBER	5,009,942	944,113	4,065,830	18.84	0.
OCTOBER	5,009,945	848,597	4,161,348	16.94	0.
NOVEMBER	5,009,945	3,114,662	1,895,283	62.17	0.
DECEMBER	5,009,942	5,009,942	0	100.00	2.55269

Table D.136: Optimum pattern of labor utilization for agricultural production at medium target in the Northeast, 1992, (Solution C92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	9,793,115	1,826,133	7,966,982	18.65	0.
FEBRUARY	9,793,115	1,356,513	8,436,601	13.85	0.
MARCH	9,793,116	1,430,226	8,362,889	14.60	0.
APRIL	9,793,115	2,327,235	7,465,880	23.76	0.
MAY	9,793,115	2,450,889	7,342,226	25.03	0.
JUNE	9,793,115	7,362,593	2,430,522	75.18	0.
JULY	9,793,115	2,840,235	6,952,880	29.00	0.
AUGUST	9,793,116	2,179,231	7,613,885	22.25	0.
SEPTEMBER	9,793,115	1,705,050	8,088,065	17.41	0.
OCTOBER	9,793,115	6,706,904	3,086,211	68.49	0.
NOVEMBER	9,793,115	9,548,848	244,267	97.51	0.
DECEMBER	9,793,115	3,008,694	6,784,421	30.72	0.

Table D.137: Optimum pattern of labor utilization for agricultural production at medium target in the Central Plains, 1992, (Solution C92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	917,611	586,911	330,699	63.96	0.
FEBRUARY	917,615	395,022	522,593	43.05	0.
MARCH	917,611	394,053	523,558	42.94	0.
APRIL	917,610	917,610	0	100.00	5.63000
MAY	917,635	686,574	231,062	74.82	0.
JUNE	917,611	917,611	0	100.00	5.63000
JULY	917,610	688,195	229,415	75.00	0.
AUGUST	917,611	400,931	516,681	43.69	0.
SEPTEMBER	917,611	327,746	589,864	35.72	0.
OCTOBER	917,610	917,610	0	100.00	3.04212
NOVEMBER	917,610	917,610	0	100.00	5.63000
DECEMBER	917,611	917,611	0	100.00	5.63000

Table D.138: Optimum pattern of labor utilization for agricultural production at medium target in the East, 1992, (Solution C92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,152,822	321,266	831,556	27.87	0.
FEBRUARY	1,152,823	309,953	842,870	26.89	0.
MARCH	1,152,824	358,677	794,147	31.11	0.
APRIL	1,152,825	657,362	495,463	57.02	0.
MAY	1,152,823	522,897	629,926	45.36	0.
JUNE	1,152,822	936,685	216,137	81.25	0.
JULY	1,152,825	502,773	650,052	43.61	0.
AUGUST	1,152,824	394,631	758,193	34.23	0.
SEPTEMBER	1,152,822	313,925	838,897	27.23	0.
OCTOBER	1,152,825	1,152,825	0	100.00	0.99146
NOVEMBER	1,152,825	1,152,825	0	100.00	3.02006
DECEMBER	1,152,822	715,761	437,061	62.09	0.

Table D.139: Optimum pattern of labor utilization for agricultural production at medium target in the West, 1992, (Solution C92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	1,122,462	339,283	783,178	30.23	0.
FEBRUARY	1,122,458	361,507	760,952	32.21	0.
MARCH	1,122,458	371,580	750,878	33.10	0.
APRIL	1,122,460	311,377	811,083	27.74	0.
MAY	1,122,458	355,719	766,739	31.69	0.
JUNE	1,122,462	697,355	425,106	62.13	0.
JULY	1,122,460	360,647	761,813	32.13	0.
AUGUST	1,122,458	295,153	827,306	26.30	0.
SEPTEMBER	1,122,462	280,467	841,995	24.99	0.
OCTOBER	1,122,460	555,238	567,222	49.47	0.
NOVEMBER	1,122,460	656,223	466,237	58.46	0.
DECEMBER	1,122,460	570,862	541,598	50.86	0.

Table D.140: Optimum pattern of labor utilization for agricultural production at medium target in the South, 1992, (Solution C92M).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,839,178	266,465	2,572,713	9.39	0.
FEBRUARY	2,839,177	1,047,008	1,792,169	36.88	0.
MARCH	2,839,176	2,162,048	677,127	76.15	0.
APRIL	2,839,180	255,172	2,584,008	8.99	0.
MAY	2,839,177	259,529	2,579,648	9.14	0.
JUNE	2,839,178	420,264	2,418,914	14.80	0.
JULY	2,839,180	446,134	2,393,046	15.71	0.
AUGUST	2,839,176	433,631	2,405,545	15.27	0.
SEPTEMBER	2,839,159	523,198	2,315,961	18.43	0.
OCTOBER	2,839,186	1,276,356	1,562,824	44.96	0.
NOVEMBER	2,839,180	388,420	2,450,760	13.68	0.
DECEMBER	2,839,178	339,279	2,499,899	11.95	0.

Table D.141: Optimum pattern of labor utilization for agricultural production at high target in the Whole Kingdom, 1992, (Solution C92H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WHOLE KINGDOM					
JANUARY	20,835,129	4,127,626	16,707,504	19.81	
FEBRUARY	20,835,130	4,364,563	16,470,566	20.95	
MARCH	20,835,129	5,370,161	15,464,968	25.77	
APRIL	20,835,135	5,109,641	15,725,494	24.52	
MAY	20,835,151	5,617,555	15,217,596	26.96	
JUNE	20,835,129	13,224,004	7,611,126	63.47	
JULY	20,835,135	6,511,710	14,323,424	31.25	
AUGUST	20,835,129	5,822,522	15,012,607	27.95	
SEPTEMBER	20,835,110	4,283,967	16,551,143	20.56	
OCTOBER	20,835,135	12,314,698	8,520,437	59.11	
NOVEMBER	20,835,135	16,214,998	4,620,137	77.83	
DECEMBER	20,835,135	10,688,315	10,146,820	51.30	

Table D.142: Optimum pattern of labor utilization for agricultural production at high target in the North, 1992, (Solution C92H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTHERN					
JANUARY	5,009,942	757,702	4,252,240	15.12	0.
FEBRUARY	5,009,943	744,069	4,265,873	14.85	0.
MARCH	5,009,944	611,901	4,398,043	12.21	0.
APRIL	5,009,945	730,595	4,279,350	14.58	0.
MAY	5,009,943	1,329,313	3,680,630	26.53	0.
JUNE	5,009,942	2,697,630	2,312,312	53.85	0.
JULY	5,009,945	1,555,550	3,454,395	31.05	0.
AUGUST	5,009,944	1,988,575	3,021,369	39.69	0.
SEPTEMBER	5,009,942	1,087,408	3,922,535	21.70	0.
OCTOBER	5,009,945	1,067,209	3,942,736	21.30	0.
NOVEMBER	5,009,945	3,066,000	1,943,945	61.20	0.
DECEMBER	5,009,942	5,009,942	0	100.00	7.32782

Table D.143: Optimum pattern of labor utilization for agricultural production at high target in the Northeast, 1992, (Solution C92H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
NORTH-EASTERN					
JANUARY	9,793,115	1,557,837	8,235,279	15.91	0.
FEBRUARY	9,793,115	1,181,761	8,611,353	12.07	0.
MARCH	9,793,116	1,154,950	8,638,165	11.79	0.
APRIL	9,793,115	1,950,670	7,842,445	19.92	0.
MAY	9,793,115	2,171,191	7,621,924	22.17	0.
JUNE	9,793,115	7,262,480	2,530,636	74.16	0.
JULY	9,793,115	2,723,194	7,069,921	27.81	0.
AUGUST	9,793,116	2,031,713	7,761,403	20.75	0.
SEPTEMBER	9,793,115	1,450,866	8,342,249	14.82	0.
OCTOBER	9,793,115	6,896,045	2,897,070	70.42	0.
NOVEMBER	9,793,115	9,793,115	0	100.00	3.39919
DECEMBER	9,793,115	2,878,060	6,915,055	29.39	0.

Table D.144: Optimum pattern of labor utilization for agricultural production at high target in the Central Plains, 1992, (Solution C92H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
CENTRAL PLAIN					
JANUARY	917,611	591,337	326,274	64.44	0.
FEBRUARY	917,615	409,730	507,884	44.65	0.
MARCH	917,611	406,687	510,924	44.32	0.
APRIL	917,610	917,610	0	100.00	5.63000
MAY	917,635	676,845	240,790	73.76	0.
JUNE	917,611	917,611	0	100.00	5.63000
JULY	917,610	693,842	223,768	75.61	0.
AUGUST	917,611	436,080	481,531	47.52	0.
SEPTEMBER	917,611	372,755	544,855	40.62	0.
OCTOBER	917,610	917,610	0	100.00	4.84958
NOVEMBER	917,610	917,610	0	100.00	9.02919
DECEMBER	917,611	917,611	0	100.00	5.63000

Table D.145: Optimum pattern of labor utilization for agricultural production at high target in the East, 1992, (Solution C92H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
EASTERN					
JANUARY	1,152,822	341,139	811,683	29.59	0.
FEBRUARY	1,152,823	331,482	821,341	28.75	0.
MARCH	1,152,824	380,521	772,304	33.01	0.
APRIL	1,152,825	645,529	507,296	56.00	0.
MAY	1,152,823	519,268	633,555	45.04	0.
JUNE	1,152,822	957,460	195,362	83.05	0.
JULY	1,152,825	480,472	672,353	41.68	0.
AUGUST	1,152,824	396,345	756,479	34.38	0.
SEPTEMBER	1,152,822	315,705	837,117	27.39	0.
OCTOBER	1,152,825	1,152,825	0	100.00	2.84786
NOVEMBER	1,152,825	1,152,825	0	100.00	6.45556
DECEMBER	1,152,822	731,987	420,836	63.50	0.

Table D.146: Optimum pattern of labor utilization for agricultural production at high target in the West, 1992, (Solution C92H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
WESTERN					
JANUARY	1,122,462	465,046	657,415	41.43	0.
FEBRUARY	1,122,458	491,551	630,908	43.79	0.
MARCH	1,122,458	511,026	611,432	45.53	0.
APRIL	1,122,460	453,583	668,877	40.41	0.
MAY	1,122,458	500,015	622,443	44.55	0.
JUNE	1,122,462	819,402	303,059	73.00	0.
JULY	1,122,460	455,072	667,388	40.54	0.
AUGUST	1,122,458	390,693	731,766	34.81	0.
SEPTEMBER	1,122,462	382,599	739,863	34.09	0.
OCTOBER	1,122,460	848,023	274,437	75.55	0.
NOVEMBER	1,122,460	739,372	383,088	65.87	0.
DECEMBER	1,122,460	661,673	460,787	58.95	0.

Table D.147: Optimum pattern of labor utilization for agricultural production at high target in the South, 1992, (Solution C92H).

(unit : man)

MONTH	AVAILIABLE	USED	IDLE	% USED	SHADOW PRICE
SOUTHERN					
JANUARY	2,839,178	414,565	2,424,613	14.60	0.
FEBRUARY	2,839,177	1,205,970	1,633,207	42.48	0.
MARCH	2,839,176	2,305,075	534,101	81.19	0.
APRIL	2,839,180	411,654	2,427,526	14.50	0.
MAY	2,839,177	420,923	2,418,254	14.83	0.
JUNE	2,839,178	569,421	2,269,757	20.06	0.
JULY	2,839,180	603,580	2,235,600	21.26	0.
AUGUST	2,839,176	579,116	2,260,060	20.40	0.
SEPTEMBER	2,839,159	674,635	2,164,523	23.76	0.
OCTOBER	2,839,180	1,432,986	1,406,194	50.47	0.
NOVEMBER	2,839,180	546,076	2,293,104	19.23	0.
DECEMBER	2,839,178	489,042	2,350,136	17.22	0.