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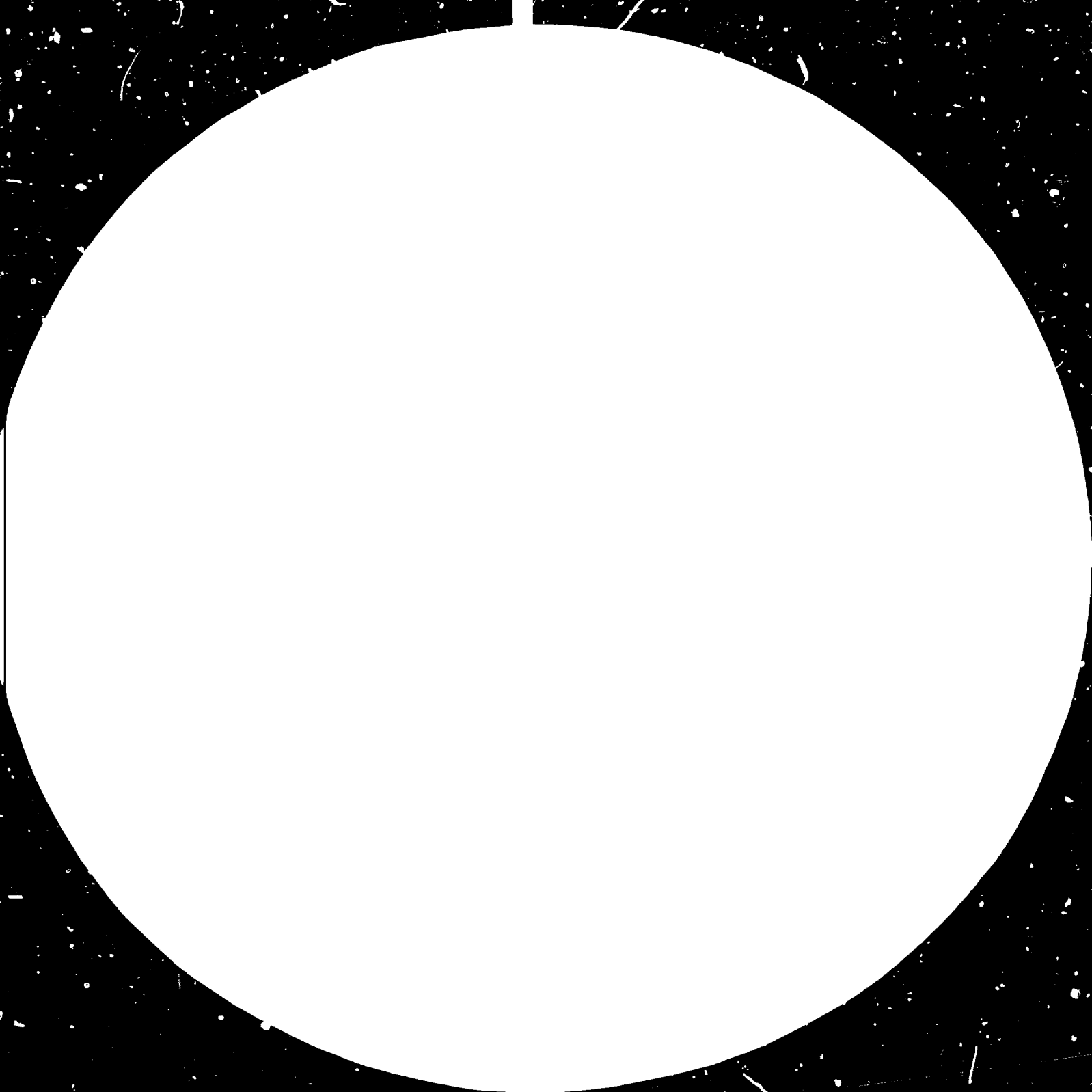
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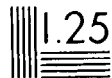
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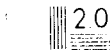
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Development of Agricultural Machinery Industry  
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ALGERIA: EXPERIENCE GAINED IN THE ESTABLISHMENT  
OF AN AGRICULTURAL MACHINERY INDUSTRY \*

by

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\* The views and opinions expressed in this paper are those of the authors and do not necessarily reflect the views of the UNIDO Secretariat. This document has been translated from an unedited original.

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## I. GENERAL INFORMATION

1. Sociological aspects(a) Population (according to 1979 data)

Total: 18 million

Rural: 9.3 million

Economically active population

Total: 3.1 million

Agricultural: 1.4 million

2. Agricultural area and its distribution by legal status (sector)(a) Useful agricultural area7.5 million hectares of which 335,500 hectares  
(or 5 per cent) are irrigated.(b) Distribution of the useful agricultural area by  
legal status (sector)

Private sector: 4.2 million hectares

Self-managed sector: 2.3 million hectares

Co-operative sector: 1.0 million hectares

(c) Structure of agricultural holdings

Size of holdings	Number of holdings (in thousands)	Percentage of holdings	Total useful agri- cultural area (in thousands of hectares)	Percentage of useful agri- cultural area
1 to 5 hectares	282	32.0	661	13
5 to 20 hectares	212	24.0	1 955	38
20 to 50 hectares	48	5.5	1 305	25
More than 50 hectares	13	1.5	1 162	23
Total <sup>1/</sup>	876	100.0	5 188	100

<sup>1/</sup> Excluding holdings of less than 1 hectare.

3. Agricultural production and its development  
over the medium term

Unit = 1,000 tonnes

Products	Current situation (1979)			1984		
	Require- ments	Domestic production	Rate of coverage	Require- ments	Domestic production	Rate of coverage
Cereals	3 700	1 740	47	4 277	2 136	50
Hard wheat	2 350	910	39	2 484	1 100	44
Soft wheat	1 000	480	48	1 491	734	49
Barley	350	350	100	302	302	100
Pulses	113	63	56	140	140	100
Fresh vegetables	1 071	975	91	1 490	1 494	100
Fresh fruits	822	862	105	988	989	100
Dried fruits	168	179	107	205	210	102
Table olives	6.5	10.5	162	12	17	142
Sugar	432	13	3	496	20	4
Fats	280	19.5	7	340	31	9
White meats	83	83	100	151	151	100
Red meats	142	125	88	180	146	81.1
Eggs	37	12	32	62	62	100

Note: The requirement figures refer to human consumption only.

## II. AGRICULTURAL MECHANIZATION SECTOR

1. Current size of the pool (1979)

Type of machine	Number of units
Tractors <sup>1/</sup>	37 930
Tractors, two-wheeled	550
Combine harvesters	4 330
Mowers	13 066
Side delivery rakes	9 250
Pick-up balers	6 000
Cutter-blowers	442
Mouldboard ploughs	16 392
Disc ploughs	18 794
Stubble ploughs	3 937
Sprayers	18 000
Toothed implements	15 000
Other agricultural implements	9 500
Seeders	7 100
Spreaders	6 270
Crop-treatment equipment <sup>2/</sup>	12 270
Trucks	3 742
Trailers	14 640
Special-purpose machines, drawn or engine-powered	1 000

<sup>1/</sup> Wheeled tractors of 45, 65, 100, and 220 hp (73 per cent of the pool); caterpillar tractors of 50 and 80 hp (27 per cent of the pool).

<sup>2/</sup> Drawn and carried implements only.

2. Development of requirements in respect of agricultural equipment

Type of machine	Projected acquisitions for the period 1980-1984			Status of pool by 1984
	Replacement	Increase	Total	
Tractors	22 500	13 900	36 400	51 830
Two-wheeled tractors	190		3 530	4 080
Combine harvesters	2 850	1 810	4 660	6 140
Mowers	5 000	10 184	15 184	23 250
Side delivery rakes	3 625	2 370	5 995	11 620
Pick-up balers	3 000	6 670	9 670	12 670
Cutter-blowers	259	808	1 067	1 250
Agricultural imple- ments	30 000	57 187	87 187	137 810
Seeders	2 750	15 130	17 880	22 230
Spreaders	6 270	9 380	15 650	15 650
Crop treatment equipment	10 000	1 320	11 320	13 900
Trucks	2 350	4 278	6 628	8 020
Trailers	5 500	7 510	13 010	22 150
Special-purpose machines	1 000	2 000	3 000	2 000

Note: By 1984 the projected mechanization factors (the ratio between the theoretical number of tractors calculated on the basis of operating time and area suitable for mechanized working) will be as follows:

- 13 per cent for oasis agriculture;
- 13 per cent for mountain agriculture;
- 82 per cent for dry cultivation of cereals;
- 90 per cent for dry arboriculture;
- 100 per cent for viticulture;
- 100 per cent for mixed farming, under irrigation;
- 100 per cent for mixed farming, dry;
- 100 per cent for irrigated arboriculture;
- 100 per cent for intensive market gardening.



3. Types and numbers of equipment items manufactured or assembled in the country  
(maximum plant capacity)

Type of machine	Numbers
Wheeled tractors, 45 hp	400
Wheeled tractors, 65 hp	5 000
Agricultural implements	13 000
Seeders	1 000
Fertilizer spreaders	1 000
Crop-treatment equipment	4 000
Mowers	1 000
Side delivery rakes	1 000
Combine harvesters	500
Pick-up balers	700
Trailers	4 000

4. Percentages of imported equipment by category

	Percentage manufactured domestically	Percentage imported
Tractors	50	50
Agricultural implements	95	5
Seeding and fertilizing equipment	60	40
Harvesting equipment	40	60
Transport equipment (excluding trucks)	100	0

5. National strategy or programme for the development of the agricultural machinery industry

See chapters II and III.

Is there a plan for co-operation in this area with other countries or firms through complementary production?

(a) Agreements have been signed with the following companies for the manufacture of the products indicated:

KHD	Federal Republic of Germany	Wheeled tractors, 45-62 hp
CLAAS	" " " "	Harvester combines Pick-up balers Side delivery rakes
BUSATI	" " " "	Mowers
RABE	" " " "	Agricultural implements (ploughs of all types: cover-crop, etc.)
AMAZONE	" " " "	Seeding and fertilizing equipment
PLATZ	" " " "	Crop treatment equipment

(b) What is the annual production capacity?

Wheeled tractors	5,000 units per year			
Harvester combines	500	"	"	"
Pick-up balers	700	"	"	"
Side delivery rakes	1,000	"	"	"
Mowers	1,000	"	"	"
Agricultural implements	13,000	"	"	"
Seeding equipment	1,000	"	"	"
Fertilizing equipment	1,000	"	"	"
Crop-treatment equipment	4,000	"	"	"

(c) What are the forms of co-operation?

This agricultural equipment is manufactured under licensing agreements with foreign partners. These agreements provide that in return for a lump-sum payment for the initial transmission of the documentation required for the manufacture of the products and the payment of royalties based on the value of the components manufactured in Algeria, the Algerian side is to be authorized to manufacture these items and is to receive any information pertaining to their improvement or further development.

(d) What are the terms of this co-operation?

The licensing agreements referred to above are contracts concluded between the Algerian side and the foreign manufacturers. Since the formula under which Algerian plants are built is of the so-called "product-in-hand" type, these licensing agreements are annexed to the main contract covering the building of the plant.

Are there any product standardization projects?

Since 1969 there has been a growing trend towards standardized tractor power. The ranges in use cover wheeled tractors of 40-45 and 60-65 hp and caterpillar tractors of 40-50 and 80 hp. However, because of efforts to intensify agricultural production, some demand for more powerful equipment (100 and 200 hp) appears to be emerging.

The standardization of tractor power is increasingly limiting the diversity of the associated agricultural equipment. Furthermore, the quality of imported products is determined with reference to domestic production.

Is there a need to adapt or modify imported equipment?

Generally speaking, there are no major problems with regard to the adaptation of imported equipment to local conditions, particularly in the case of conventional equipment.

Some difficulties do arise, however, in the case of certain categories of more sophisticated or specialized machines (tuber planters and harvesters, combined seeders, certain combinations of soil-preparation equipment, etc.).

6. Domestically produced equipment

More than 50 per cent integration.

7. Types of domestically produced equipment

Which of this equipment is designed and manufactured domestically?

- Hand tools;
- Animal-drawn implements;
- Trailers.

Which of this equipment is manufactured under licensing or other arrangements?

See 5 (a).

What is the ratio between the two preceding categories?

The first category accounts for only a negligible quantity (in terms of value) in comparison with the second.

8. Current production

Is current production adequate to meet domestic demand? If not, indicate the categories in which demand is not being met and the size of the deficit.

Tractors, wheeled	3,000 units
Tractors, caterpillar	2,000 "
Harvester combines	500 "
Pick-up balers	1,500 "
Mowers	1,000 "
Side delivery rakes	1,000 "
Agricultural implements	500 "

What were the problems that have been encountered and solved?

See chapter II, Experience.

What are the shortcomings requiring improvement or review?

See chapters II and III.

9. Demand for agricultural equipment

Is there a demand for other types of equipment?

The aim of increasing agricultural production and the introduction of more intensive farming systems have necessarily led to the mechanization of a number of crops previously grown with little or no mechanical assistance (potatoes, sugar beets, legumes, tobacco, processing tomatoes, oil seeds, etc.). This mechanization involves mainly soil-preparation systems, special-purpose harvesting machines, equipment for treatment, conditioning, and the like.

If so, is the failure to meet this demand due to the lack of:

- (a) Trained personnel;
- (b) Resources for design, adaptation, production, marketing, etc.?

What administrative measures might solve this problem?

The real demand for specialized machines and other sophisticated equipment is determined by the pace of modernization in the agricultural sector and the efforts to develop more intensive production systems.

The problems which limit this demand are:

- The shortage of skilled workers;
- The absence of special channels and means for disseminating information on agricultural mechanization.

The measures that have been taken to alleviate these problems include, among others:

- Implementation of the "Agrarian Revolution", whose purpose is promotion of rural areas;
- The establishment of a number of research and development institutions to support the production sector;
- The gradual restructuring of agricultural holdings;
- The restructuring of the service organizations upstream from production activities.

## II. EXPERIENCE

The most notable feature of the Algerian agricultural machinery industry is its youth, since it only really got under way in 1974, with the start-up of the tractor plant at Constantine. This is an important factor that must be borne in mind if a correct assessment is to be made of the results which Algeria has now achieved in this industrial sector.

In addition, it is important to point out that, lacking any institution specialized in research and development in the area of machinery specifically for agriculture, Algerian agriculture has been unable to contribute to the formulation of manufacturing programmes best suited to local conditions. As a result, Algerian industry has not been involved in programmes to manufacture machinery specifically for agriculture.

It must be further noted, however, that because of the country's climatic conditions and the crop varieties thus far grown on its farms, very special designs are not in general required; standard agricultural machines and farming implements are used in Algerian agriculture without major modification. Most often when foreign suppliers are approached for agricultural equipment, the Algerian grower selects the manufacturer's most "stripped-down" model, namely the one which includes the fewest optional features. In the case of tractors, for example, such additional features as a safety-engineered operator's cabin or multiple hydraulic attachment points for auxiliary equipment are not usually ordered.

Since the conditions of Algerian agriculture present no obstacles to the use of the standard equipment types, the production programmes of the agricultural machinery industry have from the outset concentrated on the manufacture of conventional but up-to-date products.

This approach, however, is only transitional, not final. There is no doubt that the study and development of agricultural equipment better suited not only to the country's soil and its climatic conditions, but also to the mechanization models which Algerian agriculture intends to follow, would lead to greater efficiency in the working of the land and would do so more economically by bringing about savings in horsepower and associated costs.

Algerian planners have concluded that, as a first step, the most urgent need is to create an industrial base for products with which users are already thoroughly familiar, so as to avoid a dissipation of effort between the mastery of industrial processes and the study and development of new machines. Whereas in a country which already has a solid industrial infrastructure it may seem natural to put research first, knowing that technological processes pose no problems for its industries, we believe that, in a country which still lacks such an infrastructure this approach may make the country's industrial projects unrealistic, and will at least considerably delay implementation of those projects.

In the light of these considerations, beginning in 1969 Algeria launched an industrial programme for the manufacture of agricultural equipment, building for this purpose two relatively large industrial complexes - one at Constantine, in the east of the country, for the manufacture of engines and tractors, the other at Sidi Bel Abbès, in the west, for the manufacture of harvesting machines (combines, pick-up balers, etc.) and of crop-treatment and agricultural implements.

The products covered by the production programmes of these two industrial complexes are equivalent to those of the licensors. Operation of the equipment, most of which was already familiar to the growers, has proven satisfactory. In this way, the approach of first undertaking the mastery of industrial processes and the manufacture of well-tried products can produce positive results.

Assessing the merits of the Algerian experience in the industrial production of agricultural machinery, we can say that the most signal success lies in having risen to a challenge - that of building an integrated and autonomous

industrial base from an essentially agricultural economy with no real industrial fabric and totally lacking in management skills, training and know-how.

We believe that the reasons for this success are linked to the policies pursued by Algerian planners, who from the very outset have rejected industrialization formulae based on assembly (the limits of which are now known) in favour of a long-term strategy which does not aim at immediate economies, but represents a guaranteed asset for the country's future.

Coupled with this attention to long-term considerations, a second characteristic of the Algerian industrialization strategy has been its selection of the way in which investments are made. As a consequence of the country's total lack of industrial traditions, the implementation forms based on the conventional "turn-key" "cost-plus-fee" formulae with which Algerian industry experimented prior to 1969 were soon found to be inadequate, principally because of the high cost overruns caused by excessive delays in the completion of projects and, above all, in the start-up of plants. The reasons for these problems lay primarily in the deficient managerial skills of the Algerian teams, difficulties in finding skilled labour and ignorance of the international industrial situation. It was therefore necessary to find implementation forms capable of minimizing these otherwise insuperable obstacles. The solution selected by Algerian planners lay in the "product-in-hand" concept, according to which the builder's task goes beyond the responsibilities associated with "turn-key" projects, ending when the plant has attained the rate of production stipulated in the contract, at the planned level of integration and with Algerian personnel, and when the products delivered are of a quality equivalent to that achieved by the licensor himself at his own plants.

The "product-in-hand" concept implies over-all responsibility on the part of the builder, something which has particular repercussions in the training of personnel for all jobs and in their deployment with a view to meeting predetermined productivity standards.

In this way, therefore, the obligation to provide means which is always imposed on the developing country is matched by the obligation to provide results on the part of its industrial partner.

The imposition of this responsibility on the foreign partner means that in the total investment the proportional weight of the items "training" and "technical assistance" rises to levels comparable, for example, with the headings

"production materials" or "infrastructure". In turn, the corresponding increase in investment cost guarantees a plant that will actually produce, whereas under the conventional implementation formulae there is a great risk that the plant, once completed, will be found incapable of producing. In other words, in the one case a slightly higher price is agreed to in the certainty of getting results; in the other case a lower price is paid at the risk of getting nothing.

Another advantage of the "product-in-hand" formula is the fact that under it one single partner, responsible for the undertaking is being dealt with, and not a host of parties to be paid.

It is important to note here that the intention of the Algerian strategy, which was energetically introduced through the establishment of large and highly integrated industrial complexes built according to the "product-in-hand" formula, is not to reproduce this model of development indefinitely. The solution which has thus far been adopted has to be seen in the context of a particular period in our country's history when there was a need to transform the national economy from a simple colonial market into an industrial force able, over the medium term, to ensure its own self-sustained reproduction. It was for this reason that in the specific case of agricultural machinery the decision was taken to manufacture, with the highest possible degree of integration, a very wide range of machines and implements, with a view to gaining the earliest possible mastery of the technological processes involved in the manufacture of this equipment. This is specifically the reason for the inclusion of the foundry, forging and heat-treatment facilities at the Constantine engine and tractor plant. It is also the reason for the decision to produce plough discs at Sidi Bel Abbès, thereby optimizing the degree of integration with respect to these implements.

The difficulties which the Algerian agricultural machinery industry has had to cope with arise at various levels. The first that should be mentioned is the difficulty of finding partners willing to accept the "product-in-hand" approach, since they have not been accustomed to this type of transaction.

In general, this may pose a serious handicap both because of the need for lengthy negotiations and because the number of potential industrial partners may be reduced so drastically that the desirable degree of competition cannot be realized. In the case of Algeria, it has been possible to circumvent this



difficulty by virtue of SONACOME's status as a State monopoly, which makes it a privileged partner. In effect, in its commercial relations SONACOME extends favoured treatment to those suppliers who are willing to participate in the industrial production of their products in Algeria.

While no major difficulties have been encountered in the implementation phase, the same cannot be said of the phase of starting up of production and mastery of the installations. In most cases, the difficulties encountered during this second phase arise from the fact that, perhaps because of a lack of experience, the foreign partners have implicitly applied the same industrial standards in effect at their own installations, without sufficiently taking into account specific local conditions. An example of this is the storage floor-space at plants. Whereas in developed countries stocks of raw materials and semi-finished products rarely exceed a fortnight's requirements, in Algeria, mainly because of the slow supply situation, they may be intended to cover six months or more. Accordingly, it becomes necessary to provide a larger storage area than usual both for downstream operations and for intermediate products (so as to absorb possible fluctuations in production) and finished goods (finished products awaiting completion).

The same reasoning also applies to the setting of overly optimistic production standards by industrial partners who fail to take into account the factor of apprenticeship of the Algerian workforce, an apprenticeship that is inevitably slow owing to the lack of an industrial tradition.

These difficulties have had a direct impact on production costs, which therefore continue to depress the economic return below that in industrialized countries, despite the very substantial cost reductions that occur as the rate of production increases.

High production costs, which are also due to the fact that economical series production is not achieved in the case of all products, must be regarded as the price to be paid to permit Algeria to begin the process of comprehensive national development, all the more as there is always a price to be paid in one form or another.

The following stage envisaged by Algerian planners in the agricultural machinery area will pursue a two-fold objective: the reduction of production costs and the development of the existing industrial capacity. The action undertaken to promote these goals is of two major kinds:

- Rationalization of production;
- Improvement of management.

The principal feature of the two Algerian agricultural machine-building complexes is their high degree of product integration. The original reason for this vertical integration was the need to concentrate the little industrial competence available on a limited number of projects. At the time, there was no possibility of simultaneously undertaking the erection of separate facilities for casting, forging, machining and assembly, while ensuring properly coordinated flows among them. The skills required were of a magnitude that made this approach altogether unthinkable.

Similarly, it was impossible to resort to any form of local subcontracting, considering that the country almost totally lacked an industrial fabric. As a result, the industrial complexes were compelled to undertake the manufacture of many parts traditionally produced by subcontractors (springs, pipes, plastic parts, exhaust systems, etc.).

While vertical integration has enabled Algerian industry, within a relatively short time, to gain expertise in the principal technological processes employed in this sector, it now seems that some kind of horizontal integration is needed to help lower production costs by greatly alleviating the problems in the management of the complexes. A reorganization of this kind is now possible, on the one hand, because of the emergence of a sufficient number of skilled personnel and, on the other, because of the genuine possibilities for local subcontracting, which have in turn become available as a result of the country's over-all industrial development.

The rationalization of the Algerian agricultural machinery industry is now envisaged in terms of a restructuring of the installed industrial capacity. This restructuring might be geographical in nature, involving the relocation of certain activities to other sites. An example is the Sidi Bel Abbès complex, whose production programme includes 31 different products. The plans now under study for this complex provide for transfer of the manufacture of the agricultural implements to another site, while retaining disc production at Sidi Bel Abbès. In addition, an evaluation is being made of the advisability of assigning this plant, over the long term, to the exclusive production of harvesting machines only (combines and pick-up balers).

In the case of the Constantine engine and tractor plant there are a number of restructuring possibilities:

- Relocation of the manufacture of certain engine types to another site;
- Relocation of the assembly section;
- Specialization of the Constantine plant in traditional wheeled tractors, with new tractor types (caterpillar, four-wheel-drive, two-wheel) manufactured at another location.

This restructuring policy has also been made necessary by the expansion of the market, as a result of which runs are becoming larger and thus more economical.

### III. RECOMMENDATIONS

Under this restructuring policy, Algeria sees opportunities for establishing co-operative arrangements with other developing countries that might be based on complementary manufacturing programmes or on association in joint development projects exploiting each country's experience and its degree of competence in working with different technological processes. The foreseeable advantages of this kind of co-operation would flow essentially from the economies of scale made possible by higher production levels. Algerian planners believe that achievements by the developing countries in the area of agricultural machine building can constitute an industrial force powerful enough to make it possible to attempt to counterbalance the current domination of the world market by a few transnational corporations. However, this industrial force can be effective only if there is some kind of pooling of the installed production capacities of the developing countries.

As a consequence of the recent trend towards world-wide recession in the agricultural machinery sector which will inevitably be reflected in a process similar to that which has affected the motor car industry - namely, the emergence of small groups of producers controlling vast markets - it will be impossible for most developing countries to find markets large enough to sustain economically justified production levels. Accordingly, what appears to be the current strategy of the developed countries, with their co-operative arrangements take-overs and mergers, should be matched by the developing countries with genuine collaboration.

A failure by the developing countries to take concerted steps will cause them to relive the scenario of the automobile industry, a sector in which they are conspicuous by their absence.

Those developing countries which have achieved a relatively high technological level (corresponding to category IV in the UNIDO classification) ought to be able to act as the "carriers" of this strategy by studying among themselves all the opportunities for joint production programmes and by considering the use of some types of subcontracting in the less developed countries, where regional undertakings might be organized.

This strategy should not rule out the possibility of co-operation with medium sized manufacturers in developed countries, for whom opportunities of this kind might be attractive in a number of ways.

The implementation of this strategy would represent a genuine challenge to the trends now affecting the agricultural machinery industry. The approach which we believe could promote the desired co-operation must be based on measures which are specific, initially modest and capable of being carried out quickly. To this end, the Beijing meeting might well mark the starting point for an increasingly fruitful co-operation process by, for the first time, providing the developing countries with a unique forum in which to exchange their experiences directly.

Later on, similar meetings should be organized to deal with such specific aspects of agricultural machine building as:

- Traction equipment;
- Harvesting equipment;
- Treatment and seeding equipment;
- Agricultural implements.

The advantage of these meetings would be to enable the developing countries to examine existing possibilities for co-operation in each of the above areas in a practical light and to initiate specific joint actions.

With this in mind, Algeria is considering the advisability of a deeper analysis of its practical experience in the manufacture and use of agricultural tractors. The Government intends to request the assistance of UNIDO in identifying such areas as may be of interest to other developing countries and to come to an agreement with it on the most appropriate framework for disseminating

of this experience and also availing itself of the experience of others. This would entail an analysis of the technical and economic aspects of this industry and an effort to find answers to the principal concerns of the developing countries. Some of these concerns are reflected in the following questions:

- Is tractor production a practical proposition in a developing country which has no industrial fabric? Are there prerequisites that must be met before the manufacture of tractors can be begun?
- What are the minimum production volumes at which it is possible to ensure a given rate of return?
- How should research and development programmes be organized in existing production units?
- Is the concept of "appropriate technology" applicable to the manufacture of tractors? Should developing countries concentrate on the design of tractors suited to their physical conditions, or will this approach be fruitless?

Given the importance of the tractor to the agricultural machinery industry, it is probable that all these questions will be discussed at the Beijing meeting. The meeting proposed above should provide a forum to pursue this debate and evolve clear answers to these and other issues whose relevance will have been demonstrated at the Beijing meeting.

Algeria takes the view that the agricultural machinery sector has already been the subject of enough discussion, which, although doubtless fruitful, has on the whole been too general to lead to a practical programme of action. The time has perhaps come when this discussion should be focused on practical matters for which measures of immediate relevance to the developing countries can be proposed. These measures should be part of an effort to strengthen the negotiating capacity of these countries in both commercial and industrial terms. The fact is that it is time to realize that unless a genuinely powerful negotiating position can be developed, all other initiatives are unlikely to lead to conclusive results.

One of the best ways of strengthening the negotiating capacity of the developing countries is to influence the legal conditions of the purchase contracts (whether for products or technology) which these countries conclude with foreign firms. Algeria's recommendation in this area is that UNIDO should undertake to complete the work already begun on the preparation of model contracts. Algeria is prepared to contribute its experience in this field.

Out of this same desire to make available to the developing countries the means of improving their negotiating capacity, Algeria believes that there is an urgent need to organize a system of information between these countries in the area of agricultural mechanization. In practical terms, this will mean envisaging the establishment of a data bank, an idea whose usefulness has often been emphasized at previous UNIDO meetings.

The data initially stored in this bank would be informational in nature and designed to keep the developing countries informed regarding the factors of greatest importance in the international agricultural machinery markets, with special attention to the status of this market in the developing countries. One of the chief objectives of this information system would be to bring to the attention of a developing country the successes or failures of another developing country in its international commercial (or industrial) relations. This would obviously be very useful to the developing countries, but it would also clearly be of value to those firms displaying a positive attitude towards their customers.

Algeria's recommendation in this connection is that, over the medium term (within two years), arrangements should be made for the publication of a regular newsletter containing all the information of a commercial and industrial nature on agricultural mechanization in the developing countries. UNIDO's assistance in the centralized collection of this information would be a key factor.

In order to initiate this process, it may be necessary, at least during the initial phase, to deal with only a limited number of types of agricultural machinery. For example, it might be possible to begin with only tractors and combines, extending the coverage later on to other types of equipment.

