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Small Industry in Sudan:
Distinctive Advantages and Growth Constraints

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1. Introduction

As most African countries, Sudan is in a deep economic crisis since the late 1970s. Unfortunately, past reform efforts have largely failed. It has become clear that the crisis is more than a mere "imbalance" as believed by the architects of the numerous "structural adjustment programmes". Rather, it is the crisis of a development model. As a result, structural measures, attacking also the supply side, are needed.

One measure proposed to overcome the long-seated crisis is the promotion of small industry (SI). This idea is based on several alleged *distinctive advantages* of SI as compared to large industry (LI), e.g. employment and income generation, low import intensity, efficiency, flexibility. This paper summarizes the results of an analysis of these and other distinctive advantages[1].

Despite of these alleged advantages the actual role of SI falls far behind its potential role. The second issue analysed in the study is the constraints which stand in the way of SI development.

Before discussing the results of the study, the methodological approach is discussed (chapter 2). The following chapter discusses the results with respect to the distinctive advantages (chapter 3). In the next chapter the constraints are analysed (chapter 4). The final chapter summarizes the results and draws some conclusions (chapter 5).

2. Methodology

The basis of this paper is field work in Sudan between October 1987 and October 1988 and again from January-April 1989. But also other activities - consultancy assignments, discussions with government officials and academics - helped to form my picture of SI presented here.

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1   This paper is based on a study which is published as Hansohm (1992). The interested reader should refer to this work to see the details.

Starting point was an analysis of literature on SI in Sudan in the context of a discussion of structural adjustment in Sudan[2]. The analysis started with the assumption that conventional standard methods of research (standard questionnaires with pre-coded questions and a one-shot visit) are not suitable to analyse the structure and problems of SI in Sudan - an assumption which has been impressingly confirmed by the field work. In Sudan, the knowledge on this sector is still very limited and conflicting (similar as in other African countries, but contrasting with Asian and Latin American countries). Thus, the research has to be approached as open-mindedly as possible.

Many approaches to SI limit the scope of their analysis severely by certain assumptions: Examples are the "marginalisation" approach, which denies possibilities to accumulate from the start (rather than analysing how these could come about), the pioneering ILO study (1972) concentrating on the government as central growth constraint of SI, and the comprehensive World Bank project on SI regarding the question of efficiency as the decisive matter - neglecting the question how these efficiencies come into being[3]. These limitations point to the danger of approaching the SI sector with preconceived ideas.

In general, in the light of the Sudanese evidence traditional concepts of the sector appear as inadequate:

- The activities of the "informal sector" are not unequivocally different from enterprises which are more formalised. The "SI sector", as defined in Sudan (enterprises with less than 25 employees), includes very heterogeneous activities, and its larger enterprises are hardly different from those characterised as "LI".

- Although one can discriminate between "traditional" activities (with a long history and operating at a low technological level) and "modern" sub-sectors, the variety of different combinations of production factors also blurs this distinction. In reality there is a continuum of establishments in the dimensions of size, formality and modernity. The heterogeneity of the sector necessitates a disaggregated, branch-specific analysis.

To understand the dynamics of SI the macro-economic context has to be considered. Virtually all available studies on SI in Sudan fall

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2   see Hansohm and Wohlmuth (1987)
3   see Cortes et al. (1987), Little et al. (1987)

into two categories: either they are limited to micro-studies of a particular area (a market, a city, a rural council), or they are national level studies relying on the shaky statistical basis. This study combines a study of the macro-economic framework and the national development of SI, based on interviews and secondary material, and a micro-level study of the city of Nyala (Darfur Region). As regional inequality is one of the major root problems of Sudan, one of the most peripheral regions was selected for the micro-level study; Nyala is the region's major urban centre.

A one-shot visit does not give the chance to gain confidence, to understand the rationality of the producers and their perceptions, to obtain reliable information about sensitive matters as income and to get a true picture of the fluctuating conditions of supply and production. The core of the Nyala study is an analysis of selected representative industrial activities of four sub-sectors over the period of one year. Two of them represent traditional SI (blacksmiths, tinsmiths), the other two represent modern SI (metal workshops, carpentry workshops).

Qualitative methods are in the centre of this study. However, quantitative methods (a total survey of the small industries in Nyala providing basic information) were used to establish the frame in which qualitative methods were carried out. This gave an overview and secured the representativeness of the selected enterprises.

3. Distinctive advantages of small industries

The main alleged distinctive advantages/complexes of advantages have been confronted with the evidence on the national level (including available micro-studies) and with the evidence from Nyala.

3.1. Employment creation

This is a major argument for the promotion of SI. However, the argument is not undisputed. In Sudan the opinion is prevailing that SI is an insignificant sector. According to the latest comprehensive industrial survey (1981/82), only 27.2% of total industrial establishments fall into this category (establishments with less than 25 employees); ten years before the respective figure was less than half (13.0%)[4].

Nyala shows a very different picture. According to the 1981/82 survey, there were 7 LI establishments, while SI was represented by 18 establishments. In contrast to this, the own 1987/88 survey arrived at 1263 establishments with 4290 workers (Table 1). A look at the size distribution shows that SI comes to 78% of employment (see Table 2). Traditionally, SI is believed to be largely restricted to the dry season ("slack season"). However, the data give much lower differences than expected: They indicate a high degree of independence from the rural hinterland.

And even this figure is an underestimate: Only those enterprises on the markets were registered, others had to be estimated (for four sub-sectors it was found too difficult to estimate - see Table 1), "invisible" industries as those practised at home were neglected. Furthermore, rural industries (almost exclusively small) are even less registered in the official statistics. Thus, contradicting existing data, SI is an important sector of Sudan's economy, despite the manifold biases against it (see below Chapter 4).

A second possibility to divide the industrial sector is into traditional and modern sub-sectors. According to wide-held beliefs the former group has been increasingly marginalised and does no more play an important role. However, the industrial statistics - although downward-biased - show that almost half of the production (39.8% of value added at factor cost[5]) is done by traditional industries. The Nyala data indicate that 75.3% of establishments and 45.8% of employees belong to that category (see Table 1).

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4   see Department of Statistics (1976), Nimeiri (1976), UNIDO (1986)
5   cf. Department of Statistics (1987)

Table 1: Industrial Survey Nyala 1987/88 (numbers of establishments and workers, average no. of workers per unit)

| Industries | December 1987/January 1988 | | | August 1988 | | |
	establ.	workers	workers/ establ.	establ.	workers	workers/ establ.
decortication	8	302	37.8	-	-	-
oil mill: traditional	3	3	1	-	-	-
oil mill: modern	8	372	46.5	6	269	44.8
grain mill	86	258*	3	86	258*	3
bakery	97	403*	4.2	97	403*	4.2
sweets factory	1	48	48	-	-	-
traditional sweets						
soft drinks and ice	1	31	31	1	33	33
snuff factory	1	11	11	-	-	-
textile	1	195	195	1	195	195
tailors	329*	353*	1.1	239*	242*	1.0
tannery	5	114	22.8	4	24	6.0
leather work	147	249	1.7	72	115	1.6
carpentry	168*	458*	2.7	131*	342	3.4
printing	2	20	10	2	25	2.5
soap	1	31	31	-	-	-
gum & plastic: informal	40	61	1.5	23	25	1.1
gum & plastic: modern:	1	20	20.0	1	20	20.0
tyre repair	5	16	3.2	4	14	3.5
pottery						
bricks						
metal work						
modern workshops	156	822	5.3	140	671	4.8
blacksmiths	69*	183*	2.7	58*	131*	2.3
tinsmiths	27	57	2.1	21	39	1.9
goldsmiths	9	43	4.8	9	43	4.8
foundries	9	39	3	6	18	3
bicycle repair	11	21	1.9	15	27	1.8
watch repair	20	23	1.2	24	24	1
radio, tv etc. repair	33	71	2.2	24	34	1.4
car electricity	11	52	4.7	3	14	4.7
painting and dyeing	4	4	1.0	3	6	2.0
palm leaves products						
mattress	10	30	3.0	2	5	2.5
total	1263	4290	3.4	972	2977	3.1
modern industries	312	2325	7.5	282	1677	5.9
traditional industries	951	1965	2.1	690	1300	1.9

Source: Hansohm (1992: 51); * = estimate;

The second dimension of employment generation is the relative capital intensity of SI vs. LI. The statistics show that SI needs only half of the capital per employee, as compared with LI. More significantly, the Nyala figures concerning those modern and traditional industries not included in the statistics show that these work with a fraction of the capital both LI and the registered SI need. In the face of the capital scarcity Sudan faces, this is an important finding.

Table 2: Size distribution of industries in Nyala (no. of employees/workers)

number of employees	1	2	3-5	6-10	11-24	25-50	51+
decortication	-	-	-	-	40	96	166
oil mill: traditional	3	-	-	-	-	-	-
oil mill: modern	-	-	-	-	-	253	119
grain mill*	-	-	258	-	-	-	-
bakery*	-	-	403	-	-	-	-
sweets factory	-	-	-	-	-	48	-
soft drinks and ice	-	-	-	-	-	31	-
snuff factory	-	-	-	-	11	-	-
textile	-	-	-	-	-	-	195
tailors*	308	40	5	-	-	-	-
tannery	-	-	-	-	114	-	-
leather work	90	60	92	7	-	-	-
carpentry*	3	278	85	64	28	-	-
printing	-	-	-	7	13	-	-
soap	-	-	-	-	-	31	-
gum and plastic: informal	26	18	17	-	-	-	-
gum and plastic: modern	-	-	-	-	20	-	-
tyre repair	1	2	13	-	-	-	-
metal workshops	7	32	257	356	170	-	-
blacksmiths*	6	96	39	14	28	-	-
tinsmiths	14	10	23	10	-	-	-
goldsmiths	1	2	16	13	11	-	-
foundries*	-	-	21	18	-	-	-
bicycle repair	2	16	3	-	-	-	-
watch repair	17	6	-	-	-	-	-
electric repair	10	28	26	7	-	-	-
car electricity	1	2	18	31	-	-	-
painting and dyeing	4	-	-	-	-	-	-
mattress	-	2	28	-	-	-	-
total	493	592	1304	527	435	459	480

Source: Hansohm (1992: 54); * = estimate

3.2. Income creation

Traditionally, the incomes in SI are regarded as lower in comparison with other industrial incomes. With respect to labour incomes, this assessment is confirmed by Sudanese data - however, the difference is declining: in 1970/71 the incomes in SI came to 58% of those in LI, while 11 years later (1981/82) they amounted to 83%. However, the profits in SI have been increasingly greater in SI: 136% of those in LI and 783% resp.[6]
The Nyala data show a high variety of wages and profits between and within the different sub-sectors. Labour incomes are

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6   see Department of Statistics (1976), Nimeiri (1976), UNIDO (1986)

comparatively high in most activites, both modern and traditional. There are no wage gaps between SI and LI. Because of the low capital intensity profits in relation to capital (return on equity) are much higher than in both small and large industries recorded in the statistics. These results contradict the wide-spread pessimistic assumptions with respect to SI's future potential.

3.3. Capital saving and capital mobilisation

Capital is a scarce factor in Sudan. It was shown above that SI needs less capital than its large counterpart. One mechanism to save capital is to build "human capital" by training on the job. Traditional small industries also save capital by self-production of machinery and utilisation of second-hand material. In contrast, however, the modern SI sub-sectors are highly dependent on imports. Because these are by far the more important - at least in the urban areas - , the assumption of import-independent SI has to be questioned.

With respect to mobilisation of capital, SI establishments indeed rely almost exclusively on self-finance, i.e. mostly the entrepreneurs own capital, to a smaller extent his family's savings. These are resources that would otherwise not be used productively.

3.4. Efficiency

Most analysts believe that Sudan's SI is an activity of low efficiency. However, the statistice refute this claim. While in 1970/71 the labour productivity of SI was indeed only 52% of LI's productivity, in 1981/82 the picture was reverse: LI attained only 72% of SI. With respect to capital productivity, the values of SI as compared to LI increased from 229% to 264%[7]. Although these averages conceal large differences between sub-sectors, the concept of low-efficiency SI does not apply.

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7   see Department of Statistics (1976), Nimeiri (1976), UNIDO (1986)

The SI sub-sectors analysed in Nyala show a lower labour productivity than those industries statistically recorded, but a much higher capital productivity than all recorded industries. However, because of the highly different character of SI and LI activities (with respect to products, technologies, inputs) and the different environment in which they operate (with respect to input channels, government discrimination etc.), a comparison is qualified. In fact, these differences question theoretical approaches concentrating on efficiency comparisons[8].

3.5. Linkages to other sectors

One main factor behind the failure of industrialisation in Sudan is the weak character of the linkages of modern industry to other economic sectors, which limit mutual stimulation. Recent statistics give no information on this topic. With respect to the analysed industries in Nyala, the more traditional and informal sub-sectors have indeed strong backward linkages (reliance on local inputs) as well as forward linkages (production of agricultural and industrial inputs). However, the modern SI sub-sectors rely mainly on imported inputs (machinery and raw materials) and produce almost exclusively consumer goods. This means that their backward linkage effects leak out abroad and that they have no forward linkages - in these respects they are not different from LI. Because these modern SI sub-sectors constitute the majority, the linkage argument has to be qualified: Under present conditions, only the less important traditional SI would clearly fit into a reformed industrialisation strategy based on the concept of agricultural-demand-led industrialisation.

3.6. Production for low-income markets

Modern LI in Sudan, as in other countries, produces almost exclusively for the high-income groups. Thus it contributes to the growth-constraining structures of income inequality. It is assumed by many that SI produces more for the neglected low-income groups.

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8   see footnote 3

The statistics on production and especially on consumption are too rudimentary to allow a detailed analysis. However, the industrial statistics suggest that SI - as far as it is recorded - concentrates on the production of urban wage goods (69.3% in 1981/82) - the goods it produces are hardly included in the consumption basket of most of the rural population.

With respect to Nyala industries, there is a dichotomy between traditional SI, which is oriented primarily at the needs of the low-income population and modern SI, which is oriented at middle- and high-income groups.

3.7. Wide geographical dispersion

Sudan's modern LI is highly concentrated on the "Three Towns" Khartoum, Omdurman, Khartoum-North. This contributes to the strong regional inequalities, a major factor behind Sudan's economic and political crisis. Small industry is indeed less regionally concentrated, especially if one considers the fact that the statistics are biased towards the large and urban industries which are more visible.

3.8. Training ground for entrepreneurs

The entry barriers to SI (capital, knowledge and training) are generally low - not only for the traditional, but also for the modern SI sub-sectors. Thus SI emerges as a potential field of training for entrepreneurs. At the same time, SI does not present itself as a transitory stage in an upward movement of entrepreneurs from agriculture to the "modern sector" as assumed by modernisation theories: the social background of the entrepreneurs is too varied. In fact, a look at the job history shows that more entrepreneurs come from the formal sector, especially the public sector. This indicates that SI increasingly emerges as an outlet for former public employees in the context of structural adjustment.

3.9. Ability to innovate and flexibility

Because of their small size and the circumstances under which SI establishments operate, it is hypothesized that they have distinctive advantages with respect to ability to innovate and flexibility. These characteristics are largely missing in LI. Analyses of changes in product structure and range, technology, and inputs indicate if SI is able to innovate. While modern SI enterprises are quite innovative, traditional SI operates on a low technological level and its product range is limited. A close look shows that this stagnation is not due to any innate inability to innovate, but rather to a lack of demand.

Inferences on flexibility can be drawn from analyses of income sources, markets operated on, character of products (varied and demand-adapted vs. standardized products), kind of technology and worker qualifications. The reliance on agriculture as an additional source of income was found to be much smaller than expected, especially for the modern SI sub-sectors. For all analysed entrepreneurs SI income is their main income, for most the only income. The dependence on traders is large with respect to inputs, but small with respect to product sales. Although SI does not conform to the expected picture of flexibility, because of their small size, their demand-adapted products, multi-purpose technologies used and their experience to operate in a market economy, SI enterprises are better equipped to respond to the impacts of economic reform.

4. Growth constraints of small industry

This analysis classifies constraints in two groups: internal and external constraints. "Internal" refers to constraints originating in the entreprises or entrepreneurs.

4.1. Internal constraints

Important constraints in this category are lack of entrepreneurship, management deficiencies, deficiencies in technical skills, and the relation of business and family.

Although *lack of entrepreneurship* is mentioned in several studies on Sudanese SI (as in other countries), data do not present evidence to substantiate this allegation. In fact, Nyala data refute it: There is overwhelming business activity and reaction to economic incentives. In general, the theory is hard to operationalize. At a close look many allegations reveal themselves as pure ideology. One indication given is the relation between education level and business success. Although the level of education of industrialists in Nyala varies highly, no meaningful relation to business success can be established; other qualifications than those learned in formal education institutions appear to be relevant for business success.

Studies on small industry in developing countries and especially in Sudan find a number of alleged *managerial deficiencies*: lack of book-keeping, inability to calculate profits, insufficient knowledge of prices, lack of stock-control, misperception of problems, little skill in carrying out the organisational functions etc. A close look at the studies on Sudan find very little evidence to substantiate those points. The study in Nyala found that the deficiencies were either not existing (e.g. inability to calculate profits, insufficient knowledge of prices, lack of stock control, misperception of problems) or not relevant for the small size of activity (e.g. lack of book keeping, little skill in carrying out the organisational functions, lack of effective supervision).

Several studies identify a *lack of technical skills* as a major deficiency of SI production. However, the Nyala study found that existing techniques are well adapted to the prevailing technologies. Technical training may only become an issue when new technologies are introduced. And even this is not beyond doubt, because the modern SI establishments show that people with a minimum of formal technical training are capable to perform a technological leap.

The *role of the family* is not as important as assumed by different theoretical approaches. The Nyala study found that very little family labour is involved in SI. Only in one of the traditional sub-sectors (blacksmiths) family labour constitutes the majority. The financial support of the family for the SI enterprise is also marginal. But the reverse support is important - surprisingly even more for the modern SI. This contradicts the assumption that especially in traditional SI the family is a drain on SI: on the contrary, in traditional SI families are less a drain and more a support for SI.

In several studies, *contempt of labour* is regarded as an important constraint to SI development. Although still wide-spread among the "educated people", this attitude no longer constitutes a supply problem for SI.

4.2. External constraints

Among the external constraints, broadly three groups can be distinguished: the first group concerns the relationship between SI and LI/the economy at large, while the second group emphasizes the lack of access to raw materials, product markets, technology and credit, and the last group emphasizes the pervasive role of the government (analysed in the following chapter).

The first group of arguments, emphasizing that SI holds a *subordinate position* and is exploited by LI, the formal sector or the larger economy, is refuted by the evidence from Sudan and Nyala. Most of the goods produced by SI are not in competition and do not act as a substitute for imported products, or for goods produced by LI. In any case, the share of SI products in the consumption basket of any income group is not large enough to make the argument meaningful. Furthermore, the incomes earned in SI are too large to fit into the picture of exploitation. Lastly, those sub-sectors which are in closest contact with the macro-economic environment, i.e. the modern branches, have better, rather than worse, growth prospects. This also contradicts the approaches emphasizing exploitation as a result of the incorporation into the economic environment.

The *supply of machinery and raw materials* is a main constraint to the development of SI in Sudan. This is especially true for the modern sub-sectors, which are extremely import dependent. Like the LI, they are a victim of the balance of payments crisis. Especially in Nyala, the problem is aggravated by supply interruptions due to the deficient infrastructure and the oligopolistic market structure. But also the traditional sub-sectors, which rely mostly on local and other domestic materials, face supply problems: for ecological reasons and because they are also dependent on the oligopolistic market system.

The second main constraint to SI development are the *low and declining incomes*. These limit consumption of the majority to a minimum and make even simple consumer goods appear as luxuries for wide parts of the population. The substitution effects of SI products for imports and LI products are very limited. Modern SI is mainly active on the limited markets of urban wage income earners, who face continuous income erosion. On the other hand, the traditional and informal SI sub-sectors address low income markets, which are also stagnating.

With respect to *technology*, SI shows a dichotomy. On the one hand, traditional industries operate at a very low level. However, the main reason for this is not the lack of access to improved technologies, but the neglect and discrimination of traditional agriculture, the most important source of demand. The few attempts of development projects, e.g. the Jebel Marra Project and the Western Savannah Development Corp., to increase the technological level of agriculture with the means of improved locally produced implements prove that indigenous entrepreneurs are in a position to raise their technological level, if external constraints are removed. Modern SI sub-sectors, on the other hand, operate partly with very up-to-date technologies (often acquired abroad), which are not always optimal in terms of the relation of capital to labour, the availability of spare parts and energy supply.

The *access to credit* is a main constraint mentioned in studies on SI in Sudan - as in other countries. However, the evidence is not unequivocal. The Nyala study shows that with respect to initial investments the system of self-finance seems to be appropriate: Entrepreneurs are able to raise enough capital to start business. If successful, they manage to grow. But with respect to working

capital, this system results in a dependence on supplier and customer credits, higher production cost and lower capacity utilisation because of frequent interruptions of production.

4.3. Government discrimination

Government policy can be identified as a major factor behind the external constraints to SI development. The government plays a strong role in the Sudanese economy in general and the industrial sector in particular. Besides the important role of the government as an industrial producer, the sector is highly regulated by plans, laws, ordinances, and institutions.

With respect to SI, project efforts and positive policy impacts are negligible compared with the negative policy effects. Although promotion of SI has been proposed by Sudanese intellectuals, development agencies and Sudan's donors, these proposals were hardly translated into action - neither by the donors nor by the government. The few attempts of SI promotion had mixed success. In the context of structural adjustment policy the emphasis on industrial policies (of donors as well as the government) was laid on rehabilitation of the existing LI. But more important was the general tendency of declining interest in industry as a whole. Although the promotion of SI is also mentioned as an objective in several of the government programmes, in the face of the actual lack of action this appears to be a mere gesture.

The policy impacts (positive and negative) can be analysed systematically with the help of the following table of policy distortions, which categorizes the impacts according to their entry points (see Table 3).

Table 3: Policy effects on industrial producers

factor and other input markets
1.policies affecting the price
  of labour
    a.minimum wage laws
    b.labour legislation
    c.public sector wages
    d.policies towards unions
    e.labour based taxes
2.policies affecting the price
  and availability of capital
    a.interest rates and credit
    availability
    b.import duties and quotas
    c.exchange rates and controls
    d.capital-based taxes (e.g.
      accelerated depreciation)
3.policies affecting the
  availability and price of
  other inputs
    a.import duties
    b.exchange rates and controls
    c.price controls
    d.access to and price of infrastructure
4.regulatory policies affecting
  the relative profitability of
  different producers and
  production techniques
    a.land allocation and tenure
    b.zoning
    c.licensing and registration
    d.monopoly privileges
    e.application of production standards

output markets
1.policies affecting demand for
  domestic products through the
  price of competitive traded goods
    a.effective rates of protection
    (import duties and quotas on inputs
    and outputs)
    b.exchange rates and controls
    c.export taxes and subsidies
2.policies affecting demand through
  sectoral income distribution
  (agriculture vs. industry;
  rural vs. urban; SI vs.LI)
    a.differential structure of
      protection
    b.differential export taxation
    c.differential foreign exchange
      rates and controls
    d.differential expenditure on
      services and infrastructure
    e.differential taxation
    f.differential output pricing
    g.direct investment in production
3.policies affecting demand through
  vertical income distribution
    a.fiscal policy, transfers and
      taxation
    b.item 2 above
4.price controls for finished
  products

Source: Hansohm (1992: 183), adapted from: Haggblade et al. (1986: 10)

The systematic analysis shows that only few of the distortions give an advantage to SI, e.g. the non-regulation of SI's labour market. But the vast majority constitute a negative distortion. Altogether the impact is rather negative. Important instances are:

- no access for small enterprises to a subsidised capital market, limited access to development banks;

- no access to the regulated and subsidised market for industrial inputs;

- subsidies for LI by tax and customs exemptions, electricity & water supply, transport and provision of land (at nominal prices); in sum, a high protection of this sub-sector against imports, i.e. a high discrimination of SI;

- removal of SI from city centres to unfavourable areas;

- policies discriminating against traditional agriculture, a main sector of demand for SI products; the favoured sub-sectors of mechanised farming and irrigated agriculture are dependent on imported inputs.

5. Conclusion

Main conclusions are:

1. Conventional methods of field research, as still mostly used (standardised questionnaires, single visits, isolated micro-analysis), are not suitable to analyse structure and problems of SI.

2. SI is an important economic sector. Available statistics cover only a fraction of the existing SI. This implies, furthermore, a biased picture of the sector: only the larger, the urban and the more visible activities are covered.

3. Traditional concepts of the sector are inadequate:

- The activities of the "informal sector" are not unequivocally different from those of the "formal sector".

- The SI as defined by most in Sudan (enterprises with less than 25 employees) includes very different activities; the larger enterprises of the sector are hardly different from LI: In reality there is a continuum in the dimensions of size, formality and modernity.

4. Some of the analysed distinctive advantages of SI are verified:

- labour intensity
- income creation
- capital mobilisation
- efficiency
- geographical dispersion
- training area of entrepreneurs (low entry barriers)

5. With respect to other hypotheses there is a dichotomy between traditional and modern sub-sectors: only the former show in fact the assumed advantages:

- self production of capital goods and utilisation of "second-hand" material
- forward and backward linkages
- production for low-income groups

6. Theories emphasizing internal development constraints (lack of entrepreneurship, management and technical deficiencies) as primary, are contradicted by the evidence of Nyala.

7. The supply with capital goods and raw material is a primary constraint. This is true especially for the modern sub-sectors, but also for the traditional sub-sectors (ecological crisis, marketing structure).

8. Second main constraint is the demand: low and declining incomes minimise the income available for the consumption of industrial goods.

9. A main factor behind the external development constraints is the government policy. SI is not only neglected (the sector has generally no access to the privileges of LI), but also negatively influenced by relevant policy measures. Especially important in this context is the discrimination of traditional agriculture, a main source of demand for SI products. In contrast, the promoted sub-sectors (irrigated agriculture, mechanised rainfed agriculture) are dependent on imports.

10. In the face of the distorted policy environment isolated projects would not be the ideal way to promote SI. The first step of promotion is a removal of the negative distortions. Complementary steps would be an intervention by projects in the areas technology advice and credit-supported raw material supply.

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