SERIE RESEARCH MEMORANDA

COLLECTIVE RICE-FARMS IN THE
DOMINICAN REPUBLIC

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INTRODUCTION

In 1972 the government of the Dominican Republic introduced collective farming starting with big rice farms that were taken over at the time, later using the collective model for all the land it was giving out. The main reason for introducing the collective form was, that the government wanted to answer the criticism on its program of expropriation of bigger rice farms, in the sense that economies of scale were to be lost by the subdivision of these enterprises. Up till that year all land distributed by the land reform program was divided in small size family units. The criticism of the influential rice growers was meant to stop the expropriation program, which exactly intended to reduce the power of this group. So the government introduced collective farming with the objective of showing that economies of scale in rice production could be preserved as well in the context of the agrarian reform program.

In the years 1973-1976 the Instituto Agrario Dominicano, IAD, the Dominican Agrarian Reform Institute established nearly 100 collective rice farms. As this study suggests economies of scale are present in the Dominican rice sector which is characterized by irrigation, mechanization and double cropping. So the economic base for collectivization of rice production by land reform farmers seems rather sound, as scale economies are the best economic incentive for cooperative production.

IAD paid little attention to the social aspects of group-farming, to the non-economic incentives of cooperative production, to the problems of active participation of the members in the management and decision-making, and of organizing collective work. The farmers themselves, however, have over the more than ten years period since the beginning of collective farming put much energy in adjusting to and solving these problems. Some of the experiments of the Dominican rice growing land reform farmers have yielded interesting results. Preserving collective activities in a number of fields (irrigation, mechanized land preparation, harvesting, etc.) they have individualized other (mainly manual) activities thus solving some of the management and incentive problems.

There are different forms and grades of individualization. The most popular among the Dominican rice farmers seems the one they call 'associativo'. In this model the management of production on a specific parcel is given over to an individual member, who supervises the centralized activities and executes the decentralized activities on that parcel. The profitability of production on the member's parcel determines his income.

Recently Kanel, Reed and Carter suggested that these forms of what they call 'Intermediate Collective Farming' are more widespread than
was supposed until now. Also they suggested that intermediate collective farming 'may represent a more long-term arrangement capable of yielding greater benefits and satisfaction to farm households than either pure collective or individual farming systems' (p. viii), and 'could be a relatively stable institutional option under some circumstances' (p. 36). They cite developments in China, Peru, Hungary and the Dominican Republic as examples of such models of agricultural organization.

The following case-study of collective ricefarms in the Dominican Republic is based on fieldwork in the first semester of 1981, in which a small number of farms were studied in depth and compared with individual landreform rice growers.

In the first Chapter the reasons for the government to introduce collective rice-farming are further explained and the development of the collective sector is outlined.

In Chapter two a first a general overview is given of the collective ricefarms that were studied, their history, the administrative structure and the position of the participating farmers. Also the changes are indicated which were introduced in the so-called 'asociativo' model, the intermediate form.

In Chapter three organizational aspects and problems of the collective ricefarms are discussed. This is done using a scheme developed by Reed, in which he distinguishes macro-external and micro-internal issues of the production cooperatives. As the collective farms in the Dominican Republic are introduced by the state, and the state also influences the macro context, the external aspects refer mainly to the relation with the state. The emphasis in that part is on the role of the state and state-institutions in establishing and developing the production co-ops. In discussing the micro-internal aspects, the approach shifts more to the participating farmers, the accent then is more on the relation between the members and the collective enterprise, the group.

The intention of the case-study is mainly to describe and explain the experiments in which the farmers have transformed the collective model into the intermediate one, the 'asociativo'. In order to understand this aspect, in discussing the external and internal problems, attention will be paid especially to the quest of economies of scale (par. III.1), to the problem of working in groups (par. III.7) and the use of the farmer's own labor and family labor (par. III.8). These issues play a central role in the change-over from collective farming to intermediate cooperative agricultural production. In Chapter four a comparison is made between two ways in reaching the intermediate model, one from the collective model imposed by the government. The other from the bottom up, on a voluntary base by the individual producers themselves. In Chapter five the main conclusions are presented.
I. THE ORIGIN OF COLLECTIVE LAND REFORM ENTERPRISES IN THE DOMINICAN REPUBLIC

1. The introduction of collective farming in the land reform

Collective farming is introduced in 1972 by the state in connection with the reactivation of the Dominican land reform. This happens on the moment that specific measures are taken directed at the rice-sector. After worldwar II rice has become the main food of the dominican population (1) and the state, which with regard to rice aims at national selfsufficiency and low consumers prices, attempts to get more control over this crop through the land reform.

In March 1972, as part of a series of land reform measures, a law is enacted which orders the transfer to the land reform institute - al Instituto Agrario Dominicano, IAD - of all riceland in farms larger than 3-4 ha which are irrigated by systems constructed by the government. Half a year later it is determined that production of rice on land thus acquired by the land reform institute will be organized on a collective base. Once this law is revised in 1974 it is stipulated, that the collective model can be applied also in other land reform projects, that is to say in projects where land is captured under other provision and/or where other crops are cultivated. After 1978 agrarian reform land is given out exclusively in the collective form.

2. Reasons for the introduction of collective farming

The collective farms came into effect in connection with the acceleration of the process of land reform which started in 1962. President Balagaer was re-elected in 1970, but the election results indicated that his popularity had diminished especially in the rural sector (2). In the period from 1966 economic policy was aimed at a process of import substitution industrialization, of which the rural sector had derived little advantage. The Land Reform Laws of 1972 (3) therefore intended to give more attention to the rural sector in economic policy.

The interest for agriculture, however, also had an economic background. In connection with the industrialization policy as from 1966 wages and salaries are strictly controlled (4), a measure which requires a concomitant cheap food policy. As rice has become the main food, certainly of the urban population, the state tries to get a firm grip on production and trade of this product. The policy is directed at increasing production and national selfsufficiency (5). But as rice is a first necessary it aims as well for a considerable degree of control over production and trade.

Rice trade proceeds through the state, the mainly private rice mills
are bound to sell milled rice to the national institute for price stabilization, INESPRE. This institute also has a monopoly of foreign trade of rice. Rice is then distributed by the private sector at consumer prices fixed by the state. The land reform measures of 1972 specifically directed at the rice sector intended to bring under control the relatively influential branch of commercial rice farmers, who opposed the trade monopoly of INESPRE (6). The development of the rice sector requires substantial state resources for irrigation and drainage, for agricultural research and extension. By expropriating part of the rice area and employing a proportion of these public funds for a state controlled sub-sector, the state could considerably increase its influence on the rice sector. Through the land reform program the state since then controls more than half of the rice area, a control which can be made effective specifically in the collective farms through the administrative structures of these enterprises.

The big rice growers oppose this policy specifically aimed at the rice sector. One of their agreements against expropriation is, that redistribution of efficient rice farms will lead to decreasing production, instead or to the intended increase in production and national self-sufficiency. The production decrease would be the consequence of the splitting up of large-scale rice farms, as had been the case in the 1962-1972 period, when large rice farms from the possession of the Trujillo regime were subdivided and distributed by IAD in units of 4 ha each. This discussion makes, that the Balagaer administration, half a year after the legislation on expropriation of the rice land, takes the measure which stipulates that the distribution of this land must take place in the framework of the establishment of collective farms. The thesis of the big rice growers, that large-scale production of rice in the country had economies of scale is taken over, and this leads to an important change in the land distribution policy of IAD. The introduction of collective farming in the land reform program was intended to increase the control over the rice sector, but also to preserve the existing advantages of large scale production.

More effective control over rice production resulted in the land reform sector from the fact that new rice land now was distributed to larger farms instead of to many small ones. But the grip on the collective farms was also reinforced by making dominant the government's influence in the administrative structure of the collective farms. The prescribed form gave the representatives of the state a majority in the management of the collective enterprises, in such a manner that the influence became much stronger than on the individual land reform farms. This influence should serve to have these farms participate in the possibilities for development offered by modern techniques and technologies in rice growing. As a consequence the state also was pre-
pared to put more resources in credit and extension, at the disposal of the collective sector.

Through the credit the state also got hold of the sales of the rice production, according with the policy aimed at controlling rice trade. Other reasons, often mentioned as motive for the introduction of collective farming, such as preventing another unequal development among land reform farmers, or the possibilities for creating a social security system for members, have officially not been indicated in the Dominican land reform.

Theoretically the question of the existence of economies of scale also is an important issue in collectivization. From the economic point of view, preserving existing economies of scale or creating new ones is the strongest argument for collective production. On the other side collective production which is brought about on economic grounds will only be feasible if these advantages exceed the disadvantages which present themselves especially in the administrative and social area.

Economies of scale in general result from productivity increases because technical changes become feasible, for example mechanization; from a diminishing cost per unit of output, for example as investments and overhead costs are divided over an increasing production; and from a stronger position to negotiate with external relations.

The question is if preserving the scale of the expropriated rice farms (or parts of them) indeed has yielded economies of scale in comparison with the alternative in which individual rice farms were created of 3 to 4 has each. Further, if the collective rice farms have been capable to indeed realize the eventual economies of scale and to prevent loss of efficiency as a consequence of land reform measures in the sense of transfer to and production by small farmers.

As will be shown in par. III.1 it is plausible that there are economies of scale in large scale rice growing in the Dominican Republic. In this study this will be investigated comparing individual and collective land reform farms. The comparison with private enterprises must be omitted here.

Differences in scale between collective and individual land reform farms hardly express themselves in differences in the technique or technology used. In both cases there is irrigated cultivation and mechanization of land preparation and harvest. Also modern rice varieties are used in both types of farms. Technique and technology are more defined by the objective of cultivating more than one crop a year than by the scale of the enterprises. The estimate is that in 1980 on the average 1.7 to 1.8 rice crops were harvested. On the larger farms eventually somewhat heavier machines are used and small airplanes for spraying of chemicals. But in general, irrigation and mechanization,
which are required to get more than one harvest a year, are sufficiently dividable as to result profitable as well on smaller farms. But irrigation and machinery are used more effectively on larger farms. There are therefore economies of scale while the two types of farms use practically the same technique and technology. In the case of machinery this refers to a more efficient employment made possible by the fact that the machinery are held under own management and are available at any moment required. Irrigation in an irrigation-system asks for a high degree of coordination, which is more difficult to realize when a large number of farmers is involved.

Management itself also has economies of scale, especially in external relations concerning financing, extension, buying and selling, irrigation and machinery contracting. Scale not only can yield a substantial saving of time, but also the position for negotiations with external relations can be stronger.

Of course collective farming also has disadvantages (see par. 1.3), but in general it can be said, that in the case of the dominican rice farms the condition that collective farming should present certain economies of scale, seems to be fulfilled.

3. The development of the collective land reform sector

In the period 1962-1981 land was distributed by IAD to 46,200 farmers, a number which represent 12 percent of the total number of producers registered in the Agricultural Census of 1981. In that year these land reform farmers disposed of 227,300 hectares on 8.5 percent of the total agricultural land. Table 1 gives for the period concerned the course and the extent of the establishment of individual and collective farms in the land reform. In 1981 30 percent of the land reform farmers worked under the collective model, involving nearly a quarter

| Table 1. Dom.Rep.Land reform 1962-1981 individual and collective farms: number and area (average per farmer) |
|---------------------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| period                             | indiv. | collect. | total   | individual | collective | total   |
| period                             | number | number   | number   | number     | number     | number   |
| 1962-1972                         | 20.986 |          | 20.986  | 115.103 (5-5) |          | 115.103  |
| 1973-1978                         | 11.298 | 6.729    | 18.027  | 56.866 (5-0) | 24.096 (3-6) | 80.962  |
| 1979-1981                         |          | 7.192    | 7.192   |           | 31.256 (4-4) | 31.256  |
| 32.284                            | 13.921  |          | 46.205  | 171.969 (5-3) | 55.352 (4-0) | 227.321 |

Source: IAD Boletin Informativo Annual, various years
of all the land in land reform farms. The collective rice sector in 1981 included 121 specialized enterprises with 2,803 farmers on in total 8,914 hectares, that is on the average 3.2 ha per farmer (7). The net returns of the collective rice farms are generally considered to be somewhat more favorable than those of comparable individual rice farms in the land reform sector. This outcome is based on three factors. As indicated, the collective farms receive proportionately more government support as far as credit and extension is concerned. Further, in these enterprises economies of scale are considered to play a role, which favorably influences the net return. Finally, on the collective farms relatively more own labor is used and less labor hired in (see par. III.5), which increases the net return of the farms and the income of the members.

Yet, in spite of these relatively favorable economic returns the Dominican land reform farmers have not given up their objections to the collective form. These objections are especially concerned with the lacking of an adequate relation in the collective model between the individual work effort and remuneration, the very restricted possibilities for employing family labor in the enterprise and the limited space for crops for direct consumption by the own household. Especially the missing of an adequate relation between effort and reward is a difficult aspect of collective production, that often leads to the development of the so-called 'free riding' problem (Olson). Members of the collective feel, that the effect of a reduction of their own effort will not, or hardly noticeably, influence the collective result.

The farmers concerned have permanently pressed from below for substantial changes in the collective model. In this opposition against aspects which the farmers consider a disadvantage for them, they have scored successfully in 1985. The government in that year has agreed formally with the substitution of the collective model by one which the farmers call an 'associative model' (Law 269 of 28 March 1985), which meets the most important objections of the farmers, but at the same time preserves a number of useful collective elements. This is an intermediate form between collective and individual production. An interesting point is, that, as now becomes clear, this intermediate form appears to occur more generally than was known up till now. Kanel, Reed and Carter speak of 'Intermediate Collective Farming' and they describe further developments of this model not only for the Dominican Republic, but also for China, Peru and a number of other countries (8). In the Dominican Republic this intermediate model was, even before the official approval, already introduced informally in a number of collective land reform farms.
II. GENERAL INFORMATION ABOUT THE COLLECTIVE FARMS IN THE STUDY

1. The fieldwork on the collective enterprises

In the first semester of 1981 a number of collective farms have been investigated. This study included in particular the organization of the collective enterprises and a comparison of the employment of labor on collective and individual land reform farms. The study covered five collective rice-farms, all of which were established in the period 1973-1976. Table 2 gives some general information concerning these farms, which are considered to be quite comparable, although, as always in the case of agricultural enterprises, there are small differences in soil quality, micro climate and position (10).

In Chapter III the collective farms in the study are compared on specific points with individual land reform farms cultivating rice. In this case this refers to farmers in land reform projects which were established before 1972, are situated in the direct neighbourhood of the collective farms and are comparable with those farms. In the lower part of Table 2 there is some information on these individual farmers.

Table 2. Dom.Rep. General information on the ricefarms in the study (1985)

<table>
<thead>
<tr>
<th>collective farms</th>
<th>Position</th>
<th>Started</th>
<th>Members</th>
<th>Area (ha)</th>
<th>Area per farmer</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAMIA.A</td>
<td>Esperanza</td>
<td>1973</td>
<td>35</td>
<td>105</td>
<td>3 - 00</td>
</tr>
<tr>
<td>RAMIA.B</td>
<td>Esperanza</td>
<td>1973</td>
<td>35</td>
<td>105</td>
<td>3 - 00</td>
</tr>
<tr>
<td>JICOME</td>
<td>Esperanza</td>
<td>1976</td>
<td>20</td>
<td>55</td>
<td>2 - 75</td>
</tr>
<tr>
<td>EL POZO</td>
<td>Esperanza</td>
<td>1973</td>
<td>13</td>
<td>40</td>
<td>3 - 08</td>
</tr>
<tr>
<td>VASQUEZ QUINTERO</td>
<td>Rincon</td>
<td>1973</td>
<td>63</td>
<td>200</td>
<td>3 - 17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>individual farms</th>
<th>Position</th>
<th>Started</th>
<th>Total Members</th>
<th>Area (ha)</th>
<th>Area per farmer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project RINCON</td>
<td>Rincon</td>
<td>1963</td>
<td>20 (83)</td>
<td>335</td>
<td>4 - 00</td>
</tr>
<tr>
<td>Project BERMUDEZ</td>
<td>Maizal</td>
<td>1971</td>
<td>7 (149)</td>
<td>402</td>
<td>2 - 70</td>
</tr>
<tr>
<td>MAURAN</td>
<td>Maizal</td>
<td>1971</td>
<td>7 (149)</td>
<td>402</td>
<td>2 - 70</td>
</tr>
<tr>
<td>EL PROGRESO</td>
<td>Maizal</td>
<td>1971</td>
<td>6</td>
<td>335</td>
<td>4 - 00</td>
</tr>
</tbody>
</table>

( ) Total of individual farmers in land reform project

Source: fieldwork
2. A short history of the collective farms in the study

The two collective rice farms Ramia A and B started in 1973 as one collective enterprise with 70 members on 210 hectares of land, which the government had bought from the big landowner Ramia. IAD organized in connection with the selection of the farmers a registration of candidates, in which could participate landless agricultural workers, who were head of families and with experience in rice growing. From about 200 applicants 64 members were selected, the other 6 entered through patronage. On the ground that they experienced a lot of labor problems in the collective model, the farmers repeatedly turned to IAD with the request to be allowed to divide the enterprise. In 1976 the farmers managed to get approval from the President of the Republic for a subdivision in two collective farms, each with 35 members and 105 ha.

Ramia B experimented in 1979 and 1981 with a further subdivision of the farm based on three identifiable parcels, which were worked separately by three groups of respectively 4, 11 and 20 members. The net income of the farm was in these trials still equally distributed among all the members. In Ramia A the farmers have tried to individualize the work. On this farm labor discipline always has been weak.

Jicome was transformed by the state into a collective farm in 1976, it has 20 members and 55 hectares of riceland. In 1981 the farmers have, because of problems about the presence of the members on the work, individualized certain tasks.

El Pozo dates from 1973, has 13 members and nearly 40 hectares of land. The farmers on this enterprise never have had big problems with the collective farm. The former owner is a big landowner and rice-miller, who has been designated by the President of the Republic as his representative in the board of the 4 collective farms in Esperanza.

Vasquez Quintero is the largest of 5 collective farms in the study. In 1973 the state bought, under pressure from the farmers who had occupied the farm, 200 hectares from the heirs of José Vasquez Quintero. From about 300 candidates, originating from three surrounding villages IAD has selected 63 members. In 1978 the farmers themselves have subdivided the farm in three more or less equal parcels. The responsibility for the production on each parcel was, according to this arrangement, with three groups of 21 members each, groups that were composed on the basis of the three villages where the farmers came from.

At the same time, however, within these groups a further subdivision was made. Every member was given the responsibility for performing all the manual work in a clearly defined parcel of the common land and for
the activities related with the adjoining irrigation channels and roads. The net returns were for the time being distributed equally among the members, but the intention was clearly to go as far as individualizing production costs and returns. In 1983 the enterprise set up a shadow bookkeeping, in which costs and returns of individual farmers and parcels were registrated. This distribution of income reflects, in the opinion of the farmers, the effort of each individual member, an arrangement which they had defended many years. The problem of the labor discipline was considered as one of the most important difficulties of the collective model.

The farmers of Vasquez Quintero were not the only ones who tried out and introduced adjustments in the collective model. Through a coordinating organization of 23 collective farms (627 members) in the region of Rincon-La Vega, the 'Asociación Padre Cabero', the farmers put pressure on IAD for many years. Originally with the objective to get permission for the introduction of changes, later to obtain formal assent for the adjustment they de facto already introduced. In 1985 the state formally approved the introduction of the so-called 'associative model'.

3. The administrative structure of the collective and associative farms

The administrative organization of the collective farms presents on one side the usual structure of a cooperative: the General Assembly (CA) of the members as the superior organism, the Executive Committee (EC) in charge of the daily functioning of the organization. The EC is assisted in this task and specifically on a number of areas by committees formed from the members. At the other side in the case of the dominican model of the collective land reform farms the influence of the state is so dominant, that the self-government of the organization is seriously restricted.

The collective form, stipulated by Law 391 of September 1972, has been elaborated in a 'Manual for the collective enterprises' of April 1974. In substance the power, the influence of IAD is based on the situation, that the land reform institute selects and designates the members of the land reform farms, but retains the property of the land. The ownership is neither transfered to the individual farmer, nor to the collective enterprises. It is true that the Land Reform Law of 1962 makes the provision for the formal transfer of the assigned land to the farmers, a possibility which is held open explicitly in the 1972 law, but in practice IAD has never transfered property rights to the farmers. They have a right to use the land, as long as they fulfill the conditions established by IAD. The land reform institute thus disposes of an instrument which enables it to
substitute farmers who in the opinion of IAD are not satisfying the rules.

Formally the influence of the state on the collective farms is based on the instruction, that two of the three EC members must be designated by the state, whereas one of them, the representative of IAD, is the President of the EC. The second representative of the state is a delegate of the President of the Republic. The third member, the representative of the farmers, elected by the GA, finds himself in a minority position.

The representative of IAD in the EC has a right of veto over agreements of the EC which are contrary to the land reform law, the regulations of IAD, or that fall beyond the objectives of the collective farm. Although in itself the majority of the representatives of the state in the EC is sufficient to prevent decisions which are considered undesirable. In practice this can be done for example by holding up requests for finance for other agricultural activities than those planned by IAD. Without credit the advance loan which the farmers receive during the product cycle for their subsistence and which is paid out every fortnight, is also cancelled.

Although the GA formally is the superior organism of the collectives, it is stipulated that a valid decision of the assembly should have the approval of the IAD representative.

The General Assembly (GA)

The GA is formed by the members of the collective farm. The assembly must meet every 2 months, or at the request of the EC, IAD or the members. A decision obtains validity if minimally half plus one of the members present agree with it and it also has the approval of the IAD representative. From among themselves the GA members elect a representative who on behalf of the farmers has a seat in the EC and represents the assembly to outsiders. Among and by the GA the members of the different committees are elected.

The next important tasks of the GA include: to pronounce itself on the policy of the collective enterprise, among other things by approving the production program and deciding over the distribution of the net return of the farm. The GA lays down the constitution and the regulations of the collective.

The Executive Committee (EC)

The EC is in charge of the administration of the collective enterprise according to the law, the objectives of the collective farm, and the decisions of the GA. In particular the EC is charged with:

- drawing up internal regulations concerning the labor regime, a
draft of which should be presented to the GA.
- proposing the GA eventual disciplinary measures against members who don't fulfill the regulations of the collective farm and decisions taken by the assembly.
- attending the external contacts of the enterprise, with public and private institutions (such as applications for credit).
- entering in contracts for the buying of prime materials, inputs, including machinery.
- entering in contracts for the selling of the produce of the farm.
- managing, administrating and controlling of the finance of the enterprise.
- in cooperation with the regional office of IAD provide for the bookkeeping of the enterprise, including the financial relations of the individual members with the collective (advance loans, income share).
- drawing up the profit and loss account and present it to the GA.

The Committees

The committees belong with the EC to the executing bodies of the collective enterprise. The committees assist the EC by the carrying out of the activities. The 'Manual' of 1974 indicates that the different committees each are formed by three members, in practice there are often more, eventually the membership of the committees is raised so that all members belong to one or another committee. On the collective farms there should be at least six committees: respectively for production, credit, discipline, buying, selling and social affairs. Sometimes one finds a committee for training and schooling.

The formal organization of the collective model is indicated in Fig.1.
Figure 1. Dominican Republic Organigram of the Collective Land Reform Farms

- President of the Republic
- Land Reform Institute - IAD
  - General Assembly (GA)
  - Administrator IAD Project
  - Committees
    - Representative Farmers - Representative IAD - Delegate of the President in the Board
      - production
      - credit
      - discipl
      - inputs
      - market
      - soc.affairs
The 'associative' (or intermediate) model in principle has an administrative structure corresponding with the collective enterprise. Many aspects which in the collective model are managed centrally stay that way: the property and use of the agricultural machinery, the buying of the means of production, the liability for the credit, the supervision on the activities of the members even if these have been mainly individualized and the sale of the produce of the farm. In the administration the emphasis shifts from maintaining the workdiscipline in collective production, to preventing that individual members disarrange the centralised activities (such as planned machine-work, irrigation, spraying of pesticides), or to prevent that individual members give evidence to be unable to pay-off their share in the collective credit. The existing administrative structure need not to be adjusted for this model. But simultaneously with the approval of the 'associative' model by IAD a number of changes was introduced in that structure. Thus the delegate of the President of the Republic has disappeared from the EC. The farmers now have two representatives, that is a majority in the E.C. But the influence of IAD is maintained, with the words of the Manual: the members share the administration and the management (of the enterprise) with the state. Thus the IAD representative in the EC has kept the right of veto (12).

In practice the selected representative of the farmers is the one who daily manages the farm. Where the members are subdivided in permanent groups, the leaders of these groups (brigades), the so-called 'listeros', assist the representative of the farmers, they supervise the activities of their groups and pay out according to these activities the two-week advance loan. The president of the production committee, sometimes the one of discipline, takes a central part in the planning and the assignment of the work. As president of the committees often persons are elected with organizational skills or other capabilities. One can say that the representative, the groupleaders and the chairpeople of the committees form together the internal leadership of the collective farms.

4. Rights and duties of the members of the collective farms

IAD has - as observed - in no single case transfered the property of the land to the farmers. The farmers have through membership of the collective enterprise received a right to use the land, a right to work (collectively) the assigned land and to enjoy the income from these activities. On the other hand the farmers, who receive this right to use the land for nothing, have the duty to contribute with their labor according to the regulations of the collective model and the specific arrangements on this point in each of the enterprises.
Yet the right of the farmers on access to the land and their duty to provide their labor are not entirely dissoluble connected to each other. It is provided that members in case of illness, old age or authorized absence send a substitute, without losing their claim on a share of the net return of the enterprise. That is to say in principle it is possible to disconnect the right on a share in the net return of the farm and the own labor contribution. Substitution will increase the more members reach their old age. But it will also occur more frequently, in as far as the possibilities for members to find better paid activities outside the farm increase.

The original legislation stipulates that the net returns of the collective enterprise should be distributed equally among the members. As these regulations were elaborated in 1974 IAD has determined that surplus distribution should be according to the contribution of each member in workdays. In practice, however, the registration of the related data is inadequate, in such a way that the factual distribution approaches an equal distribution among members. Members are not permitted to alienate the rights which result from the membership of the collective enterprise. There is a right to descend. When a member dies IAD is obliged to offer the right of membership first to the heirs.

The members further have the right to participate in the elections for the different organism of the collective enterprise and be elected in these bodies. They also have the right to request a control of the books of the enterprise in order to call attention to supposed irregularities. Also, to make use of the collective provisions which have been set up for the benefit of the members. The members are obligated to take part in the meetings of the GA, to observe the constitution and the regulations of the collective and to obey the instructions of the GA, the EC and the committees.

The most important obligation of the farmers is, to contribute with their labor according to the labor regime of the collective enterprise. The intermediate model implies exactly a change in the labor regime. Collective work is substituted for individual responsibility for all manual activities on a specific parcel. The distribution of the income also changes: the individual production, that is to say the yield of a determinate parcel assigned to a specific member, now becomes an important element of this distribution, but need not be the only criterium.

The individual members are not allowed to install physical boundaries around the parcel of land which has been assigned to them, in order to prevent that the collective, centrally managed activities are hindered. It is also not allowed to sell for own account (a part of) the produce, as this produce holds as guarantee for the credit received.
III. ORGANIZATIONAL ASPECTS AND PROBLEMS OF THE COLLECTIVE LAND
REFORM ENTERPRISES

Reed (see note 7) mentions a number of external and internal aspects which need be given attention in setting up and developing production co-ops in ldc's. In this chapter the Dominican collective ricefarms will be further analysed on the basis of these aspects and the most important problems will be discussed. First the macro-external aspects will be dealt with, thereafter the micro-internal aspects will be discussed. As indicated in par. I.3 the emphasis in the macro-external aspects is on the role of the state in setting up and developing the collectives. In the micro-internal aspects the angle of incidence shifts more to the participating farmers, the accent is then on the relation between the members and the farm, the group.

EXTERNAL ASPECTS AND PROBLEMS

1. Characteristics of the agrarian production

A condition for collective production, that is for the provision of a joint work effort by all the members, is, that this production leaves an adequate financial return. Because on the one hand in an interactive social-economic system the collective production will have to compete with the production in the private (sub)sector, at the other hand with the production on the individual plots which the farmers of the collective farm may use (13). If this condition is not fulfilled the farmers will feel inclined to individual production.

Collective production will better respond to these conditions if it concerns activities which show certain economies of scale. Economies of scale may be present in case of large scale production, central management, division of labor, an extended infrastructure and industrial elaboration of the produce. On the other hand in the case of production which requests much personal attention of the producer and is for the purpose of direct consumption, collective production cannot be expected to be attractive (14).

Rice, the crop which with the state has started collective production in the Dominican Republic, is an appropriate one for joint production and thus was a good choice. The farms in the investigation were using complex irrigation systems and mechanization. Through irrigation it is possible to get higher yields, among others because use can be made of so-called 'high yielding varieties' which request a good control of irrigation water. Irrigation, however, asks for a high degree of coordination among separate producers using the same irrigation canal, something which is far more difficult for individual small farmers than for collective farms. The use of machinery in rice cultivation
appeared in the sixties and seventies; in that period the animal traction has been substituted by tractors, the sickle by the combine, and spraying by airplane has become popular. The collective farms in general dispose of their own machines, the individual farmers have to hire machine-services, which does not proceed without difficulties.

The irrigated cultivation of rice presents a number of economies of scale which contribute in making this crop a relatively profitable one. The possibilities which irrigation offers are especially used effectively when one succeeds in reaching more than one harvest a year. Mechanization then already soon is a condition to reduce labor peaks connected with soil preparation and harvest. The economies of scale in rice cultivation refer especially to those two elements: irrigation and mechanization.

Irrigation is a complex system in which especially water distribution and maintenance of the constructed infrastructure become more complicated if more farms are involved. If more farmers are using the same irrigation canal then there will appear problems of planning and coordination. The demand for water must be planned in the time and the activities of the farmers coordinated, in such a manner that they don’t hinder each other. For example the soil preparation of a farmer should not be hindered by his neighbour who already started to irrigate. The maintenance of the irrigation infrastructure also requires cooperation, especially for those collective structures not belonging to individual farms. In big farms, thus also in collective enterprises these problems are internalized and are far more simple to resolve. In general terms thus scale is an advantage in irrigation.

In mechanization of rice cultivation there are also economies of scale. Working with larger areas reduces machine-time and machine-costs, makes it more efficient to employ machinery. Thus on larger farms it is worthwhile to use for the wet soil preparation heavier tractors instead of the small cultivators. It also pays on large farms to use airplanes for spraying pesticides, because the reduced precision is less problematic than on smaller farms.

Division of labor plays a significant role on the collective rice farms. Activities which require specific skills are realized by members who dispose of such capacities. On the farms which were studied this referred to irrigation, broadcasting of pre-germinated seed in water and the operation of the agricultural machinery. This division of labor and the connected specialization give the larger collective and associative farms an advantage over the smaller individual producers.

The joint buying of inputs, the selling of produce and the collective credit imply not only a stronger position to negotiate with external
relations, but the centralization of these activities also yields a considerable time saving when compared to what individual farmers each on its own should spend in dispatching these activities.

There are no professional managers from outside in the collective rice farms, although the IAD representative in the E.C. sometimes functions as such. Bringing in the human capital of an outside manager in a collective farm implies economies of scale. But these economies do not appear in the Dominican case in management, but in extension activities and supervision of credit. There the extensionist and credit supervisors can work with groups and not with individual farmers.

On the collective farms such economies of scale indeed seem to be present. Some data for comparison referring to labor- and machine hours on collective and individual rice farms which were studied on these aspects show this (see Table 3).

Table 3. Dom.Rep. Labor- and machinehours per ha of irrigated rice on collective and individual land reform farms - 1985

<table>
<thead>
<tr>
<th>Labor Hours</th>
<th>Coll.farms (hours p.ha)</th>
<th>Indiv.farms (hours p.ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- maintenance irrigation and drainage</td>
<td>38.9</td>
<td>25.2</td>
</tr>
<tr>
<td>- seed-bed in system of transplanting</td>
<td>5.9</td>
<td>23.2</td>
</tr>
<tr>
<td>- soil preparation and planting</td>
<td>146.2</td>
<td>182.5</td>
</tr>
<tr>
<td>- maintenance of the crop</td>
<td>98.3</td>
<td>125.6</td>
</tr>
<tr>
<td>- harvest, by hand and assistance by machine-harvesting</td>
<td>17.9</td>
<td>78.5</td>
</tr>
<tr>
<td>Unskilled labor total</td>
<td>307.2</td>
<td>435.0</td>
</tr>
<tr>
<td>Skilled labor total</td>
<td>22.3</td>
<td>37.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Machine Hours</th>
<th>Coll.farms</th>
<th>Indiv.farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>- soil preparation - dry with tractor</td>
<td>3.3</td>
<td>4.8</td>
</tr>
<tr>
<td>- wet with tractor</td>
<td>0.7</td>
<td>0.8</td>
</tr>
<tr>
<td>- wet with cultivator</td>
<td>1.9</td>
<td>3.3</td>
</tr>
<tr>
<td>- wet with oxen</td>
<td>0.6</td>
<td>0.4</td>
</tr>
<tr>
<td>- harvest with combine</td>
<td>1.7</td>
<td>2.3</td>
</tr>
<tr>
<td>Yield (paddy in kilogram per ha)</td>
<td>4983</td>
<td>5351</td>
</tr>
</tbody>
</table>

Source: fieldwork
The results of this comparison go in the direction of an on the average considerable higher employment of labor- and machine-hours on the individual ricefarms in relation with those on the collective farms. The numbers concerning unskilled labor and tractor hours are both about 40 percent higher on the individual farms. In spite of the somewhat higher physical yields on the individual farms (approximately 7 percent) the return per labor-hour and per machine-hour are higher on the collective farms.

Of course, there is not a single interpretation in that sense, that these disparities can be imputed completely to differences in scale of the production. One part of the difference is a consequence of variation in the labor market. The individual farms of Maizal used in the maintenance of the crop, especially in weeding, cheap Haitian labor which was actually contracted by a neighbouring sugar enterprise. The daily wage of these workers was half of what was paid to Dominican agricultural labor. Further, because the drainage system of these farms worked less well - as such related to the scale of the system - machines could not be used in the same degree for harvesting on these individual farms. Other casual factors play a role, such as the incidence of pests. Yet it can be assumed that difference in size is an important explaining variable. Technical and organizational economies of scale do intermingle.

The collective rice farms employed, according to the investigation which was carried out in the first semester of 1981, more labor time in the maintenance of the irrigation system, the cleaning of the canals, the repair of structures, also those on secondary level where individual farmers are less able to organize maintenance. Therefore the collective farms will have less difficulties in operating the irrigation system.

This is of influence on all the other activities, such as soil preparation, weedcontrol, harvesting. The easier operation was perceptible in the time needed for irrigation: 9 hours per ha on the collective farms, against 11.3 on the individual ones. Although in this respect it is also important to notice that on the collective farms this job is performed by specialized labor.

Other activities where labor-saving was evident, concerned the preparation and maintenance of seedbeds, 5.9 against 23.3 hours per ha and the application of fertilizers: 6.7 hours per ha against 11.4 hours.

In using agricultural machinery the element of being able to dispose of them on the right moment is very important. The machinery can then be employed when soil conditions are good, or in harvesting, when the crop has ripened sufficiently. These circumstances can make that the collective farms, which have own machinery at their disposal, can
employ them more effectively than individual farmers. All the collective farms had their own tractors, Vasquez Quitero also had its own combine.

On the collective farms a substantial amount of time is saved, as the external contacts in connection with credit, buying of means of production, selling of rice, is attended by a small number of members in the committees. Further, the position to negotiate with machine contractors and merchants is stronger for the collective farms, which finds its expression in tariffs and prices.

2. **Mobilization of the members: stimuli from outside**

The members of the collective farms were selected by the government; formerly most of them were landless farm workers. As they worked mainly on large private farms, they had some experience with working in groups. On one of the farms studied, El Pozo, all the members have been farm workers on the private enterprise which preceded the land-reform farm. The changes which take place at the transformation to the collective model are relatively small as far as direct labor is concerned. But there was nearly any experience with collective management.

One aspect that, especially in the beginning, mobilized the farmer in favor of the collective model, was the improvement in their social and economic position which appeared possible on the collective ricefarms. The former farm workers saw their income more than doubling. The membership of the collective enterprise provided the farmers some degree of income, which they did not know before. The members of the collective ricefarms in Esperanza in 1977 also got at their disposal a house, an assignment related to the membership of the collective farms.

All in all there was some basis for mobilization of the farmers for collective production, existing in the former experience with groupwork, in the improvement of their incomes and the privilege which the collective farms had as far as credit and extension was concerned.

At the other hand, the style of mobilization for collective production used by the state was absolutely not based on participation of the farmers in establishing the collective model. This model was imposed on the farmers in a bureaucratic way, and IAD has, even in the developmental stage, difficulties with the transfer of power and responsibilities to the farmers concerned. This bureaucratic style of IAD caused, that too much fundamental problems which the farmers experienced in the collective model were not resolved by the land reform institute and were not even discussed. This was the case of the 'free riding'
problem, which was mentioned before, the lacking of possibilities to employ family labor and to cultivate food crops for home consumption. The consequence was, that in course of time the farmers concerned appeared less and less prepared to accept the collective model.

3. **Conflicting objectives between actors**

The policy of the state related to the rice sector is aimed at increasing the production with the objective to secure national selfsufficiency. It also is considered important to have a considerable degree of control of production and distribution of rice, as it refers to a basic necessity.

The land reform measures in the rice sector served also to concede to the pressure of landless labor and peasant to get access to agricultural land. The unrest in rural areas, which found its expression in land occupations and diminishing support for the government in those areas in the elections of 1970, forced to land reform measures. The reduced extent of this program - in the period 1973-1977 10,000 ha were given out to 2,800 farmers - showed that this aspect became less important after the elections of 1974.

The collective model which was initiated by the state mainly because of the control function, clashed with the aspirations of the farmers. Especially because the state stuck to a direct control through the 'administrative structure of the collective farms, instead of using positive incentive to bring in line farmers' and state interests.

The members of the collective enterprises see as their objective the increase of the net surplus of the farm. They experience the rigid collective model with its sub-optimal employment of labor as a serious obstacle to this end. As far as their own labor is concerned the inadequate employment of labor is a consequence of the so-called 'free rider' problem and as far as it refers to family labor this has to do with the incompatibility with the collective model (see further par. III.7 and III.8).

In fact the farmers and the state came into conflict on the system of ratoon cultivation (17). In the ratoon system after the first harvest a second crop is grown, by letting the cutted plants, which already stooled, shoot anew. This system, which gives a lower physical yield than when the second crop is planted anew, derives its attraction from the reduced costs of such a second harvest, because soil preparation and planting can be dropped and less inputs are required. Incidentally not all rice varieties are equally suitable for ratoon cultivation.

From the national rice program continuous pressure is exerted on
the farmers to substitute the ratoon cultivation by a second crop planted anew, because this results in a higher rice production. As often is the case with programs aimed at one specific product, it occurs also in the rice program, that there is a one-sided emphasis on production objectives. These objectives become so dominant, that efficiency considerations shift to a second plan. From a national economic point of view the question is if the extra costs for machine use and inputs for a second planting is compensated by the extra production of rice in this system. The farmers consider, that if ratoon cultivation is possible, this is an attractive proposition because it reduces the expenditures and thus the risks.

IAD used in such cases its majority in the EC to block the credit solicited for a ratoon crop to the Agricultural Bank and thus forced some of the collective farms to planting anew for a second crop. On the collective farm Vasquez Quintero this sanction was applied in 1978 and 1980. The state in this case choose an explicit bureaucratic instrument to fight out the conflict. The development of collective agriculture as a matter of fact requires, that in such conflicts of interests the autonomy of the collective is not affected. This requires that the state keeps sufficient feeling with the collective sector in order to be able to direct the development by global means (18).

A decrease of the returns of the rice farms, through the setting of the price by INESPRE, causes the members of the collective enterprises to develop more and more activities outside the farm and have their place taken in by a substitute. Direct intervention by the government through sanctions against the members concerned stands opposite global measures to improve returns. The last approach incentivates the farmers to participate in the collective work, the former weakens the autonomy of the collective enterprises.

The collective model reinforces the class conflict in the rural sector. This is clearly the case in relation to the landless farm workers hired in in the peak periods. The collective ricefarm behaves as a capitalistic enterprise. The Vasquez Quintero farm thus came in conflict with the neighbouring farm workers, when in 1977 the enterprise eliminated the labor intensive transplanting of the rice.

As the collective farms have adequate scale for mechanization and the government promotes mechanization through the exchange rate and credit policy, important activities which formerly asked much hand labor (weeding, harvesting) are now mechanized. The employment for agricultural labor has been reduced by these circumstances. Possibly this is also the case on large private ricefarms, but on the collective farms the members themselves are protected against such a reduction in their employment by their membership, in such a way that landless labor is worse off in the case of collective farms.
4. Relations with external institutions

Because of the absence of technical and organizational capacities and of capital, there is a necessity for the state, especially in the beginning, to support the collective farms. In this support the right balance must be found, in such a way that on the one hand the collective enterprises are integrated into the national economy, but at the other hand avoiding that the engagement of the state creates dependency, which reduces the involvement and responsibility of the members. For the collective rice farms the important relations are with:
- the agricultural bank in the area of credit.
- the ministry of agriculture in connection with extension services and the provision of means of production.
- the irrigation institute for the distribution of water and the maintenance of the infrastructure.
- the state marketing institute concerning the sale of rice.
- private traders for inputs and machinery, machine contractors and rice millers.

IAD has a mediating role, in the first place in bringing about these relations, later on in seeing that the collective enterprises can manage their own external relations independently.

The credit relation shows the intermediary role of IAD with respect to the Agricultural Bank. Credit is important to provide the collective farms with capital, in such a way that they can operate independently. Using this credit in such a manner that it can be paid off timely and completely, prevents that the enterprises come in a situation of dependency in relation to the creditors.

The credit relations of the Dominican collective farms are in this respect well organized. The short term credit is well planned and IAD and bank employees supervise the use of the credit. The inputs which are bought by the farms in agreement with IAD are paid by the bank directly to the providers of the means of production. The payment of other items doesn't take place without inspection of and reporting about the progress of the activities. Last but not least the money produce of the rice sales are directly transferred to the bank, which pays off the outstanding debts before remitting the money to the collective enterprise.

These procedures have resulted in a paying off rate of the collective rice farms which is high in comparison with other collective and individual land reform farms and with private farmers. The collective farms also have had an ample access to medium term credit for the purchase of machinery. This financing is mainly procured by the dealers. They provided total financing, in such a way that the farmers didn't need to first form an investment fund, some-
thing which is rather difficult in any collective enterprise (21). The 

paying off of this credit is tuned to the returns of the investment: 

payment takes place from the machine cost item of the short term 

production credit. The Agricultural Bank cooperates in these transac-

tions.

The rather ample and timely credit provision and the well defined pay­

ing off regulations make that the collective enterprises have at their 

disposal working capital and fixed capital, without being dependent on 

the creditors by overdue debts.

IAD considers this situation to result from the intensive supervision 
it excercises on the credithandling of the collective farms. As such 
this might be right. But in the mean time many collective enterprises 
have gained enough experience to be able to enter into a more independ­
ent credit relation with the bank.

The collective rice farm Vasquez Quintero proposed in 1983 to replace 

the one production credit for the whole farm, for three credits one 

for each of the three parts which conform the farm and which each of 

them have different planting - and harvesting dates. Under the 

collective model, however, IAD was not prepared to accept this change.

In the relations between the collective enterprises and other govern­
ment institutes the intermediary role of IAD is much more reduced. The 
payment of inputs and irrigation tariffs runs through the bank and 
this is the case with the monetary return of the farms. So there is no 
need for IAD to interfere in this relations separately. Through the 
committees the farmers have gained enough experience in negotiating 
the purchase of inputs and the sale of the produce.

The collective enterprises between them can associate in an organiza­
tion of a second degree in order to deal together with outside rela­
tions. This can be done because of economic objectives, but also moti­
vated by political reasons.

The four collective farms in Esperanza have formed with other enter­
prises in that region a consumption cooperative. There are in total 18 
collective farms with 463 members. The farmers have credit in this co­
op which is paid-off with a part of the two week advance they receive 
from the production credit and the remainder is cleared at the end of 
the harvest from the surplus of production.

There is also intercollective cooperation aimed at realizing economies 
of scale. In 1981 the enterprises Ramia B and Jicomé bought together a 
tractor, which is used according to clearly defined arrangements on 
the two farms, whereas also paid machine work is done for third 
parties.

The collective farm Vasquez Quintero has together with 22 other col­
lective enterprises formed an association of a more political structure. This organization has played a decisive role in the acceptation by the state of the 'associative model'.

INTERNAL ASPECTS AND PROBLEMS

5. Size of the collective enterprises

Normally the size of the collective ricefarm is determined in the first instance by the area of the private farm taken over by the land reform. On the basis of the rule that per farmer 3 to 4 hectares of irrigated land is assigned, IAD determines the number of beneficiaries. The collective ricefarms thus have different sizes, from 6 to 8 farmers on the smaller ones rising till near to 100 in some cases. At this stage, however, economic and social considerations should be taken into account. The economic factors, economies of scale of technical and organizational character and connected with the strength with which the collective enterprises can negotiate, urges in the direction of larger units, social considerations, especially those related to the active participation of the members in management and decision-making and to the organization of collective work indicate more in the direction of reducing the size. Much will depend in this respect on the homogeneity of the group (22).

These economic and social factors should, when the collective enterprises are being formed, be balanced. In all cases a certain period of experimenting and making adjustments is required.

IAD when establishing the collective ricefarms has not or hardly compared the economic and social implications and has left the farmers little or no room for experiments and adjustments.

The economic factors, especially the economies of scale, have been discussed amply in par. III.1. There the accent was on the role of the state and the relation between state and farmers. In this paragraph social factors are considered and the emphasis is on the farmers and their relations to the group.

Because IAD gave little attention to the social aspects and was little prepared to take into account the organizational problems of the enterprises, the farmers themselves had to look for solutions. In this they experienced more opposition than cooperation from IAD. Many of the adjustments thus were made without the knowledge of IAD, sometimes, as in the case of Ramia B, the farmers appealed directly to the President of the Republic.

From the enterprises in the study the smallest one, El Pozo, with only 13 members reported less difficulties with the labor discipline, with
the participation in management. Not only the size, but also the homogeneity of the group of farmers, which shared their past as landless labor in the former private farm and lived near to each other, played a significant role.

All the other collective farms have invested much effort in experiments and adjustments and in discussions on these with IAD. In par. II.2 already an enumeration was given of the changes which the farmers themselves have introduced in the enterprises. From these it is clear, that based especially on the problems with collective work, they continually aimed at reducing the groups and making them more homogeneous, by using criteria as the village of origin or the place were members live for splitting the groups. In the enterprises in the study the experiments with further subdivision continued, as long as the groups consisted of more than 20 members.

In the following paragraphs several of these social aspects and organizational problems will come back.

6. Management and decision-making

Effective participation of the members in the decision-making process of the enterprise is needed in order to maintain involvement in the collective cause.

For an active and meaningful participation of the members a substantial degree of autonomy of the collective enterprise is required in connection with decisions on production, investment and distribution of profits. Also the members must dispose of certain capacities in this area (23).

In the beginning, of course, the experience of the farmers with commercial agriculture and collective production was limited. That explains why the state at the introduction of the collective model determined, that its representatives must have a majority in the E.C. of the collective farms. Although in the course of time the experience of the farmers grew and they informally already took important decisions, IAD refused to adapt the formal structure. Only in 1985 when the associative model was accepted by IAD the farmers did acquire the majority in the E.C.

The land reform institute has contributed little to further the participation of the farmers in management and decision-making. The farmers made themselves strong to dominate the actual management and to bring about a substantial degree of participation of the members. The pushing back of IAD is also a consequence of a lack of attention from the land reform institute for the farmers and the collective farms. This found its expression in the rapid change of personnel, the appointment of officials without experience in the EC of the collective enterprises and in the lack of means of transport, which reduced the direct
contact with the farmers.

On none of the collective enterprises a professional manager was appointed. The collective ricefarms are specialized in a crop in which the farmers already had experience. The running of the enterprise is relatively simple, thus it was considered that such a specialized function was not needed.

The bookkeeping of the collective farms was done by IAD, a department of the regional office of the institute offers this service to all the collective farms in the region concerned.

The important decisions on the collective farms refer to, as observed, production, investment and distribution of the net surplus. The most complicated aspect is that of organizing the collective work (see par. III.7).

The formulation of the production plan on the collective ricefarms has in many respect got a routine character. For the moment there is little discussion about the question if rice must stay the main crop. The important decisions refer to the determination of the variety to cultivate, the application or not of the ratoon system and the choice of certain cultivation practices, such as direct sowing or transplanting, weeding or spraying pesticides, hand harvesting or with the combine. Important decisions in that respect have in the course of time been taken in the different collectives. In Vasquez Quintero for example the transplanting of rice was eliminated in 1977, in 1978 other rice varieties were chosen and a combine was purchased in 1979.

Such decisions in general are subject of preliminary talks among the members before a decision is taken in the general assembly. First a kind of consensus is formed.

The investment decisions are made easier, by the indicated access to medium term credit, because this prevents on forehand a laborious discussion on saving or paying out the net profit of the production. The consequence of this way of capital formation is, that the collective farms only dispose of a reduced own capital.

Under the collective model the rules for the distribution of the farms net result were fixed. Distribution in theory took place on the basis of number of days contributed by each of the members. As this, however, was not properly registrated, in practice the distribution came to an approximately equal share in the net surplus for every member (see par. III.7).

On Vasquez Quintero there was in 1981 a broad consensus under the farmers to change this system. As from 1978 every member already worked on individual parcel, that is they performed all the manual work on that part of the farm. Now they wanted to individualize all the costs
but also the returns of these parcels. The representative of the farmers in the EC of that year, was not prepared to take for his account the introduction of this change. That made this matter to the main stake of the elections on the farm of the representatives of the farmers in the management for 1982. After a thorough preparation in 1983 the new system of distribution was introduced in Vasquez Quintero. But because IAD did not approve the change and neither was willing to cooperate with the needed adjustments in the bookkeeping and administration, the enterprise was forced not only to establish a complete shadow administration, but also to undo the distribution of the net surplus effectuated by IAD and repeat this on the basis agreed by the members.

Of course the participation of the members diminishes in the degree that the decisions get more a routine character. That can be observed on the farms in the study. The management and decision-making process then comes in the hands of a small group of members with management capacities. Those members replace each other in the main positions, those of representative of the farmers and chairmen of the committees. That causes a certain internal stratification in the collectives. But when important decisions are taken, as the one discussed for Vasquez Quintero, the farmers and their leaders bring about an ample participation in the decision-making.

The management functions of the collective enterprises are not remunerated, the status of these functions is the main ground for the willingness to fulfill them. As far as the administrative tasks permit, the members in management functions participate in the manual work on the farm. On Vasquez Quintero during some time (for example the preparation of the change in the distribution system) the work on the individual parcel of the representative of the farmers was taken over by others.

Summing up one can say, that the situation on the collective farms was not very favorable for promoting an active participation of the members in management and decision-making. The level of schooling of the farmers was low, the IAD officials played a dominating role in the area of technical knowledge, finance, administration, the collectives nearly formed investment funds and the planning was mostly a routine matter. IAD showed very little attention for the social aspects. Through pressure, however, the farm leaders succeeded in dominating more and more the management and decision-making. They also tried to increase the degree of participation of the members, because a broad participation is a base for their leadership.
7. The organization of labor

Most of the farmers have had in the past experience in the rice cultivation with working in groups. But that was as a farmworker, thus the proper organization of the work was new to them. Some members had some experience as foreman. According to the rules each collective enterprise had to draft up regulations, which determine the labor-regime. But on the farms studied such regulations were never formulated. The committees for production and for discipline arrange the collective work on an informal way.

At the time of the study the enterprises in Esperanza still worked according to the collective model. On El Pozo and Jicomé, the smaller farms with respectively 13 and 20 farmers, work was performed in one group. On the large farms Ramia A and B each with 35 members the farmers normally worked in two or more groups, brigades. The number and size of the brigades depended on the nature of the activities to be performed. The composition of the groups and the distribution of the work activities was arranged by the chairman of the production committee. Most of the farmers nearly always worked in the same group.

Some specific tasks, such as supervising hired labor and the spraying of chemicals were continuously assigned by the G.A. to different members, in order to promote that everybody learned these jobs. For other tasks, which require certain capacities, such as machine operation, irrigation, broadcasting in water of pre-germinated rice seed, the administration of the warehouse, at least on the larger farms, specific members were in charge.

The most serious problem when working in groups is the question of the work discipline of the members. This refers to the presence on the work as well as the pace and quality of the work. During the study non-authorized absence of members was recorded daily over a period of two months. On Ramia A where work discipline was problematic, on the average 20 percent of the members were absent without permission, on Ramia B 10 percent. This absence was not registrated by the farms themselves and thus was not sanctioned. That is to say, this absence was not reflected in a reduction of the number of labordays that for a specific member counted for the calculation of his share in the net return of the enterprise.

In extreme cases a member is ejected from the collective, normally through IAD, and substituted by somebody else. This has taken place already sometimes on Ramia A and on El Pozo. But the farmers are not willing in less outspoken situations to apply sanctions mutually. Liv-
ing together in one village, the relations between the members them-

selves, but also between their respective wives and family members,

make it very difficult to propose or to support sanctions against a

fellow-member consisting of a reduction in that member's two weekly

advance or his share in the profit distributed.

The average and normal workday on the collective rice farms in the

study amounted over the whole production cycle to no more than 6

hours a day. Only in exceptional cases the farmers worked in the

afternoon. Saturday they worked only 4 hours and normally no work was

done on Sunday.

The farmers were of the opinion, that in general the work pace when

working collectively is lower than working individually. On Ramia A

members sometimes asked for a day-task, which they performed in two

third or half the time, after which they participated in transplant-

ing, an activity which was paid on a piece rate basis. They thus work-

ed as hired in labor on their own enterprise.

On Vasquez Quintero the farmers since 1978 worked individually. All

the members have been assigned an equal parcel of land, where they are

responsible, as an individual farmer, for all the work. That also in-

cludes the centrally performed activities as land-preparation, the

sowing, irrigation and harvesting which they have to supervise. All

the manual labor involved is completely for the account of the member

concerned, who also receives the credit component for hiring in labor.

He then can decide for himself if he wants to perform that part of the

work himself, to use his family labor or if he actually hires the

labor.

The non-authorized absence and the low pace of work was considered by

the farmers as a serious objection of the collective model. From the

comparison of the farms in the study one can deduct, that the smaller

and more homogeneous the group, the smaller the difficulties of the

collective work.

As such, this is not a surprising conclusion, but it was astonishing

that IAD gave so little attention to the problems of the collective

farms in this area. There is more room for manoeuvring for the collec-
tive enterprises to introduce changes in the labor regime when IAD's

presence on the farm is less explicit. Many changes were made without

the knowledge of the land reform institute.

Another aspect of the organization of labor on the collective farms is

the restriction of the use of family labor. In the collective model

the members are not prepared to employ their family members on the

farm without payment. Reversely, the enterprise has difficulties in
hiring-in those family members of the farmers, who are not able to perform on an equal level with a grown-up farm worker. The consequence is, that only when it refers to piece work, as in the case of transplanting, family labor is employed.

For the farmers this situation unnecessarily increases the expenses for hiring in labor and it reduces the net return of the enterprise and also the family income. From a national economic point of view there will only be a loss of labor, when in peak periods labor shortages occur and family members are not employed, nor on other farms either. Also, when certain activities are omitted, as for example weeding, which beyond a certain limit are no longer performed when a market wage has to be paid, but which are done through (self-)exploitation of the family labor of the farmer.

For the farmers the possibility to employ family labor is a heavy argument in favor of the individual farm and against the collective model.

The study, which took place during the complete production cycle of the first semester of 1981, looked into the ratio between the labor produced by the farmers themselves, the family labor and the hired labor. In Table 4 the results are shown.

Table 4. Dom.Rep. - Hours of labour per ha irrigated rice subdivided in labor by the farmer, family labor and hired labor at collective and individual landreform farms (1981)

<table>
<thead>
<tr>
<th>Name</th>
<th>Rincon</th>
<th>Maizal</th>
<th>Ramia.B</th>
<th>Vasq.Quintero</th>
</tr>
</thead>
<tbody>
<tr>
<td>type of project</td>
<td>indiv.</td>
<td>indiv.</td>
<td>coll.</td>
<td>intermed.</td>
</tr>
<tr>
<td>number of questioned farmers</td>
<td>20</td>
<td>20</td>
<td>35</td>
<td>63</td>
</tr>
<tr>
<td>ha per farmer</td>
<td>4-00</td>
<td>2-70</td>
<td>2-63</td>
<td>2-83</td>
</tr>
<tr>
<td>hours of labor per ha</td>
<td>358</td>
<td>504</td>
<td>334</td>
<td>316</td>
</tr>
<tr>
<td>labor by the farmer (%)</td>
<td>15</td>
<td>31</td>
<td>68</td>
<td>47</td>
</tr>
<tr>
<td>family labor (%)</td>
<td>15</td>
<td>3</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>hired labor (%)</td>
<td>30</td>
<td>34</td>
<td>68 (4)</td>
<td>71</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Rincon</th>
<th>Maizal</th>
<th>Ramia.B</th>
<th>Vasq.Quintero</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
In the case of the individual farmers in Rineon and Maizal, the small share of the farmers themselves in the total labor input attracts attention, while at Rineon this share is even less than half of the share at Maizal. Family labor is responsible for a small share, but is uncommonly low for Maizal. On the whole, the farmers and their families take approximately one third of the labor input for their account, while the other two thirds concern hired labor.

At the collective farm Ramia B and the intermediate farm Vasquez Quintero, the opposite is the case. The farmers themselves and their families account for more than two thirds of the labor input, hired labor for the rest.

At the collective farm it is not common for the family members to cooperate without pay. However, at Ramia B a number of sons of the farmers perform hired labor against piece-wage. Their share has been stated between brackets.

At Vasquez Quintero, where labor has been individualized, the farmers were able to bring in their family members. Family labor accounts for a quarter of the total labor input. In the meantime the share of the farmers themselves is higher than that of the individual farmers at Maizal and Rineon.

The differences are caused by a complex of factors. One of the most important concerns the scale of production; at the larger farms the activities can be distributed better in time, thus preventing labor-peaks, which necessitate attracting hired labor. All ricefarms in the landreform, the individual as well as the collective, work with approximately the same techniques and technologies, as set out in par. I.2. Under these circumstances important differences arise between the two types of enterprise, that relate to the scale of production, irrigation and application of machinery, but also to the availability of agricultural machines.

The small-scale individual farms have to rent machinery and, as it becomes available, the activities will be carried out within a limited span of time. The same applies to irrigation which, within the actual distribution system, cannot easily be distributed more evenly in time. Therefore manual work shall also have to be completed within a restricted period of time. Finally, to be able to harvest with combines on these farmers of often less than 3 ha’s, the rice should ripen evenly. The machine contractor will not be prepared to come more than once, or only against a higher rate. This concentration in time gives rise to labor peaks, and as a result, the labor of the farmer himself and his family members, will have to be supplemented with a comparatively high amount of hired labor.
Figure 2. Dom.Rep. Labourfilm of three types of ricefarms - 1981-I

INDIVIDUAL
ILRF Maizal Project

COLLECTIVE
CLRF Ramia B

ASSOCIATIVE
ALRF V. Quintero

Source: fieldwork, designed by A. Klap
At collective farms, where the scale of production is large, machinery is available and/or the farmers have a stronger position to negotiate with the machine contractor, activities will be distributed in time as much as possible. Irrigation must be evenly distributed in time. At Ramia B soil preparation and transplanting was spread out over a period of two months. Reduction of labor peaks follows, not only in soil preparation and transplanting, but over the whole production cycle. The farmers' share in the total labor input therefore remains high.

At Vasquez Quintero where labor has been individualized, part of the flexibility was lost as the scale of production was partially reduced. The farm disposes of its own machines and is large enough to spread out soil preparation, irrigation and sowing. These activities are in fact carried out on a large scale. But for those activities for which responsibility lies with the individual members, possibilities to distribute them in time are few or none. Just as at the individual farms, manual work is concentrated in time. The farmers prevent high expenses for hired labor by exchanging labor between themselves (7% of the total), which is best possible between farmers of three different blocks. Besides they carry out hired labor for each other (3%). The reduced possibilities to distribute activities, on the other hand allows a broader use of family labor (24% of the total). Motivation to do so is strong, as it was one of the main reasons to individualize labor.

The graphs below show the distribution in time of the labor need for the average individual farm from the Maizal project, for the collective Ramia B and for an average individual production unit from the intermediate cooperative farm Vasquez Quintero.

The labor regimen for the individual farm shows, that this type is characterized by a high labor peak during the phase of soil preparation and transplanting and returning peaks for the other activities. As noted before, the concentration in time in the first phase is due to the shortage of tractors. As a result the soil preparation is carried out in one turn. The high peaks implicate a high amount of hired labor. The high peaks for weeding again illustrate how the element of strong concentration of activities and the availability of cheap Haitian hired labor influence each other. The concentration is already determined by the foregoing activities, the availability of a gang of Haitian workers in itself makes that the activities are carried out within a very short span of time and with a comparatively high amount of hired labor.

The collective farm exhibits a peak in the phase of soil preparation and transplanting as well, but this one is much lower and more evenly
distributed in time. All following activities are therefore distributed in time as well and exhibit relatively few peaks.

At the intermediate cooperative (associative) farm Vasquez Quintero, the phase of soil preparation and sowing - instead of transplanting - shows a peak which, given the difference in planting methods, is comparable to that of individual farms. The following activities exhibit comparatively lower peaks than those at the individual farms. An important role is played by the economies of scale in irrigation, fertilizer distribution and spraying of insecticides, which further leave more time for continuous weeding.

At the collective ricefarm Jicomé the labor regimen was again different, as the production activities were not spread in time, causing labor peaks. The farmers of this farm chose to work hard and long for a short period. Between peaks work was easy and if possible the work was individualized allowing family members to be brought in.

The possibilities to distribute activities in time turn out to be given the used techniques and technologies - mainly determined by the scale of production. The collectives make maximal use of their scale, in the intermediate model, the flexibility has been lost to a certain extent, as the scale has been partially reduced to the individual area. The individual farmers with a limited area are in every way restricted in the distribution of activities. It should be observed, that this is a result of the chosen technique, a high degree of mechanization, which is justified if two harvests per year are realized.

But besides the scale other factors play a role in the amount of hired labor as well as the amount of family labor used. The method of cultivating is of influence. Replacing transplanting by sowing at Vasquez Quintero has reduced an important labor peak. In Maizal, during the harvest of 1981 it was impossible to work with the combine during the whole period.

This explains partially why the average total labor input per ha is higher than for the other farms, but also why much hired labor was used. The division of labor in the collective and the intermediate model leads to an important labor saving.

The conditions of the labor market strongly differ. As stated, at Maizal, specifically for weeding, use was made of Haitian farmworkers, who earn only half of the current wages. Finally there are for each farm specific factors, that influence the organization of the labor: localization, soil conditions, climate. With respect to the use of family labor, the distance between the farm and the housing, composition of the family and the view on the importance of education and future possibilities to find work outside the agriculture, play a role.
8. **Recompensation and labor incentives**

The system of recompensation is an important factor in the internal organisation of collectives. Experience shows that, in the long term, material recompensation is the most important motivation for the members.

The system of recompensation therefore must include economic incentives for the collective production. This applies to the operating results as a whole, that is, it is desirable that after deduction of the advances to the farmers, that lie near to the wage level in force, a surplus remains to be distributed. This must give the members the consciousness of being more than wage workers, the feeling that they are also joint owner and joint administrator of an enterprise.

But economic incentives should also originate from the system in individual sense. That is to say, for the members there should be a relation between these individual efforts (devotion and working pace), the work carried out (difficulty, demanded skills) and the recompensation.

At most collective farms in the Dominican Republic advances are paid out and usually there is a surplus to be distributed. Payment of advances takes place as long as there are activities. Between harvests there may be a period of two months in which no advances are paid. In the determination of the height of advances, the expected production is taken into consideration.

In 1981 and the preceding years, on the farms that were examined, the advances per day were approximately a day's wage of a farmworker. The members of the four collective ricefarms in Esperanza, where the ratoonsystem is common, usually received advances during a period of 10 months in the year. The average payment of the net operating results equaled the advances, but varied from 50 to 150% of this amount. In this sense the members of the collective ricefarms felt they were more than workers on a state-enterprise.

The relation between individual effort and recompensation gave rise to more difficulties. As mentioned, the farmers consider this as a serious problem of the collective model. Presence and devotion of a part of the members leave to be desired. An unauthorised absence of 20 percent, as found for Ramia A, illustrates the problem of 'free-riders'. Furthermore the devotion, working pace and accuracy of the members working in a group, in the view of the members themselves, is insufficient. In all farms there was discussion about the use of piece-wage or assigning day-tasks, but in agriculture possibilities to do so are limited. For success in collective production it is essential to control the unauthorised absence from the beginning.
In this respect the size of a collective farm as Ramia, which started with 70 farmers, and of Vasquez Quintero with 63 members, was too large. Specific support and attention on this point by the IAD could possibly have helped the farmers to overcome their fear of applying justified sanctions with respect to their fellow members. Measuring and recompensating of unequal performances is a difficult problem. It requires introduction of a kind of points system.

Experience in smaller and more homogenous groups shows that if social control in a group is strong enough to keep absence within acceptable limits, deviations in labor performances will stay within reasonable limits and also that the members give them less importance.

El Pozo was the only one of the farms that were investigated that did not have problems with the labor discipline; at this farm there was enough social control in the group. At all other farms, the problems on this aspect lead to the explicit conviction that only individualising of the farmwork could restore the relation between effort and recompensation.

The bookkeeping plays an important role in clarifying the incentive structure of the collective farms. For calculation of the surplus and judging the factors that determine the profit, a good and fast bookkeeping is required. That the bookkeeping that actually is carried out by IAD does not meet the requirements of the members, shows from the fact that a complete parallel bookkeeping is being held at Ramia B as well at Vasquez Quintero.

The progress figures from the shadow bookkeeping of Ramia B were presented regularly in the general assembly. The discussion on these figures stimulates and motivates the involvement of the members with the collective and the production process. At Vasquez Quintero it was mainly the decision to distribute the surplus on basis of the individual costs and yields that gave rise to the need of a parallel bookkeeping. For IAD, the collective distribution of profit and the supervision of the credit was exactly the reason for wanting a central bookkeeping.

9. Collective versus individual production

Often at collective farms there is, beside the collective production, room for individual production on a piece of land destined for private use. In the light of the difficulties in the relation between individual effort and recompensation in the collective production, the members want to give the individual production more emphasis. The individually worked private land give the possibility to bring in family
labor. It is a matter of finding the right balance between collective and individual production.

It is therefore important that collective production remains attractive, renders a surplus which increases further through improvement of productivity. Also, paying advances on basis of the number of days worked in the collective production will be beneficial to the motivation for this form of production. On the other hand, increasing discontent with the insufficient relation between effort and recompensation will increase the interest in individual production.

At the investigated farms, with exception of Vasquez Quintero, the individually worked pieces of land did not play an important role. For this purpose use was being made exclusively of those parts that were unsuitable for rice production; canal banks, verges of roads, of canals and drains. At Vasquez Quintero irrigation and drainage canals themselves are used as well for individual rice production, on the condition that normal irrigation is possible. At Vasquez Quintero every member is allowed to use the verges and banks that border that area for which this member is individually responsible. The individually worked pieces of land therefore vary in size, from 300 to 3,000 m², averaging 2,500 m². At Vasquez Quintero in 1981 an average of 100 hours of work was spent on these vegetables gardens, slightly more than 10 percent of the total labor input. Two thirds was labor by the farmers themselves, one third was family labor. At Ramia A only 6 of the 35 farmers disposed of an individual piece of land, at Ramia B 13. This situation originates from the time that the collectives started and a correction was never made. This indicates to a certain extent that these pieces of land or their extension were never an important point of discussion. The discussion centered on individualising of the rice production itself.
IV. TWO ROADS TO INTERMEDIATE PRODUCTION

1. Problems in the bottom-up approach

In this case study of the Dominican Republic the collective model was imposed by the state. From this point the farmers have, by experimenting, carried through changes and adaptations that have solved or in any case diminished problems of labor organization and management. In this way they came to the 'associative', the intermediate model. The question is if it is possible to reach this model from the bottom-up and on a voluntary basis. Farmers will not easily turn to collective production voluntarily. It is conceivable, however, that at a certain moment an intermediate model of cooperate production will be pursued. A form in which scale advantages are being exploited, but the most important problems of common labor - the 'free rider' problem and that of the impossibility to bring in family labor - are being omitted. This theme will not be comprehensively discussed, but giving it some thought will shed some light on the character of the intermediate model.

In the organization that emanates from the farmers themselves and is voluntary, what matters most is to realize the potential extent of scale economies. These were discussed in par. I.2 and III.1. Resuming, the possibilities lie in:

- **Irrigation**: coordination of irrigation on basis of production planning;
  - collective maintenance of the irrigation system;
  - labor distribution.

- **Mechanization**: of soil preparation and harvesting, again generating the need for a central planning of production.

- **Sowing, Fertilizer distribution and spraying pesticides**: division of labor is possible and transport costs will be lower.

- **Management**: mainly in the external contacts concerning services as credit, purchase of means of production, selling of the finished products, irrigation and renting machines.

On these points there are possibilities to realize scale economies, but this is far from simple. Not only should the right steps be taken to stimulate the farmers to proceed, but they should also be taken in the right order.

There is a tendency to start with marketing, purchasing and selling. While there is an outside pressure to turn the credit into a joint credit. From the point of view of the financial institution the joint responsibility for the individual credit is attractive, from the
farmer's point of view it is one of the major difficulties of the intermediate model. Sooner or later the question will arise how to cope with members that run into debt.

Realizing scale economies in the production requires coordination of the production. Members must delegate part of the decisions to the cooperative management. Not the farmers but the central plan of production determines time and sequence of the various activities. Without this, radical, decision, the scale economies in the field of irrigation, use of machines and labor specialization, are not practical. The advantage of the first method – first imposing joint production and introducing flexibility later on – lies in the fact that in this way the farmers experience where and how scale advantages are brought about. When problems in management and organization of labor have been overcome, farmers are more prepared to leave part of the decision competence on a central level and to submit themselves to a plan of production.

2. A case from practice

The 20 farmers from Rincon, that were included in the comparative investigation formed part of project AC 18 Rincon, a landreform project of 83 individual ricefarms, that started in 1963. The land, 335 ha, that was property of the big landproprietor Vidal Torres, in that year was distributed between farmworkers and small farmers which received an average of 4-00 ha. By now these farmers have more than 20 years of experience as individual producers. Various attempts have been made to come to some form of cooperative, either as a result of external pressure, or on their own initiative. Some attempts have failed, but specially the fact that after 1972 collective farms were established in the direct surroundings, among others Vasquez Quintero, continues to be a challenge to come to an organization with comparable scale economies. An important point for the individual farms is the fact that the collectives have succeeded in building up their own mechanical equipment, while they still encounter great difficulties in this field.

In the period of the investigation – the first semester of 1981 – 76 of the 83 farmers from the project were united in the 'Asociación Padre Fantino'. This cooperative organization developed activities in two fields: mechanization and credit. On the border of the project the Department of Agriculture had an outlet for inputs for the rice cultivation, so there was little reason to develop cooperative purchasing activities. The intention of the association was to achieve further cooperation.
Mechanization. Only one farmer owned a tractor, the rest depended on the machine contractor. The supply of machines in the busy time was insufficient, which leads to problems with the soil preparation and harvesting. To be able to carry out - in shifted phases - the complete soil preparation, it would be necessary to dispose of 4 tractors. The association could dispose only of 3 small cultivators that were being used for wet soil preparation. The machines had been purchased in 1981 with suppliers credit to the 'asociación', which exploited the machines through a special committee it had installed. Operation, maintenance and instalments were paid from the proceeds of the rental, against commercial rates, to the members. The main problem was the lack of a central planning of the agricultural activities in the project. The machines were hired on an ad hoc base, the criterion used was the urgency of the need of the members, as judged by the committee. Of course on this basis no policy can be carried out that can satisfy all members.

Credit. The 'asociación' started in 1980, at request of the Agricultural bank and at the instance of IAD, with a joint credit. Only 62 of the 76 farmers took part. With exception of those collectives where the organization of the credit is good, the credit-discipline in Dominican landreform projects is very low. In Table 5 the experience with individual and joint-credit of the farmers that started the credit group in 1980 are shown. In 1979 the farmers still received individual credit, 27 percent paid off all instalments, 63 percent a part of it and 10 percent nothing. Of the total contracted loan, 30 percent was not paid off on schedule. When in 1980 a start was made with groupcredit the situation improved slightly, but the 'asociación' as a whole, ran into a considerable debt. These debts, but also the problem of the position of the collective versus the individuals who fail to pay off instalments, put a great strain on the 'asociación'.

Table 5. Dom.Rep. Results of individual and joint credit in the 'Asociación Padre Fantino', Rincon 1979 and 1980

<table>
<thead>
<tr>
<th>Period</th>
<th>Contr. Credit</th>
<th>Credit paid off</th>
<th>Debt (%)</th>
<th>Number of farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979 I</td>
<td>RD$ 165,450</td>
<td>115,086</td>
<td>50,364 (30%)</td>
<td>62</td>
</tr>
<tr>
<td>1980 I</td>
<td>RD$ 90,618</td>
<td>71,492</td>
<td>19,126 (21%)</td>
<td>59</td>
</tr>
<tr>
<td>II</td>
<td>RD$ 74,733</td>
<td>55,083</td>
<td>19,650 (26%)</td>
<td>48</td>
</tr>
</tbody>
</table>

Experience in this project shows, that reaching an intermediate form of cooperative agricultural production from the bottom-up on voluntary basis, requires a careful evaluation of the aim the farmers have in mind and the steps to be taken to reach this aim.
V. CONCLUSIONS

1. The Dominican State has, in the beginning of the seventies, introduced collective agriculture in the rice sector. The intention was to reactivate the land reform and, in connection with the land reform, to increase the grip on the national rice production, which is the main food crop in the Dominican Republic. In answer to the criticism of large rice farmers that expropriation and redistribution would lead to the loss of scale economies, the State introduced collective rice farms as to preserve the economies of scale.

2. Scale economies are the best economic argument to convince farmers of the benefit of collective production. The main objections raised against joint production lie in the problems of management and organization of labor in the production cooperatives. The problem of 'free-riding' and the difficulties in bringing in family labor, are the major reasons for the farmers to resist this form of enterprise and are a motive to continuously introduce adjustments into the collective production system.

3. In the Dominican land reform both individual and collective rice farms operate. Both aim at double cropping which is made possible by irrigation and mechanization. Therefore there is little difference between the two types in the techniques and technologies used. This study suggests that under these circumstances, in fact economies of scale arise in large, that is in collective rice farms. These advantages can be realized in irrigation, in mechanization, in management and in negotiating with external contacts. In principle, the choice of the State for collective rice production can be considered to be correct.

4. Management and organization of the labor proved to be the major problem for the farmers in the collectives. The Dominican Institute for land reform IAD has done little or nothing to solve these problems. The farmers themselves, however, have made a great effort experimenting a workable solution. They sought the answer in making the groups smaller and more homogenous so to intensify social contacts and decrease the possibilities for 'free-riding'. Further, they aimed at fortifying the relation between effort and recompensation.

5. Great differences were in fact shown between the individual and the collective farms with respect to the use of own and family labor on the one hand and the hired labor on the other hand. On
the individual farms, the farmers' own labor and the family labor was less than one third of the total labor input, on the collectives more than two thirds was own labor. This was, among other things, the result of a better distribution on the collective farms of the various activities, caused by the larger scale of irrigation and the availability of agricultural machines owned by the collective.

6. This study specially deals with an experiment in which farmers have transformed the collective model into what they call the 'associative' model. In this model many activities are still carried out and controlled on a central level (planning, irrigation, machine work, external contacts), but manual labor has been individualized. There is hardly any work in groups and there is a direct relation between effort and recompensation as every member works a specific area and receives its yield.

7. Kanel, Reed and Carter point out in their paper 'Collective Farming: Lessons from Experience' (1985), that this form of farming, that they denote 'intermediate cooperative farming' not only occurs in the Dominican Republic, but has developed in other places as well from the collective model. They suggest that this intermediate form, exactly because a certain trade-off has developed and a balance has been found between economic and social aspects, may prove to be more lasting than is thought by those who regard this transformation only as an effort of the farmers to come to complete individualization.

8. The question is whether it is possible to come to the intermediate model from the bottom-up, voluntarily, on the initiative of the farmers. The farmers will not easily turn to complete collective production voluntarily. But it is conceivable that at a certain moment an intermediate form of cooperate production will be pursued, in which scale economies are realized, but the problems of joint production are avoided. This question is only incidentally discussed, but the study suggests, that this bottom-up approach will encounter highly crucial problems.
NOTES

(1) Rice provided in 1965 nearly 16% of the energy and nearly 14% of the proteins in the average diet of the population. By 1980 these percentages had reached 21% (energy) and 18% (protein). Rice was, by this standard, the most important food item. (FAO, Foodbalance Sheets 1964-1966 and 1979-1981).

(2) The percentage of votes for the Partido Reformista, Balaguer's party, decreased from 56.5 percent in 1966 to 52.8 percent in 1970, while at the same time the turn-out at the elections strongly declined. The political support for Balaguer had decreased most at Azua, San Juan and San Cristobal, provinces that represent agricultural districts in the centre of the land, and in the northern provinces Espaillat, Salcedo, La Vega and Santiago, that comprise important areas of agriculture as well. In 1974 Balaguer, as the coalition of opposition parties did not take part in the elections, won 84.7 percent of the votes. The pace of the land reform slows down at that point. (Julio G. Campillo Perez, 1978: 405-429).

(3) It concerns a set of laws with respect to:
- ceding a part of the area on which the state has constructed irrigation (Law No. 134 - 1971).
- expropriation of insufficient exploited areas (Law No. 282 - 1972).
- claiming land owned by the state, but in private use (Law No. 292 - 1972).
- expropriation of areas that are not exploited by the owner, but by tenant farmers (Law No 289 - 1972).
- expropriation of rice areas where the state has constructed irrigation (Law No. 290 - 1972).

(4) Law No 1 - 1966 that had validity till the end of the Balaguer administration that almost freezeed the wages of employees and workers in the government and private sector.

(5) In the 'Considerations' on Law No. 290 - 1972, it is indicated that the introduction of new rice varieties should make national self-reliance possible within a number of years. It is also indicated that at that moment the Instituto Agrario Dominicano, the land reform institute, controlled almost half (48 percent) of the national rice production.

(6) Quezada et al. mention, that the rice producers had asked for an increase of the prices, which clearly was against the state policy on this point.

(7) Josefina Arvelo, 1985, 179-182.

(10) The four farms in Esperanza border on each other and differ little between them. The soil in Esperanza is a bit more permeable than in Rincon. The micro-climate differs slightly from Rincon as well, the modern rice varieties JUMA 57 and 58 that are used in Rincon proved less suitable for the area of Esperanza.

(11) IAD, Normas Provisionales para la Organización y el Funcionamiento de los Asentamientos Colectivos del IAD, 1974.


(14) Reed, 1977: 363.


(20) The collective farms in Esperanza were rated as A-I clients. According to Bravo the ratio of instalments on schedule of all land reform farmers was, over the period of 1976 to 1981 as follows:

<table>
<thead>
<tr>
<th></th>
<th>individual farms</th>
<th>collective farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>(all crops)</td>
<td>(26%)</td>
<td>(60%)</td>
</tr>
<tr>
<td>(rice in N. and N.W.)</td>
<td>(69%)</td>
<td>(81%)</td>
</tr>
</tbody>
</table>

(21) Carter and Kanel, 1983: 45

(22) Reed, 1977: 369-370

(23) Reed, 1977: 370-371

(24) Reed, 1977: 373-376

(25) Reed, 1977: 376-378
References


FAO, *Foodbalance sheets*, Rome, several years.

Groot, Jan P. de, *Como Evaluar el Retorno en el Cultivo de Arroz*, Instituto Superior de Agricultura, Santiago de los Caballeros, 1983.


