A New Approach to Agricultural Development in Southern Darfur - Elements of an Evaluation of the Jebel Marra Rural Development Project

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1. Introduction

This report is an outcome of a 2 month visit to the Jebel Marra Rural Development Project (JMRDP) from December 1983-January 1984. The aim of the visit was to provide a brief evaluation of the project implementation as a basis for further research on the development perspectives of the Jebel Marra area. The author's interest in this project was raised during a former tour to this area in 1980/81, when he witnessed controversial discussions about the benefits of the project's approach to develop "traditional" agriculture and especially to focus on "appropriate technologies". While the author believes in the benefits and the necessity of this approach in the frame of an alternative strategy for Sudan's economic development (cf. Karl Wohlmuth/Dirk Hanschm 1984), he found widespread doubts about the benefits for the region among farmers and especially among government officials in Darfur.

The purpose of this study is to evaluate the actual effects of the project in the broader socio-economic context and to identify the structural problems of implementation. Thus the study focusses on the project's extension service being the connection between the project and the agricultural producers.

Informations were obtained by qualitative structured interviews with the project staff, including 3 Extension Officers and 11 Extension Assistants (out of a total number of 34). 5 of them were visited on their stations, the others were interviewed in the 3 Extension Centers. Furthermore members of the District Council, the province administration and the Regional Government were interviewed.

The value of the informations is restricted by the fact that it was not possible to interview agricultural producers systematically. Nevertheless it is believed that the interviews with the extension staff, fairly distributed about the project area, give an idea about the main structural problems at the implementation level. Before they will be elaborated in Part 3, a brief technical description of the project and a comparison to its predecessor will be given in Part 2.
2. A New Approach

The project area (33,000 km$^2$) covers the Western and Wadi Saleh Districts of the South Darfur province. The population figures from the 1983 census for the project area are 345,563 settled population and 94,393 nomadic population. The main economic activities are rainfed agriculture and, in the second place, animal herding. The total cropped rainfed area is estimated to be 1500 km$^2$=4.5% of the total area. Only 240 km$^2$ or 0.7% are cultivated mechanically and 55 km$^2$ or 0.2% are irrigated (JMRDP Annual Report 1982/83, Annex 2). Both irrigated and mechanized agriculture are concentrated around Nyertete in the lower mountain area: 64% and 99% resp. Out of the total area for the major crops - millet and sorghum, groundnuts, sesame, peppers, vegetables and tobacco - 85% are devoted to millet and sorghum. This high percentage reflects both the predominance of subsistence agriculture and the importance of millet and sorghum as cash crops.

a) Aims and Methods of the New Project in Contrast to the Former Project

In regard to its resources the Jebel Marra area (about 12% of the total project area) is regarded as one of the richest agricultural areas of the country. The variety of food available on its markets contrasts to the surrounding areas which form part of the Sahel zone. However, this area has also been severely affected by the continuing droughts of the last years. Efforts for planned development of its resources have a long history. The first project started 26 years ago. It was planned to develop mechanized and irrigated agriculture and to produce for the markets of Central Sudan and for the export. However, all of the projects failed to achieve much. Activities were restricted to research in 3 small pilot development areas (FDA) and to some services like tractor-hiring for a few farmers. The project failed to attain any positive impacts for the broad population. On the contrary, the FDA were competing for the scarce resource of water with the indigenous farmers.
The present project which started in 1980 offers a quite different approach. It bases on the following aims:

- to support the indigenous farmers by helping them to develop their technology
- to leave the decision which crop to grow to the farmer
- to improve the standard of living of the indigenous population
- to contribute to a food self-sufficiency in Darfur Region
- to conduct as much experimentation as possible on farmer's fields and to involve the farmers closely in the assessment
- to limit on-site small-plot work to the investigation of "new departure" technologies, about which farmers can have little idea
- to make the assumption that, despite deficiencies, farmers are in a much better position to make judgements on resource utilization than any research programme
- to integrate research and extension so that they start and end with the farmer
- to make the assumption that the productivity is limited by availability of resources and rewards rather than by lack of technical knowledge, so that any efforts to raise productivity have to be closely linked to the supply of inputs
b) State of Implementation

The individual services of the project consist of:

- supply of agricultural inputs like improved seeds, insecticidal and fungicidal seed dressings and ploughs
- provision of credits and arrangement of credits from the Agricultural Bank of Sudan (ABS) for the purchase of ploughs and camels

The provision of improved animal drawn ploughs is probably not the most important, but surely the most spectacular service of the project. The camel drawn plough is not an innovation introduced by the project; this practice was known before. However, the locally made plough was characterized by some technical weaknesses (it is difficult to adjust and the quality of the materials and of the workmanship are considered to be poor) and its use was limited by the inability of most of the farmers to afford a plough (LS 50) and the necessary camel (LS 300-400).

In the 1982/83 season the project introduced an improved and standardized plough which is manufactured by a local blacksmith in Nyala (LS 70). At the same time project credits for the purchase of ploughs and ABS credits for the purchase of camels and ploughs were provided. 14 and 65 were supplied in 1982/83 respectively. (JMRDP End of Season Review 1982/83, Paper 2).

Available data about production, the experience with the credit programme and the high interest of farmers in this technology substantiate its success. Although the credits have to be paid back within 4 years (no grace period) with an annual interest rate of 12%, no failures were reported. This is due to an immediate rise in production as well as to alternative possibilities to use the camel (and plough): in renting to other farmers and in transport.

Higher yields with an improved technology can be attained in two ways:

- higher land productivity
- ability to farm a larger area

It is important to distinguish between these two effects because only the first one can be regarded as beneficial with certainty.
Regarding absolute food production, any increase is positive. However, regarding the social impacts of the changes which lead to this increase, it is important to take into consideration who produces. While the low rate of cultivated land seems to indicate an excess of land, the question of land excess or scarcity is debatable. It can be argued that all suitable land is used more or less either by farmers or nomads (Wohlmut/Hansohm 1984,39). Thus an area expansion may lead to an expulsion of others. In Darfur, the situation is aggravated by the continuing drought and the in-migration to the area from the north which is more severely affected by desertification and from the west (war in Tchad). The effects of both are overgrazing, overcultivation and deforestation. The rising number of land conflicts between farmers and nomads highlights the precarious situation.

Data quantify the average yields for millet and sorghum as 42-70% higher with ploughing than without (JMRDP Annual Reports 1981/82, 1982/83). Ploughing improves the productivity through increasing rainfall-infiltration, reducing weed-competition and producing a better seed bed. It was found out to be far more effective than the application of herbicides. 2 varieties raised the yields of millet and sorghum by 13% and 39% only (without ploughing). Thus they are considered as "not worthwhile" (JMRDP Annual Report 1982/83, Annex 1).

The area expansion effect was quantified as 92% and 71% for plough-owners and plough-renters resp. in 1982 (JMRDP Annual Report 1981/82, Annex 1). Next year households with a camel owner were reported to have an 81% larger farm than households without (JMRDP Annual Report 1982/83, Annex 2; both percentages are derived from samples). In 1984 the cultivated area of a farmer who introduced a camel plough is reported to increase by 41%, his wife's farm by 29% (JMRDP 1983/84, Annex 2).

This technology contrasts to a tractor mechanization which - at least in the Western Savannah region - forces to an area expansion combined with low per unit yields. Furthermore, it has negative ecological side effects: trees have to be cut down because large farming areas are necessary and the deeper ploughing is conducive to soil erosion during heavy rains.
3. Structural Problems of Implementation

The aim of the study is to find out and to evaluate the main problems as well as the actual effects of the project expressing themselves during the implementation process of the project. In this context it focusses both on the objective problems themselves and on the subjective consciousness which the Extension Assistants have of these problems. This is believed to be of crucial importance because the project depends on the Extension Assistants to a high extent in respect to all its services to individual farmers.

An idea about the problems was given by two reports of the sociologist Tijani Mustafa (1982a, 1982b). The set of questions was enlarged and modified during the process of research. The problems referred to include:

- social effects of the distribution of project inputs
- the involvement of "local leaders"
- the social relationship between project members and the local population

Lastly, the integration of the project in the development policy at the regional level will be discussed.

a) Social Effects of the Distribution of the Project Inputs

As was mentioned in the preceding chapter, no technology is scale-neutral. The farmers who apply camel-drawn ploughs can achieve a significant income increase quickly, not only by higher agricultural production, but also by renting the camel/plough to other farmers and by transport. Each plough is estimated to cultivate also for 0.9-3.7 renters. The gross income from contract work was reported to be IS 155-179 in 1981 (JMRDP, Annual Report 1981/82, Annex 1), some of the larger operators realized over IS 500.

As far as the area expansion effect is concerned, in 1982 in only 43% of all cases new land was cleared from the bush (JMRDP Annual Report 1981/82, Annex 1). In 1983/84 it was found out that only 2% of newly cultivated land had belonged to other's land, while 72% had been fallow land and 26% had been virgin land (JMRDP Annual Report 1983/84, Annex 2). Thus there seems to be no competition for land resources, at least between farmers. Still it can be assumed that the recipients of project inputs are in a significantly better economic situation afterwards.
Concerning the social effects, it was tried to get an idea about the impact of the project inputs on people on different income levels and on two distinguished social groups:
- women
- nomads

The financial condition to get an approval for a credit from the ABS to buy a camel or camel and plough is to own not less than LS 700 (in kind). Most of the interviewed project members estimated about 50% of the farmers to be included in this group, but wide variations are reported. Among the Extension Assistants everyone (with one exception) claimed that LS 700 is "not much" and that most of the farmers are above this level. Surprisingly, only one of them recognized the possibility of social inequality as a result of the distribution of credits. For most of them the selection of farmers did not present a problem at all. For five the main criterion was to be a "good" or a "rich" farmer (which equals to produce much). This would result in a bias towards large farms and contradict the aim of the project.

Still, altogether the credit service must be evaluated positively:
1. It improves the scale-neutrality of the introduced technology. Without the programme the land concentration as a result of the spread of camel ploughs would be more pronounced. Furthermore, compared to the tractor technology, the camel technology is available to a far greater percentage of the population.
2. The concentration effect is mitigated by the application of the ploughs on the fields of family members and the fields of renters.

The suggestion to make the technology available to more farmers through the organization of production cooperatives was rejected for one plausible reason: The decision making about the time table of ploughing would be very problematic under the condition of insecure rainfall.

The position of women in Darfur's agriculture is very important. Women have ownership titles on their own fields and in most areas they cultivate more than half of the agricultural land. This has historical origins (during the early and middle phases of the Fur sultanate the men were recruited for the army; the women became responsible for feeding the family). Today, the women's
importance is enforced by the labour migration. Another factor contributing to the women's independent position is the polygamy. Furthermore, own fields are regarded as a security in the case of divorce (which is quite frequent),

Unfortunately, the contact of the women to the project through the Extension Assistants is very weak. 9 assistants stated that women did not take part at all in meetings and topic discussions which belong to the main instruments of the extension service. The 2 remaining assistants stated that "very few" would take part. However, 10 assistants claimed to make field visits to women. All agreed that home visits would not be possible. The main reason for the non-participation of women in meetings were claimed to be "traditional attitudes" and the influence of Islam. Only one Extension Assistant offered a material explanation: lack of time. Still this emerged as the most plausible explanation. The women are responsible for food processing and they have to do this job at the time when the meetings take place. Thus, the approach to find other points of time for the meetings seems to be the most promising idea. The fact that meetings take place at the houses of the Extension Assistants does not play a major role to prevent the women to take part in the meetings as was suggested (Tijani Mustafa 1982a, 12). Generally the meetings are held in the assistants' houses only in the villages of their residence. In the other villages which belong to their extension areas they take place in the local leader's houses or in public buildings like schools.

Nor is it plausible that the non-participation expresses an underlying interest of the men who want to prevent the women to benefit from the project.

At the same time it is obvious that the women's position and, as a result, the self-sufficiency of the rural population in food are in a real danger to be undermined. 3 Extension Assistants did not realize this danger. None of the assistants regarded it as a major problem and none had practical ideas how to solve it. The possible loss of benefits can be divided in two spheres: the pure material sphere (inputs) and the sphere of knowledge to improve productivity. Concerning the first sphere, only one
woman was provided with a plough so far. However, all of the Extension Assistants claimed that the women benefitted from the other inputs as improved seeds and seed dressing as well, although to a smaller degree. Also it is claimed that women benefit from the men's ploughs: men are reported to work on their fields. This points to a major shift in production organization. The results of this have to be evaluated carefully. Concerning the sphere of knowledge transfer in the process of extension it cannot be imagined that the direct contact to women can be substituted fully and effectively by the indirect contact through men. This is probable to weaken the woman's position as the main producer considerably.

The Baggara (cattle-owning) Arabs are the second population group in the project area. Their life-style is semi-nomadic, today most of them move in a small scale (short distances of 5-7 miles) only and practice farming as well. A smaller part of them still moves on a large scale which implies to leave the project area during parts of the annual cycle. Two other groups are the Abbala (camel rearers) from Northern Darfur and Chadian migrant Baggara (Tijani Mustafa 1982b,6).

While in the past the relation between the Baggara nomads and the settled agriculturalists was complementary, presently there is a rising competition for resources (land, water). The Baggara, facing a rapid progress of overgrazing and becoming more dependent on farming, in most areas cultivate the land of inferior quality far outside the villages. None of the Baggara groups has the same access to the project services as the sedentary farmers. They are reported to have received 5% of the credits and their share in the extension meetings amounts to about 20%. Only in Anjikoti they are reported not to be discriminated from the Fur farmers.
b) The Involvement of Local Leaders

The opinions about the role of Sheikhs, Imams and other local leaders are different among the extension staff. All of the Extension Assistants agree that most of the local leaders comment very positively on the project which is claimed to be due to the visible material inputs it supplies to the area. In this respect it contrasts positively with the former project which was regarded as very ineffective.

The leaders play an important role in the process of establishing linkages to the farmers. 2 Extension Assistants claim that they approach the farmers through traditional leaders. The others claimed that they contact the farmers directly, some through "progressive" farmers (higher education). Still, they are also dependent on the leaders who announce the extension meetings or, at least, have to agree to them.

The influence of the local leaders on the decision about the distribution of credits is controversial. While in the first year of credit allocation the Extension Assistants had to decide alone, later it was decided to form committees including Sheikhs and Imams. 2 assistants claim their role to be negative, because they would favour their own relatives. The others claim that their role is more objective which is due to their own status and to some control through "objective data" and to discussions in the committees.

The role of the Farmers Union (an organization within the framework of the SSU) has been described as very harmful in representing the interests of rich farmers (Tijani Mustafa 1982a,9). All of the Extension Assistants denied any importance of them in the decision process about the distribution of credits.

One assistant claimed that teachers and other "educated people" would have negative influence ("pursue their own interests"). However, this point of view could not be substantiated.

Concluding, we state that it is clearly more advantageous to involve the indigenous population in decision making than to leave the decisions to the Extension Assistants. It helps to overcome the peasant's and nomad's general distrust of any state agency. These are regarded as institutions who plan to extract something out of the producer's sphere rather than to help them.

At the same time, it has to be carefully evaluated whose interests are represented by the local leaders.
c) The Social Relationship between Project Members and the Local Population

A main hypothesis of this study is that the project's success is decisively dependent on the performance of its Extension Assistants. The importance of this question is enforced by the facts that the expatriate project members are not able to communicate with the agricultural producers directly (language problems) and that the extension stations are widely dispersed and mostly far away from the three Extension Subcenters. Furthermore, the Extension Officers have a lot of responsibilities which leaves them very little time to supervise the assistants. This results in a high degree of freedom in respect of work organization and responsibility for the assistants.

The interviews and observations were focusing on the following questions: qualification, motivation, language and cultural problems. The necessary qualification for the Extension Assistants is a graduation of a Higher Agricultural School. Exempted from this rule are some assistants who are taken over from the former project. Out of the interviewed assistants 7 were graduates of a Higher Agricultural School. However, this sub-group could not be identified as clearly "better" qualified. For example, in respect to extension methods (which do not form an elaborate part of the school training) members of the other sub-group seemed to be more qualified (previous experience).

As far as the integration of extension and research is concerned, everyone claimed to be qualified and only 2 assistants complained about overwork. However, very few seemed to be really convinced of the principle and the descriptions of the amount and quality of the research work (on farm trials) varied widely. Several assistants claimed a lack of interest of farmers in on farm trials which is in contrast to the experiences of the project's Adaptive Research Division.

The motivation of the assistants also varied widely. All of them stated to have "a lot of work". One decisive factor determining work motivation was expected to be the material incentive. 8 assistants complained about too low wages in relation to their work, while 3 thought that the wages were high and sufficient corresponding with a relatively high standard of work duties.

For 2 assistants the higher level of wages was a reason to change
from government services and many had a long term perspective to work for the project despite the "too low" wages.

One indication of the motivation is thought to be the readiness to move on a bicycle. This means of transportation combines the low cost with a diminution of the social gap to the agricultural population. 3 assistants complained about difficulties in this respect.

The readiness to live in far-off rural communities fluctuated widely. No clear correlation between this and the local origin of the assistants could be established. 3 assistants came from the project area, 5 from other places in Darfur region and 3 from Kordofan and the Eastern Sudan.

The assumption that language and cultural factors are of importance for the success of the Extension assistants in the field could be substantiated in the interviews and observations. Those assistants familiar with Darfur society had managed to know their local area more profoundly, had established more contacts to the indigenous population and had been able to get more information.

The cultural identity of being a Fur or a Darfurian seems to be important.

While most of the assistants denied to have any language problems, these arguments are not convincing, in any case concerning the contacts to the Fur women, who speak very little Arabic.

Most interviews evidenced a tendency of "paternalism". Some assistants think to be in a superior position in relation to the farmers and they look at the development problem as a question of "lack of knowledge" on the part of the farmers. Consequently, they see themselves as agents of knowledge and believe that it is the task of the project to convince the farmers of improved agricultural practices. This view is certainly not in line with the project approach, might have damaging effects on its programme and is not conformable to reality. Many of the Extension Assistants have just passed school and can learn a lot from the farmers in terms of practical agriculture.

This consciousness is an outcome of the secondary school education and the urban life style which is necessarily connected with it (presently there are only 4 Higher Agricultural Schools in the country, all of them are situated in the Eastern/Central Sudan).
The alienation from rural life and the consciousness acquired during this time are a heavy negative side-effect of higher education. The "social qualification" to work as an Extension Assistant in a far-off area as the Western & Wadi Saleh Districts of the South Darfur Province is probably as important as the technical qualification. A part of a possible solution would be to train the agriculturalists in the rural areas themselves. This goes beyond the project's authority; but the planned establishment of Darfur University with a focus on the region's needs would provide a basis.
d) Integration of the Project into the Region's Development Policy and Cooperation with other Development Institutions

An important factor restricting the positive effects of the JMRDP is the almost complete lack of cooperation with the relevant state institutions on local and regional levels (district council, province administration, regional government) and with other institutions which are active in the project area. The project is responsible to the central Ministry of Agriculture. This secures a high degree of autonomy for the project decisions which is of benefit for its policy favouring the local agricultural producers. But at the same time it results in distrust on the part of the regional government. This point touches the delicate subject of sovereignty and the question: To what extent can foreign development institutions initiate and further "development"?

It was found out that there is a lack of information and a great deal of misinformation about the project at all the different levels of government. For example, several government officials did not realize the different approach of the new project and raised accusations which are no more justified. In fact, the agricultural strategies of the project and of the regional government harmonize in one main point: the aim to attain food self-sufficiency in the region. However, there may be different opinions about the degree of mechanization which is feasible in the region.

At the same time a striking lack of knowledge about other institutions which are active in the project area on the part of the project management was noticed. This undermines the project's task: regional development. Also it restricts the positive effects of other activities.

Concluding it is strongly recommended to ameliorate the flow of information in both directions as a basis for any cooperation. Secondly, it is recommended to give an authority to the project management to coordinate any development activity in the Western and Wadi Saleh Districts.
4. Conclusion

The main results can be summarized in 6 points:

1) The project is successful in raising the productivity by provision of credits and agricultural inputs. This contrasts with many projects of mechanization which merely result in area expansion.

2) Compared with the former project, the present one is more successful also in terms of technical performance, relation to the indigenous farmers and social impact.

3) Nevertheless, there are inherent dangers of creating and increasing social inequality between very poor and middle income farmers, between men and women and between farmers and nomads.

4) The project appears to be accepted as progressive (working for their interests) among the farmers. Where comments are negative, this can be traced to the impact of the former project.

5) For an effective performance it seems to be most promising to work with extension agents who are familiar with the Darfur region. Also a "social qualification" (in terms culture, language and life-style) is identified as being als important as the technical qualification.

6) It is necessary to integrate the project into the region's development policy and to facilitate cooperation with other institutions which are active in the area.

Despite the mentioned problems the project is evaluated as promising as an example for a new approach to agricultural development.

This approach is significant in the context of the discussion about Sudan's chronic economic crisis. It has become obvious that the neglect of the traditional agricultural sector in the development plans of the 1970s and also in the recent plans for economic reform has contributed to the decline in economic performance and social welfare. (cf. Hansohm 1985, Wohlmuth/Hansohm 1984)
The only basic criticism fociusses on the financial limitation of the project. This results in a very limited impact on the population; it is diminishing small compared to the severe ecological deterioration occurring in Darfur region in general and in the project area in particular. Furthermore, the financial restriction prevents the project from approaching very crucial problems of the region which result from the ecological situation and threaten the project's success: the process of immigration to the area and the conflicts between farmers and nomads.

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