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**SELECTION OF FIVE INNOVATIVE JOB
SKILLS AND TRAINING PROGRAMS
FOR THE MODEL CENTERS OF MAAS**

**Small-Scale Enterprises
and Integrated Development**

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EXECUTIVE SUMMARY

Summarized below are the job/skill areas, and the sites proposed, for the five Model Centers. Two alternative projects are also indicated, one of which suggests considerable potential:

SITES

JOBS

SALE (for handicapped young men and women)

Repair of typewriters and/or sewing and knitting machines.

BENI-MELLAL OR
FQUIH BEN SALAH

Canning/preservation of agricultural products and fruit drying.

MARRAKESH

Manufacture of wheelchairs (welding), manufacture of crutches (woodworking).

FES

Modern leatherwork: leather garments and utilitarian articles.

TAROUDANT OR

OULED TEIMA

Repair of small irrigation motor pumps.

ALTERNATIVES FOR STUDY

AGADIR

Training of monitors of childcare centers.

TAROUDANT OR
AGADIR

Extraction and production of Argana oil.

I. The projects proposed as replicable "Model Centers" for job training programs for low-income Moroccan youth seek to provide skills nuclei to tap the developmental and integrative effects that small-scale enterprises have so frequently demonstrated in both early and late industrializing countries: multiplication of employment possibilities at low "overhead" costs, mobilization for investment of untapped private savings and entrepreneurial talent, and horizontal extension of social capital through their accessibility to rural areas.

A. The agro-food processing sector occupies a central place in the Moroccan economy, but its economies of scale and geographic concentration leave opportunity gaps which could be exploited by flexible small processing/"canning" operations. The overall growth of agriculture also creates opportunities within its servicing industries, particularly mechanical services such as irrigation/water pumping.

B. Despite the comparatively feeble role of small enterprises in modern Morocco, a number of recent initiatives indicate a more favorable policy climate. The new credit flow to artisanal industries is promising, particularly given the importance of artisanal activities to both employment and hard currency earnings. Initiatives within MAAS and the strong potential for auto-transformation within certain branches, such as leatherworking, suggest entrepreneurial openings for small modernized "artisanal" enterprises.

C. Other Model Centers bring small enterprise development potential through developing skills to introduce needed services or products, and these programs find their logic within the parallel social concerns of the Ministry.

II. The criteria applied to select the job/skills areas involve three conditions of a fairly absolute nature: each

must be considered to be socially and economically viable, technically and financially feasible, and appropriate to the institutional context. A fourth criterion, replicability, can only be applied in a relative and conditional manner.

III. The occupations proposed for the five Model Centers of MAAS are discussed in terms of their larger economic context and potential -- particularly in light of their potential to promote small-scale enterprise development -- and the techniques, possible elements of support, and outlets for the products or services are reviewed. An outline is presented of the principal elements of each of the five proposed projects, and for two alternate projects requiring further study.

INTRODUCTION

As versus the specification of a training program designed to respond to the needs of a specific enterprise or project, the process of selecting new jobs and skills for a network of training centers on a national scale, and addressing the employment potential of a whole series of social strata and regional groups ... introduces a number of considerations which go beyond such a narrow frame. To the extent that this process of selection seeks to maximize the area of innovation, while still maintaining a firm link to the real "job market" and to the chosen course of economic development, two perspectives are required. Those of the training specialist, for whom the paramount elements consist of human potential and assimilable techniques, should combine with those of the researcher of the economic domain -- and of those opportunities identifiable in the context of the social and economic program defined by the leaders and planners of the country in question.

I. INNOVATIVE JOB SKILLS, INTEGRAL DEVELOPMENT

The recommendations to follow are thus inspired not only by the special mandate of MAAS and the particular responsibilities of the Ministry to its present and future clients within the "Centres d'Education et du Travail", but also by the broad lines of development and policy initiatives conceived in order to improve the lives of the entire population.

A. SMALL-SCALE FOOD PROCESSING INDUSTRY

Morocco can be considered a country with an agricultural vocation, certainly. One should take note, however, as indicated by the components of the GDP, of the continuous advance of secondary activities -- industry, handicrafts, construction -- the contribution of which, in recent years, has surpassed that of the primary sector, i.e. agriculture and mineral extraction. But even having so stated, and were one to insist on the figures, some further precision would be in order.

As for industry as a whole, the Draft Plan for Economic and Social Development 1981-1985 has expressed succinctly the importance of the agricultural and food processing sector within industry:

The agro-food processing sector occupies first place within the industrial activity of the country, whether measured by the importance of production, its added value, the jobs created, or by its regional impact and its accelerating effects on the economy of the country.

Industry and the assured supply of its major sector make up the double vocation -- agricultural and agro-food processing -- which will be the axis of the national economy and the source

of income of the preponderant part of the population for the foreseeable future. The further development and integration of these sectors thus address the stated objectives of:

- 1) Meeting to the maximum extent possible the food needs of the country, some of the deficiencies of which are particularly serious.
- 2) Mobilizing resources for the development of the country by increasing agricultural exports, and particularly of transformed products, while reducing imports and developing domestic markets.
- 3) Improving the standard of living of the population employed in agriculture, thereby helping to limit rural migration to the cities, and creating a surplus investible in other transformative and service sectors, within reach of the rural population.

In the case of fruit and vegetable preservation/canning, for example, this industry is subject to the effects of variations in the weather on its agricultural raw materials, and to an irregular supply given the absence of strong integration with production; it is frequently insensitive to "marginal" products or to opportunities presented by the seasonal overproduction of certain crops.

While incapable of competing with this highly capitalized industry for its major markets or sources of supply, a small-scale enterprise for the preservation of certain orchard and truck garden crops could nonetheless fill certain important local production gaps. Attaching added value to products otherwise destined for sale at inopportune times and at derisory prices, a small processing industry of appropriate scale would employ the new technical skills being acquired by the local population. Advancing new opportunities on both interior and export markets, this operation of economic sectoral integration via a small-scale food processing/preservation industry will require an investigation

of the appropriate products and level of technicity to be employed. Some observations will be offered in Section III.

Two of the projects suggested below, in fact -- one proposed as a first-order selection, the other as a project meriting further study -- focus on the area of agricultural product processing and seek to promote the acquisition of employable skills through the creation of new products and/or outlets, employing a specific technology that is modernized but still appropriate and accessible to small enterprises in rural areas.

Another "Model Center" project seeks to link to the agricultural services sector, choosing as a preliminary target the repair of small irrigation pumps. The full development of Moroccan agriculture is heavily dependent upon the increased exploitation of the country's surface and underground water resources. During the next several years a growth in the irrigated perimeter of up to one million hectares is foreseen, which will require a considerable capacity in the area of mechanical services to the agricultural sector, particularly to service irrigation equipment upon which crops depend.

B. ARTISANAL SECTOR AS SMALL MODERNIZED ENTERPRISES

It is obviously not only in the rural and provincial milieu where small enterprises may be expected to play a role in economic integration and the promotion of a balanced national development. The experience of several heavily industrialized countries, as well as others on a steep growth curve, has demonstrated the integrative and stimulative effect of small industries -- whether these be urban or rural -- in addition to their frequent direct effects in the creation of jobs.

In Morocco the economic contribution of small industry, as this is defined by the Banque Nationale de Développement

Economique, has until now been relatively feeble. Representing approximately 37% of the industrial enterprises, this small industry sector employs only 17% of the labor force and its value added to product is no more than 10% of that of industry as a whole. (In contrast, these same figures reach 87% and 17% in Japan, 92% and 28% in Belgium, and in Singapore small industrial enterprises employ 86% of the labor force and create 33% of all value added.)

Given the lack of development of small-scale enterprises in Morocco, the country has not been in a position to maximize their advantages relative to large-scale enterprises: low cost for the creation of a job and means to combat unemployment, mobilization of otherwise untapped private savings for investment and provision of a suitable terrain to employ the material and human means of dynamic small entrepreneurs.

Some interesting measures have been taken, however, to address the problems of technical backwardness and under-capitalization, from which small enterprises chronically suffer: creation within the Ministry of Industry of a specialized unit for technical services to small enterprises, as well as of an assistance structure within the O.D.I. (Organization for Industrial Development). In order to improve the credit situation of small enterprises, the B.N.D.E. has established a "simplified and accelerated procedure" (Le programme PSA) to facilitate their access to medium-term loans, and interest rates have also been reduced.

Attesting to the improvement in the diffusion of this type of credit within the whole sector of small enterprises, since 1977 a strong flow of credits in the direction of artisanal "industries", as well as toward other more conventional activities, has been identifiable. Should one anticipate that the artisanal branch of the sector will overcome its status of

poor traditional cousin? Some elements of a possible transformation are already in place and which should also be of interest in addressing certain traditional and economically stagnant activities of the "ouvroirs" of MAAS. The recent change of official title and acronym of the ministry, now signaling the importance of the "traditional industries" (Al-sina'at al-taqlidiyya), may indicate a mandate to assist in this social and economic transformation.

Discussed separately from the sector of "Textile, clothing, and leather industries" by the Draft Plan for Development ... 1981-85, the branches representing rug weaving, leather handicrafts and articles stand in marked contrast to those capitalized branches -- textiles, garments, and shoe manufacture -- which generally possess high quality plant and equipment due to large investments in these industries. Nevertheless, and despite the comparatively backward condition of the "Artisanal" branches as regards their production techniques and the scale of the enterprise, these latter branches constitute the most important component of the "artisanat" sector which itself, considered as a whole...

occupies a relatively important place within the ensemble of economic activities: nearly 4% of the G.D.P. and more than 5% of total exports. This sector is currently undergoing profound changes due to its integration in the national economy. In order to survive and to conserve its authenticity, it must overcome its own resistance to modernization and accomplish a self-transformation.

It would be possible to dispute this vision of "resistance" on the part of artisanal entrepreneurs to their own transformation and to the potential success of their enterprises. Whatever the merits of this discussion, and even if it should be pointed out that the paternal attention accorded the sector is

accompanied by a strong interest in the hard currency earning power of these artisanal activities, several important initiatives being undertaken will facilitate access to the "sector" so as to identify small industries with economic potential, and the nature of the training appropriate to this process of innovation and modernization. These initiatives include:

- o The construction of integrated artisanal "ensembles" comprising the diverse activities.
- o The organization of supply circuits and the marketing of artisanal products.
- o The modernization of the equipment of the apprenticeship training centers.
- o The promotion of the cooperative movement within the framework of the cooperative charter.
- o The execution of sectoral surveys to define the characteristics and needs of the sector.

Whereas all of such efforts are entirely praiseworthy, one still might question to what extent the need for innovation has been given the necessary scrutiny. In particular, as regards certain conventional handicraft products and their external outlets the signs of overproduction and market saturation are clearly visible. In choosing the area of "leatherwork" as an innovative job skill for one of the Model Centers, attention will be given to the necessity of introducing a superior technical level, as well as to the introduction of utilitarian and non-folkloric products so as to seize opportunities for high prices obtainable in foreign markets.

The proposed project also seeks to promote the types of training best adapted to respond to opportunities in the private sector, among small enterprises of leather article

manufacture, and will serve as a nucleus for the diffusion of new technical skills suitable to introduction in small-scale enterprises.

C. OTHER CENTERS

It should not be necessary to furnish an overview and rationale concerning the other job/skills areas and Model Centers proposed. These either reside in the domain of "pure" urban services (reflecting, however, strong potential for the issue of small service-sector enterprises), such as the repair of typewriters, or they possess a logic pertaining to the other social work activities of MAAS, such as the job skills of welding/carpentry for the production of wheelchairs and other orthopedic devices. Whereas the previously discussed Model Centers foresee certain export possibilities, as well as domestic market development, this latter project focuses on import substitution and the interior market.

II. SELECTION CRITERIA

The following criteria have been applied to the selection of job/skills areas for training within the Model Centers:

1. Social and economic viability: employment and perspectives for the future.
2. Technical and financial feasibility of the project.
3. Institutional and cultural appropriateness.
4. Potential for an early implementation and for replicability.

It should be observed that the first three criteria are of a more or less absolute nature: each of the five projects proposed as well-advised programs for implementation must satisfy the conditions imposed by these criteria, although a particular project might best satisfy one or another criterion compared to the other projects. The alternative projects recommended for further study may indicate some doubts with regard to the satisfaction of one or two of the criteria. The project for the production of Argana oil, for example, appears to adequately meet all of the conditions, except insofar as the issues of production technique and the costs of adequate physical plant remain uncertain. Pending resolution, this uncertainty obviously affects the perspectives of socio-economic viability of the project.

As a general rule, the criterion of socio-economic viability has been conceived as insisting on the possibility for the trainee of mastering a technical process that is sophisticated enough so as to afford the product or the service rendered a sufficient value added, thus making probable the demand for such skills and maximizing possibilities for employment within the "free job market."

Notwithstanding, this vision of potential private sector employment has not been imposed as a limiting condition and, in certain cases, a private sector opening is not necessarily foreseen for the near future. Thus, it may be that the productive employment of the technical capabilities of a fruit drying/vegetable preserves worker may require the context of a cooperative, at least during an early period during which the techniques and necessary equipment are sufficiently disseminated by entrepreneurs. But it is not impossible that these entrepreneurs flow from the ranks of apprentices of the trade, and in a shorter time frame than first expected.

Until now it has not been necessary to remind ourselves that it is young women who will be the trainees and, hopefully, the eventual practitioners of the innovative occupation. But the discussion of cultural appropriateness of a job or job context can be a lengthy one, and without any definitive conclusion. It will suffice here to state that this cultural acceptability has not been conceived in such a way as to convince everybody. In some cases, as with welding/carpentry or the repair of irrigation pumps, the aspect of empirical testing is evident.

More crucial perhaps is to focus attention on the institutional appropriateness of the project. The process of selection of occupational areas for training inevitably involves consideration and rejection of a large number of potential projects, and several of those which have not been advanced as recommended projects have been rejected according to this criterion. This is not to say that beekeeping or the collection/pressing of orange blossoms, for example, do not constitute "good projects" or do not offer small income-generation possibilities for poor women. Quite simply, they do not fit well the institutional framework of the CET,

though in many cases doubts about this aspect have also coincided with issues concerning the time and technical level of the required training, and therefore the economic viability of this training relative to employment prospects and probable income returns. To cite a case, it should be noted that value added to product on the basis of field operations in agriculture is very rarely sufficient to raise wages to the levels of skilled laborers. Despite our interest in the perspective of the developmental potential of small enterprises, moreover, the criteria of socioeconomic viability and institutional appropriateness have both dictated the importance of an adequate and specialized job training.

REPLICABILITY

In spite of the clear importance of this criterion, it has not been possible to establish a "threshold" level of replicability below which a project should be rejected. Rather, replicability can only be a relative concept for the purpose of selecting occupational skills and their corresponding Model Centers.

It must be recognized that to the extent that each of the proposed projects is in conformity with the first three criteria outlined above -- and particularly insofar as economic viability, employment potential, and probable income returns are maximized -- the scale of further application may be progressively diminished. The limits of absorption, whether of jobs/skills acquired or of products and services provided, will be imposed by the specific markets and the dynamics of their growth.

All of the projects recommended have certainly been chosen in light of their susceptibility to be reproduced in several appropriate sites, although the "rate of replicability" will

not be the same for each of the projects. Other factors intervene. The manufacture of leather garments, for example, will be scarcely limited in replicability, even by reason of proximity to source of supply in raw materials, and the conditions of the market and its growth will be the major restraint to the scope of this nascent industry and its training ground. In the case of the processing of agricultural crops, on the other hand, these products impose in a demanding way the conditions of physical and economic access to the production/training unit. Nonetheless, and despite the regional character of an enterprise constrained to treat specific crops with a determined process, the overall process may be replicated, and a sufficiently parallel training can be reproduced so as to make for viable job skills programs in perhaps five or six agro-ecological regions of the country (10, 15, 30 Centers?) where fruit and vegetable production allow an economic supply to a small-scale unit such as that envisioned. So, too, for carpentry or machine repair: it is the larger training process rather than a specific "job" or product that is to be reproduced.

Given the uncertainties and fluctuation of the job market -- which already counsels circumspection with regard to large investments in a single area of training or in a particular product -- the possibility of such a level of replicability does not seem overly restrictive. Similarly, the regional character of one or two of the projects is dictated by the juxtaposition of the conditions expressed in the selection criteria with the socioeconomic givens of Morocco.

III. JOB SKILLS AND PROPOSED PROGRAMS

The occupations proposed for the five model centers of MAAS, and the respective programs of training/apprenticeship, are discussed in the following pages and an outline of the principal elements of each is presented. The projects proposed include:

LEATHERWORK: Clothing and Utilitarian Articles

REPAIR OF IRRIGATION PUMPS

VEGETABLE "CANNING"/FRUIT DRYING

REPAIR OF TYPEWRITERS, SEWING MACHINES

WELDING AND CARPENTRY: Wheelchairs and Crutches

LEATHERWORK/SEWING: Clothing and Utilitarian Articles

A. OVERVIEW

It has been estimated, probably conservatively, that the "artisanat" in Fes employs some 25,000 artisans, this figure excluding seasonal workers and workers in service occupations parallel to artisanal trades, which group is certainly as large as the sector of artisanal production itself. Among this latter category one might try to distinguish two "sub-sectors", one comprising the "utilitarian" artisanat producing footwear and slippers, cabinetwork and pottery, etc. ... and the other producing more artistic crafts such as rugs, embroidery, brocades, ceramics, etc.

But a formal distinction of this sort would do injustice to the realities -- where the products combine in differing degrees both utilitarian and artistic qualities -- and probably of greater importance for our purposes would be the nature of market outlets for different branches, the production costs and sale prices, etc. It will be necessary to wait for the results of the survey on all artisanal activities, to be carried out between 1982 and 1985, before we shall have any systematic knowledge of these aspects.

The leatherworking branch is certainly among the most important of the Fes artisanat. The Industrial Structure Study (no. 7), performed in 1969, investigated only seven enterprises dealing in leather articles or shoes, all in Casablanca and employing from 10 to 49 persons. In spite of their modern equipment and superior conditions, however, owners and operators of these small industries complained frequently of the competition of artisanal producers. These latter, despite their inferior equipment and materials, continue to demonstrate a remarkable vitality, moreover, according to the report, these

competing "artisanal" entrepreneurs had often come from among the workforce of the modern factories surveyed, where they had received their training, a fact which indicates suggestively the small enterprise development potential of the "metier". In any case, the fact that, according to the 1981-1985 Draft Plan, the artisanat still effects some 38% of the transformation of leather on a national scale makes more urgent the need to promote the internal innovation and overall modernization of the sector.

Visits made to several small workshops and to the cooperative outlet in the leather quarter of Fes allowed for identification of some elements of the malaise. The large leather-consuming industries, with their far greater financial resources, purchase all the best hides, leaving only inferior quality hides and forcing small workshops to produce articles whose sale price leaves no surplus for investment in raw materials or equipment.

An example of the low level of revenues was offered in one of the workshops. A small handbag of traditional "folklorique" design, tooled and embroidered, could be sold wholesale for 16 dirhams, not considering cost of materials. A workforce of 5 persons could produce 30 units in one and one-half day of work, we were told, indicating the narrow margin within which these artisans work and live.

TECHNIQUES

Despite the inferior quality of the leather of the handbag, the workmanship was good, as is the case for a whole series of articles for which selling price is similarly low. Most often the market conditions reflect a chronic overproduction, particularly of touristic articles which, lacking other market outlets, pile high on the shelves of the tourist shops and cooperative storerooms.

In regard to the creation of new products, for such an item as automobile seat covers the techniques of leather working, tooling, and sewing do not appear to be greatly different from those already employed in the fabrication of hassocks and bags, etc. Moreover, although this is generally a male occupation, women are not unknown in this area. Some new skills and standards of quality control, as well as new equipment, will have to be mastered.

For leather garment making, however, insofar as this industry and trained workforce are not already in formation, as in Casablanca, the job skills are neither precisely those of a typical tailor, nor of a traditional leatherworker. The skills to be acquired will require a specialized apprenticeship. This time period will probably not outstrip the time period required to produce prototypes and advance to the stage of production of a line to be market-tested.

SUPPORT

In general, the master craftsmen and their apprentices seem open to innovation, if somewhat uncertain regarding techniques and physical means required to embark themselves on the manufacture of new products without the certain knowledge of buyers. The délégué (provincial director) of the artisanat in Fes, who has himself espoused the cause of modernization of the province's traditional industries, favors the idea of directing a growing portion of leather production toward articles of utility -- far removed from an air of rusticity or of the folkloric -- above all, in his view, leather clothing. This idea, and others for utilitarian product lines, met a good deal of receptivity. Several persons encountered expressed the conviction that young persons trained in such an occupation -- be they young men or women -- would easily find jobs.

In addition to the sources of high-quality tanned hides which are found in Fes and the several training centers already in place, the artisanal ensemble and the Institute for Leather and Textiles will be able to provide a certain technical aid.

OUTLETS

For high quality products there are immense marketing possibilities to be developed. The délégué has visited several potential clients in Europe and the United States -- including Macy's in New York -- who demonstrated interest in a variety of products, above all leather wearing apparel. Given that this market is quite complex, and the level of refinement difficult to attain in a short time span, it would be advisable to introduce at the same time a product with a greater tolerance for fluctuation in quality, and less hostage to fashion change: automotive seat covers, which will have limited competition at price ranges Morocco can advance, while still capturing a very attractive price. Direct outlets will be the numerous specialty shops for auto enthusiasts in the United States and Europe, but also in the countries of the Arab Gulf, etc. In the meantime, the Moroccan market will allow them some room as a luxury item.

B. IMPLEMENTATION

1. OCCUPATION: MODERN LEATHERWORK/SEWING

Skills: Selection and sorting of leather, preparation of leather, cutting, sewing and tailoring.

2. PRODUCT: CLOTHING AND OTHER UTILITARIAN ARTICLES

Markets: Domestic and Foreign

3. SITE: Fes

4. LOCATION: In proximity of a CET
*Possibility of renovation of a funduq
5. ELEMENTS OF SUPPORT: Institute of Leather and Textiles; Délégué of Artisanat and Artisanal Ensemble; Possible Employment by Manufacturers
6. PROGRAM: Duration -- 2 to 3 years, half-time apprenticeship (including program of "coopérative scolaire" according to the National Office of Cooperatives) and half-time regular course of instruction.

1st Year: 1 master-teacher
 2 monitors of MAAS
 23 Trainees

2nd Year: 2 master-monitors (monitrices maîtresses)
 4 student monitors
 23 trainees
 1 Peace Corps volunteer

Qualifications (Minimum):

- Monitors: 5th year primary education
 3 years experience in sewing
- Trainees: May have limited literacy
- Master Instructor: 7th year secondary education
 Experience in Leatherwork/Sewing
- Volunteer: 5 years experience

Trainees will possess, after training, a certificate and will be prepared for employment in the private sector, a production cooperative, or an artisanal ensemble.

7. WORKSHOP: 275 M²
8. EQUIPMENT: Leather shears, table glue gun, ribbing and pleating machines, cutting machine, sewing machines.
9. FURNITURE: Large workbenches and shelves, cutting tables and other typical of industry.
10. WATER & ELECTRICITY: Required standard for industry.

11. BUDGET: USAID -- 150,000 DH (Average) for equipment
HRM -- Salary of master instructor, 1 year
PEACE CORPS -- 1 volunteer, 2 years
MAAS -- 6 monitors (in total) and structure

REPAIR OF IRRIGATION PUMPS

A. OVERVIEW

The development of Moroccan agriculture is effectively dependent upon the development of irrigation. The potential for the exploitation of hydrological resources is immense, the country being rich in both surface and underground water. Of an estimated 16 billion cubic meters of tapable water resources, only about half is currently utilized, 94% of this for agriculture. The dramatic increase in area that the exploitation of these resources is expected to involve, up to one million hectares in cultivated area in the foreseeable future, implies not only the creation of numerous large capacity pumping stations, but also the addition of many thousands of small motor pumps for the lifting of underground water, as well as for lifting water from one level or field to another throughout the expanding irrigated perimeter.

Of the 80,000 hectares of irrigated land in the Souss-Massa valley, according to information obtained at the headquarters of ORMVA (Organization for the Development of Agriculture) in Agadir, 30,000 HA are irrigated by river derivation and 20,000 by means of large pumping units under control of ORMVA. Of the rest, the 30,000 hectares within the irrigated perimeter of Taroudant, minus the 7000 HA irrigated by large pumping stations, represent the sector of irrigation by small motorpumps par excellence.

In the entire Sous-Massa, outside the ORMVA sector, there are some 7000 small motorpumps, mostly diesel-powered, and this agricultural private sector represents a large and growing number of potential customers for motorpump mechanics and repairpersons.

TECHNIQUES

The motorized pumps of the region are like those generally found elsewhere throughout Morocco: centrifugal type with vertical axis for the most part, they do not present any particular technical problems beyond the skills of an average mechanic and, in fact, the pumps themselves offer fewer problems than an internal combustion engine, for example. The engines, from 10 to 20 horsepower generally, are diesel: training experience in automotive mechanics throughout the world has demonstrated that the skills required for the repair and maintenance of automobiles can be mastered by young persons with little education, even by illiterates.

A precise and adequate training program, however, will be essential. Farmers will not be inclined to trust their pumps to amateurs, and they will have to be repaired or adjusted in the shortest time possible, since their crops will depend critically on timely delivery of water. Often repairs will need to be made on site, requiring proximity to irrigated fields, or means of transportation.

The occupational training proposed here is not that required for the repair of large pumping units, those of ORMVA for example, which have their own permanent staff of technicians with a much more advanced training since these are electrically-powered and controlled systems requiring a knowledge of electronics and electrical engineering.

SUPPORT

The issue of the ability of a young woman to enter this line of work seems to elicit the same range of opinions as for other mechanical and automotive occupations, etc. A

workshop/cooperative is recommended, but the probability of a strong and growing demand for motor pump repair and maintenance services allows some optimism regarding future opportunities for employment.

The Director of the CET in Taroudant, who has herself introduced innovative programs such as athletic activities for young women, declared herself to be quite interested in new job skills, including carpentry, electricity, and welding, about which she had heard discussion.

OUTLETS

Private agricultural sector around Taroudant, and the surrounding Souss Valley area.

B. IMPLEMENTATION

1. OCCUPATION: REPAIR OF IRRIGATION PUMPS

Skills: maintenance, repair, and adjustment of small irrigation motor pumps.

2. PRODUCT: Service.

Market: Initial scope includes 7000 privately-owned pumps within the irrigated perimeter of the Souss-Massa.

3. SITE: Taroudant or perhaps Ouled Teima

4. LOCATION: To be determined.

5. ELEMENTS OF SUPPORT:

6. PROGRAM: Duration of 2 (to 3) years; half-time apprenticeship training (including program of "coopérative scolaire") and half-time regular course of instruction.

1st Year: 1 master-instructor
 2 student-monitors
 23 trainees

2nd Year: 2 master-monitors (monitrices maîtresses)
4 student-monitors
23 trainees (of 1st year)
1 Peace Corps Volunteer

Qualifications (Minimum):

- Master instructor: Teacher's certificate
5 years of experience
- Monitors: 5th year primary education
- Volunteer: 5 years experience as mechanic

After training, trainees will receive a certificate and will be prepared for employment in private workshops or in production cooperatives under the aegis of the National Office for Cooperatives.

7. WORKSHOP: 210 M²
8. EQUIPMENT: Typical hand and machine tools for a workshop on level of repair/maintenance of single cylinder internal combustion engines.
9. FURNITURE: Standard for mechanical workshop.
10. WATER/ELECTRICITY: Required.
11. BUDGET: USAID -- 150,000 Dfl (Average) for equipment
HRM - Salary for master, 1 year
PEACE CORPS -- Volunteer, 2 years
MAAS - Structure 6 monitors (total).

"CANNING"/PRESERVATION OF AGRICULTURAL PRODUCTS AND FRUIT DRYING

A. OVERVIEW

The fruit and vegetable canning industry in Morocco comprises some 100 enterprises, with a marked concentration in Casablanca, and has an overall production capacity of approximately 210,000 tonnes/year. The industry has seen considerable growth during recent years, particularly in the area of fruit preserves and jams, and especially since the handicap posed by the price of sugar has been overcome by local production. Vegetable preserves have progressed, principally of canned tomatoes, until the season of 1978-79 when the restrictions of the EEC on tomato concentrate exporters made themselves felt.

Indeed, the ensemble of the products of this sector, the exports of fruit and vegetable preserves for the EEC countries above all, are facing an uncertain future with the joining of the common market by Morocco's principal competitors. The prospect of a retrenchment by the large processing plants and canneries, many of these adaptable to a "polyvalent" production as they search for new exportable products, threatens the possibility of overproduction of certain crops and considerable losses for fruit and vegetable producing regions.

The province of Beni Mellal, with some 120,000 hectares of irrigated land, has seen a sharp increase in citrus and vegetable production between 1976 and 1980, from 112,500 to 146,000 tonnes for the former, and from 123,000 to 207,000 tonnes for the latter. Having no local processing industry, the part of production destined for processing is sent to factories in Casablanca. But the periodic overproduction of some agricultural products, such as tomatoes and apricots --

which spoil if not consumed or treated almost immediately -- often reduces these crops to sale at pitifully low prices, or they are lost, as was explained by the Head of Economic Services of the province. Other crops, such as gherkins, cayenne peppers, or carrots, have a much lower level of production, but do not always find adequate markets as fresh commodities.

Small local "canneries", ready to respond to these seasonal and price conditions, would be in a position to play an important role in the interstices of the existing, insufficiently flexible system of production/transformation. At the same time, a "new" process of preservation based on the centuries-old practice of drying, indicates promise to add further new products to local and possibly overseas markets.

TECHNIQUES

The term "canning" is used advisedly. The precise process and equipment for treatment, sterilization, and preservation will likely require expert consultation. However, the variability in the range of potential techniques and hardware should be pointed out. Even on a very simple level of process, the importance of small-scale "home" canning and bottling activities in the U.S. and Europe, both as a factor in domestic non-cash economies and as a source of disposable income, continued until recent decades and today shows some signs of resurgence. A major technical obstacle until recently has been the expense (or in some developing countries the unavailability) of containers for limited production. However, a number of factors intervene to make possible a small-scale and intermediate process: new materials and container processes utilizing glass, plastic envelopes, etc.; cheaper and more reliable small metal cannery operations; and container recycling operations.

Techniques to be learned by a fruit and vegetable preservation worker/technician are amenable to a training period of several months. As versus the limited skills of an operator of canning machinery in the production line of a large factory, however, these skills could extend to all processes in the completion of the product, thus giving those trained the status of skilled workers. This would also be the case in the fruit-drying operation.

This latter process has also seen new technological developments. In the realm of "intermediate technology", crop-drying devices powered by solar energy have been constructed (including in Morocco), which energy conservation effect will allow considerable economies in terms of high-priced fossil fuels. There are also hybrid systems should the particular product require a portion of the drying time at a higher temperature than that provided by a solar device.

SUPPORT

Given the importance of the specific technology to be applied for potential products, it is recommended that during an early stage in this project an expert in appropriate processing techniques and equipment participate in project design.

The ORMVA regional station (Tadla) at Fguih Ben Salah should be able to play a role of support in identifying the potential and the supply of the Model Center in raw materials.

OUTLETS

The products are directed for the most part at local and national markets, and the possibilities of developing new

specialty products should be examined. However, in the case of dried pressed fruits (apricots, etc.), which have long been a delicacy in the markets of the Arab Mashreq and which have begun to seriously interest U.S. and European markets, the potential for export should be investigated.

B. IMPLEMENTATION

1. OCCUPATION: Canning/Preservation of Agricultural Products and Fruit Drying

Skills: Processing of fruits and vegetables, preservation (canning/bottling only illustrated):

Sorting, weighing
Washing, peeling
Blanching, filling
Sealing, sterilization
Cooling and storage

2. PRODUCT: Vegetable and fruit preserves.

Market: Home outlets, local and national markets; to investigate specialty export markets.

3. SITE: Beni Mellal or Fquih Ben Salah.

4. LOCATION: In proximity to a CET.

5. ELEMENTS OF SUPPORT: ORMVA of Tadla Region at Fquih Ben Salah

3 experimental farms with 736 HA
at Beni Mellal

Regional Center for Agronomic
Research at Beni Mellal

6. PROGRAM: Duration -- 2 years, half-time apprenticeship (including program of "coopérative scolaire") and half-time regular instruction.

1st Year: 1 Master-teacher
2 Monitors of MAAS
23 Trainees

2nd Year: 2 monitors from 1st year
2 Peace Corps Volunteers
4 new MAAS monitors
23 trainees

Qualifications (Minimum):

- Monitors: 3rd to 5th year primary education
Rural or agricultural experience
- Trainees; May be illiterate
- Master-Teacher: Experience in Food Processing and
Preservation
- Short-term Expert
- Volunteer: Familiarity and Experience in Food
Preservation

After training is completed, the trainees may form production cooperatives in the framework established by the National Office for Cooperatives, or may produce on the household level.

There is also the possibility of adding other skills for improvement of rural life, such as rural hygiene, basic accounting for small farms, etc.

7. WORKSHOP: 615 M² plus a 500 M² area, sun-exposed.
8. EQUIPMENT: Food processing and sealing equipment, to be determined.

Solar or hybrid dryer; press
9. FURNITURE: According to needs of processing enterprise.
10. WATER/ELECTRICITY: As required for equipment.
11. BUDGET: USAID -- 150,000 DH (Average) for equipment)

HRM -- Salary for Master, 1 year
Short-term consultant

PEACE CORPS -- 2 volunteers, 2 years

MAAS -- structure, monitors
12. OTHER: The possibility of testing modern sewing and machine embroidery to determine returns has been discussed.

REPAIR OF TYPEWRITERS AND SEWING/KNITTING MACHINES

A. OVERVIEW

This project flows from a number of observations which were made rather frequently during the three weeks of visits made to CET facilities in several parts of the country.

To cite an example, in Marrakesh, two of the Centers visited offered training programs in typing. In each, the following question was put to the directors: How many times during the course of a year do the typewriters break down and what do you do to have them repaired? The frequency of servicing/repairs varied from three or four times to as many as ten times per year, these repairs being sufficiently serious to require sending the machine to a repair shop. Consistently, in Marrakesh and elsewhere, the reported time required for a machine to be repaired and returned to the Center was on the order of 20 days to a month. This situation indicates a fairly suggestive way the potential of these job skills and the possibility of finding an initial target "market" for them among the Ministry's training centers in an urban zone of sufficient size.

The repairs required of sewing machines appear to be somewhat easier to manage, but nonetheless offer a second, fairly parallel, skills training area for trainees in a typewriter/small machines repair course. Only one broken-down knitting machine was observed during the site visits, but this machine, in Taroudant, had been in a state of disrepair for almost a year and still had yet to be sent to Casablanca, where it had to go for repair.

TECHNIQUES

At this stage, it is mechanical typewriters and not electric or electronic machines that are to be repaired, thus these techniques should be within reasonable grasp of trainees. Moreover, this work can be done on an adjustable workbench or table, and appears to be a highly appropriate skill for a handicapped young woman or man.

OUTLETS

The service to be provided should be able to tap the natural market residing in the several training centers of MAAS within an urban area, but should also extend as soon as is possible to other governmental agencies and offices, as well as to the private business sector.

B. IMPLEMENTATION

1. OCCUPATION: REPAIR OF TYPEWRITERS AND SEWING MACHINES

Skills: Maintenance and service; repair and adjustment; cleaning.

2. PRODUCT: Services

Markets: MAAS and training centers (CET, CSE, CFP), other ministries, private businesses and business schools.

3. SITE: Salé

4. LOCATION:

In proximity of a CET with appropriate program.

5. ELEMENTS OF SUPPORT:

6. PROGRAM:

Duration 2 to 3 years: half-time apprenticeship (including "coopérative scolaire") and half-time regular course of instruction.

1st Year:

- 1 Master-Teacher
- 2 Monitors
- 23 Trainees (handicapped young women and young men)

2nd Year:

- 2 Master Monitors (Monitrices Maitresses)
- 4 Monitors in Training
- 23 Apprentices
- 1 Peace Corps Volunteer

Qualifications (Minimum):

- Monitors: 5th year primary education;
3 Years experience in a technical area
- Trainees: Physically handicapped will have priority
- Master Teacher: As much training and experience in the skills as possible
- Volunteer: 3 years of experience

After training is completed, the trainees will receive certificates and will be employed in the private sector, or self-employed.

7. WORKSHOP: 275 M²
8. EQUIPMENT: Hand tools required for small machine repair and specialized for typewriters, sewing machines, etc.
9. FURNITURE: to be designed and made especially for physically handicapped persons.
10. WATER/ELECTRICITY: Requirements to be determined.
11. BUDGET: USAID -- 150,000 DH (average) for equipment
HRM -- Salary Master-Teacher, Year
PEACE CORPS -- Volunteer, Year
MAAS -- Structure, 6 monitors (total)
12. OTHER: The possibility of radio repair exists if the entry level of trainees is raised. This project should be studied to determine economic viability.

WELDING/CARPENTRY: Manufacture of wheelchairs and crutches.

A. OVERVIEW

This project, conceived for implementation in Marrakesh, is already in a process of realization based upon an experimental program in the CFP of Merchiche. The training program proposes to employ as master instructors (Maîtresses) the two Peace Corps trainers and to select the monitors from among the young women already semi-trained at the vocational training center.

B. IMPLEMENTATION:

1. OCCUPATION:

Welding

Skills:

Welding
Ironwork
Assembly

Carpentry

Woodworking
Assembly
Finishing

2. PRODUCTS:

Wheelchairs
(Possibly aluminum
crutches)

Wooden Crutches
Kindergarten Furniture
Educational Toys

3. SITE: Marrakesh

4. LOCATION: To be determined.

5. ELEMENTS OF SUPPORT: Program already in process of implementation

6. PROGRAMS:

a) Welding

b) Carpentry

2ND YEAR:

1 or 2 Monitor-Trainees
(half-time)

7 Trainees
1 Volunteer (half-time)

1 or 2 Monitor-
Trainees (half-
time)

8 Trainees
1 Volunteer (half-
time)

COOPERATIVE*:

7 Trainees	3 Trainees
2 Monitor-Trainees	1 Monitor-Trainee (half-time)
1 Volunteer (half-time)	1 Volunteer (half time)

*In agreement with the National Office of Cooperatives.

QUALIFICATIONS (MINIMUM):

- Trainees: 2nd year -- in place
- Coop Trainees: In place
- Monitor-Trainees: To be selected from trainees
- 2 Volunteers: In place
- 2 Replacement Volunteers 2 years of experience
in welding/carpentry
and certificate of
instruction.

7. WORKSHOPS: 250 M²
8. EQUIPMENT: To determine new equipment; reallocation of
equipment of Merchiche CFP
9. FURNITURE: See above
10. WATER/ELECTRICITY: Water required, electricity--220
volts, 3 phase
11. Budget: USAID -- 150,000 DH (Average) for equipment
HRM --
PEACE CORPS -- 2 volunteers, 1 year
2 volunteers, replacement
MAAS -- Structure, monitors to be selected
from among already trained.

IV. OCCUPATIONS AND PROGRAMS TO BE INVESTIGATED

The following projects are not proposed on the same basis as the five projects considered above, but represent recommended areas to investigate for future action. These potential projects, which could provide the base for model centers for training in innovative job skills if certain technical and/or institutional issues are resolved, include:

*MONITORS OF CHILD DAY CARE CENTERS

*PRODUCTION OF ARGANA OIL

IMPLEMENTATION SKETCH

1. OCCUPATION: MONITORS OF CHILD DAY-CARE CENTERS

Skills: Care and instruction of children.

2. PRODUCT: Services

Market: Private sector, above all industrial cities; MAAS programs.

3. SITE: Agadir

4. LOCATION: Ansa

5. ELEMENTS OF SUPPORT: Ministry of Health; fish canning industry.

6. PROGRAM: Duration--2 to 3 years (including training upgrading through "Cooperatives Scolaires" of the National Office of Cooperatives).

Entry Qualifications: To be investigated

Number of Trainees: 40

Master-Instructors: 2 (instructrices Maitresses)

Peace Corps Volunteer: 2

Training Criteria: To be resolved

7. FACILITY: 350 M²

8. EQUIPMENT: Typical for class training of monitors. Two day-care center cooperatives for service training.

9. FURNITURE: Typical, above.

10. WATER/ELECTRICITY:

11. BUDGET: To be determined.

ISSUES TO RESOLVE:

- Organization of the Model Centers
- Employment and Level of Trainers
- Salaries of Instructors
- Entry-Level of Trainees

IMPLEMENTATION SKETCH

1. OCCUPATION: PRODUCTION OF ARGANA OIL

Skills: -Sifting and cleaning of fruits;
-Crushing and roasting of kernels;
-Grinding and wet-milling of pulp;
-Separation of oil; and
-Centrifugation and refining of oil

2. PRODUCT: Argana Oil (Huile d'Arganier)

Market: Moroccan domestic market and U.S., European, and Arab specialty markets.

3. SITE: Agadir or Taroudant

4. LOCATION: To be determined.

5. ELEMENTS OF SUPPORT:

- ORMVA
- ODI

6. PROGRAM: Duration - 2 years

Entry Qualifications: To be investigated.

Number of Trainees: 30

Master-Instructors: 2

Training Criteria: To be resolved according to the technical process introduced.

7. WORKSHOP: Specifications to follow determination of process and equipment.

8. EQUIPMENT: Recommended is the investigation of possibilities for introducing an intermediate technology to extract this unique product.

9. FURNITURE: As required.

10. WATER/ELECTRICITY: Required

11. BUDGET: To be determined.

APPENDICES

- A. Letter of Introduction to Provincial Délégués
- B. List of Informants

26 مايو 1982

الرباط في :

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

المملكة المغربية

وزارة الصناعة التقليدية

والشؤون الاجتماعية

مديرية الشؤون الاجتماعية

من مدير الشؤون الاجتماعية

الى

00559

السادة المندوبين الاقليميين للتحا

الوطني

الموضوع : تسهيل مهمة الاستاذ " هنري تيشكا "

والاستاذ دجون اندرسون "

سلام تام بوجود مولانا الامام

وبعد كلفه الاستاذان هنري تيشكا " ودجون اندرسون

من طرفه المعهد الوطني للعمل الاجتماعي بطنجنة

للقيام بابحاث تمكنهم من وضع تقارير تساعد المعهد

في اشغاله التكوينية وذلك قصد تدريس مواد جديدة

وسيقوم هذان الاستاذان بزيارة عدد من المراكز وذلك

ابتداء من 19 ماي 1982 لاجراء اتصالاته مع المديرات

الجهويات والمدربات .

لذا ، ارجو منكم ان تمدوه بالمعلومات اللازمة لتسهيل

هذه المهمة .

التقليدية
وزير الصناعة
والشؤون الاجتماعية
مديرية الشؤون
اجتماعية
محمد بولعربي

APPENDIX B: LIST OF INFORMANTS

MAAS/RABAT

Mr. Mohammed Boulasri, Director of Social Affairs

Ms. Akesbi, Social Affairs

Mr. Nouredine Hajibi, Training Division

Ms. Houari, Social Affairs

Mr. Omar Ben Abdallah, Director of Artisanat

Mr. Abdellatif Hammaras, Economist, Artisanat

MINISTRY OF AGRICULTURE/RABAT

Mr. Ahmed Ben Danoune, Director of Division of Extension and Agrarian Reform

Mr. Ben Bouya, Director SODEA

STATISTICAL DIVISION, MINISTRY OF PLAN

Mr. Abdelaziz El-Ghazzali, Deputy Director

Mr. Abdelhamid Bou Choukri, Employment Surveys

NATIONAL CENTER FOR DOCUMENTATION

Mr. Bouchaib Bouchnouche, User Services

NATIONAL BANK FOR ECONOMIC DEVELOPMENT (BNDE)

Mr. Kemal Issari, Finance, Responsible for Small and Medium Enterprises

USAID/RABAT

Mr. George Corinaldi, Chief of Human Resources Division

Ms. Sherry Suggs, Human Resources Division

Mr. Mohammed Hanafi, Agricultural Officer

Mr. Abdellatif Ben Abdessalam

U.S. PEACE CORPS/RABAT

Mr. Chip Randall, Associate Director for Vocational Education

Mr. Howard Opper, Vocational Education

OVERSEAS EDUCATION FUND

Ms. Myrna Norris, Director, OEF Women's Training Project

FES

Mr. Ahmed El-Filali, Délégué of the Artisanat

Mr. Mohammed Skalli, Délégué of Entraide Nationale

Mr. Mohammed Zahouan, Director, National Institute of Leather and Textiles

Ms. Nouzha Madmoun, Director CET

Mr. Abdallah El-Melih, Factory Supervisor, Artisanal Cooperative of Tanners of Fes

Mr. Hamad Marrakechi, Trainer in Leatherwork, Apprenticeship Center of Ain Kaddous

Mr. Mokhtar El-Amrani, Supervisor of Leather Production Cooperatives, Fes

AGADIR/TAROUDANT

Délégué of Entraide Nationale for Agadir (and Province of Taroudant, newly formed)

Mr. M. Damani, Délégué of Artisanat, Agadir

Mr. Ali Lasheen, Agronomist, Agronomic Institute at Ait Melloul

Mr. Heinrich Vertmullen, Office of Horticulture, ORMVA, Agadir

Mr. Karel Trunk, Electrical Engineer (pump specialist), ORMVA, Agadir

Ms. Mahjoubia Ben Zakaria, Director CET/CSE, Taroudant

Mr. Mohammed Farouk, Supervisor Secondary School, Taroudant

MARRAKESH

Mr. Abdelaziz Bourzik, Délégué of Entraide Nationale

Ms. Senhadji, Director CET el-Massirah, el-Daoudiyet

Ms. Leila Najman, Literacy Programs, Entraide Nationale

Mr. Mohammed Bidah, Coordinator of CFP at Merchiche,
El-Daoudiyet

Ms. A. Tourira, Director CET

Ms. Pamela Jackson, PCV Trainer, CFP Merchiche

Ms. Janet Ott, PCV Trainer, CFP Merchiche

Mr. Jeffrey Parker, PCV Trainer, CFP Merchiche

Mr. Jeff Valley, PCV Trainer, CFP, Amizmiz

Ms. Naima Benkhad, Trainee, CFP Merchiche

Ms. Amina Saki, Trainee, CFP Merchiche

Ms. Amina Tingis, Trainee, CFP Merchiche

BENI MELLAL/FQUIH BEN SALAH

Mr. Ahmed Saadi, Délégué of Entraide Nationale, Ben Mallal

Mr. Mohammed Semlalli, Chief of Economic Services, Province
of Beni Mellal

Ms. Fatima Afif, Director CSE

Mr. Mohammed El-Azaoui, Agronomist, ORMVA (Tadla Region) at
Fquih Ben Salah

Director, CET of Fquih Ben Salah