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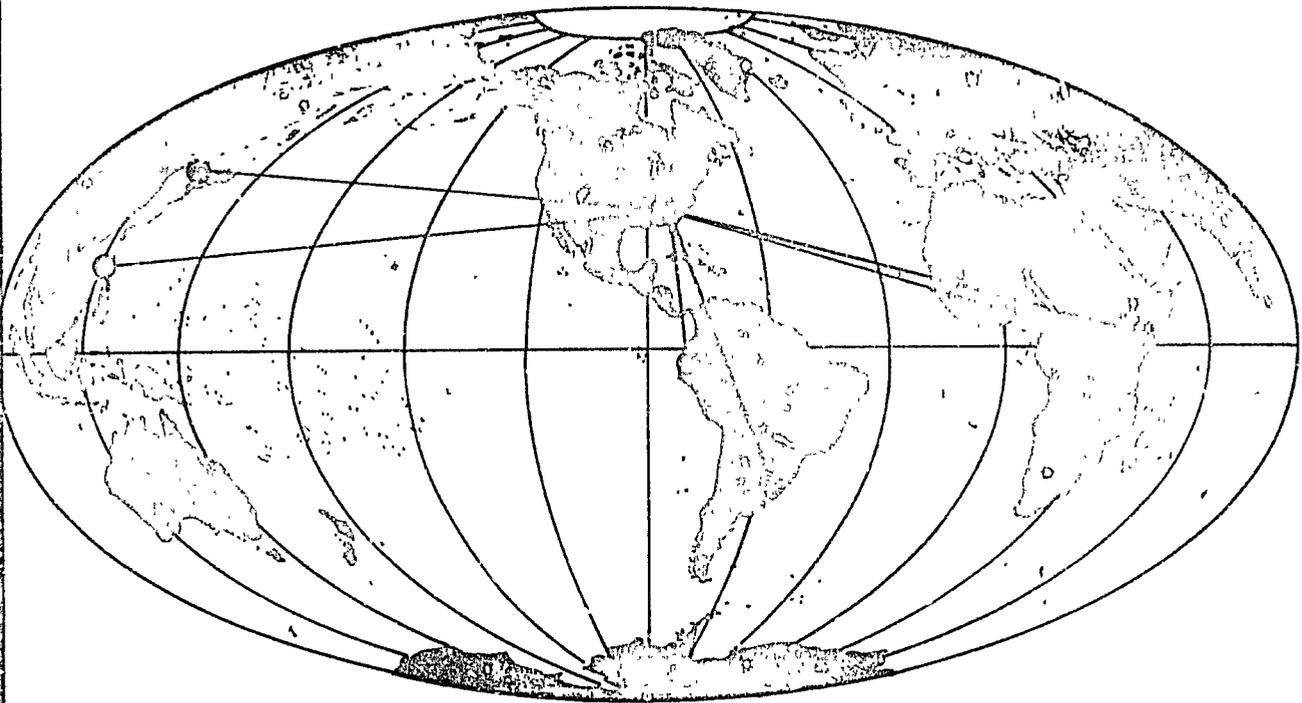
The government of the Republic of Ecuador has been attempting to solve the various problems leading to the lack of development of the small-scale industries of that nation. Since 1963, several programs have been announced and initiated with the objective of generating more employment and uplifting the small-scale industry sector. Three main programs are reviewed in this study: the National Social and Economic Development Plan 1963-1973; the Small-Scale Industry Development Program, 1969-1973; and the Small-Scale Industry Development Program, 1973-1977.

In 1972, most sources agree that there were some 300,000 unemployed persons out of a population of 6,598,000 and a potentially active labor force of 2,300,000. In 1973, the Junta Nacional de Planificacion y Coordinacion Economica indicated that Ecuador would require some 500,000 new jobs over the next five years. A large portion of this demand was anticipated to be covered by the generation of new employment in the small-scale and artisan industry group.

This case history represents some 18 months of research <sup>CARRIED</sup> out by the author on site in an attempt to get a first hand picture of the situation.

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**EMPLOYMENT GENERATION THROUGH  
STIMULATION OF SMALL INDUSTRIES**



**SMALL-SCALE INDUSTRY DEVELOPMENT IN ECUADOR**

GEORGIA INSTITUTE OF TECHNOLOGY  
ATLANTA, GEORGIA

SMALL-SCALE INDUSTRY DEVELOPMENT  
IN ECUADOR

A Case History

Prepared for the  
Agency for International Development

by

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February 1975

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## Foreword

The Industrial Development Division (IDD) of the Engineering Experiment Station at the Georgia Institute of Technology, through its International Development Branch, has recently completed an 18-month research program on the development of small-scale industries in Ecuador. This is the second of such research programs developed under an Agency for International Development (AID) grant to the Georgia Institute of Technology.

The research study was carried out during the period of April 1973 to December 1974. The purpose of this research was to prepare a case history on the development of small-scale industries in Ecuador, starting in or about 1963 to date.

During the lifetime of this research, the Organization of American States (OAS) also had an interest in the study and, because of this, OAS assisted in the funding of the activities. The OAS report on Ecuador is now about to be published, and part of the data gathered for this case history also was used in the OAS study. Some in-depth recommendations have been made to both the Centro de Desarrollo Industrial del Ecuador (CENDES) and the Junta Nacional de Planificación y Coordinación Económica (JUNAPLA) on actions to be taken and programs to be implemented to help alleviate the present situation.

Hopefully, this study will assist future researchers interested in the stimulation of small-scale industry in developing nations. As always, comments, questions, and suggestions from interested readers will be appreciated.

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## Summary

The government of the Republic of Ecuador has been attempting to solve the various problems leading to the lack of development of the small-scale industries of that nation. Since 1963, several programs have been announced and initiated with the objective of generating more employment and uplifting the small-scale industry sector. Three main programs are reviewed in this study: the National Social and Economic Development Plan 1963-1973; the Small-Scale Industry Development Program, 1969-1973; and the Small-Scale Industry Development Program, 1973-1977.

In 1972, most sources agree that there were some 300,000 unemployed persons out of a population of 6,598,000 and a potentially active labor force of 2,300,000. In 1973, the Junta Nacional de Planificación y Coordinación Económica indicated that Ecuador would require some 500,000 new jobs over the next five years. A large portion of this demand was anticipated to be covered by the generation of new employment in the small-scale and artisan industry group.

This case history represents some 18 months of research carried out by the author on site in an attempt to get a first hand picture of the situation. In summary, the findings of this study indicated the following:

1. Artisan enterprises and cottage activities employ well over 200,000 persons, who, in general, manage to earn enough to provide for a precarious existence.
2. In most cases, the artisan performs his activity to generate additional income for his family needs. These persons would be better off with an industrial job if jobs were available.
3. A large number of "artisan shops" are really commercial enterprises. Only part of the production is manufactured in the shop using the allowed number of employees. The bulk of the production is done through a piecework system using cottage artisans. This goes against the spirit of the law and provides an undue advantage to the "artisan shop."
4. Great confusion and misunderstanding exist in the interpretation of the existing laws which govern artisans and small-scale industries.
5. Over the past 10 years, a number of programs have been initiated by the government to assist this sector. The end result appears to be questionable at best.

6. There is need for a well-reasoned, logical, pragmatic action plan which will address the present situation and assure obtainable goals over the next decade. This could be carried out with the extra income that is being generated today with the revenue from petroleum exports.

## OVERVIEW OF ECUADOR

### Geographical Summary

Ecuador is a Spanish name and translates into "equator," the imaginary great circle on the surface of our planet that is constantly equidistant from the two poles. The Republic of Ecuador is located on the northwestern coast of South America, and a large portion of it straddles the equator. The two adjacent countries are Colombia on the north and Peru on the south and east. The Pacific Ocean provides the western boundary.

The land area of Ecuador is comparable to that of the state of Colorado or about 104,500 square miles which makes it the tenth largest nation in South America.<sup>1/</sup> Geographically speaking, there are six distinct regions in the country -- the coastal area, the western slopes of the Andes, the eastern slopes of the Andes, the inter-Andean region, the Oriente (orient or eastern half of the country), and the Galápagos Islands or Archipiélago de Colón. The natives usually refer to only three regions -- the Costa, the Sierra, and the Oriente.

The Andes Mountains split into two parallel ranges as they cross Ecuador in a general north-south direction. The two ranges, called Cordillera Oriental (eastern range) and Cordillera Occidental (western range), are cut by a number of transverse ranges<sup>2/</sup> which form a series of plateaus throughout the mountain area. Altitude varies considerably, ranging from sea level to about 20,500 feet at the top of Mount Chimborazo. Consequently, the climate also runs from the wet-tropical to the perennial frost.

The different mountain ranges limit the potential farming land to about 22% of the total land area; of this about 50% is cultivated, while the rest is in natural or artificial meadows used for grazing. Although estimates indicate that about 70% of the nation is covered by forests, the timber industry is not very highly developed because of difficulties encountered in the transportation system. This lack of transportation has been a traditional deterrent in many other economic sectors.

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<sup>1/</sup> Inter-American Development Bank, Economic and Social Progress in Latin America, Annual Report 1973 (Washington, D.C.: 1973), p. 192.

<sup>2/</sup> Erickson, Edwin E., et. al., Area Handbook for Ecuador, DA Pam No. 550-50 (Washington, D.C.: U.S. Government Printing Office, 1966), pp. 11-17.

Informal conversations with geologists in Ecuador indicate that not too much information is presently available on the types of minerals available or the extent of the known deposits. One of the principal problems indicated in locating mineral deposits was the overburden of soil and vegetation over the deposits, which make systematic prospecting both lengthy and expensive. References, however, were made to the existence of deposits of sulfur, bituminous coal (low-grade), kaolin, copper, silver, iron and, of course, the existing oil fields.

The population in 1972 was established at 6,598,000<sup>1/</sup> with a growth rate of about 3.4% per annum. This population is distributed approximately in the following fashion: one-third in the coastal area, three-fifths in the Sierra, and about one-twentieth in the Oriente. The three main cities are densely populated: Guayaquil leads with about 790,000 inhabitants; Quito (the capital) has 590,000; and Cuenca has just over 100,000.

As indicated earlier, the mountainous terrain creates a transportation problem. The highway system has the Pan American Highway as its backbone; it links most of the important urban centers of the Sierra and connects through feeder roads with the Costa and ports. Total highway mileage is about 7,000<sup>2/</sup> at this time, of which better than half is classified as "all weather construction."

Two rivers, the Guayas and the Esmeraldas, make up the main waterway transportation system, which is widely used for shipping goods from the coastal areas to the ports on the Pacific Ocean. Two other rivers also play an important role in this system -- the Babahoyo and the Daule.

The government owned and operated railroad system has about 727 miles<sup>3/</sup> of single-track roads; of these, some 25 miles are side and yard tracks. The prevalent gauge is 42", although in some areas 30" gauge is used. The major line is the one that connects Guayaquil-Quito-San Lorenzo.

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<sup>1/</sup>Oficina del Censo, Los Censos del 8 de Junio (Quito, Ecuador: 1974), unpublished.

<sup>2/</sup>Organization of American States, American Republics Series: Ecuador (Washington, D.C.: 1972), p. 43.

<sup>3/</sup>Agency for International Development, Economic Data Book: Latin America (Washington, D.C.: 1968), Ecuador, p. 4.

The governments of Ecuador and Colombia have entered into a joint enterprise and formed a shipping company under the name of Flota Mercante Grancolombiana, of which Ecuador owns 20%. This shipping company carries a large volume of the nation's imports and exports. The main ports are Guayaquil (which handles about 60% of both imports and exports), Esmeraldas, Puerto Bolivar, Manta, and La Libertad. Additional geographic details are shown on Map 1.

#### Political Summary

It was during the search for Pirú, as the Inca nation came to be known, that the land now known as the Republic of Ecuador was discovered. An expedition led by the well-known explorer Francisco Pizarro<sup>1/</sup> disembarked at the Bay of Esmeraldas in the year 1524. Many more "conquistadores" followed shortly after, seeking the desired and legendary "El Dorado." The "conquistadores" were also interested in the cinnamon trade, as well as other spices that were available in the region.

Don Sebastian Benalcázar was one of the more successful "conquistadores," and he took possession of most of the northern part of what today is Ecuador. On December 6, 1534, he founded the city of San Francisco de Quito,<sup>2/</sup> which is now the capital city of the Republic of Ecuador. For the next 250 years the Spaniards continued their exploration and colonization of the area, implanting as they went along the Spanish language, culture, and civilization. This domination led to a resentment to Spain's control of the area as exercised through, first, the Viceroyalty of Peru in Lima and, much later, by the Viceroyalty of Nueva Granada in Bogotá through the officials appointed by Spain. As a result, the resentment evolved into a rebellion and, finally, into a movement for independence led in 1794 by a group called the Patriotic Society, headed by the precursor of the independence movement, Eugenio de Santa Cruz y Espejo, Ecuador's national hero. Independence did not occur until 1822, after Marshall Antonio Jose de Sucre and his army defeated the Spanish army on the outskirts of Quito in the Battle of Pichincha.

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<sup>1/</sup>Organization of American States, American Republics Series: Ecuador (Washington, D.C.: 1972), pp. 25-29.

<sup>2/</sup>Prescott, William H. History of the Conquest of Peru. (New York, New York: Random House Inc., 1944), p. 858.

The population followed Simon Bolivar's suggestions, uniting the new country to the Republic of Gran Colombia (Venezuela, Colombia, and Ecuador), and continued to assist Bolivar in the liberation of Peru. In 1830, both Venezuela and Ecuador withdrew from the union of Gran Colombia and Ecuador became a republic under President General Juan José Gómez. For a number of years there followed a constant struggle for supremacy between the Costa and the Sierra which evolved into the 1911 civil war.

Since independence, Ecuador has adopted and discarded a goodly number of constitutions which have reflected the political philosophy of both the liberals and the conservative parties. The present constitution was adopted on December 31, 1946, and has been amended by the different governments in power since then. The 1946 constitution declares the government to be popular, representative, elective, responsible, and alternating. It is also declared to be unitary, sovereign, independent, and democratic. The constitution establishes a division of power among the three traditional branches: the executive, the legislative, and the judicial.

Politically, the country is divided into 19 provinces and one national territory (Galápagos Islands). The provinces are, in turn, divided into cantones (counties) and parroquias (parishes). The central government appoints the governors of the provinces, and the cantones operate much as a municipality with a mayor and a council. For details of the distribution and names of the provinces, please refer to Map 1.

#### Social Summary

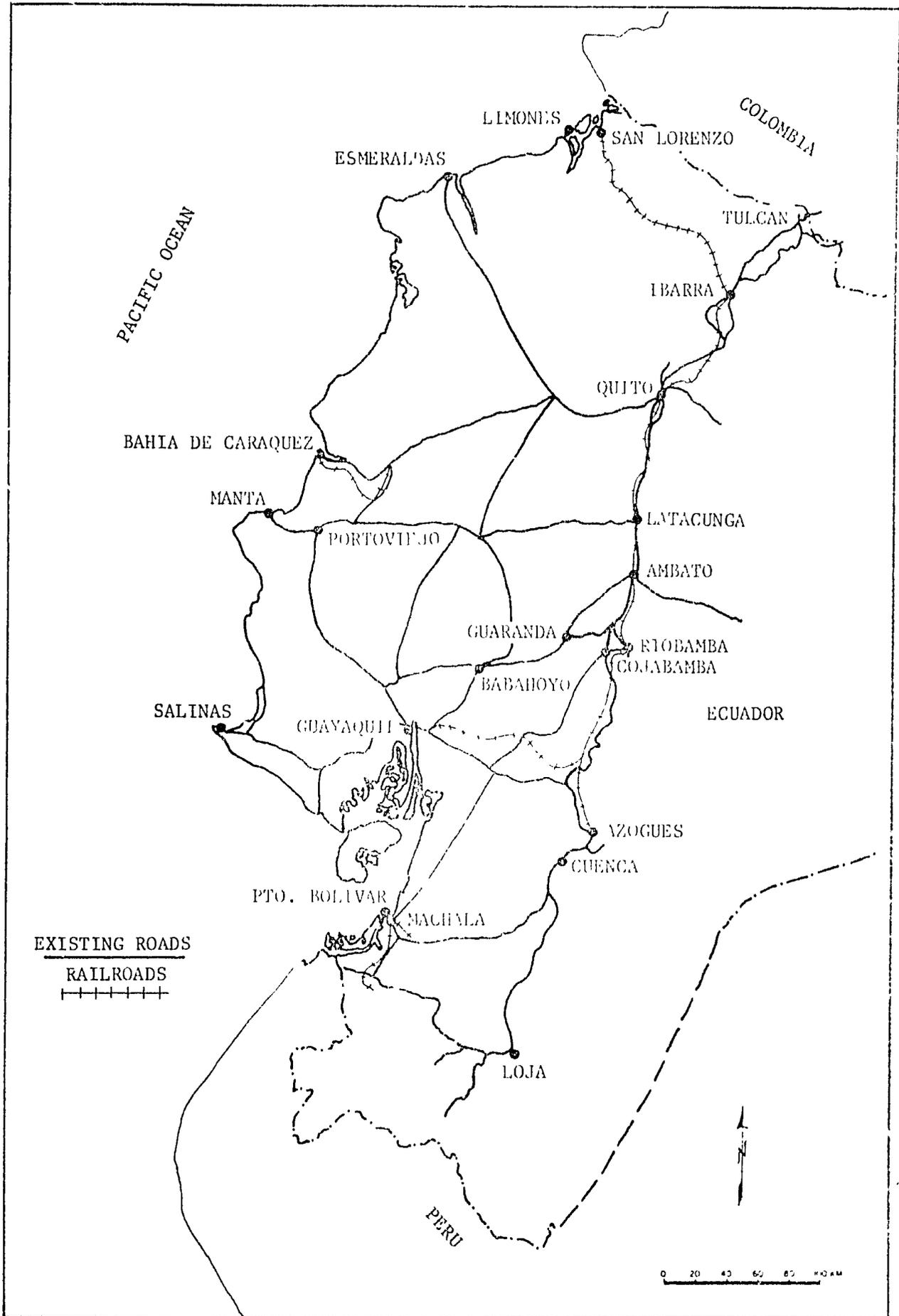
As indicated in a previous section, the population of Ecuador in 1972 was established at 6,598,000,<sup>1/</sup> of whom some 2,300,000 are estimated to be potentially economically active and are considered as the labor force (ages 15 to 60 years). In 1972, the census office indicated that they estimated some 325,000 were considered as absolutely unemployed.

The total population is very unevenly distributed over the land mass. This is due, in part, to the lack of employment opportunities in the rural areas and the constant attraction of the urban centers such as Quito and Guayaquil. Using the 1972 population figure, the population density, on the

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<sup>1/</sup>Oficina del Censo, Los Censos del 8 de Junio (Quito, Ecuador: 1974), unpublished.

DISTRIBUTION MAP OF ECUADOR



basis of 109,000 square miles of territory, is about 60 persons per square mile. About 40% of the total is in urban centers and the balance is located in rural areas.

The 1972 unpublished census figures indicate an employment distribution as shown and compared with the years 1950 and 1962 in Table 1.

Table 1  
EMPLOYMENT DISTRIBUTION  
(1950-1972)

Activity	1950		1962		1972	
	Employment	%	Employment	%	Employment	%
Agriculture	580,900	54.0	301,622	55.5	1,064,147	53.9
Mining	5,000	0.5	3,546	0.3	4,788	0.2
Industry	162,700	15.1	210,174	14.6	295,218	14.9
Construction	27,000	2.5	48,036	3.3	71,064	3.6
Commerce	75,000	7.0	97,000	6.8	135,954	6.9
Transportation	27,300	2.5	43,002	3.0	62,244	3.2
Energy	1,321	0.1	4,618	0.3	6,426	0.3
Services	134,000	12.5	158,000	10.9	274,050	13.9
Government and Others	62,000	5.8	76,000	5.3	61,110	3.1
Total	1,075,221	100.0	1,441,998	100.0	1,975,001	100.0

Sources: 1950 Data - Alianza para el Progreso, Evaluación del Plan General de Desarrollo Económico y Social del Ecuador (Quito: Ecuador, Agosto 1964), p. 50.

1962 Data - Junta Nacional de Planificación y Coordinación Económica, División de Estadística y Censos, Segundo Censo de Población y Primero de Vivienda del 25 de Noviembre de 1962 (Quito, Ecuador: 1965).

1972 Data - Oficina del Censo, Los Censos del 8 de Junio (Quito, Ecuador: 1974), unpublished estimates.

The Junta Nacional de Planificación y Coordinación Económica (JUNAPLA) estimates that a high percentage of the labor force includes persons who are underemployed or seasonally unemployed. The data available do not permit a more definite evaluation. In general, the labor force has a low educational level, and this also holds true with the agricultural labor force. It is estimated that the general population and the labor force are about 70%

literate, but only some 50% have completed two or more years of formal education.<sup>1/</sup>

The age structure of the population of Ecuador appears to be similar to that of other developing nations with high population growth rates. About 45% of the population is under 15 years of age and up to 70% of the population is below the 30 years age level, according to JUNAPLA. The present labor force represents about 35% of the total population, but no reliable data are available as to how many are actually employed.

In 1938, Ecuador established a Labor Code which has since been amended several times by different decrees. The Labor Code sets a standard work day of eight hours for industry, with a 44-hour work week. A minimum wage is established for different types of activities, and additional pay is required if the work is performed at night. The worker is entitled to a 15-day vacation period and some 11 paid national holidays per year. The Labor Code also provides for a system of profit sharing in which the employer (except in the case of artisans) must distribute 7% of the net yearly profits among his employees. Minors under 14 years of age are not allowed to work, and illegal strikes are not permitted.

Social security was established in Ecuador in 1935 and, at present, it is administered by the National Social Security Institute (Instituto Nacional de Previsión y Seguridad Social). The system provides for old-age pensions as well as disability, death, illness, and maternity benefits. Affiliates contribute about 7% of their earnings and the employer also contributes.

The educational system is divided into three main levels: pre-elementary and elementary, secondary, and superior. All the elementary level is free and compulsory for children at that age level. The public school system is maintained by the national government and assisted by the local municipal government. There are also private schools, most of which are supported by religious orders.

#### Agricultural Summary

Ecuador's agricultural resources are considerable and varied. Although the nation is now a petroleum producer, it continues to have fundamentally an

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<sup>1/</sup>From personal interview with Mr. G. Chambers, Junta Nacional de Planificación y Coordinación Económica, Quito, Ecuador, September 1974.

agrarian economy. In 1972, over one-half of the economically active population was engaged in agricultural activities.

Three agricultural regions are defined, coinciding with the geographical regions of Costa, Sierra, and the Oriente. The coastal plains are best suited for cultivation of tropical crops and are the main producers of bananas, rice, sugar, cotton, coffee, and cocoa. The cooler sierra plateaus are typical of the temperate zone and are used in producing grains, fruits, and vegetables. The agricultural potential of the Oriente is yet unknown and, at present, the only known activity is cattle raising. In summary, one may say that the Costa produces export-oriented crops and the Sierra provides most of the country's domestic food products.

Most experts agree that Ecuador needs to diversify its agriculture, yet little has been done in this line. Agricultural yields, generally speaking, are low when compared with those of other nations, and with very few exceptions (rice and potatoes), the other crops have shown little production improvement. It is interesting to note that official sources estimate that in 1973, there may have been some increase in the harvest produced; however, there appears to be a decline in products for domestic consumption, especially in potatoes, wheat, and corn.

A type of serfdom existed in Ecuador until sometime in 1964. The system was called "huasipungo," and to date many persons use that word in a disparaging manner. Under the system, a farmer was allowed to live on a few acres of land in exchange for his personal labor at the larger hacienda. This farmer, according to the system, would receive about S/3 per day of work. At present, the majority of individual land holdings are less than 10-acre farms, yet they are main producers of many of the domestic crops. Many of the export crops, rice especially, are produced by these small landowners. The small farmers generally use very traditional farming practices, little or no fertilizer, and have little knowledge of improved seed varieties.

In 1964, when the Agrarian Reform and Colonization Decree came into being, the government started taking a more active role in agriculture. The reform provided for a series of changes, such as: regulation of size of land holdings, agricultural wages, colonization regulations, credit, education, technical services, and others.

The principal sources of agricultural credit continue to be the National Development Bank (Banco Nacional de Fomento), the Central Bank of Ecuador (Banco Central del Ecuador), and the Agricultural Credit Fund (Caja de Crédito Agrario). The 1973-1977 National Development Plan has projected a fivefold increase in public investments in the agricultural and fishing sectors. If this is accomplished, a marked change is anticipated in the agricultural sector of Ecuador.

Tables 2, 3, and 4, which are copies of several documents from JUNAPLA, show the land area used for planting domestic and export crops, as well as production or harvest.

#### Industrial Summary

Much as in other developing nations, Ecuador's manufacturing sector was dominated by small artisan or handicraft productions up to about the time when the Industrial Development Law of 1957 (Ley de Fomento Industrial) came into being. These small industrial activities accounted for more than half of the total manufacturing production at that time. As a result of this government action, the availability of credit, and other factors, manufacturing activities have increased and, at this time, they represent about 17% of the Gross Domestic Product of Ecuador.

The industrial sector, which at present employs about 15% of the labor force, continues to perform better than the rest of the economy, according to available data for 1972. Much of this growth is as a result of the new market created by the Andean Group nations, of which Ecuador is a member country. It is anticipated that with the new wealth being created by the oil industry, the industrial sector will grow more rapidly in the next five years.

In spite of the general statement made above, very little statistical information is available for in-depth research. The data generated by the 1965 census and the 1969 surveys, as well as recent information from JUNAPLA, indicate that very little employment is actively being generated by industry development at this time. Some sources even believe that fewer than the 2,506 manufacturing enterprises registered by the 1965 census are in existence at this time.

From general observation, it appears that there is a change in the capital formation pattern and industry is changing accordingly. The existing factories

Table 2  
 LAND AREA PLANTED IN MAIN CROPS, 1962 - 1970  
 (in thousands of hectares)

	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
<u>Domestic Crops</u>									
Rice	110	113	109	103	111	114	112	92	87
Barley	151	165	164	157	143	144	135	126	134
Corn	197	246	300	307	267	254	255	291	292
Wheat	84	67	71	69	65	80	79	79	76
Potatoes	33	32	39	44	44	48	49	41	47
Beans	42	48	56	55	82	79	86	85	82
<u>Export Crops</u>									
Bananas	111	122	169	210	187	203	195	190	192
Cacao	147	167	163	247	291	264	253	228	228
Coffee	135	159	164	166	218	208	191	214	215
Sugarcane	65	72	93	97	113	119	122	124	125

Source: Junta Nacional de Planificación y Coordinación Económica.

Table 3  
 REGIONAL DISTRIBUTION BY REGIONS AND CROPS  
 OF AGRICULTURAL PRODUCTION, 1968  
 (in percent)

<u>Products</u>	<u>Total</u>	<u>Sierra</u>	<u>Costa</u>	<u>Oriente</u>
Cotton	100.0	2.2	97.8	-
Rice	100.0	2.3	97.7	-
Bananas	100.0	23.7	76.3	-
Plantains	100.0	14.3	77.6	8.1
Coffee	100.0	11.3	87.4	1.3
Cacao	100.0	8.2	91.8	-
Corn	100.0	59.0	38.0	3.0
Peanuts	100.0	20.2	78.1	0.7
Pineapple	100.0	22.2	69.7	8.1
Cabbage	100.0	99.6	-	0.4
Green beans	100.0	81.8	18.2	-
Dry beans	100.0	95.9	3.3	0.8
Lima beans	100.0	98.7	1.3	-
Potatoes	100.0	99.8	0.2	-
Onions	100.0	100.0	-	-
Wheat	100.0	99.9	0.1	-
Barley	100.0	100.0	-	-
Peas	100.0	100.0	-	-
Milk	100.0	76.9	19.2	3.9
Livestock (stock)	100.0	54.2	41.6	4.2
Livestock (slaughtered)	100.0	54.6	34.4	11.0

Source: Junta Nacional de Planificación y Coordinación Económica.

Table 4

PRODUCTION OF MAIN AGRICULTURAL CROPS, 1962 - 1970  
(thousands of metric tons)

<u>Products</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
<u>Domestic Crops</u>									
Rice	103	105	91	86	111	111	65	83	117
Barley	104	121	80	92	77	81	76	78	110
Corn	137	190	127	189	175	228	129	141	170
Wheat	77	67	62	65	63	79	83	94	81
Potatoes	332	298	320	391	347	399	510	457	542
Beans	21	27	25	31	36	38	35	38	41
<u>Export Crops</u>									
Bananas	2,308	2,296	3,037	3,067	2,744	4,355	3,920	3,870	3,688
Cacao	44	45	34	47	51	61	50	48	54
Coffee	53	55	46	65	74	66	63	56	60
Sugarcane	5,917	6,442	7,652	8,087	9,004	7,528	9,829	9,994	10,075

Source: Junta Nacional de Planificación y Coordinación Económica.

are expanding, utilizing more raw materials, and producing more units. It is also possible that they have increased the productivity of their labor force.

To further accent the above observation, the 1965 census revealed an average of 19 persons per manufacturing enterprise, while the 1969 survey indicated an average of 51 persons per industry. In later sections of this report, more details will be presented on this observation.

Among the principal industries in Ecuador, the following predominate:

Meat Processing	For local consumption. Lack of preservation and storage facilities has restrained its development.
Canning and Food Processing	Small installations. Mainly cannery fish (tuna), tomatoes, and some fruits
Dairy Products	All for local market.
Cane Sugar	For domestic market and export trade.
Vegetable Oil	Problem of lack of raw materials.
Tobacco Industry	Mainly production of local cigarettes; very small production of cigars and pipe tobacco.
Rice Milling	Mostly for export. A percentage for local market.
Alcoholic Beverages	Beer and wines, some liqueurs. This is government controlled.
Textiles	Cotton mostly. Some silk and synthetic fibers as well as woolen goods.
Chemical Industry	Mostly in the field of pharmaceuticals, soaps and detergents, cosmetics, simple plastic articles, and fertilizers.
Cement Industry	All for the domestic market.
Rubber Industry	Production of footwear, toys, and tires.
Tanning Industry	More as an artisan activity or handicraft.
Paper and Paper Products	All for local market. Kraft for boxes used in shipping bananas.

All industrial activities appear to be concentrated mainly around Quito (about 25%), Guayaquil (about 55%), and Cuenca (under 10%); the balance are isolated in different areas near urban centers. As will be shown in later

sections, the value added in the Guayás area (Guayaquil) is by far higher than the industries in the Sierra, all of which suggests that the Costa industries are more mechanized than the installations in the Sierra.

It is believed that the mining industry could play a more dynamic role in the industrial development of Ecuador, but due to the inaccessibility of the regions in which mineral ores are thought to exist, little or nothing has been done to develop this sector. The only extractive operation of interest is the petroleum industry, which came into its own back in March 1967 when commercial quantities of oil were discovered in the Oriente. At present, some 250,000 barrels of oil are being produced per day, and this has generated a great income for Ecuador.

A brief summary and comparison of the various industrial activities between 1965 and 1971 is presented in Table 5.

#### Financial Summary

The Monetary Board (Junta Monetaria) is the highest monetary and financial authority of the nation. It is in charge of formulating all monetary policies as well as tariffs and exchanges. This policymaking body regulates all of the banking and credit system of Ecuador. Under the Monetary Board is the Central Bank (Banco Central del Ecuador), which performs the usual functions of a central bank in the areas of currency, private banks, exchange, import and export permits, national accounts, petroleum funds, and the like.

The National Bank for Development (Banco Nacional de Fomento) was created as a credit institution to provide funds to the agriculture, fishery, small industry, and artisan sectors. Most of the loans are for either two to seven years or seven to 20 years. This bank has the responsibility of providing the necessary credit to industry as part of the national development scheme.

The Ecuadorean Housing Bank (Banco Ecuatoriano de la Vivienda) was established to assist in alleviating the problem of medium and low-cost housing by providing direct loans to the public on terms ranging from five to 25 years. The Social Security Institute (Instituto Nacional de Previsión y Seguridad Social) also participates in financing individual homes. According to recent estimates, about 70% of the nation's housing units are below minimum acceptable standards.

The National Finance Corporation (Comisión de Valores - Corporación Financiera Nacional) is a government agency (nonbanking) whose principal role

Table 5  
COMPARISON OF ENTERPRISES, EMPLOYMENT, AND VALUE OF  
PRODUCTION, ECUADOR, 1965-1971

Industrial Activity	No. of Enterprises			Persons Employed			Value Prod. (Mill.S/)		
	1965	1969	1971	1965	1969	1971	1965	1969	1971
Food Products, Beverages & Tobacco (SIC 20, 21 & 22)	526	303	342	14,213	15,778	16,995	2,596	3,521	4,988
Textiles, Footwear, Cloth- ing, Leather & Leather Goods (SIC 23, 24 & 29)	763	174	207	13,728	11,473	12,858	700	1,001	1,437
Wood, Cork & Furniture (SIC 25 & 26)	279	47	71	3,778	2,509	3,270	146	168	264
Paper, Paper Products, Printing & Publishing (SIC 27 & 28)	135	90	116	3,171	3,465	3,965	572	773	1,169
Chemical Products, Rubber, Petroleum & Derivatives (SIC 30, 31 & 32)	111	88	140	4,631	4,921	6,050	841	1,625	1,906
Nonmetallic Mineral Products (SIC 33)	100	51	40	1,902	2,976	2,427	201	492	467
Basic Industry Metals (SIC 34)	3	3	5	61	303	293	14	73	143
Metal Products, Electric. & Nonelectric. Machinery, Transport (SIC 35, 36, 37 & 38)	478	75	105	4,783	3,007	3,861	202	419	745
Others (SIC 39)	111	15	27	1,362	389	654	88	25	52
TOTAL	2,506	846	1,053	47,629	44,821	50,373	5,360	8,097	11,171

is to provide credit to promote industrial investments, feasibility studies, studies leading to the establishment of small industries, nontraditional exports, and other activities. They usually provide credit on six to 12-year terms.

The private sector is well represented by a large number of banking institutions performing the traditional commercial bank role. These institutions also participate to some degree in promoting credit for the development of new industries. They have been much more active in the past five years in this field.

Table 6 provides a general summary of available credit for industrial development for the period 1965-1973 in Ecuador.

Table 6  
 PRINCIPAL SOURCES OF INDUSTRIAL FINANCING  
 (in millions of sucres)

<u>Years</u>	<u>Central Bank</u>	<u>Private Bank System</u>	<u>C. B. &amp; Private Bank</u>	<u>National Development Bank</u>	<u>Total Credit (Internal)</u>
1965	647.4	491.0	1,134.8	7.9	1,134.8
1966	554.7	580.3	1,135.0	39.7	1,174.7
1967	454.2	638.5	1,092.7	46.5	1,139.2
1968	623.4	681.8	1,305.2	39.8	1,345.0
1969	692.1	853.6	1,545.7	49.2	1,594.9
1970	904.8	1,134.4	2,039.2	52.4	2,091.6
1971	969.7	1,266.1	2,235.8	59.8	2,295.6
1972	788.8	1,631.3	2,402.1	46.9	2,467.0
1973	626.9	2,214.8	2,841.7	29.6	2,871.3

Source: Banco Central del Ecuador, Boletín No. XLVII-558 (Quito, Ecuador: 1974), pp. 120-121.

STRATEGY FOR THE DEVELOPMENT OF  
THE SMALL-SCALE INDUSTRY SECTOR

The government of the Republic of Ecuador officially recognized the "artisan" when it promulgated a special law titled "Ley de Defensa del Artesano" in October 1953. The first article of this special law defined the "artisan" in the following manner:

Artisans are those who are manual workers, master craftsmen in a shop, or autonomous craftsmen who have invested in their shops, tools, machinery, or raw materials an amount not larger than S/20,000; that have working under them not more than six persons or employees; and that produce and sell articles in an amount not larger than S/15,000 per month.

Artisans are also those manual workers who have invested in tools, machinery, or raw materials more than S/20,000 and have complied with the other two conditions established in the preceding paragraph and are declared as artisans by the Junta Nacional de Defensa del Artesano on the basis that their normal work cannot be carried out with tools, machinery, or raw materials valued at less than S/20,000.

Equally considered as artisans are those manual workers who have no investment in tools or have no one working with them.<sup>1/</sup>

The above definitions make it very difficult to differentiate between the handicrafts producing handmade consumer goods and the cottage industry that uses a small number of machines. It appears that the dominant factor is the ability of the craftsmen to produce a product by hand or assisted by machinery.

Due to this unclear definition, it is practically impossible to determine the number of persons who were occupied in artisan activities in 1953 and it is apparent that a large percentage of those identified as artisans were circumstantially occupied as such in order to improve their incomes.

The Junta Nacional de Planificación y Coordinación Económica (National Planning and Economic Coordination Board) reported in 1961 that the "artisan sector" contributed 36.2% of the total gross national product of the manufacturing sector. The main activities generating this contribution were shoes

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<sup>1/</sup>Ley de Defensa del Artesano, Special Law of October 1953, Republic of Ecuador, Article 1.

Table 7  
DISTRIBUTION OF ARTISANS IN MANUFACTURING ACTIVITIES  
1962

<u>Activity</u>	<u>Total Estab.</u>	<u>Persons Occupied</u>	<u>%</u>	<u>Total Capital S/. (000)</u>	<u>%</u>	<u>Gross Value of Production S/. (000)</u>	<u>%</u>	<u>Value Added S/. (000)</u>
Leather and Related Products	6,047	17,380	18.6	19,356	16.5	22,457	24.2	11,861
Textiles and Garments	13,224	28,834	30.9	38,760	33.1	20,604	21.9	14,156
Furniture and Wood Products	4,090	12,060	12.9	13,642	11.6	13,541	14.4	8,897
Graphic Arts	228	525	0.7	3,294	2.8	1,020	1.1	497
Common Metals	2,608	10,701	11.5	22,831	19.5	9,357	9.9	7,158
Fine Metals	1,024	2,512	2.7	2,984	2.6	4,015	4.3	2,537
Marble and Stone	2,163	5,726	6.1	4,726	4.0	5,937	6.3	5,481
Various Unclassified	4,236	15,463	16.6	11,632	9.9	16,859	17.9	10,299
TOTAL	33,320	93,201	100.0	117,225	100.0	93,790	100.0	60,886

Source: Research carried out by the Junta Nacional de Planificación y Coordinación Económica in the years 1961 and 1962.

and garments (39.6%), furniture and woodworking (15.5%), metal-mechanical (12.5%), and miscellaneous manufacturing (11.2%).<sup>1/</sup>

During the years 1961-1962, the Junta Nacional de Planificación y Coordinación Económica (JUNAPLA) researched the artisan sector and gathered the statistical information which appears as Tables 7 and 8 in this section. Table 7 indicates that in 1961-1962 three activities (leather and related products, textile and garments, and furniture and wood products) represented 23,361 of the 33,620 establishments in existence, or about 69.4% of the total. The three activities employed 58,274 of the 93,201 persons occupied in all artisan activities, or about 62.5% of the total. As a result of the study conducted by JUNAPLA, they also established that the 93,201 persons occupied in artisan activities represented 35.8% of the total employment in the manufacturing sector in 1962.

Table 8 presents the geographical distribution of the artisan activities at the time of the JUNAPLA study. It is of interest to note that the Costa, with only 9,360 establishments of the 33,620 in existence, or about 27.8% of the total, employed only 35.4% of the persons in this activity and yet produced 44.7% of the gross value of production and 45.7% of the value added. From this observation, one would reach the conclusion that (a) either the artisans of the Costa are more productive or (b) they are more mechanized.

Also, through the research carried out by JUNAPLA, it was possible to determine that of the 93,201 persons involved in artisan work, 33,620 were classified as master craftsmen, 41,693 were craftsmen, and the balance of 17,888 were either apprentices or just family. The salaries were very varied, according to the study, with a master craftsman earning anywhere from S/546 per month, if he worked in textiles or garments, to S/1,990, if he worked in marble or stone (the value of the sucre was about 18 to the dollar in 1962).

At the conclusion of the research conducted by JUNAPLA in 1961-1962, a recommendation was made to the government of Ecuador for the establishment of a program to develop the artisan sector. The government of the Republic of Ecuador instructed JUNAPLA to prepare the necessary program for the development of the artisan manufacturers. This program was then incorporated into

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<sup>1/</sup>Mr. G. Chambers, National Planning and Economic Coordination Board, provided this information during a personal interview in September 1974.

Table 8  
REGIONAL DISTRIBUTION OF ARTISAN ACTIVITIES  
1962

<u>Provinces and Regions</u>	<u>Total Estab.</u>	<u>Persons Occupied</u>	<u>%</u>	<u>Gross Value of Production S/. (000)</u>	<u>%</u>	<u>Value Added S/. (000)</u>	<u>%</u>
Imbabura	1,565	5,800	6.2	3,884	4.1	1,917	3.1
Pichincha	8,118	18,982	20.4	25,488	27.1	16,796	27.6
Tungurahua	2,588	10,268	11.0	10,934	11.6	6,321	10.2
Azuay y Cañar	7,068	9,573	10.3	2,601	2.8	1,919	3.1
Chimborazo	2,677	9,115	9.8	4,945	5.3	3,748	6.2
TOTAL SIERRA*	24,260	60,173	64.6	51,991	55.3	33,046	54.3
Guayas	6,721	25,368	28.3	37,007	39.3	23,947	39.3
TOTAL COSTA*	9,360	33,028	35.4	42,102	44.7	27,844	45.7
TOTAL COUNTRY	33,620	93,201	100.0	94,093	100.0	60,890	100.0

\*Total Sierra and total Costa are not for just the shown provinces.

Source: Research carried out by the Junta Nacional de Planificación y Coordinación Económica in the years 1961 and 1962.

the Plan Nacional de Desarrollo Económico y Social 1963-1973 (National Social and Economic Development Plan, 1963-1973).

National Social and Economic Development Plan, 1963-1973

Volume III of this plan covered mining and industry. Book II of Volume III was exclusively directed to the artisan sector with a comprehensive development program.<sup>1/</sup> The goals of the program were the following:

1. Provide employment for a major sector of the population.
2. Assist in providing goods to the population and, at the same time, augment the total production goals assigned to the manufacturing sector.
3. Utilize the special skills developed by the artisans.
4. Export the goods produced by the artisans.
5. Determine which activities were low in productivity and consider the possibility of their being absorbed by industry.

The plan established specific goals for the different sectors within the artisan activities, as shown by Table 9.<sup>2/</sup>

Table 9  
PROJECTED GROWTH OF ARTISAN SECTOR ACTIVITIES

Activity	Gross Product (millions of S/)			Accumulated Rate (annual %)	
	1962	1968	1973	1962-68	1968-72
Leather & Leather Goods	273	392	491	6.2	4.5
Textiles & Garments	248	354	440	6.1	4.5
Furniture & Wood Products	163	240	296	6.9	4.2
Graphic Arts	12	8	10	-6.9	5.0
Common Metals	112	160	214	6.1	6.0
Fine Metals	48	80	123	8.8	8.9
Marble & Stone	71	80	102	2.0	5.0
Other - Not Classified	202	288	368	6.1	5.0
TOTAL	1,129	1,602	2,044	6.0	5.0

<sup>1/</sup> Junta Nacional de Planificación y Coordinación Económica, Plan Nacional de Desarrollo Económico y Social 1963-1973, Tomo III, Libro Segundo, "La Artesanía" (Quito, Ecuador: 1963), p. 27.

<sup>2/</sup> Ibid., p. 29

As shown in Table 9, the expected total rate of growth was 6% per year by 1968. The negative figure for graphic arts was due mainly to the data source. It appears that many establishments registered as "artisans" would be classified differently at a later date.

To reach the desired growth, the production goals presented in Table 10 were established in the program.<sup>1/</sup>

Table 10  
 PRODUCTION PROJECTIONS FOR ARTISAN SECTOR ACTIVITIES  
 (in thousands of sucres)  
 1961-1962

Activity	Value of Production		
	1962	1968	1973
Leather & Leather Goods	142,335	204,446	255,606
Textiles & Garments	169,879	242,078	301,938
Furniture & Wood Products	106,772	157,845	194,740
Graphic Arts	5,968	3,900	4,977
Common Metals	85,901	122,368	163,985
Fine Metals	30,452	50,533	64,494
Marble & Stone	65,783	73,837	94,237
Other - Not Classified	123,597	181,278	242,615
TOTAL	730,687	1,036,285	1,322,592

It was anticipated that during the first five years of the program the artisan sector would absorb some portion of the existing cottage industries and that the artisan sector would evolve into a small-industry sector. As part of the 10-year plan, it was expected that employment would be generated as shown by Table 11,<sup>2/</sup> while annual value of production per person employed would be increased by 69.9% during the same period of time.

In order to increase the production per person as established, it was understood that more mechanization would take place in the artisan activities and that the sector as a whole would evolve. The total desired goal was for

<sup>1/</sup> Ibid., pp. 29-30.

<sup>2/</sup> Ibid., p. 32.

the artisan sector to become the small-industry sector. This was further stressed in the areas of shoes, garments, furniture, printing, and metal-mechanic activities.

Table 11  
EMPLOYMENT AND PRODUCTIVITY OF ARTISAN SECTOR

Activity	Employment (000)			Annual Production Per Person Employed (sucres)		
	1961	1968	1973	1961	1968	1973
Leather & Leather Goods	17.4	18.6	17.5	8,190	10,992	14,610
Textile & Garments	28.8	26.5	23.2	5,892	9,135	12,015
Furniture & Wood Products	12.1	13.3	15.0	8,850	11,868	12,983
Graphic Arts	0.5	0.3	0.4	11,937	12,000	12,500
Common Metals	10.7	12.0	12.8	8,030	10,200	12,810
Fine Metals	2.5	3.5	4.0	12,123	14,440	16,120
Marble & Stone	5.7	6.4	7.5	11,490	11,500	12,500
Other - Not Classified	15.5	17.4	19.0	7,990	10,400	12,800
TOTAL	93.2	98.0	99.4	74,502	90,635	106,338
Index	100.0	105.2	106.7	100.0	134.9	169.9

At the time, there was a considerable variation in sucres produced per employee per year, as shown by Table 12.<sup>1/</sup>

In summary, the plan would implement the following projects:

1. Training of Professional Artisans Project. A system was to be established which would provide training for artisans who wished to gain a professional status. Training centers were to be established in different geographical areas of the nation.

- a. School of High Artisan Design and Decorative Art (only one in Quito).
- b. Center for Professional Artisans (one in each of the following provinces: Pichincha, Guayas, Tungurahua, Azuay, and Chimborazo).
- c. Special Centers for Professional Artisans (two in the provinces of Imbabura and one in the province of Chimborazo).
- d. Scholarships and educational trips abroad.

<sup>1/</sup> Ibid., p. 33.

Table 12  
PRODUCTIVITY IN INDUSTRY AND ARTISAN SECTOR

<u>Activity</u>	<u>Industry</u>	<u>Artisan Sector</u>	
	<u>Annual S/ Prod. Per Employ., 1961</u>	<u>Annual S/ Prod. Per Employ., 1961</u>	<u>Annual S/ Prod. Per Employ., 1973</u>
Furniture & Wood Products	15,509	8,850	12,670
Printing	24,266	11,370	16,510
Nonmetallic Minerals	47,016	11,490	17,860
Metal-Mechanic	20,551	8,030	14,750

2. Artisan Cooperatives Project. This project would attempt to assist the sector by providing machinery, purchasing raw materials, selling products, and other means. Two types of cooperatives were envisioned:

- a. Production cooperatives. A group of artisans would form a cooperative and produce a manufactured product. Five were planned for 1965, five in 1966, four in 1967, four in 1968, and three in 1969. These would be mainly in the provinces of Pichincha, Guayas, Tungurahua, Azuay, and Chimborazo.
- b. Artisan production assistance cooperatives. This type of cooperative would make equipment, machines, and tools available to the artisans. Four such cooperatives were to be established in Pichincha, four in Guayas, four in Tungurahua, five in Azuay, two in Chimborazo, and two in Imbabura.

3. Sales of Artisan Products Project. This project would provide a system whereby the artisan products could be sold nationally and internationally.

- a. Sales cooperatives would be formed for the purpose of selling the finished products and raw materials. These were to be established in Quito, Guayaquil, Cuenca, and Ambato.
- b. Import cooperatives would import needed raw materials and sell them to the artisans. Two were to be formed -- one in Quito and one in Guayaquil.
- c. Provincial fairs for artisan products. In order to provide more market exposure, the project would hold provincial fairs in the cities of Quito, Guayaquil, Ambato, Cuenca, and Riobamba. The artisan products would be sold at these fairs.

- d. Sales locations at airports, ports, hotels, and other tourist places. They would be private sales locations, but would be controlled by the government agency in charge of tourism.
- e. Research and studies of the foreign market. The plan referred to the U.S.A. market and recommended that a study be made by either OAS or AID, with the findings or report to be a donation to Ecuador.
- f. International expositions. It was recommended that Ecuador participate in international expositions in Germany, Italy, Spain, France, Argentina, and the U.S.A. This was to be done in or about 1967.
- g. Consulates and embassies. It was also recommended that showcases be set up in all diplomatic or consular establishments overseas to display the artisan products.
- h. Technical Office for the Expansion and Export of Artisan Goods. This would be a new department within the Division of Artisan and Small Industries at the Development Center. The new department would study the market and prepare a publicity campaign to be oriented to the export market.
- i. Permanent expositions in New York and Paris. These two expositions would serve as direct sales points for the artisan products.
- j. Credit. The National Bank for Development was to create a US\$5-million line of credit for artisans. The loans would be over six years and the first year would be a grace period.

The summary program that has been presented would cost about S/146 million over a 10-year period of time. To this must be added an additional S/90 million for a line of credit to be established by the new Credito Artesanal (artisan credit).

As indicated, the program was expected to generate a sectorial growth of about 6% per year and, thus, elevate the Gross National Product of the sector to S/1,602 million by 1968 as well as increase the employment figure to 98,000 persons.

The 10-year program moved along, but no evaluation was made either on a yearly basis or even at the midpoint of the 10 years. JENAPLA finally got the authorities to evaluate the program, and in 1968 the International Labour

Organisation (ILO) provided the services of Mr. Danilo Bassi Zambelli<sup>1/</sup> to travel to Ecuador and evaluate the 10-year program.

Engineer Bassi encountered a major problem -- the 1965 economic census only included establishments that employed five or more persons or those with a volume of production about \$/120,000 per year. He also determined that the statistical base was quite different, and his conclusion was that the 1965 data could not be compared with the previous census data. Because of this, Mr. Bassi was unable to carry out a comparative study for the 1963-1968 period of the program.

Due to this limitation, Mr. Bassi had to limit his evaluation to a simple comparison of projected goals and actual implementation. The summary of the basic evaluation is presented as Table 13 of this study.

When the evaluation was completed in 1968, an additional report was prepared proposing a new program entitled "Program for Artisan and Small-Scale Industries 1969-1973." The proposal was forwarded to the government by the General Secretariat for Economic Planning. The new proposal made by Mr. Bassi Zambelli and Mr. Gustavo Chambers M. became the official 1969-1973 program of the government.

#### Small-Scale Industry Development Program, 1969-1973

The early strategies had not created any basic changes in the industrial development of the nation. After the Bassi-Zambelli evaluation, it was recognized that new vital actions were necessary to counteract the inertia of the artisan and small-scale industry sectors. The government wanted to develop small-scale industries as an economic activity. It was desired that this sector play the traditional leading role in representing a high percentage of all industrial establishments, providing work for a large number of persons with very limited skills, and generating enterprises that do not require a high ratio of capital to manpower.

Traditionally, as indicated before, the small-scale industries and artisan activities were limited to the production of consumer goods (domestic market) and some intermediate goods (some exportable). They continued to be located near their markets, and most of them limited their production to meet

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<sup>1/</sup> Junta Nacional de Planificación y Coordinación Económica, Evaluación del Programa de Desarrollo Artesanal (Quito, Ecuador: February 1968), p. 25.

Table 13

## SUMMARY OF THE 1968 EVALUATION OF THE 1963-1973 PLAN

<u>Project</u>	<u>Goals to Meet</u>	<u>Accomplishments</u>
1. Training of professional artisans		
1.1 School of High Artisan Design and Decorative Art	Create in 1965. Operational by 1966 with 200 students per year	Not accomplished. Handicraft and artisan institute was not created
1.2 Center for Professional Artisans	Center in Quito to be established in 1967	Not accomplished
1.3 Special Centers for Professional Artisans	First center in San Antonio de Ibarra to be established in 1967	Not accomplished
1.4 Scholarships and educational tours	Starting in 1965, 10 scholarships per year	Twenty four persons have received scholarships abroad
2. Artisan cooperatives	Create and operate 14 cooperatives to produce goods	Only seven organizations are in existence
3. Sales of artisan products		
3.1 Sales cooperatives	Four establishments to be installed. Quito and Guayaquil to be operational	Diverse institutions have created four establishments
3.2 Import cooperatives	Two to be installed in 1965. The Quito and Guayaquil cooperatives were operating in 1966	Only one created by "CREA" in Cuenca
3.3 Provincial fairs	One in 1964, 2 in 1965, 3 in 1966, and 4 in 1964.	The Fair Committee participated in 12 fairs in 1967. OCEPA in 3 in 1965, 6 in 1966, and 6 in 1967
3.4 Research and studies of foreign markets	Research U.S. market in 1965	Not accomplished
3.5 Sales locations and exhibits	To begin in 1967	Fair Committee went to two exhibits and OCEPA to 18

<u>Project</u>	<u>Goals to Meet</u>	<u>Accomplishments</u>
3.6 Consulates and embassies	Set up showcases in all consular and diplomatic offices overseas	Unknown. OCEPA sent out 16 sets of samples
3.7 Technical office	Set up one central office (no date)	OCEPA was established in 1964
3.8 Permanent expositions	New York in 1966 to be in operation by 1967	Not accomplished
4. Credit	For artisan sector - S/57.7 million. For small industry and artisan - S/90 million	It is estimated that S/95.4 million have been made available

the demands of their area or region of influence. Domestic raw materials continued to be prevalent, with some exceptions. These owner managed and operated activities were of interest to the national government, which recognized that a new plan was needed that would attempt to compensate for the sectorial shortcomings in the areas of limited knowledge of the owners, lack of funds, lack of technology, and others.

As a result of the evaluation, JUNAPLA, assisted by Mr. Bassi-Zambelli, prepared a new small-scale industry program for the period 1969-1973. The following guidelines were used:<sup>1/</sup>

1. Direct and protect the artisan activities in the production of goods of artistic quality.
2. Promote the grouping of artisans of any one given activity to constitute small-scale industries.
3. Prompt the creation of industrial parks.
4. Assist the artisans in rural areas as a first step in the development of manufacturing activities in those areas.
5. Intensify the promotional work being done in the areas of production and export insofar as artisan products are concerned.

The 1969-1973 plan also made the following statement: "The National Social and Economic Development Plan has established as one of its fundamental objectives in the area of development of the artisan sector the evolution of this group to modern small-scale industries and also limit in the future the artisan activities."<sup>2/</sup> Furthermore, the plan established the decentralization of production, the integration and specialization in given activities, and the more efficient use of the available resources.

Generally speaking, the 1969-1973 plan did not vary the goals that had been established for the 1963-1973 decade. The new plan did recognize the need for an aggressive program in the field of technical assistance to artisan activities and small-scale industries. By the same token, regional

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<sup>1/</sup> Junta Nacional de Planificación y Coordinación Económica, Esquema de Una Política Industrial (Quito, Ecuador: 1966), p. 68.

<sup>2/</sup> Junta Nacional de Planificación y Coordinación Económica, Programa de Artesanía y Pequeñas Industrias, 1969-1973 (Quito, Ecuador: March 1969), p. 57.

priorities were established for 1973, all of which are presented in a summary form in Table 14.

If the goals established in 1968 for 1973 are compared with those originally announced in 1963 to 1973 (see Tables 9, 10, and 11), it will be noted that in 1963 it was anticipated that the employed population would be up to 99,400 by 1973, but in 1968 this projection was reduced to 71,000 persons. At the same time, the projected Gross Value of Production for 1973 was reduced from the S/2,044 million in the 1963 plan to S/1,508 million by the 1968 plan.

The technical assistance programs that were recommended were to activate both the artisan sector and the small-scale industries, helping them both to improve their production and expand their technical know-how. It was further recommended that the Centro de Desarrollo Industrial del Ecuador - CENDES (Industrial Development Center of Ecuador) provide the necessary technical assistance in both the promotion and the development of industrial enterprises. In 1964 and 1965, CENDES had established divisions for economic research, for industrial promotion, and for productivity. By 1968, all the newly created divisions were operational.

The revised 1969-1973 plan, which really represented the second half of the 1963-1973 decade, readjusted many of the goals and more specifically the expected annual gains. Much of the program was tabled and, late in 1969, a revision was published<sup>1/</sup> which concerned itself with the development of Ecuador and its industries within the broad framework of the economic integration of the Andean Group (Grupo Andino).

The new plan had as a major goal the better distribution of income within the nation. It allocated large percentages of the future gross investments to agriculture, industry, social infrastructure, and electric power. One of the objectives of the plan was to reduce the dependency of the economy on the external sector and to increase the strength of the internal sector. The author was unable to find any official evaluation of the 1969-1973 plan; however, at the end of 1973 a new program was created for the 1973-1977 period.

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<sup>1/</sup> Junta Nacional de Planificación y Coordinación Económica, Instituto para la Integración de la América Latina (INTAL), Bases para Una Estrategia de Desarrollo de la Economía Ecuatoriana en el Contexto de la Integración Subregional (Quito, Ecuador: November 1969).

Table 14  
ESTABLISHED GOALS FOR THE GROSS VALUE  
OF PRODUCTION AND ARTISAN EMPLOYMENT  
1973

Activity	Gross Production Volume Million of Sucres 1965			Employment Volume		
	Annual Growth		1973	Annual Growth		1973
	1965	%		1965	%	
20 Food Products	137.1	8	274.2	4,742	4.5	7,040
21 Beverages	3.2	4	4.5	749	2.5	935
23 Textiles	37.9	7	69.8	2,552	4	3,640
24 Footwear and Clothing	236.0	8	472.0	20,236	4.2	29,300
25 Wood and Cork	42.2	6	71.3	2,167	3.5	2,960
26 Furniture	61.7	7	113.4	4,394	4	6,250
27 Paper and Paper Products	1.8	4	2.6	26	2.5	32
28 Printing and Publishing	15.2	5	23.6	851	3.5	1,160
29 Leather and Leather Prod.	15.0	6	25.3	805	3.5	1,095
30 Rubber Products	7.3	4	10.4	470	2.5	588
31 Chemical Products	8.3	4	11.8	297	2.5	372
33 Nonmetallic Mineral Prod.	23.2	6	39.2	1,768	3.5	2,410
34 Basic Industry Metals	0.6	5	1.0	41	3	54
35 Metal Products	39.9	8	79.8	2,767	4.5	4,120
36 Nonelectrical machinery	6.1	6	10.3	192	3.5	262
37 Electrical Machinery and Equipment	20.1	6	33.9	945	3.5	1,290
38 Transport	116.8	6	197.0	4,247	3.5	5,792
39 Other	40.4	6	68.3	2,600	4	3,700
TOTAL	812.8	7.1	1,508.4	49,849	4	71,000

Source: Junta Nacional de Planificación y Coordinación Económica, Instituto para la Integración de la América Latina (INTAL), Bases para Una Estrategia de Desarrollo de la Economía Ecuatoriana en el Contexto de la Integración Subregional (Quito, Ecuador, November 1969), pp. 71-73.

### Small-Scale Industry Development Program, 1973-1977

When the new program was conceived for 1973-1977, JUNAPLA established, according to their statistics, that in 1972 there had been 200,521 persons employed in artisan activities and small-scale industries, and that this labor force had produced some \$/2,164 million during 1972. These statistics are far higher than the goal established for the year 1973, as shown in Table 14. JUNAPLA further reported that productivity was established at \$/10,793 per person employed in the artisan-small industry sector versus \$/82,193 per person for the industrial sector.<sup>1/</sup>

According to the report, artisan activities employed 79% of the labor force in manufacturing and produced 33% of the gross value of product in that sector. The artisan sector was still performing its traditional role of providing consumer goods and intermediate goods; to be more specific, such items as footwear, garments, wood products, furniture, food products, and some metal-mechanical products. In the area of footwear, garments, wood products, and furniture, the artisan production was estimated as high as 61% and employment was cited at 80% of the total.

Cottage type artisan activity was considered to be employing some 137,000 persons in 1972, whereas the small-scale industries with some 21,000 establishments employed only 63,000 persons. All these statistics were derived by JUNAPLA on the basis of the 1965 census and surveys.

There is another interesting point in reference to the artisan sector, although this information is for 1970 and, therefore, not comparable with the JUNAPLA statistics. In 1970, there were 15,441 artisan establishments with 30,233 persons employed.<sup>2/</sup> The same published report indicates that of the 15,441 establishments, 3,603 were in the Province of Pichincha, 5,938 in the Province of Guayas, and 2,149 in the Province of Azuay.

On the basis of the JUNAPLA recommendation and their "Programa de Desarrollo de la Artesanía y la Pequeña Industria 1973-1977" (Program for the Development of Artisan and Small-Scale Industry 1973-1977), the government of

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<sup>1/</sup> Junta Nacional de Planificación y Coordinación Económica, Programa de Desarrollo de la Artesanía y Pequeña Industria (Quito, Ecuador: 1973), p. 6.

<sup>2/</sup> Departamento de Planificación SECAP, Investigación de Mano de Obra en los Sectores Manufacturero y Minero, Proyecto OEA-SECAP (Quito, Ecuador: 1970), Tabla I-A.

the Republic of Ecuador established the "Plan Integral de Transformación y Desarrollo 1973-1977" (Integral Plan for Transformation and Development 1973-1977) in December 1972.

Among the objectives of this new plan is the following: "Sponsor the transformation of artisan shops into larger establishments. . ."<sup>1/</sup> The same document also establishes the general program goals for cottage and artisan activities as shown in Table 15.

A number of action programs also were considered to assist in meeting the established goals; these are summarized as follows:<sup>2/</sup>

1. Administrative Technological and Commercial Technical Assistance. CENDES would provide technical assistance to 1,000 establishments in the areas of: (a) production, (b) management, and (c) technology. Two teams would carry out the task, each with nine members. One team would serve the Sierra and the other, the Costa.

2. Training and Education. The philosophy is not to create new artisans, but rather to further educate the existing ones. Two main areas are considered: (a) artistic handicrafts and (b) utilitarian artisans, where 3,100 persons would be further trained.

3. Marketing of Artisan Goods and Supply of Raw Materials. This part of the program would provide marketing facilities to the individual artisan and supply him with needed raw materials.

4. Industrial Estates or Conglomerates. Location of these was not established, and CENDES is assigned the responsibility of implementing them. Two such parks or estates are to be established during this period of time.

5. Industrial Projects. It is proposed that 100 industrial projects be prepared between 1972 and 1977. JUNAPLA would do the prefeasibility studies and CENDES would perform the feasibility studies.

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<sup>1/</sup> Junta Nacional de Planificación y Coordinación Económica, Plan Integral de Transformación y Desarrollo 1973-1977, Resumen General (Editorial Santo Domingo, Quito, Ecuador: Diciembre 29, 1972), p. 249.

<sup>2/</sup> Ibid., pp. 252-254.

Table 15  
 STATUS AND PROJECTIONS OF THE  
 GROSS INTERNAL PRODUCT - ARTISAN SECTOR  
 (in thousands of 1972 sucres)

	<u>1972</u>	<u>1977</u>	<u>Annual Growth</u>
<u>Artisan Establishments</u>	1,001.8	1,527.3	8.8
A. Typical Consumer Products	736.3	1,121.7	8.7
B. Typical Intermediate Products	50.1	65.1	5.3
C. Typical Capital Products	215.4	340.5	9.6
<u>Cottage Artisans</u>	1,581.8	1,729.3	1.8
A. Typical Consumer Products	1,423.6	1,556.4	1.8
B. Typical Intermediate Products	31.6	34.6	1.8
C. Typical Capital Products	126.6	138.3	1.8
TOTAL ARTISANS	<u>2,583.6</u>	<u>3,256.6</u>	<u>4.8</u>
<u>Employment (Number of Persons)</u>			
Artisan Establishments	63,523.0	75,810.0	3.6
Cottage Artisans	136,998.0	146,137.0	1.3
<u>Productivity (Sucres)</u>			
Artisan Establishments	15,770.7	20,146.4	5.0
Cottage Artisans	11,546.2	11,833.4	0.5
Average for Artisan	12,884.4	14,672.9	2.6

Source: Junta Nacional de Planificación y Coordinación Económica, Plan Integral de Transformación y Desarrollo 1973-1977, Resumen General (Editorial Santo Domingo, Quito, Ecuador: Diciembre 29, 1972), p. 251.

6. Credit. It was established that the sector will require S/1,115 million over the five years of the program, of which S/836.2 million will be provided by government financial sources.

7. Legal and Institutional Organization. A review of the Ley de Defensa del Artesano (Law for the Protection of the Artisans) and Ley de Fomento de la Pequeña Industria y Artesanía (Law for the Development of Small-Scale Industries and Artisan Activities) would be carried out. Other legal reforms are also considered.

## PRESENT SITUATION OF THE 1973-1977 PROGRAM

As mentioned in the previous chapter, the strategy for the development and transformation of the different productive sectors of the economy was spelled out by the Plan Integral de Transformación y Desarrollo 1973-1977. The plan outlined an action program to assure that the established goals would be met and assigned the implementation to different institutions and organizations. By the end of 1973, it was difficult to really determine if any of the action plans had been initiated. In a desire to gain this knowledge, the author visited Ecuador over a period of 18 consecutive months ending in December 1974, and during a 30-day period (September-October 1974), he interviewed<sup>1/</sup> a large number of persons in organizations and institutions in Ecuador to determine the present situation of the program.

Before dealing with the status of the program at the end of 1974, let us review briefly the proposed action programs for the 1973-1977 period.

### Description of the 1973-1977 Action Program

A series of action programs were to be implemented as a way of reacting to the needs of the artisan and small-scale industry sector. The established goals would be met through the individual results of these actions. In summary, the action programs are as follows:

1. Administrative, technological, and Commercial Technical Assistance. It was considered desirable to establish a system which could attend to the needs and problems of both the artisans and the small-scale industries. The following general problem areas were identified as requiring attention:

- Work methods
- Preventive maintenance of equipment
- Selection of equipment for capital purchase
- Improvement of shops and establishments (illumination, ventilation, and other factors)
- Quality control
- Industrial safety

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<sup>1/</sup>Appendix 1 presents a complete list of persons and organizations visited.

Quality control of raw material and purchasing systems  
 Marketing and sales  
 Wages and incentives  
 Accounting and financial procedures

The action program would provide direct technical assistance to 1,000 enterprises over the five years of the program. To implement this, CENDES would provide two teams of technical persons (nine persons to a team) to work at a regional level; one would be operating out of Quito and the other would be based in Guayaquil. The program also considered the future use of foreign technical staff with special expertise.

The teams would provide on-site technical assistance in the areas of solving management and production problems of existing small-scale industries and artisan establishments. A technical laboratory would support the teams and provide instrumentation applicable to machine shops, electrical shops, food processing, and others. The lab also would do limited testing and determine quality standards.

Priority was to be given to establishments in the production of food, footwear, garments, and metal products. The technical assistance schedule was established in the following manner:

	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>Total</u>
No. of Establishments	100	160	200	240	300	1,000

2. Training and Education. Two subprograms are identified under this action item. One has its focus on the "artistic handicrafts" and the second is concerned with the "utilitarian artisans." For the purpose of this document only, the utilitarian artisan will be considered. The desire of the government is to educate and train the artisans active in industrial production. The following needs are recognized and training will be offered to:

Tanners  
 Lathe operators (ceramics)  
 Woodworkers  
 Recappers and vulcanizers  
 Galvanizers  
 General mechanics  
 Maintenance mechanics  
 Automotive mechanics

Diesel mechanics  
 Metal lathemen  
 Milling machine operators  
 Boilermakers  
 Plumbers  
 Body shop men  
 Welders

The action program envisions relocating artisans if necessary. It was anticipated that about 440 persons would be trained per year for a total of 2,200 over the five years. The training program would be implemented by the Servicio Ecuatoriano de Capacitación Profesional - SECAP (Ecuadorian service for Professional Training), which is the organization created in 1966 by the government to provide a "national" training program. At present, SECAP is part of the Ministry of Labor and Social Welfare. For the year 1974, SECAP had planned to offer a number of training programs. Table 16 presents a listing of the programs to be offered during the first six months of 1974.

The training of managers was also considered in the action program. Basic training programs were to be offered to owners of small industrial establishments. This included the owner-operator type so often found in small-scale industries. Training could be both formal and informal, covering all types such as round-table discussions, industrial visits, conferences, classroom situations, and others. The programs were to be offered in Quito, Cuenca, Ambato, Guayaquil, Otavalo, and Riobamba.

Ten training programs were to be offered per year in order to have 1,000 trained owner-managers at the end of the five years. Once the person had successfully completed his training under SECAP, he would continue to receive technical assistance from the CFNDES teams. The following schedule was recommended for this action program:

	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>Total</u>
Number of Participants	100	200	200	200	200	900

To further train the artisans, the program envisioned the establishment of "demonstrative shops" where the participants would learn by doing given tasks. They would be trained in production methods, use of raw materials, mass production techniques, and other areas. The objective was to enhance the know-how of the artisans and teach them the use of simple modern equipment and

Table 16  
 PROPOSED INDUSTRIAL TRAINING PROGRAMS TO BE  
 PRESENTED BY SECAP, FIRST SIX MONTHS 1974

<u>Subject</u>	<u>National Region</u>	<u>Coastal Region</u>	<u>Austral Region</u>	<u>Total for Ecuador</u>
Basic Metrology	28	28	12	68
Lathe Operators	5	4	-	9
Milling Machine Operators	-	1	-	1
Maintenance Mechanics	2	-	2	4
Electric Welding	7	9	3	19
Acetylene Welding	5	4	3	12
Basic Drawing	23	6	9	38
Boilermakers	-	1	-	1
Diesel Engines	1	4	-	5
Gasoline Engines	6	5	2	13
Basic Electricity	4	1	1	6
Electricians	1	-	1	2
Basic Electronics	5	2	1	8
Transistors	2	2	1	5
Human Relations	11	8	8	27
Industrial Safety	9	8	7	24
Teacher Training	-	5	1	6
TOTAL	109	88	51	248

Source: Servicio Ecuatoriano de Capacitación Profesional, SECAP 74 (Quito, Ecuador, 1974), p. 34.

techniques. The demonstrative shops would specialize in the production of footwear, garments, ceramics, wood products, food, and machinery. Twenty-eight such demonstrative shops would be established during the five years, as follows:

<u>Activity</u>	
Footwear	Carchi, Imbabura, Pichincha, Tungurahua, Azuay, Loja, Guayas, and Chimborazo
Garments	Imbabura, Pichincha, Tungurahua, Azuay, and Guayas
Ceramics	Canar and Cotopaxi
Mechanics	Pichincha, Tungurahua, Chimborazo, Azuay, Guayas, Esmeraldas, and others through a mobile unit
Woodworking	Imbabura, Pichincha, Azuay, Loja, and Guayas
Food	Guayas, Pichincha, and others through a mobile unit

As per the action program, the demonstrative shops would be established in the following sequence: three in 1973, four in 1974, five in 1975, and one in 1976. The timing for the remaining 15 was not determined at the time. A total of 9,680 artisans would receive training over the five years in the following manner:

Table 17  
ARTISAN TRAINING PROGRAM, 1973-1977

<u>Provinces</u>	<u>Participants per Year</u>					<u>Total</u>
	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	
Carchi	-	-	160	160	160	480
Imbabura	320	320	320	320	320	1,600
Pichincha	-	320	320	320	320	1,280
Cotopaxi	-	-	-	80	80	160
Tungurahua	240	240	240	240	240	1,200
Chimborazo	-	160	160	160	160	640
Canar	-	-	80	80	80	240
Azuay	-	320	320	320	320	1,280
Loja	-	-	240	240	240	720
Guayas	320	320	320	320	320	1,600
Esmeraldas	-	-	80	80	80	240
Mobile Unit	-	-	80	80	80	240
Total	880	1,680	2,320	2,400	2,400	9,680

In addition, scholarships would be provided for selected individuals to go abroad and enhance their artisan abilities. Two-year training programs overseas were considered by the action plan.

3. Marketing of Artisan Goods and Supply of Raw Materials. This apparently was considered as a great problem area; therefore, an action program was to be implemented to solve the existing problems. The following points were considered:

a. Supply of raw materials. In order to facilitate the acquisition of needed raw materials (either native or imported) at the artisan level, a number of central units would be created to assume this responsibility. The central units would purchase wholesale goods, materials, parts, and equipment, and would sell these at special prices to the artisan. Two such warehouses would be established, one each in Quito and Guavaquil. The Banco Nacional de Fomento was assigned the task of implementing this action.

b. Marketing of artisan goods. The main objective here was to increase the exportation of these goods. It was suggested that the system already established by the Oficina Central de Exportaciones de Productos Artesanales - OCEPA (Central Export Office for Artisan Products) and ICEI continue to be used. It was also planned to continue sending exhibits to international fairs and expositions.

Insofar as the domestic market was concerned, they planned to continue operating the two warehouses now controlled by OCEPA and the Minister of Production. Other warehouses would be considered in the future. To further exhibit these products, it was suggested that samples and displays be sent to the different provincial fairs at Quito, Guavaquil, Ambato, Riobamba, and Cuenca.

4. Industrial Estates or Conglomerates. A pragmatic action program would be carried out to promote the expansion and modernization of the small-scale industries. The objectives were threefold: (a) to stimulate industrial development, (b) to favor a balanced regional development, and (c) to encourage urban planning. The five-year action program would do the following:

a. Define the policy of CENDES in the areas of construction, financing, and administration of industrial parks or estates.

b. Concentrate all resources to establish one integrated industrial park to serve as a model.

c. Consider the establishment of two additional industrial parks over the next five years.

d. Parks of this type would have to have the land donated by the local community and would have to be assisted in the building of the required infrastructure.

The action plan calls for establishment of one industrial park or estate during Year I of the plan. This industrial park would have 30 industries, to be housed in buildings of about 500 square meters each, with a land area of about 1,500 square meters per building. It is further estimated that each enterprise will employ some 15 persons, or 450 persons for the total industrial park. This employment would increase to about 630 persons by the second year, due to anticipated expansions.

The second industrial park would house only some 20 industries and would not be built until results of the first park become known. The plan calls for the second park to be operational before the end of the five years of the plan.

5. Industrial Projects. The action plan recognizes the need for viable, pragmatic studies that will identify new industrial opportunities for Ecuador. The objective of the plan is to conduct such studies, carry out the necessary research, and determine the manufacturing opportunities for each of the provinces of Ecuador. The studies also should identify the activities that potentially may be absorbed by the competing industries within the Andean Group.

Two organizations are responsible for implementation of the Action Plan: (a) JUNAPLA, which will carry out the prefeasibility studies, and (b) CENDES, which will prepare the feasibility studies. They plan to complete 16 studies in 1973, 20 in 1974, 20 in 1975, 22 in 1976, 22 in 1977, for a total of 100. In considering the new manufacturing opportunities, the following guidelines have been established:

- a. Better use of national raw materials and degree of utilization.
- b. Export possibilities or import substitution within the "integration" framework of the Andean Group.
- c. Employment and degree of technology of the national human resources.
- d. Types of goods produced: consumer, intermediate, capital.
- e. Preservation of the national artistic folklore.

An extensive listing was suggested for review on the basis of industrial activities receiving preferred treatment within the Andean Group. JUNAPLA would cull the list and initiate the prefeasibility studies at an early date.

6. Credit. No modification is suggested in the action plan. The established financial system would be used, principally: (a) the Banco Nacional de Fomento and (b) La Banca Privada. Other sources are mentioned, such as the

Comisión de Valores and the Corporación Financiera Popular. The plan points out that between 1966 and 1970 the small-scale industry and artisan sectors have received over S/250 million<sup>1/</sup> in financing from the Banco Nacional de Fomento.

In order to provide the necessary credit for the needs of this sector during the five-year plan, the following funds would be needed:

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Table 18  
FUNDS REQUIRED FOR THE FIVE-YEAR PLAN

<u>Purpose</u>	<u>Millions of S/</u>
Industrial projects for new small-scale industries	160
Financing 1,500 artisan shops (large)	100
Financing operating capital	50
Presently required by existing small-scale industries	525
Financing for 20,000 artisan shops employing less than four persons	200
Total over Five Years	1,115

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Together with the required investment of S/1,115 million, it was also planned that the Banco Nacional de Fomento would make available a S/470 million line of credit to be used by small-scale industries and artisans. It was anticipated that the Banco Nacional de Fomento, Comisión de Valores, and Gerencia de Fondos Financieros would not be able to provide all of the needed funds.

7. Legal and Institutional Organization. The plan also recognized the existing difficulty created by the different definitions, regulations, and limitations imposed by the two existing laws in the area of small-scale industries and artisans. A legal study would be conducted to regulate and coordinate the existing laws, thus benefiting the sector in general. If need be, new laws or decrees would be issued in the future.

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<sup>1/</sup> Junta Nacional de Planificación y Coordinación Económica, Programa de Desarrollo de la Artesanía y Pequeña Industria (Quito, Ecuador: 1973), p. 44.

At present, there is a conflict between the different existing laws and there is a need to clarify the following concepts:

- a. The law should protect those artisans and small-scale industrialists who really need government assistance in order to improve their operations.
- b. A solution should be offered to solve the existing technical and economical problem.
- c. A clear definition is required insofar as: 1) what is an artisan and 2) what is a small-scale industry. The law needs to clarify this to avoid one or the other making use of legal incentives for which they are not qualified.
- d. The simple fact of being classified as an artisan or small-scale industry should not be enough to allow for tax exemptions and other incentives.
- e. Incentives are needed so that the employees in artisan shops and small-scale industries comply with the labor laws and the social security system.
- f. The artisans and small-scale industries should be motivated to form and join the existing association for the sector.

A lengthy series of recommendations is offered by the document published by JUNAPLA and referred to earlier in this chapter.

#### Status of the 1973-1977 Action Program by December 1974

The action programs presented in the previous section were to be implemented, starting in January 1973, for a period of five years. The author visited Ecuador through 1973 and 1974 and had the opportunity of obtaining some first-hand information on the status of this action plan. On an unofficial basis, the author will attempt to offer an evaluation of the 1973-1977 program at the end of 1974.

1. Administrative, Technological, and Commercial Technical Assistance. The program called for 1,000 establishments to be provided this type of assistance over the five-year period, and this was to be accomplished by CENDES. The first apparent problem is the fact that this activity was not included in the CENDES annual budget. Two teams were to be established by CENDES -- one in Quito and one in Guayaquil. The teams would be made up of engineers, economists, business managers, and other high-level technical-type staff.

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<sup>1/</sup>ibid., p. 55.

By the end of 1974, nothing had been done in reference to this section of the plan. CENDES has been providing technical assistance to industry, but under a United Nations-sponsored project not related to the 1973-1977 plan. CENDES could provide the required technical assistance, but it would need: (a) funds, (b) outside help, and (c) training of its staff.

2. Training and education. As of December 1974, this portion of the program and the credit portion are the two that have best been developed. It was up to SECAP to implement the action plan insofar as the "utilitarian artisan" was concerned. There is no doubt that SECAP has offered some very valuable training programs through 1974, but the author was unable to determine from existing data if these were oriented to artisans and small-scale industries or simply to the general public. From the author's personal knowledge, it appears that SECAP in no way attempts to keep statistics that will permit specific identification of the artisan or the small-scale industry person. Table 19 presents a summary of the industrial training programs offered by SECAP for the first six months of 1974.

A comparison of Table 16, which shows the projected industrial training programs, and Table 19, which shows the presented industrial training programs, reveals a wide variance. Furthermore, during 1973, none of the planned industrial training programs were offered. It is apparent that, although SECAP is offering some industrial training programs, they are not necessarily being oriented to or attended by the artisans or the small-scale industry operators.

On a more positive note, through an international agreement with Spain, SECAP is offering some industrial training in the areas of footwear, garments, ceramics, jewelry, food, and tanneries. During the author's stay in Cuenca, he was able to identify that training programs were being offered, through Spanish instructors, in jewelry and metal forging. It is possible that later on these training programs will become more widely available, but at present, it appears that very little has been accomplished in this area.

The original plan also called for the establishment of "demonstrative shops" which were to become operational starting in 1973. Of the 28 proposed demonstrative shops, none had been established by the end of 1974. The project apparently was not implemented due to: (a) lack of funding, (b) a CENDES survey indicating that this approach was not desirable, (c) lack of instructors, and (d) lack of coordination between CENDES and SECAP. As a result, this portion of the action plan has not been started yet.

Table 19  
INDUSTRIAL TRAINING PROGRAMS PRESENTED BY SECAP  
FIRST SIX MONTHS 1974 - TOTAL FOR ECUADOR

<u>Subject</u>	<u>Training Programs</u>		<u>No. of Participants</u>		<u>Hours of Training</u>
	<u>Planned</u>	<u>Offered</u>	<u>Enrolled</u>	<u>Completed</u>	
Basic Metrology	68	46	625	554	1,840
Lathe Operators	9	5	42	34	600
Milling Machine Operators	1	-	-	-	-
Maintenance Mechanics	4	-	-	-	-
Electric Welding	19	10	75	67	600
Acetylene Welding	12	10	74	60	600
Basic Drawing	38	27	363	337	2,430
Boilermakers	1	-	-	-	-
Diesel Engines	5	1	12	12	120
Gasoline Engines	13	7	81	78	840
Basic Electricity	6	3	39	39	270
Electrician	2	-	-	-	-
Basic Electronics	8	4	52	46	720
Transistors	5	4	53	53	320
Human Relations	27	30	440	411	600
Industrial Safety	24	18	277	268	270
Teacher Training	6	1	12	12	20
TOTAL	248	166	2,145	1,971	9,230

Source: Servicio Ecuatoriano de Capacitación Profesional, SECAP 74 (Quito, Ecuador, 1974), p. 34.

3. Marketing of Artisan Goods and Supply of Raw Materials. This part of the program has been implemented to a certain degree. At the end of 1974, three identifiable "markets" or warehouses were in operation, all in the city of Quito. They are: Cooperativa Atalualpa, Ecuador Presente, and Ecuacóndor. The wholesale warehouses assigned to the Banco Nacional de Fomento to provide raw materials, tools, and machines have not been established. It was rumored in Quito that perhaps one such establishment might be implemented in 1975.

4. Industrial Estates or Conglomerates. The city of Cuenca has been selected for the first industrial park, in view of the fact that the Centro de Reconversión Económica del Austro - CREA (Center for the Economic Recovery of the Austral Region) already had the land available for the park. CREA, together with CENDES, has been constructing the industrial park. By the end of 1974, most of the infrastructure was in and they were completing the drainage system. The city of Ambato possibly may be selected for the second park site.

5. Industrial Projects. As indicated before, JUNAPLA was to perform the prefeasibility studies and CENDES would do the feasibility reports. Nothing has been done in this area as of the end of 1974, but CENDES has prepared a list of over 200 manufacturing activities they would like to research for specific locations in Ecuador. The list, which is presented as Appendix 2, includes the following general activities: 62 food industries, three beverage, three tobacco, 12 textiles, 13 wood products, five paper, three printing, two leather, four rubber products, 23 chemical, one oil refinery, 21 nonmetallic minerals, nine basic metal, 16 metal products, 12 nonelectrical machinery, 18 electrical machinery, four transportation, and four others not classified. Other than the general inventory that has been prepared by CENDES and JUNAPLA, little has been accomplished in this area.

6. Credit. According to the Banco Nacional de Fomento, during 1973 they issued loans to the artisans and small-scale industry sector totaling S/201 million, disbursed over a total of 3,961 loans. Furthermore, they refinanced S/17 million for a total of 4,398 loans, including the above-mentioned 3,961.<sup>1/</sup> Ample funding appears to have been available for artisans and small-scale industries during 1973, but the author was unable to determine the

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<sup>1/</sup> Banco Nacional de Fomento, Informe Anual. 1973 (Quito, Ecuador: 1973).

amounts available during 1974. Banking authorities give the impression that credit is ample and available and that the problem is the lack of well-reasoned, viable industrial projects.

7. Legal and Institutional Organization. The author believes that the government of Ecuador is seriously considering the legal aspects of the artisan and small-scale industry groups, and it is very possible that in the near future a law will be promulgated unifying these two groups. It appears that government sources are seriously concerned with this difficult area.

In general, Table 20 recaps the status of the 1973-1977 program at the end of 1974.

Table 20  
 SUMMARY OF THE STATUS OF THE 1973-1977  
 ACTION PROGRAMS BY DECEMBER 1974

<u>Program</u>	<u>Implementor</u>	<u>Status</u>
1. Technical Assistance	CENDES	Not started
2. Training and Education		
a. Utilitarian Artisans	SECAP	Some programs presented
b. Demonstrative Shops	CINDES SECAP	Planning one in the city of Ambato
3. Marketing of Artisan Goods and Supply of Raw Materials	Min. of Ind. & Banco de Fomento	Greatly delayed
4. Industrial Estates or Conglomerates	CENDES	Cuenca park under construc- tion
5. Industrial Projects	JUNAPLA CENDES	Lists have been prepared - No studies as of now
6. Credit	Banco de Fomento	Being implemented
7. Legal and Institutional Organizations	Government	Initiated

## REVIEW OF SELECTED SMALL-SCALE INDUSTRIES

Starting in April 1973 and ending in December 1974, over a period of about 18 to 20 months, the author was in Ecuador six times. During the various visits, which lasted anywhere from one week to five weeks each, he gathered data and information for this study. As part of the on-site research, the author visited many artisan shops, cottage industries, and small-scale industries. At all times, during these visits, he was accompanied by senior members of the staff of CENDES or of JUNAPLA. This portion of the study covers the personal impressions of the author with respect to the industrial activities he visited and the products he saw.

### Production of Goods

Most of the establishments visited, whether artisans, cottage industries, or small-scale industries, apparently suffer the same problems of: (a) poor or nonexistent production processes and (b) antiquated techniques and processes for production of components which are equally poor. The goods being produced are usually of an inferior quality, not very well designed; little or no thought has been given to the demands of modern buyers or market trends. Later in this section of the report, selected activities will be further reviewed.

Generalizing, one may safely say that these small industries and artisans lack production systems, quality control, industrial processes, use of simple modern tools (the author is not referring to modern automated equipment), as well as the basic industrial engineering concepts, such as: industrial safety, measured time motion, cost control, unit cost, quality control, and many others.

### Raw Materials

The raw materials used in the manufacturing processes are usually of inferior quality. This is more apparent when "native" materials are used. It is painful to observe how many man-hours of skilled handcraft are invested in products that are of low quality. For example, one finds exquisite embroidery work being done on low-quality textiles.

The workers or artisans lack many of the components needed to provide a good "finish" to the product such as: hardware for furniture and leather goods; varnishes used in cabinetmaking; metal buckles and snaps for use in garment manufacturing.

### Designs

During the plant visits, many novel designs were observed, but in many instances the designs were out of phase with the standards and applications for the product of the national consumer. An extreme case is the garment sector (cut and sew), where the cutting patterns are usually North American or European; therefore, the sizes do not fit the physical dimensions and body size of the average native person.

It is also apparent that many manufacturers simply copy someone else's designs instead of attempting to generate new designs. Identical wood carving designs are found in shop after shop. The same is true in footwear, embroidery, leather luggage, and various other industries.

### Living Conditions and Income

The artisan has a very limited income, lower than that of the small-industry worker and, apparently, well below that of an industrial worker. The artisans' cottage establishments would be considered below acceptable standards in Ecuador. Living conditions are poor, income is very low, and the individual artisan barely supports himself and his family. They combine their artisan work part-time with agricultural activities, but they probably would be better off working in an industry if jobs were available.

### Marketing and Sales

From personal interviews conducted with many artisans, the author gathers that they are victims of a system which places them at a disadvantage when they try to purchase needed raw materials and try to sell their artisan goods. The system apparently has the following identifiable limitations: (a) lack of access to the marketplace, (b) limited purchasing power at the time of acquiring raw materials, (c) unethical competition from other artisans, and (d) softness of the domestic market.

### Plant Installation and Equipment

The shops and small-scale industries visited were very small or, at best, "modest." The existing equipment and tools are antiquated and capable of very limited production. In many cases, the author would classify the equipment as obsolete. One also finds many homemade pieces of machinery and tools which show great ingenuity but, unfortunately, are very limited in what they can produce. Little, if any, consideration is given to industrial safety in

these establishments. In most cases, the establishment is part of the family lodging, which makes for a very unsafe environment for the inhabitants.

Without any attempt at mechanization, these establishments could be greatly improved and could produce more and better goods if they had simple semi-automatic tools and equipment. The production per man-hour could be greatly increased, and this would provide a higher level of income.

### Financing

Because of their small size and limited resources, most of the artisan shops and small-scale industries cannot provide the necessary collateral to obtain a bank loan. In the case of the artisans, they have a limited level of education and find it practically impossible to fill out standard bank credit forms, as well as to provide the information required on these forms. Most of them, therefore, use direct loans from individuals or from the warehouses with which they do business. These loans usually carry a much higher rate of interest, and this makes the total "production system" most costly.

### Laws and Regulations

There appears to be a great deal of confusion concerning the legal definitions and regulation of an "artisan shop" and a "small-scale industry." The artisan points out that he is better off, according to present laws, if he remains an artisan and does not attempt to grow into a small-scale industry. The small-scale industry owner points out that the artisan is hiding behind present laws, that he actually is a "small-scale industry," but he uses cottage workers, pieceworkers, and others to generate his production outside of his establishment. In short, both sides accuse each other and a marked antagonism exists.

### Consumer

The consumer is suffering because of all the above problems. Often the consumer cannot obtain the goods he needs because of the limitations of artisan production, or the internal demand may be higher than the production capability. Prices fluctuate greatly and, in some instances (shoes), they are very high for the income level of the consumer. There is no assurance that the product has met quality standards; the consumer must depend on his personal knowledge of the artisan to determine if the product will last, has been properly made, and so on. The small-scale industry product also has a variable quality, due to the lack of quality control.

(Note: All of the above statements represent the author's opinion as a result of his research.)

#### Furniture and Wood Products

This category, which includes the combined CIU<sup>1/</sup> Nos. 25 and 26, provided work for some 6,500 artisans with a gross volume of production close to S/100 million in 1965. In comparison, the small-scale industry group employed only 580 persons, producing a gross volume of some S/20 million in 1965. For the same year, the same sector in the "industry" classification employed 3,700 persons and had a gross value of production of some S/168 million.<sup>2/</sup>

The 1970 OEA-SECAP study<sup>3/</sup> indicates that 4,733 persons in the artisan classification were engaged in the above-mentioned activities, while industry provided 2,269 jobs. Unfortunately, no production statistics were made available in that report.

It is apparent that in a five-year period, artisan employment has declined considerably. This may be due to mechanization, consolidation of small enterprises, and closing of small artisan establishments. In the meantime, in spite of increased plywood production, there continues to be a definite local shortage which is affecting the furniture and construction industries. Most of the wood industry establishment owners pointed out that there is a continual problem of wood availability, particularly for seasoned wood and veneers. The few sawmills visited are using antiquated machinery, dimensional tolerances are not well kept, and few or no kiln wood-drying operations are in existence.

An interesting situation exists in the furniture manufacturing area. In the developed nations, cheap furniture is usually mass-produced with little hand labor other than mechanical handling. Modern organization systems, training of labor for individual limited tasks, design, cost control, time and motion studies, planning, and trained management are some of the concepts used

<sup>1/</sup>Clasificación Industrial Internacional Uniforme.

<sup>2/</sup>División de Estadísticas y Censo, Junta Nacional de Planificación, Censo 1965 (Quito, Ecuador: 1967), p. 11.

<sup>3/</sup>Departamento de Planificación, SECAP, Investigación de Mano de Obra en los Sectores Manufacturero y Minero, Proyecto OEA-SECAP (Quito, Ecuador: 1970), Tabla 1-A.

to ensure that unit labor cost is kept efficiently low.<sup>1/</sup> The manufacturing of quality furniture, on the other hand, is usually carried out by small workshops where the individual worker has great skill as a craftsman and is an artist (artisan) in his trade. The best example of this type of small-scale industry probably is Danish furniture.

In mass-produced furniture, veneers, hot lacquer spray, and tinting are employed; while in quality furniture, finishes are produced by filling, special tinting, and hours of fine sandpapering. The quality of the wood used varies greatly in the two products, ranging from pine mostly in the mass-produced items to teak, oak, and mahogany in the quality items.

The author observed that the situation in Ecuador is very different. The "cheap" line of furniture is generally made by an artisan using odd pieces of wood, inferior tools, and often limited in his own craft. The "quality" line is being manufactured in small and medium-sized industries, by workmen limited in their skills, but assisted by mechanical equipment. Some of the industrial engineering concepts are being applied and management, apparently, is more advanced and knowledgeable.

In one such small industry producing "quality" furniture (Fábrica de Muebles Ibarra), the author was able to see some very well-done wood carvings and furniture making. The only comment that could be made was that the dimensions of the furniture, although acceptable to the domestic market, would not be acceptable for export market. Such things as standard bed sizes (twin, double, queen, king) are not easily found. Picture No. 1 presents one of the pieces of quality furniture.

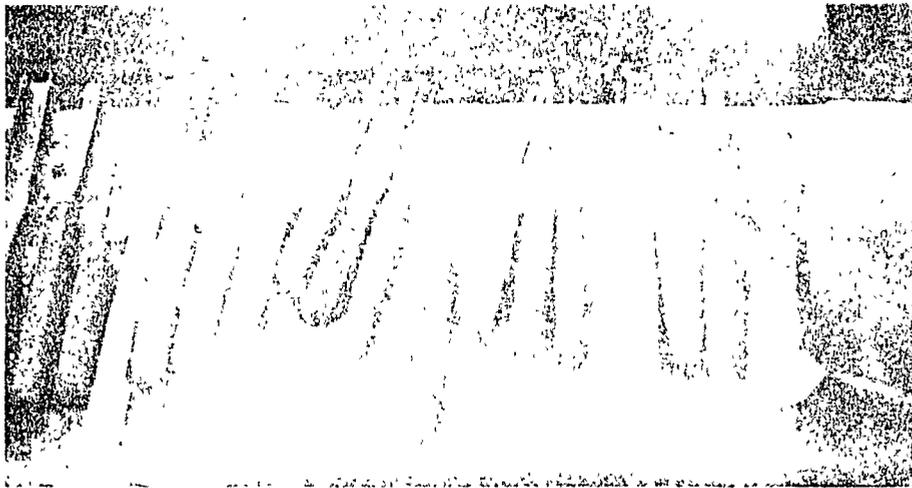
Other woodworking activities such as the production of wood carvings are very often found as cottage industries or artisan establishments in Ecuador. The most notable characteristic observed is the lack of imagination. Most of the establishments visited were doing basically the same images or figures; little or no variety is found. Most craftsmen use semi-dried wood which often will split when the weather changes. The tools used are manual and often of poor quality, all of which limits the artisan's ability to produce an

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<sup>1/</sup>Wall, Nelson C., et al. Feasibility Report-Georgia Furniture Manufacturing Corporation, Dublin, Georgia (Atlanta, Georgia: Industrial Development Division, Georgia Institute of Technology, August 1965).



Picture No. 1 Quality Furniture



Picture No. 2 Wood-Carving Tools Used by Artisans

outstanding carving. Picture No. 2 is representative of some of the artisan tools most often found in use by craftsmen.

#### Footwear and Clothing

This category, corresponding to the CIIU Classification No. 24, in the author's opinion, offers the easiest and best chance for industrialization. Unfortunately, if this activity were to be industrialized, it would cause massive unemployment. Basically, these activities were covered in the 1965 census under two headings, "Leather and Leather Goods" and "Textiles and Garments," which makes it somewhat difficult to establish any comparison with more recent data.

The 1965 census figures indicated that in the artisan group, some 20,236 persons were employed and the gross volume of production was about \$/236 million. The small-scale industry group in that same year reported 445 persons employed and a gross value of production of \$/16.2 million. These figures represent a value of production of about \$/11,700 per person at the artisan level and about \$/36,500 per person at the small-scale industry level.<sup>1/</sup> In the 1965 census, the industrial classification of this activity reported 3,915 persons employed and a gross value of production of \$/114 million. Later on, in 1969, the industrial survey only covered some 40 firms which employed some 900 persons and with a production of about \$/50 million per year. The author believes this was representative of the more modern type of establishments at the time, and probably some 15,000 additional artisans were in their marginal establishments earning their very limited incomes.

The following year, 1970, the OFA-SECAP study reports some 10,500 persons in the artisan classification who were employed in this sector, while the industrial employment was indicated to be about 2,872 persons.

Traditionally, this sector has provided goods for the domestic market, and it is probably the most populated artisan craft. The establishments visited by the author were called "modern" by local standards, but the production methods are, in the opinion of the author, quasi-primitive. There are no attempts at making use of such known practices as cost control, planning, methods and

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<sup>1/</sup> División de Estadísticas y Censos, Junta Nacional de Planificación y Coordinación Económica, Censo 1965 (Quito, Ecuador: 1967), p. 15.

motion studies, and other efficient practices. The shops are very similar to the "sweatshops" that were common in the U.S.A. during the early part of this century. These small establishments lack cutting techniques in their cut-and-sew operations. Only in one instance did the author encounter a person who had been abroad for training in this field. As indicated before, the shops will use either European or U.S.A. patterns, with little or no regard for the difference in dimensions of the body of a person from Ecuador and a person from England. Materials are wasted in the cutting process due to lack of proper pattern layout and general know-how. In general, the end product is a poorly fitted, low-quality garment which is produced at a high cost compared to the products of Europe or the U.S.A. Picture No. 3 is representative of one of the better garments produced by a small-scale industry in Ecuador.



Picture No. 3 High-Quality Embroidery

In the production of shoes by artisans, the same basic problems again are encountered. The inferior workmanship, poor quality of raw material, great lack of organization, no production costing, little or no planning, general lack of industrial engineering know-how, and the general environment of the turn of the century cobbler's shop will not allow the sector to compete with what is being produced in Colombia.

Picture No. 4 is representative of the production methods and the end products in the area of footwear made by artisans.



Picture No. 4 Footwear

In general, the author believes that both footwear and garments are problem areas in the industrial process. These activities could easily be modernized to make them more productive, increase quality, and lower unit cost; but thousands of artisans would go jobless. There is a good market for well-cut, good-quality garments, as well as for cut-and-sew, custom tailored, pants, jackets, and suits. The "work clothing" market is also worth looking into, but some basic changes must be made in the system if they plan to produce these items. To a certain degree, the same is true for injection-molded shoes, plastic shoes, canvas shoes, and other low-cost footwear, however, again, this would require mechanization and it would generate unemployment.

This industrial sector of Ecuador, as long as it remains as an artisan activity, will not be able to compete within the Andean Group. If it becomes a modern type of industrial activity, thousands of artisans will be left jobless, due to the necessary mechanization. The financial sources need to carefully evaluate future loans for this activity, as it is quite possible that even now too many persons and establishments are competing for the same limited market.

#### Leather and Leather Goods

The sector under CIU Classification No. 29 is another active artisan and small-scale industry activity. The 1965 census reported 805 persons employed at the artisan level, generating about S/14 million in gross value of production. The small-scale industries reported only 58 persons employed and

a production of about S/200,000. From the above, the average gross value of production per worker can be calculated at S/34,000 per year in the small-scale industry group, and S/17,300 among the artisan labor. At that time, the industrial classification employed 668 persons and had a gross value of production of S/43 million per year.<sup>1/</sup>

Five years later, according to the 1970 OEA-SECAP study, the artisan level was employing 413 persons, whereas the industrial classification was using 482 employees.<sup>2/</sup> The leather and leather goods activities are of importance because the shoe industry depends on them, as well as many other artisan activities. As a general policy, leather imports are avoided by the government.

The shops visited presented acceptable products, but not of high quality. It appears that one of the basic problems is the chemical products needed in the tanning and finishing process. The vast majority of the chemicals are imported. Another problem is the lack of modern equipment; nearly all the equipment seen during the visits would be classified as old or obsolete. Picture No. 5 is representative of the type of equipment encountered in these small-scale industry leather tanning establishments.

The saddlery and other leather-working shops operated by artisans in general have the same problems that were discussed at the beginning of this chapter -- lack of production systems, poor designs, lack of simple tools and machines. The two types of leather suitcases that were inspected by the author were of low quality. Picture No. 6 shows the wooden die used for the tooling of the leather tops of the suitcases.

#### Others

During the on-site research conducted in Ecuador, many other artisans and small-scale industrial establishments were contacted, such as beverages, printing and graphics, rubber products, and metalworking. All the recorded visits are presented as part of Appendices 1 and 3 of this study. In general, artisan activities appear to be marginal at best, but they all suffer the same

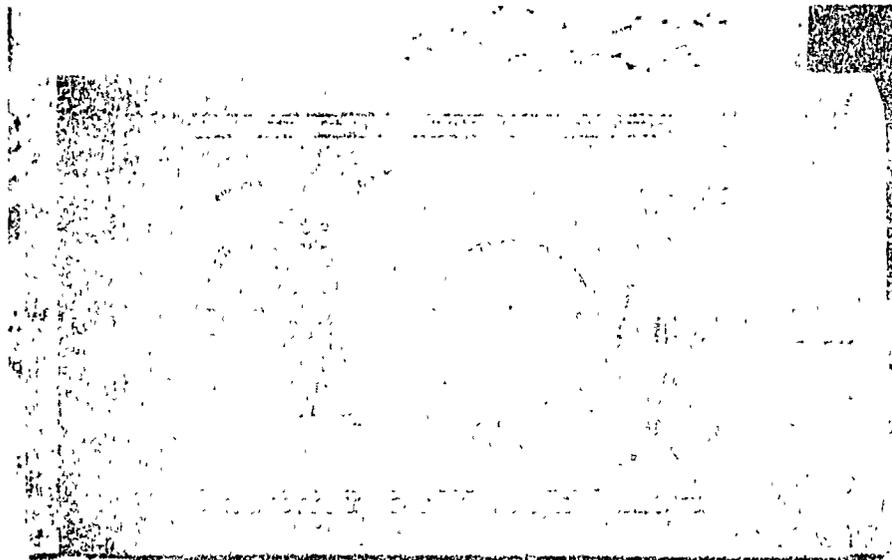
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<sup>1/</sup> División de Estadística y Censo, Junta Nacional de Planificación, Censo 1965 (Quito, Ecuador: 1967), p. 15.

<sup>2/</sup> Departamento de Planificación SECAP, Investigación de Mano de Obra en los Sectores Manufacturero y Minero, Proyecto OEA-SECAP (Quito, Ecuador: 1970), Tabla 1-A.



Picture No. 5 Leather Tinning



Picture No. 6 Wood Die

ills of poor space utilization or lack of space; no work flow pattern with much backtracking; lack of modern production techniques, systems and methods; little or no quality control; lack of simple tools and machines; no concept of time and motion; and others too numerous to mention. The small-scale industries are a little better off and some could, if helped, develop better and grow. The very large artisan class in Ecuador, most of whom are living at a precarious level, are going to have to accept industrialization in the very near future. This statement is also true in the case of the small-scale industries.

In an attempt to solve some of these problems, a study was carried out in 1969-1970 by Mr. Val de Beausset, who suggested some 300 new industrial activities to be considered by the government of Ecuador. In summary, all of the suggested new industrial activities fall into one of the following three categories:

1. They are already being handled by the small-scale industry or artisan sector.
2. The market is too small, providing a limited chance of economy-of-scale operation.
3. Foreign investment in joint venture arrangements would be needed to obtain necessary know-how

Very little has been done leading to the implementation of the suggestions made by Mr. Beausset, and the small-scale industries and the artisan crafts continue much as they did in 1953 when they were first recognized by the government.

SMALL-SCALE INDUSTRIES TO BE  
CONSIDERED FOR ECUADOR

As a result of the research conducted while preparing this case study, some small-scale industrial possibilities for Ecuador have been identified. Prefeasibility studies should be made of these activities in the near future.

Decisión No. 57 of the Acuerdo de Cartagena (Cartagena Agreement), in its Annex III, assigned 44 manufacturing activities to Ecuador, of which 22 have been researched. Much as Mr. Val de Beausset did in 1970, CENDES,<sup>1/</sup> and JUNAPLA in 1973, the author has taken the liberty of suggesting the following 30 small-scale industries for consideration.

<sup>1/</sup> Complete CENDES listing is presented as Appendix 4.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Cotton Shirting S.I.C. Number 2211  
 Land Area: Two acres  
 Building Area: 9,600 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 927,500 yards							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$300,000	\$53,000	\$353,000	19	4	5	\$265,000	\$352,000

Product Description: Cotton shirting 36" wide used in the manufacture of average-priced men's shirts.

Special Equipment Needed: Opening machinery, picking machinery, carding machine (8); drawing machines (4); roving machines, 28 spindles; spinning frames, 60 spindles; under frame cleaners (4); cone winders, 20 spindles; tub or spring winder; 42 high-speed 40" looms with accessories and automatic stop motor devices; warpers; slashers; spoolers; knot tiers, reels, folders, and accessories; compressors, and humidifiers.



MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Men's Socks

S.I.C. Number 2252

Land Area: One-half acre

Building Area: 4,000 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 80,000 dozen							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$62,140	\$44,500	\$106,640	22	4	8	\$249,000	\$320,000

Product Description: Men's knitted socks.

Special Equipment Needed: Knitting machines, elastic top attachments, packaging charge, motor and transmissions, rotary die vat and motor, loopers and motor, extractor and motor, turning boards, boarding tables, boarding toes, racks, tables, baskets, work bench and chairs, hand trucks, small tools. Benches, bins, racks and tables may be made of local materials. Heavy electric power usage connected load about 45 horsepower.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of:     Silk-Screen Printing on Textiles             S.I.C. Number 2262

Land Area:           25,000 square feet

Building Area:       12,000 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 250,000 yards							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$73,130	\$18,550	\$91,680	8	1	1	\$100,000	\$122,000

Product Description:     Silk-screen printing on textiles is a stencil method of printing a color design through a piece of silk onto cloth. This process is becoming increasingly popular throughout the world.

Special Equipment Needed:     Production tools and equipment. Printing tables, drying racks, storage racks (screens), storage racks (bolt material), hand trucks, light tables, drafting board, squeegees, laboratory bench, dye containers, drying oven and boiler.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Hooked Rugs  
 Land Area: 600 square feet  
 Building Area: 400 square feet

S.I.C. Number 2279

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 8,000 wool rugs							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$3,400	\$15,100	\$18,500	14	2	1	\$66,865	\$86,000

Product Description: Rugs made of bulky yarn with burlap or other backing ranging from 18" x 18" to 9' x 12'. Larger rugs can be made to order. Plant capacity is given in terms of average size (32" x 51"). Wool and other materials can be used.

Special Equipment Needed: Cloth stripping machine, yarn rewinder, adjustable floor stand rug frames, portable frames, clamps, bluenose hookers, rug hooks, rolling machines, tables, and shelves.



MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Men's Work Pants S.I.C. Number 2328

Land Area: 6,000 square feet

Building Area: 6,000 square feet made with local material

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 15,000 dozen							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
550,000	\$54,600	\$104,600	30	2	6	\$274,008	\$350,600

Product Description: Work pants made from denim, a cotton material, with four pockets, and in waist sizes ranging from 28 to 44 inches and length ranging from 30 to 36 inches. Brass rivets are used at the pocket openings where the stress is greatest.

Users: Individual workers, military, prisons, etc.

Special Equipment Needed: Cutting tools, cloth spreader, cloth unwinder, electric knives, electric drill, 28 sewing machines, two buttonhole machines, folding machines, presser, two trim masters, turning stands, three hand trucks, stacker, chairs, racks, benches, riveting machines, and button machine.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Cotton Dresses

S.I.C. Number 2361

Land Area: 6,000 square feet

Building Area: 1,800 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 70,000 dresses							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$17,755	\$52,855	\$70,610	15	2	4	\$182,000	\$10,000

Product Description: Cotton dresses of simple design. Equipment listed can produce style effects such as shirring, ruffles, zigzag stitching. Plant can also produce cotton blouses.

Special Equipment Needed: Cloth spreader, cutting table, cutting machine, marking drill, 18 sewing machines, steam iron, work tables, stands, and racks.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Work Gloves

S.I.C. Number 2381

Land Area: 5,000 square feet

Building Area: 2,100 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 400,000 pairs							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$16,000	\$14,300	\$30,300	11	1	2	\$70,360	\$85,000

Product Description: Machine-sewn canvas gloves with knit wristlets.

Special Equipment Needed: Cloth spreader, cutting table, electric drill, work tables, and 10 sewing machines.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Fiber Bags

S.I.C. Number 2393

Land Area: One and a half acres

Building Area: 10,000 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 750,000 bags							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$123,750	\$44,718	\$168,468	22	1	3	\$226,000	\$286,000

Product Description: Fiber bags produced from jute, ramie, and similar coarse fiber.

Users: Industries that process agricultural products, exporters that ship agricultural products and distributors of agricultural products.

Special Equipment Needed: Softener, breaking card, finishers card, first drawing frame, second drawing frame, spinning frame, twisting frame, sampling reel, winding machine, cap winding machine, dressing machine, looms, cropping machine, bag-making equipment, electrical repair kit, mechanical repair equipment, welding kit, and carpenter's tools.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Planing Mill S.I.C. Number 2421  
 Land Area: Four acres for building and lumber storage  
 Building Area: Main building 44' x 88', four dry kilns  
 20' x 26', covered area 20' x 42', boiler  
 house 20' x 23'

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY -							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$69,400	\$34,900	\$104,300	14	4	2	\$201,140	\$260,000

Product Description: Dimensioned stock, surfaced lumber, such as ceiling, partition, siding, matched and shiplap lumber, and flooring made from rough lumber produced in local sawmills. Many different kinds of woods can be processed.

Special Equipment Needed: Planer, molder, rip saw, cut-off saw, double-end emery grinder, cutting knives and tools, and five-ton trucks.

Locate on good highway and near railroad.

(MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Sash and Door Plant S.I.C. Number 2431  
 Land Area: Two acres, including lumber yard  
 Building Area: 10,000 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY -							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$93,800	\$76,600	\$170,400	25	10	11	\$431,215	\$543,750

Product Description: Windows, doors, moldings, stairways, and other wooden fixtures for buildings made from lumber already seasoned and surfaced.

Special Equipment Needed: Radial saw, trim saw, planer, molder mortiser, band saw, hand jointer, shaper, router, sander-3-drum, single-end tenoner, edge belt sander, hand belt sander, end and frame clamp, bar clamp, glue cooker and pots, and double-end emery grinder.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Beverage Boxes

S.I.C. Number 2441

Land Area: Two acres (includes lumber yard)

Building Area: 4,000 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 125,000 boxes							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$95,000	\$76,000	\$171,000	25	8	10	\$450,000	\$580,000

Product Description: Nailed, unsanded wooden boxes partitioned to hold two dozen bottles in separate compartments. Variations possible.

Special Equipmen Needed: Resaw, planer, cut-off saw, hand hole machine, groover with fluting attachment, notcher, printing machine, strapping machine, conveyors, factory trucks, and forklift trucks.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of:      Wooden Ice Cream Spoons & Sticks                      S.I.C. Number 2499  
 Land Area:            16,000 square feet  
 Building Area:        2,000 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 160,000,000 pieces							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$79,000	\$19,500	\$98,500	9	2	1	\$100,000	\$130,000

Product Description:      Wooden ice cream spoons and sticks stamped from rotary cut veneer.

Special Equipment Needed:      Vat, monorail and electric hoist, rotary lathe, steam engine drive for lathe, motorized infeed table, wet veneer clipper, die stamping machine, automatic dryer, sanding machine, packaging machine, scale, packing tables, hand tools, and factory trucks.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Insecticides

S.I.C. Number 2842

Land Area: One-half acre

Building Area: 1,800 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 200,000 gallons							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$10,000	\$38,200	\$48,200	4	2	2	\$195,000	\$260,000

Product Description: Liquid insecticides with kerosene base, packaged in one-gallon cans. The equipment listed can be used to manufacture any formula of liquid insecticide.

Special Equipment Needed: Two portable mixers, including glass-lined tanks of 50-gallon capacity, and factory trucks.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Essential Oils - Oil of Cloves

S.I.C. Number 2800

Land Area: One-half acre

Building Area: 1,800 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 26,000 pounds							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$24,200	\$11,300	\$35,500	2	0	1	\$58,000	\$75,000

Product Description: Materials for oil of cloves were used in the preparation of the information contained in this fact sheet. However, any essential oils desired can be produced with the equipment listed herein.

Special Equipment Needed: Two steam distillation units (including condenser and receiver), scales, and two hand trucks.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Plastic Frames for Eyeglasses

S.I.C. Number 3029

Land Area: 5,000 square feet

Building Area: 1,500 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 120,000 frames							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$63,300	\$39,300	\$102,600	7	1	3	\$110,000	\$150,000

Product Description: Plastic eyeglass frames made by the molding process.

Special Equipment Needed: Molding machine, dies, drill press, two riveting machines, two buffing wheels, two assembly benches, and storage bins.





MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Brass Foundry

S.I.C. Number 3362

Land Area: Two acres

Building Area: 4,000 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 400,000 pounds/year							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$32,000	\$60,000	\$92,000	16	6	6	\$260,000	\$325,000

Product Description: Principally copper-base alloy castings, but same facilities may also be used for making castings of other nonferrous metals.

Special Equipment Needed: Melting furnace, ladles, crucibles, chain hoist, flasks, tumbling barrel, scales, portable grinder, core oven, tram rail, molding tools, and pickup truck.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Small Ceramic Shop

S.I.C. Number 3269

Land Area: 0.5 acre

Building Area: 600 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 16,000 pieces							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$5,000	\$4,000	\$9,000	3	1	1	\$25,000	\$32,000

Product Description: Small ceramic wares, such as ashtrays, rings, plates, cigarette boxes, etc.

Special Equipment Needed: Two small fire brick kilns, small metal kiln, molds, brushes, knives and spatulas, scrapers, sieves, sgraffito knives, stilts for kilns, two spray guns for glazing.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Buckets, Pails, and Fans

S.I.C. Number 3411

Land Area: One acre

Building Area: 3,600 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 350,000 pieces/year							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$73,000	\$44,700	\$117,700	14	6	6	\$208,875	\$250,000

Product Description: Plant can produce a variety of small metal articles for use in factories, restaurants, households, etc., and on farms. Products include buckets, wash basins, drinking cups, cake and pie pans, graters, sifters, etc. They are made from steel sheets that are galvanized (zinc coated) or tin plated in the plant.

Special Equipment Needed: 50" shear, 45 ton press, bead and flange machine, side and bottom seamer, riveting machine, galvanizing equipment, wiring and pickling equipment, lathe, drill press, wire forming dies, and one-ton truck.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Hand tools

S.J.C. Number 3423

Land Area: One acre

Building Area: 6,300 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 500,000 units/year							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$108,000	\$53,400	\$161,400	27	6	5	\$253,000	\$350,000

Product Description: The annual production of this plant is 500,000 hand tools as follows: 25,000 hammers, 50,000 monkey wrenches, 50,000 pliers, 75,000 screwdrivers, 50,000 wrecking bars, 25,000 tin snips, 225,000 open-end wrenches.

Special Equipment Needed: Power hacksaw, alligator shears, two forging hammers, two forge furnaces, drill press, grinder, bench grinder milling machine, two turret lathes, bench lathe, heat-treating oven, arbor press, spray booth, welding equipment, air compressor, jib crane, punch press, pickup truck.

Locate on good highway.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Rice Paddy Cultivators S.I.C. Number 3522  
 Land Area: 7,000 square feet  
 Building Area: 3,000 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 7,500 cultivators							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$12,230	\$19,900	\$32,000	14	1	1	\$110,490	\$140,000

Product Description: Simply designed, hand-operated rice cultivators (weed eradicators), with iron teeth, but designed to use wood (teak or other suitable kind) to maximum extent.

Special Equipment Needed: Cut-off saw, jointer planer, bench saw, three drill presses, sander, forge, metal shearer, grinder and burnisher.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Agricultural Implements S.I.C. Number 3522

Land Area: One acre

Building Area: Plant 48' x 120'  
Office 1,000 square feet, shed 2,000 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 1,800 implements							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$260,000	\$46,300	\$306,450	31	6	5	\$268,000	\$336,000

Product Description: Metal plows, spike tooth draft harrows, spring tooth harrows, disc harrows (wheel), and cultivators. Product mix can be varied according to demand. Above costs calculated on basis of equal division of products mentioned.

Special Equipment Needed: Power hacksaw, metal band saw, plate shears, hydraulic bender, brake, bending rolls, punch press, drill press, radial drill, acetylene unit, electric welder, two engine lathes, milling machines, slotter, oil furnace, electric furnace, grinders, paint sprayer, arbor press, riveter, crane, jib hoist, 12 flatbed trucks, one-ton pickup truck.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of:   Conveyors and Portable Elevators                   S.I.C. Number 3535  
Land Area:           One-half acre  
Building Area:      8,000 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 4,750 conveyors							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$77,000	\$58,000	\$135,000	14	4	5	\$300,000	\$480,000

Product Description: Gravity feed roller conveyors; 20' x 15", one-half heavy-duty with solid rollers and one-half light-duty with tubing rollers. Could produce power conveyors, portable elevators, and other products, including hand and powered lift trucks.

Special Equipment Needed: Power hacksaw, square shears, power rolls, sheet metal brake, punch press, metal band saw, turret lathe, engine lathe, milling machine, flexible shaft grinder, two drill presses, welding equipment, mono-rail hoist, spray booth, hand lift truck, skids, pedestal grinder.

MINI PROFILE  
SMALL-SCALE INDUSTRY

Manufacture of: Shallow Well Hand Pumps

S.I.C. Number 3561

Land Area: 10,000 square feet

Building Area: 3,000 square feet

BASIC INFORMATION

ANNUAL CAPACITY - ONE 8-HOUR SHIFT PER DAY - 30,000 pumps							
Total Fixed Capital	Working Capital	Total Capital	Employment			Total Annual Cost	Total Revenue
			Direct	Skilled	Indir.		
\$30,500	\$18,200	\$48,700	9	2	2	\$100,425	\$130,000

Product Description: Simple hand pump, made of gray cast iron, bore 2-5/16", piston movement 6", obtained by hand lever. Bottom casing tapped 1-1/4" inside diameter pipe. Pump will deliver approximately 200 gallons per hour, with about 30 to 35 strokes a minute, from maximum depth of 22 feet.

Special Equipment Needed: Cupola complete, turbo compressor, sand screener, sand mixer, optical pyrometer, flasks, core oven, grinder on stand, portable grinder, lathes (2), thread cutter, drill press, and hand saw.







PERSPECTIVE OF ECUADOREAN SMALL-SCALE  
INDUSTRIES VIS-A-VIS THE ANDEAN PACT

The Latin American Free Trade Area (LAFTA) approved on May 26, 1969, the Andean Common Market. The implementation schedule started on December 31, 1970, when the trade liberation of a given number of products was initiated. By the end of the year 1985, the trade liberation and the common external import tariff are to be fully in effect. The years 1980 and 1985 are the established deadlines for Colombia, Chile, and Peru, 1990 for Ecuador, and 1985 for Bolivia.<sup>1/</sup> Later, on February 13, 1973, Venezuela joined the Grupo Andino and agreed to all the established points.

The Andean Common Market concept is more far-reaching than the simple elimination of tariffs and restrictions on products from member nations and the establishment of a common external tariff. The philosophy is far more in depth; hopefully, the member countries will coordinate their industrial, economic, and social development plans to meet the common goal of harmonizing the economic and social policies of the region. They may, if they wish, jointly develop their industry and agriculture, as well as the social and economic infrastructure. Products can be selected for a sectorial production within the region, and these will be allowed special trade liberations. The projects will all be implemented through the Andean Development Corporation, which was created for this purpose.

The liberation of trade is on a product-by-product basis. Four main categories were established by the Andean Group: 1) those covered by a sectorial program of industrial development, 2) those covered by the LAFTA Common List, 3) those not produced by any country in the region, and 4) any other product. A very detailed timetable was then prepared for the trade liberation of each product in accordance with the above classifications. All member countries also were allowed temporary exemption from liberation on a given list of products.

Both Ecuador and Bolivia received special consideration by the Andean Group due to the fact that they were in their "development" stage. For all

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<sup>1/</sup> Summary information taken from the Andean Agreement of Sub-Regional Integration.

practical purposes, the products from either Ecuador and Bolivia that classify as "any other product" have had free access to the regional market since the end of 1973. The tariff liberation timetable is also more liberal in the case of products from Ecuador and Bolivia.

Decision 29 of the Comisión del Acuerdo de Cartagena approved a list of 37 items (NABANDINA Classification) which are allowed total liberation if they are from Ecuador, starting on January 1, 1971. The items are basically manufactured products or components made in Ecuador. This alone greatly increased Ecuador's exports between 1971 and 1973.

In a nutshell, the Andean Pact tried to expand the markets for the participating nations. Hopefully, the producer would recognize that now he could manufacture larger quantities and take advantage of an economy of scale. The following discussion is an attempt to determine how this fact has influenced the activities of artisans and small-scale industries in Ecuador. Very briefly, the same areas that were examined earlier in the study will be reviewed again, that is: furniture and wood products, garments and footwear, and leather and leather goods.

#### Furniture and Wood Products

Of the six member nations, Colombia, Peru, and Ecuador have the largest forest reserves, most of which are in their respective Oriente areas. Ecuador has fine hardwood in the parts of Esmeraldas which are yet to be industrialized. Forestry products are of great interest to the Andean Group, and as a result, Decision 89 was issued to cover a special technological project relating to forestry resources in Bolivia, Colombia, Ecuador, Peru, and Venezuela.<sup>1/</sup>

In preparing the reference document, it was recognized that Ecuador has large areas of virgin forests; however, they are largely inaccessible at present, and no real estimate has been made of the potential market value of these reserves. The Andean Group study will provide some answers to the above problem.

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<sup>1/</sup> Junta del Acuerdo de Cartagena, Proyectos Andinos de Desarrollo Tecnológico en el Area de Recursos Forestales Tropicales, Anexo a la Decisión 89, 1973, unpublished.

Several of the member nations are active in the furniture manufacturing field. In 1967, an industry survey by country provided the data presented in Table 21.

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Table 21  
ESTABLISHMENTS IN FURNITURE MANUFACTURING  
(1967)

<u>Country</u>	<u>No. of Establishments</u>	<u>Employment</u>
Colombia	419	5,038
Chile	1,931	12,564
Ecuador	156	1,692
Peru	332	6,052

Source: Junta Nacional de Planificación y Coordinación Económica, Posición y Perspectiva de la Artesanía Ecuatoriana Frente al Pacto Andino (Quito, Ecuador: 1970), p. 16.

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From the above data, it is apparent that Ecuador has the smallest number of establishments in this field of endeavor. To date, no massive furniture imports have taken place, although Ecuador has imported some furniture from Colombia. Two things may be holding back the flow of furniture from other Andean Group nations to Ecuador: 1) the very high cost of transportation and 2) preference by the consumer for his "native" product. However, this is an area that needs attention. Existing manufacturers in Ecuador need to improve their furniture manufacturing processes and the materials used (kiln dried wood, for example), and the small manufacturer also needs an improved supply system.

If the other nations in the Andean Group should industrialize further in the area of furniture manufacturing, it is quite possible that they could unload "cheap" furniture on the Ecuadorean market and practically "drown" the national manufacturers.

#### Garments and Shoes

This general sector also was considered, but, unfortunately, the data are very unreliable and in most instances not comparable. The 1967 industrial survey of the different nations involved is the source of the data presented in Table 22.

Table 22  
TAILORING ESTABLISHMENTS  
(1967)

<u>Country</u>	<u>No. of Establishments</u>	<u>Employment</u>
Colombia	928	16,728
Chile	2,933	26,169
Ecuador	-	15,732
Peru	-	-

Source: Ibid., p. 10.

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The above information leads one to believe that the Colombian statistics are for manufacturing processes and not for artisan-level operations. The 1969 census survey of Ecuador reported only some 39 firms in the manufacturing of garments; these establishments employed 928 persons or about 24 persons per company. The 15,732 reported above are "artisan tailors" in Ecuador, which does not include the 15,739 also reported in the garment sector.

Up to now, there has been no great flow of ready-made men's suits from the more industrialized partners into Ecuador because ready-made suits are still as expensive as tailor-made ones and the consumer in Ecuador still prefers the tailor-made. It is possible that in a short period of time, the more industrialized partners may increase the production and lower the unit cost of ready-made suits and compete more aggressively for the Ecuadorian market. In this eventuality, the artisan tailor will not possibly be able to compete with a larger manufacturer. Colombia, for example, is a large producer of good-quality textile material and of inexpensive ready-made men's clothing. It would not be surprising to see the Colombian products start taking over the consumer market of Ecuador in this area.

Shoes in Ecuador are manufactured almost entirely by artisans. No industrialized shoe manufacturing establishment can be identified. All the other members of the Andean Group have both artisan and industrial establishments. Again, using the available 1967 data, Table 23 recapitulates the situation.

The establishments in Peru, with an average of some 40 persons per plant, produced well over six million pairs of shoes in 1967. The other neighbor, Colombia, also is a large producer of both leather and footwear, using processes that are more industrialized than in Ecuador. Shoemakers, at the artisan

Table 23  
SHOE MANUFACTURING ESTABLISHMENTS  
(1967)

<u>Country</u>	<u>No. of Establishments</u>	<u>Employment</u>
Colombia	668	7,057
Chile	663	13,732
Ecuador	-	24,565
Peru	172	6,889

Source: Ibid., p. 5.

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level in Ecuador, face the same problem as the tailors and other artisans in the garment sector. The artisan shoemaker, cobbler, and others, in the near future, will be facing an influx of mechanically made footwear from Colombia and Peru at much lower prices than their product. To make the problem worse, the Colombian and Peruvian products are more attractively designed, use better materials, and often last longer.

#### Leather and Leather Products

Traditionally, Peru has imported large numbers of cattle yearly from Colombia and Ecuador; Chile has done the same by importing from Argentina. For the immediate future, there is no danger that these two countries will become exporters of leather and hides to the Andean Group. Colombia, however, has been an exporter of quality leather for some years and continues to do so. Again, Ecuador faces the possibility of not being able to compete in this area. The few existing tanneries (17 or so) are antiquated, lacking in equipment, and in many instances, operated as artisan cooperatives. This type of operation is in no position to compete with some of the more modern industries operating in Colombia.

In summary, if Ecuador wishes to continue providing employment to its large artisan sector, and be effective within the Andean Group, it may need to consider quickly doing one or more of the following things:

1. Upgrading. Massive upgrading of the artisan through innovative, imaginative, pragmatic training programs is needed. Topics which should be covered are new industrial techniques, management concepts, quality control, inventory control, sales, and marketing, to mention just a few.

2. Mechanization. A trade-off must be reached in this area. The artisan working only with hand tools will not be competitive in the marketplace. It is also a fact that mechanization will generate unemployment in the artisan sector. The suggested trade-off is the use of simple, semiautomatic machines, thus attempting to increase the productivity of the artisans.

3. Technical Assistance. Imported talent is required to assist the artisans in developing new designs and production systems, identifying new products for export, and in many other basic concepts. The artisan activities need to be upgraded as soon as possible.

4. Raw Materials. All of the above comments also apply to the production of the needed raw materials utilized by the different artisan groups. The quality, volume, and cost of the raw materials need to be improved if the artisan and the small-scale industry are to remain competitive.

5. Incentives. The producers, whether artisans or small-scale industries, need more incentives for bettering their operations and entering into more industrialized processes.

6. Credit. The total scheme obviously would require substantial credit at low rates of interest, so that the small producer may expand and enhance his operation.

The perspective of the small-scale industries of Ecuador vis-a-vis the Andean Pact is not very good at present. The other members of the pact, with the exception of Bolivia, are far more aggressive and industrialized in most of the areas presently being served by artisan products in Ecuador. It is possible that in the near future, the industrialized neighbors will start flooding the market in Ecuador with inexpensive products that will put the artisans out of business.

## CONCLUSIONS AND RECOMMENDATIONS

The erratic approach employed by the author in evaluating the Ecuadorean small-scale industry sector only reflects the fact that reliable information is scanty at best. In this case history, the following items have been reviewed: (a) the general background, (b) the historical strategies employed, (c) the present situation, (d) an analysis of selected small-scale industries, and (e) some forecasting of things to come.

Despite the aggregate information from various and assorted sources, the author has no answer to the questions, "What is the role of small-scale industry in the development of Ecuador?" and "How can this development best be handled with our present tools?" Some things we do know: there is little or no doubt that these small enterprises are employing a very large number of persons; as a social factor is this desirable in face of the unknown shadow prices being paid? The artisans and small-scale industries cannot, at present, compete with the industrial production of the neighboring nations. On the other hand, there is no information to help the researcher determine what the dynamics of the artisans and small-scale industries may be in the near future. No one seems to know if there is any interaction between small enterprises and large plants in Ecuador.

It appears obvious that some drastic action programs need to be implemented at once if any favorable changes are to be expected in the near future in the small-scale industry/artisan sector in Ecuador. If the goal is to maintain a high degree of labor-intensive enterprises, then the prerequisites appear to be that there is a need for innovation, adaption of technology, change in the entrepreneur philosophy, and just plain technical know-how.

There is no doubt that the government of Ecuador has been attempting to solve this problem since 1963; when the first 10-year development program was initiated. The present government has also tried to find a solution through its five-year plan. Yet, after over 100 years of existence as a nation, Ecuador continues to show all the symptoms of a "developing nation." At the same time, Ecuador is undergoing a great demographic expansion from 4,721,000 inhabitants in 1962 to about 6,598,000 in 1972 and to a projected population of

8,590,000 in 1980.<sup>1/</sup> With this population growth, new jobs are required to satisfy the needs of the people. In 1965, when population stood at 5,150,300 persons, the employed population was 1,567,200. Of this total, the number engaged in artisan activities was as shown in Table 24. At the same time, it was estimated that only 88,544 persons were employed in "industrial activities"; of this total, 56%, or 49,849, were considered as artisans. Adding the above to the known existing cottage artisans, the total employed was then reported as 178,692 persons.<sup>2/</sup> Thus, it is estimated that some 85% of the persons employed in manufacturing were either artisans or cottage artisans. There is no doubt from the preceding data that the artisan sector was the largest single employment generator for Ecuador in 1965.

Year later, in 1973, at the time of the new 1973-1977 development plan, JUNAPLA established that in 1972, when the population had risen to 6,598,300<sup>3/</sup> persons (an increase of 1,448,000 over 1965), manufacturing employed 253,500 persons, of whom 200,521 were artisans, either established (63,525) or in cottage activities (136,998). From the above data, it appears that the proportion of artisan employment is declining, dropping from 85% in 1965 to about 79% by 1972. In other words, the artisan sector is not generating new employment.

Most sources agree that in 1972 there were some 300,000 unemployed persons out of a population of some 6,598,300 and a potentially active labor force of around 2,300,000. At the same time, JUNAPLA established that about 500,000 new jobs would be needed over the next five years.<sup>4/</sup> This is the real problem being faced by Ecuador today. This unemployment rate is obviously much higher in the urban centers and creates a highly erratic income distribution pattern.

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<sup>1/</sup> Oficina del Censo, Los Censos del 8 de Junio (Quito, Ecuador: 1974), unpublished.

<sup>2/</sup> Secretaría General de Planeación Económica, Programa de Artesanía y Pequeñas Industrias 1969-1973, Documento 02-14 (Quito, Ecuador: Marzo 18, 1969), p. 199.

<sup>3/</sup> Junta Nacional de Planificación y Coordinación Económica, Programa de Desarrollo de la Artesanía y Pequeña Industria 1973-1977 (Quito, Ecuador: 1973), p. 6.

<sup>4/</sup> Junta Nacional de Planificación, Plan Integral de Transformación y Desarrollo 1973-1977, Resumen General (Quito, Ecuador: Editorial Santo Domingo, Diciembre 24, 1972), p. 9.

Table 24  
ARTISAN EMPLOYMENT  
(Assorted Sources, 1955-1965)

<u>Activity</u>	<u>1955<sup>a/</sup></u>	<u>1961<sup>b/</sup></u>	<u>1962<sup>c/</sup></u>	<u>1964-1965<sup>d/</sup></u>	<u>1965<sup>e/</sup></u>
20 Food Products	2,609	3,540	-	4,383	4,742
21 Beverages	-	-	-	365	719
22 Tobacco	-	-	-	11	-
23 Textiles	1,812	4,325	*	2,515	2,552
24 Footwear & Clothing	43,772	40,151	46,214	19,110	20,236
25 & 26 Wood & Furniture	10,171	12,060	12,060	6,432	6,561
27 Paper & Paper Products	-	-	-	30	26
28 Printing & Publishing	325	525	525	816	851
29 Leather & Leather Goods	425	1,738	*	821	805
30 & 31 Rubber & Chemical Products	482	790	-	738	767
33 Nonmetallic Minerals	1,849	5,726	2,163	1,764	1,768
35 to 38 Metal Mechanical Transport	6,000	10,701	10,701	9,137	8,192
39 Others	1,616	8,445	17,975	2,494	2,600

<sup>a/</sup> JUNAPLA, Investigación Nacional del Artesano, p. 15.

<sup>b/</sup> JUNAPLA, La Industria Fabril, p. 23.

<sup>c/</sup> JUNAPLA, La Artesanía, p. 20.

<sup>d/</sup> Estadística y Censo, Directorio 1964 y Censo Industrial 1965.

<sup>e/</sup> Estadística y Censo, Censo 1965.

\*Figures for 23 and 29 included in 24.

Source: Secretaría General de Planeación Económica, Programa de Artesanía y Pequeñas Industrias, 1969-1973, Documento 02-14 (Quito, Ecuador: Marzo 18, 1969), p. 198.

The government of Ecuador is strongly emphasizing the important role of the small-scale industry and artisan sector in the economy of the nation, as well as its development. They are now looking at export substitutions (this was done by Venezuela in the 1950's and Colombia in the 1960's) as a manner of increasing small-scale industrial activities. Yet, no one to the author's knowledge has really determined the potential of small-scale industries in the areas of intermediate and capital goods as well as inexpensive (low-income) manufactured goods for both internal and external markets. This type of evaluation would be of great value for future planning (JENAPLA could use this) of development programs and the role of the small-scale industry sector in the overall project.

This being a case history, the author has attempted to provide a chronological and systematic account of events as these have affected the nation and the small-scale industries. Hopefully, this study will assist others in explaining past events in the artisan sector. As a result of this research, the following conclusions are offered:

1. At present, the artisan enterprises and artisan cottage activities employ well over 200,000 persons who, in general, manage to generate enough income to support a precarious existence. These persons earn less than \$/700 a month, which is the minimum salary established by the Instituto Ecuatoriano de Seguridad Social.<sup>1/</sup> They would be better off in industrial jobs with their established minimum salary of \$/1,000 per month, if jobs were available.

2. A large number of "artisan shops" are really commercial enterprises, and only part of their production is manufactured in-house, using the employment allowed by the present law. The bulk of the production is done through a "piecework" system using cottage artisans, thus breaking the "spirit" of the law and taking undue advantage of certain incentives. This attitude is more prevalent in the footwear and garment activities than in the other occupations.

3. Great confusion and misunderstanding exist concerning the interpretation of existing laws governing the artisans and small-scale industries. It is very difficult to really define an artisan and a small-scale industry operation. Many entrepreneurs are taking advantage of this chaos to benefit themselves, all of which is detrimental to the sector.

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<sup>1/</sup> Instituto Ecuatoriano de Seguridad Social, Manual para Afiliados y Patronos (Quito, Ecuador: Talleres Gráficos IESS, September 1973), p. 24.

4. For the past 10 years or more, JUNAPLA and the government have been wanting the artisan sector to evolve into small-scale industry activities. Many plans, programs, formulas, and models have been suggested, some of which have been implemented in a limited way. The end result has been poor at best. If this evolution is desired, a very aggressive, dynamic, pragmatic program needs to be established with one basic goal: transform, as quickly as possible, the artisan activities into small-scale industries.

5. With the exception of "artistic artisans," who are not included in this case history, it may be said that the goods made by cottage artisans and artisan establishments are low in quality. These goods are made usually with inferior grades of raw materials, poor craftsmanship, unimaginative designs, and total lack of quality control. The consumer is at the mercy of the producer of goods, and he has to depend on his own knowledge of the artisan to determine the quality of the product.

6. The artisan, in turn, is usually at the mercy of the middleman who supplies him with raw materials on credit and purchases his finished products. The marketing system is defective and forces most artisans to depend on one or two sources for raw materials and sales. The marketing problem is even more complex due to limited access to market, limited influx of raw materials, constraints of the domestic market, and many other factors.

7. The artisan level of production know-how is relatively low in most instances. Generally, they use traditional production techniques learned from other artisans. There is a great lack of simple tools and semiautomated equipment which would allow for better production systems. As indicated before, often the models, patterns, and forms used are antiquated and not competitive in the modern market.

8. During this research, the author was unable to identify one organization or institution that is attempting to unite the artisan and small-scale industry sectors. It would be desirable to assign this responsibility to some agency or institution at the government level. This would lead to a better understanding of the problem and a possible end to the existing animosity between the two.

9. At the government level, the desire is to reach a higher level of economic development. To do this, both the artisans and small-scale industries must upgrade their technical know-how. Ten years from now, Ecuador will

not be needing as many cobblers, but it will be needing mid-level technicians and graduates from technical-vocational schools.

10. To develop the economy, the nation needs to go through an evolution, which may take 15 to 20 years. Economic development requires a series of factors, which include the following among many others:

- a. Development of the industrial technology.
- b. Development of educational and training programs.
- c. Gradual absorption of the rural population into the industrial complex.
- d. An investment climate and incentives for future entrepreneurs.

Looking back at 1963, some progress seems to have been made in the past decade, but the artisans and small-scale industries are still in need of help. The economy of Ecuador is changing, thanks, in part, to the millions of dollars being generated through petroleum exports. This year, hydrocarbon exports will generate an estimated revenue of \$900 million, a substantial income to the nation. Hopefully, advantage will be taken of this momentum to build up the industrial middle class or small-scale industries of the country.

The author believes that none of the many suggestions offered here would, by itself, contribute effectively to the desired goal. However, it is highly possible that a wide-ranging government effort, aided by foreign assistance, could reach the smaller enterprises and develop them sufficiently to generate a significant impact.

Appendix 1  
PERSONS AND ORGANIZATIONS INTERVIEWED BY THE AUTHOR  
SEPTEMBER - OCTOBER 1974

PERSONS AND ORGANIZATIONS  
INTERVIEWED BY NELSON C. WALL  
1974

Junta Nacional de Planificación y Coordinación Económica (JUNAPLA)

Eco. Galo Salvador	Jefe de la División del Programa Sectorial
Eco. Gustavo Chambers	Contraparte, Artesanía y Pequeña Industria
Eco. Raúl Barros	Contraparte de Nelson C. Wall

Centro de Desarrollo Industrial del Ecuador (CLNDIS)

Eco. Carlos Bañomera	Director Ejecutivo Interino
Ing. Servio Palacios	Jefe, División de Promoción
Ing. Mario Orbe	División Promoción Regional
Ing. Nicolás Espinosa	División Promoción Regional
Ing. Marcelo Espinosa	Talleres Demonstrativos
Ing. Nelson Ramos	Director, Oficina Guayaquil
Dr. Rosendo Delgado	Jefe, Oficina Cuenca

AID/Misión Ecuador

Sr. Peter Cody	Director de la Misión
Sr. R. R. Garuffi	Sub-Director
Sr. Patricio Maldonado	Desarrollo Urbano e Industrial
Sr. A. J. Young	Programa de Crédito y Asistencia Técnica a La Pequeña Industria

Ministerio de Trabajo y Bienestar Social

Sr. Cárdena	Director de Empleo y Recursos Humanos
Sr. René Endara	Inspector Artesanal
Sr. Daniel Hinostroza	Inspector Artesanal
Sr. Miguel Estupiñan	Jefe, Sección Artesanal

Ministerio de Industria, Comercio e Integración

Sra. Eco. Alicia de Martínez	Director Encargado del Departamento de Pequeñas Industrias
Ing. Liborio Pinto	Director, Departamento de Crédito Industrial

Asociación de Pequeños Industriales del Pichincha

Sr. Luis Erazo López	Presidente
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Quinchuqui

Dr. Alberto Lema

Rector del Centro Experimental de Educación Rural "Jacinto Collahuazo" y Presidente de la Cooperativa Peruchi (Tejedores)

Peguchi

Sr. Enrique Fichamba

Artesano Tejedor

Sr. Alonso Fichamba

Artesano Tejedor

Sr. Marcos Lema

Artesano Tejedor

Otavalo

Tejidos Lema

Fábrica de Tejidos

Tejidos Marlene

Fábrica de Tejidos

Iluman

Sombrerería Iluman

Planchado de Sombreros

San Antonio de Ibarra

Sr. Carlos Espinosa

Propietario del "Taller de Tallados y Esculturas Carlos Espinosa," Artesano Tallador

Taller Caspicara

Tallados en Madera

Ibarra

Sr. Pedro Herrera Nieto

Gerente del Secador de Madera Ibarra y Dueño de la Fábrica de Muebles Ibarra

Sr. Puchart

Propietario de Productos Lácteos Floralp

Cotacachi

Manufactura Albuja

Artesanía en Piel

J. Andrade

Talabartería

Ambato

Sr. Carlos Gamboa Robles

Dueño de Plásticos Brothers (manufactura de plásticos)

Sr. A. Moya

Dueño de Fábrica La Nacional (hormas, suelas, y tacos de madera)

Sr. Jorge López Chico

Curtiembre Ambato (pieles)

Sr. Luis Sánchez Ramírez

Editorial Atenas, Asociación de Pequeños Industriales de Tungurahua

Ambato (Continúa)

Sr. Bolívar Pacheco	Dueño de la Organización Industrial Bolívar Pacheco (fábrica de velas)
Sr. M. Pacasa	Dueño de Pacasa, S. A. (fábrica de ventanas de aluminio)
Sr. Juan G. Morales	Dueño de Producto Caucho Félix (fábrica de tacos y suelas de caucho)
Sr. Segundo Santana	Gerente, Industria Licorera Asociada

Cuenca

Sr. Juan Chacón	Administrador, Andina de Alimentos (enlatados de tomates, higos, naranjillas, y otros)
Sr. Enrique Fernández de Córdova y Sr. Raúl Peña Carrasco	Dueños de CODECO (manufactura de puertas, ventanas, closets, y otros productos de madera)
Sr. Arturo Delgado	Artesano (produce sombreros y tejidos de paja toquilla)
Sr. Agustín Valdivieso	Administrador, Talleres Doña Eulalia (confección y bordados de ropa)
Sr. Pablo Crespo Ventimilla	Dueño de Yapacunchi Cia. Ltd. (artesanía de muebles y cerámicas)
Sr. Miguel Ushka	Administrador, Fábrica Rocafuerte (cooperativa productora de valdosas de piso)
Sr. Rodrigo Guerrero	Dueño, Industrias Craft (productor de joyería en general)

Guayaquil

Sr. Carlos Peña	Administrador, Exportadora Cariban (enlatados de mariscos y conchas)
Batallón Suburbio	Programa de Asistencia Social
El Palacio del Sueño	Manufactura pequeña (artesanal) de colchones y almohadas de residuos de lana

Quito

Sr. Luis Pacheco Reyes	Dueño de Calzado El Mundo (manufactura de calzado y ventas)
Sr. Luis Erazo López	Dueño de Industrial Faungalo Cia. Ltda. (fabricación de ropa tejida) y Presidente de La Asociación de Pequeños Industriales del Pichincha
Banco Nacional de Fomento	
Sr. Carlos E. Fuscáu Díaz	Jefe de Pequeñas Industrias y Artesanías

Quito (Continúa)

Cámara Artesanal de Pichincha

Sr. Bolnar Luz

Sr. Bolívar Amores

Servicio Ecuatoriano de  
Capacitación Profesional  
(SECAP)

Sr. Herminio Altuna

Coordinador de la Cámara

Presidente de los Artesanos de la Cons-  
trucción

Sub-Director de SECAP

Appendix 2  
INVENTORY OF INDUSTRIAL PROJECTS  
CENDES - JUNAPLA  
1974

PLAN INTEGRAL DE TRANSFORMACION Y DESARROLLO 1973-1977  
INVENTARIO DE PROYECTOS INDUSTRIALES

Actividades y Proyectos	Localización Tentativa	Capacidad Anual Proyectada		Inversión Miles de Sucres	*	**	Orientación del Mercado
		Unidad	Cantidad				
Camal Frigorífico "A"	Pichincha	ton.	9.000	23.100	75	P	Local
Camal Frigorífico "B"	Manabí	ton.	4.000	12.770	54	P	Local
Camal Frigorífico "B"	Esmeraldas	ton.	4.000	12.770	54	P	Local-subregional
Camal Frigorífico "B"	Chimborazo	ton.	4.000	12.770	54	P	Local
Camal Frigorífico "B"	Los Ríos	ton.	4.000	12.770	54	P	Local
Camal Frigorífico "C"	Cotopaxi	ton.	3.000	6.112	25	P	Local
Camal Frigorífico "C"	Pastaza	ton.	3.000	6.112	25	P	Local-nacional
Camal Frigorífico "C"	El Oro	ton.	3.000	6.112	25	P	Local-subregional
Embutidos	Loja-Cañar	ton.	250	1.650	21	P	Local-subregional
Carnes curadas, embu- tidos y carnes en conserva (complejos agro-industriales)	Azuay Los Ríos	ton.	5.000	40.000	60	P	Nacional-subregional
Empacadora de pollos	Los Ríos Manabí	unid.	600.000	4.000	41		Local-nacional
Empacadora de pollos	Azuay	unid.	600.000	4.000	41		Local-nacional
Leche pasteurizada	Manabí	litros	3.600.000	3.622	15	P	Local
Leche pasteurizada	Chimborazo	litros	3.600.000	3.622	15	P	Local
Leche pasteurizada	Loja	litros	3.600.000	3.622	15	P	Local
Productos Lácteos	Carchi Cotopaxi Chimborazo	ton.	350	4.000	20	P	Nacional-subregional

Nota: \*Personal ocupado  
\*\*Prioridad

Actividades y Proyectos	Localización Tentativa	Capacidad Anual Proyectada		Inversión Miles de Sucres	*	**	Orientación del Mercado
		Unidad	Cantidad				
Conservas en general	Loja	ton.	1.200	3.955	28	P	Nac.-local-subregional
Conservas de legumbres	Carchi Imbabura Manabí	ton.	230	1.740	24	P	Nacional
Jugo natural de frutas	Guayas Esmeraldas	ton.	2.140	4.956	107	P	Local
Jaleas y mermeladas	Tungurahua	ton.	1.600	2.600	24	P	Nacional-subregional
Jugos de frutas y concentrados	El Oro Los Ríos	ton.	8.410	24.557	50	P	Subregional-mundial
Concentrado de papaya	Los Ríos Guayas	ton.	7.000	41.000	286	P	Subregional-mundial
Puré de banano	Los Ríos El Oro	ton.	5.280	16.498	101	P	Mundial
Puré de piña	Guayas Los Ríos	ton.	10.000	33.483	65	P	Subregional-mundial
Conservas de pescado	Guayas	ton.	20.000	30.000	400	P	Subregional-mundial
Enlatadora de atún	Manabí	ton.	6.200	28.402	669	P	Nacional-mundial
Extracción de aceite	Los Ríos	ton.	5.000	19.029	118	P	Nacional
Extracción de aceite	Esmeraldas	ton.	5.000	19.029	118	P	Nacional
Extracción de aceite	Pichincha	ton.	5.000	19.029	118	P	Nacional
Extractor de aceite de colza	Chimborazo	ton.	6.000	9.861	41	P	Nacional
Extractor de aceite de colza	Carchi Imbabura	ton.	6.000	9.861	41	P	Nacional
Extractor de aceite de soya	Loja El Oro Morona Santiago	ton.	2.400	12.000	20	P	Nacional

Nota: \*Personal ocupado  
\*\*Prioridad

Actividades y Proyectos	Localización Tentativa	Capacidad Anual Proyectada		Inversión Miles de Suces	*	**	Orientación del Mercado
		Unidad	Cantidad				
Aceite y mantequilla de maní	Loja Manabí	ton.	160	1.365	15		Nacional-mundial
Molino de cereales	Bolívar	ton.	15.000	16.200	30		Nacional
Harina de yuca	Pastaza	ton.	4.300	2.590	19	P	Nacional
Harina de yuca	Manabí Los Ríos	ton.	4.300	2.590	19	P	Nacional
Centrales Paneleras	Imbabura Oriente Cotopaxi	ton.	40.000	8.000	60		Nacional-mundial
Azúcar	Guayas El Oro Los Ríos	ton.	108.000	548.708	385	P	Nacional-mundial
Polvo, pasta y mantequilla de cacao	Guayas	ton.	2.098	19.900	58	P	Subregional-mundial
Derivados de cacao	El Oro Los Ríos	ton.	7.000	40.000	50	P	Subregional-mundial
Ajos deshidratados	Tungurahua	ton.	150	2.198	24	P	Mundial
Cebollas deshidratadas	Chimborazo	ton.	150	2.198	24	P	Mundial
Pasta y salsa de tomate	Loja Azuay	ton.	495	2.655	35	P	Nacional
Glucosa	Guayas	ton.	5.000	8.620	72	P	Nacional-Subregional
Almidón de maíz	Los Ríos Manabí	ton.	8.058	20.428	27	P	Nacional
Café Liofilizado	Manabí Guayas	ton.	675	40.000	32	P	Nacional-Mundial
Harina y aceite de pescado	Guayas El Oro	ton.	15.000	7.000	43	P	Nacional-Mundial

Nota: \*Personal ocupado  
\*\*Prioridad

<u>Actividades y Proyectos</u>	<u>Localización Tentativa</u>	<u>Capacidad Anual Proyectada</u>		<u>Inversión Miles de Sucres</u>	<u>*</u>	<u>**</u>	<u>Orientación del Mercado</u>
		<u>Unidad</u>	<u>Cantidad</u>				
Harina y aceite de pescado	Manabí	ton.	3.360	6.834	50	P	Nacional
Industrialización del tiburón	Esmeraldas Guayas	ton.	224	2.292	20		Nacional-mundial
Empacadora de mariscos	El Oro	ton.	15.000	20.000	128	P	Mundial
Alfarina	Loja	ton.	2.450	3.264	15	P	Nacional-subregional
Alfarina	Chimborazo	ton.	2.450	3.264	15	P	Nacional
Alfarina	Imbabura	ton.	2.450	3.264	15	P	Nacional-subregional
Alimentos balanceados	Los Ríos Cañar	ton.	5.000	2.060	14	P	Local
Alimentos balanceados	Tungurahua	ton.	5.000	2.060	14	P	Local
Alimentos balanceados	Esmeraldas Manabí	ton.	5.000	2.060	14	P	Local
Forrajes deshidratados	Pichincha Los Ríos	ton.	15.670	8.750	43	P	Nacional
Hielo en bloques	Manabí	ton.	15.000	2.800	16		Local
Hongos conservados	Azuay Loja	ton.	2.500	7.000	70	P	Mundial
Condimentos, sazonadores y esencias (complejo-agro industrial)	El Oro Guayas	ton.	300	5.000	20	P	Mundial Nacional-subregional
<u>BEBIDAS</u>							
Cerveza	Pichincha	ton.	4.550	23.854	81		Nacional
Gaseosas	Manabí	litros	6.000.000	5.959	34		Local
Licores	Imbabura Oriente Bolívar	litros	2.500.000	7.500	35		Mundial

Nota: \*Personal ocupado  
\*\*Prioridad

<u>Actividades y Proyectos</u>	<u>Localización Tentativa</u>	<u>Capacidad Anual Proyectada</u>		<u>Inversión Miles de Sucres</u>	<u>*</u>	<u>**</u>	<u>Orientación del Mercado</u>
		<u>Unidad</u>	<u>Cantidad</u>				
<u>TABACO</u>							
Cigarrillos	Pichincha	caj.	16.800.000	5.280	41		Nacional
Cigarros	Los Ríos	unid.	2.500.000	2.750	15		Mundial
Curado de tabaco	El Oro	ton.	300	20.080	43	P	Nacional
<u>TEXTILES</u>							
Lavadora de lana	Chimborazo	ton.	200	3.146	12		Nacional
Lavadora de lana	Imbabura	ton.	200	3.146	12		Nacional
Desmotadora de algodón	Manabí	ton.	1.130	1.810	32		Nacional
Desmotadora de algodón	Guayas	ton.	1.130	1.810	32		Nacional
Desfibradoras de abacá	Guayas	ton.	1.200	6.100	12		Nacional-mundial
Hilos de coser	Pichincha	ton.	60	4.569	47		Nacional
Tejidos de lana, paños, etc.	Chimborazo	metro	120.000	5.900	39		Nacional
Cables de abacá	Guayas	ton.	880	5.800	20	P	Nacional-mundial
Tejidos especiales, felpas, damascos	Pichincha	metro	300.000	9.400	31		Nacional
Textiles sanitarios	Tungurahua	ton.	140	6.200	32		Nacional
Redes de pesca	Manabí	ton.	35	1.770	20		Nacional
<u>MADERAS</u>							
Madera aglomerada	Esmeraldas Imbabura	ton.	4.500	15.300	43	P	Nacional-Subregional

Nota: \*Personal ocupado  
\*\*Prioridad

Actividades y Proyectos	Localización Tentativa	Capacidad Anual Proyectada		Inversión Miles de Suces	*	**	Orientación del Mercado
		Unidad	Cantidad				
<u>MADERAS</u>							
Madera contrachapada	Esmeraldas	metro <sup>3</sup>	15.000	37.350	231	P	Mundial
Tableros de bagazo	Loja	ton.	9.100	69.407	61	P	Nacional-subregional
Tableros de madera contrachapada	Pichincha	ton.	5.437	28.603	111	P	Nacional-mundial
Parquet para pisos	Loja	metro <sup>2</sup>	120.000	3.000	39	P	Nacional-subregional
Parquet para pisos	Esmeraldas	metro <sup>2</sup>	120.000	3.000	39	P	Nacional-mundial
Briquetas de carbón	Esmeraldas	ton.	7.200	1.295	27	P	Mundial
Tratamiento y secadora de macera	Esmeraldas Oriente Manabí Cotopazi	metro <sup>3</sup>	16.000	18.200	77	P	Nacional-mundial
Complejo maderero	Esmeraldas	ton.	25.000	66.000	350	P	Nacional-mundial
Casas prefabricadas	Guayas	unid.	600	2.500	20	P	Nacional
Carretes y mangos de madera	Pichincha Imbabura	unid.	1.250.000	1.100	20		Nacional
<u>MUEBLES DE MADERA</u>							
Muebles de estilo	Pichincha Imbabura	juegos	3.000	3.835	31		Mundial
Juguetería de madera	Tungurahua Imbabura	unid.	200.000	2.000	45		Nacional-mundial
<u>PAPEL Y CARTÓN</u>							
Pulpa y papel	Esmeraldas	ton.	60.000	186.000	401	P	Nacional
Pulpa y papel	Cañar El Oro	ton.	30.000	90.000	74	P	Nacional

Nota: \*Personal ocupado  
\*Prioridad

<u>Actividades y Proyectos</u>	<u>Localización Tentativa</u>	<u>Capacidad Anual Proyectada</u>		<u>Inversión Miles de Sucres</u>	<u>*</u>	<u>**</u>	<u>Orientación del Mercado</u>
		<u>Unidad</u>	<u>Cantidad</u>				
Pulpa y papel especiales	Los Ríos Guayas	ton.	25.000	120.000	80	P	Nacional-subregional
Pulpa química	Loja Zamora	ton.	22.000	110.500	213	P	Nacional
Cartones y cartulinas	Pichincha	ton.	2.500	13.340	55	P	Nacional
<u>IMPRENTAS</u>							
Litografía	Azuay Manabí	unid.	26.000.000	5.000	30		Local
Editorial	Pichincha Guayas	unid.	1.200.000	1.800	19		Nacional
Periódicos	Guayas	unid.	12.775.000	13.457	46		Local
<u>CUERO</u>							
Curtiduría	Loja Cotopaxi	miles pies <sup>2</sup>	1.200	10.404	79		Nacional
Curtiduría	Manabí	miles pies <sup>2</sup>	1.200	10.404	79		Nacional
<u>CAUCHO</u>							
Productos técnicos de caucho	Azuay Tungurahua	ton.	570	12.000	45		Nacional
Neumáticos especiales	Guayas	ton.	1.000	81.000	115	P	Nacional-subregional
Laminados de látex	Guayas Tungurahua	ton.	200	2.000	25		Nacional

Nota: \*Personal ocupado  
\*\*Prioridad

Actividades y Proyectos	Localización Tentativa	Capacidad Anual Proyectada		Inversión Miles de Suces	*	**	Orientación del Mercado
		Unidad	Cantidad				
<u>QUIMICOS</u>							
Acido Salicílico	Esmeraldas	ton.	1.000	35.500	35	P	Nacional-subregional
Acido Cítrico	Guayas Imbabura	ton.	1.000	41.000	38	P	Nacional-subregional
Sorbitol y ácido ascórbico	Guayas	ton.	5.000	56.250	35	P	Nacional-subregional
Sulfato de aluminio	Guayas	ton.	3.000	5.357	13		Nacional
Acetatos, solventes y plastificantes	Guayas	ton.	1.300	11.700	19		Nacional
Metanol	Esmeraldas	ton.	45.000	167.000	40	P	Nacional-subregional
Glicoles	Esmeraldas	ton.	26.000	362.000	36	P	Nacional-subregional
Anhidrido Maleico	Esmeraldas	ton.	5.300	89.000	26	P	Nacional-subregional
Sosa Cáustica, cloro	Guayas	ton.	15.000	61.000	39	P	Nacional
Acidos grasos-glicerina	Guayas	ton.	445	1.600	10		Nacional
Aceite de higuerilla	Manabí	ton.	12.600	22.005	61	P	Subregional-mundial
Aceites esenciales y colorantes	Pichincha	ton.	101	20.828	78	P	Subregional-mundial
Antibióticos	Guayas	ton.	50	113.000	30	P	Nacional-subregional
Drogas y hormonas	Pichincha	ton.	50	20.000	75	P	Nac.-subreg.-mundial
Productos farmacéuticos	Guayas	miles unid.	40.000	14.000	56	P	Nacional
Tintas de imprenta	Pichincha Guayas	ton.	300	1.500	13		Nacional
Fibras acrílicas	Guayas Esmeraldas	ton.	4.500	367.000	106	P	Nacional-subregional

Nota: \*Personal ocupado  
\*\*Prioridad

<u>Actividades y Proyectos</u>	<u>Localización Tentativa</u>	<u>Capacidad Anual Proyectada</u>		<u>Inversión Miles de Sucres</u>	<u>*</u>	<u>**</u>	<u>Orientación del Mercado</u>
		<u>Unidad</u>	<u>Cantidad</u>				
<u>QUIMICOS</u>							
Polivinil acetato	Guayas	ton.	1.500	12.700	27		Nacional
Nylon	Pichincha	ton.	2.000	206.500	86	P	Nacional
Amoniaco-urea	Guayas	ton.	200.000	750.000	48	P	Nacional-subregional
Insecticidas, pesticidas y fungicidas	Guayas	ton.	1.400	6.360	17	P	Nacional
Nitrocelulosa	Manabí	ton.	2.000	137.000	86	P	Nacional
<u>PETROLEO</u>							
Refinería de petróleo	Esmeraldas	ton.	2.500.000	1.250.000	136	P	Nacional
<u>MINERALES NO METALICOS</u>							
Ladrillos prensados	Pichincha	unid.	4.000.000	4.750	34		Local
Ladrillos prensados	Guayas	unid.	4.000.000	4.750	34		Local
Ladrillos prensados	Manabí	unid.	4.000.000	4.750	34		Local
Lavadora de caolines	Azuay Cañar	ton.	16.560	8.266	82	P	Nacional
Preparación de arcillas, arenas, bentonita, etc.	Cañar	ton.	15.000	8.000	80	P	Nacional
Vidrio farmacéutico	Guayas	ton.	300	27.200	42		Nacional
Vidrio plano	Guayas	ton.	6.047	24.213	147	P	Nacional
Cristalería soplada y moldeada	Azuay Loja	ton.	180	2.450	12		Nacional
Sanitarios cerámicos	Chimborazo Cañar	ton.	1.340	15.940	40	P	Nacional

Nota: \*Personal ocupado  
\*\*Prioridad

<u>Actividades y Proyectos</u>	<u>Localización Tentativa</u>	<u>Capacidad Anual Proyectada</u>		<u>Inversión Miles de Suces</u>	<u>*</u>	<u>**</u>	<u>Orientación del Mercado</u>
		<u>Unidad</u>	<u>Cantidad</u>				
<u>MINERALES NO METALICOS</u>							
Refractarios	Azuay	ton.	1.200	9.288	23	P	Nacional
Colores cerámicos, fritas	Azuay Chimborazo	ton.	720	5.984	13	P	Nacional
Productos cerámicos especiales	Azuay Chimborazo	ton.	300	22.500	170	P	Nacional-subregional
Cemento Portland	Imbabura	ton.	300.000	533.000	192	P	Nacional
Cemento Portland	Guayas	ton.	300.000	533.000	192	P	Nacional
Cal hidratada	Tungurahua	ton.	15.900	5.585	34		Nacional
Cal hidratada	Cotopaxi	ton.	15.900	5.585	34		Nacional
Cal hidratada	Manabí	ton.	15.900	5.585	34		Nacional
Cal hidratada	Pichincha	ton.	15.900	5.585	34		Nacional
Tubos de cemento asbesto	Chimborazo Guayas	ton.	6.240	21.000	49	P	Nacional
Prefabricados de cemento	Cañar	ton.	10.000	4.000	25		Nacional
Lijas y esmeriles	Guayas Pichincha	ton.	100	1.500	22		Nacional
<u>METALICAS BASICAS</u>							
Fundición de hierro para piezas moldeadas	Guayas	ton.	7.500	54.700	150	P	Nacional
Aceros especiales	Guayas	ton.	10.000	96.000	108	P	Nacional-subregional
Tubos de hierro y perfiles	Guayas	ton.	50.000	350.000	265	P	Nacional-subregional
Acoplamientos y accesorios de tuberías	Azuay	ton.	150	10.500	58	P	Nacional

Nota: \*Personal ocupado  
\*\*Prioridad

<u>Actividades y Proyectos</u>	<u>Localización Tentativa</u>	<u>Capacidad Anual Proyectada</u>		<u>Inversión Miles de Suces</u>	<u>*</u>	<u>**</u>	<u>Orientación del Mercado</u>
		<u>Unidad</u>	<u>Cantidad</u>				
<u>METALICAS BASICAS</u>							
Alambres galvanizados	Pichincha	ton.	21.000	113.000	120	P	Nacional
Extrusión y laminado de aluminio	Guayas Pichincha	ton.	500	7.500	40	P	Nacional
Fundición de metales no ferrosos	Pichincha Imbabura	ton.	1.000	5.000	20	P	Nacional
Acería integrada	Guayas	ton.	250.000	550.000	380	P	Nacional
Hojalata estañada	Guayas	ton.	20.000	150.000	167	P	Nacional
<u>PRODUCTOS METALICOS</u>							
Calderería y silos	Guayas	ton.	1.000	14.500	121	P	Nacional
Servicio de mesa y cuchillería	Guayas Pichincha	ton.	100	5.000	73		Nacional
Envases de hojalata	Manabí Guayas	ton.	1.200	4.868	53		Nacional
Sierras y serruchos	Pichincha	ton.	72	4.522	46		Nacional
Brocas, fresas, etc.	Cotopaxi	ton.	114	53.000	83	P	Nacional-subregional
Moldes y matrices	Azuay	ton.	100	9.900	48	P	Nacional
Herramientas y forjadas manuales	Pichincha	ton.	1.500	20.250	94	P	Nacional
Válvula para neumáti- cos	Guayas	unid.	5.000.000	20.800	35	P	Nac.-subreg.-mundial
Reverberos, lámparas para soldar y linter- nas	Manabí	unid.	57.000	9.540	63	P	Nacional-subregional
Recipientes para gas hasta de 20 atmósferas	Pichincha	unid.	50.000	15.500	32		Nacional

Nota: \*Personal ocupado  
\*\*Prioridad

Actividades y Proyectos	Localización Tentativa	Capacidad Anual Proyectada		Inversión Miles de Suces	*	**	Orientación del Mercado
		Unidad	Cantidad				
<u>PRODUCTOS METALICOS</u>							
Calentadores y calefactores no eléctricos	Tungurahua	unid.	30.000	20.000	60		Nacional
Alcantarillas metálicas	Pichincha	ton.	1.000	5.000	21		Nacional
Cerraduras y candados	Pichincha	unid.	432.000	10.047	47	P	Nacional
Perfiles y estructuras metálicas	Guayas	ton.	5.000	5.850	20		Nacional
Grifería para construcciones	Imbabura	ton.	350	11.000	50	P	Nacional
Llaves de ajuste, tenazas, etc.	Imbabura	ton.	240	50.000	94	P	Nacional-subregional
<u>MAQUINARIA NO ELECTRICA</u>							
Máquinas para escribir inclusive eléctricas	Pichincha	unid.	25.000	8.764	32		Nacional-subregional
Apartados de gas para soldar y cortar	Guayas	unid.	5.000	7.340	44	P	Nacional-subregional
Gatos mecánicos	Guayas	ton.	200	6.137	66	P	Nacional-subregional
Bombas y válvulas	Pichincha	ton.	200	6.613	66	P	Nacional
Compresores de hasta 40 HP	Guayas	unid.	5.000	8.222	77	P	Nacional-subregional
Centrífugas	Guayas Chirborazo	ton.	250	15.000	50	P	Nacional-subregional
Máquinas y aparatos para la industria láctea	Pichincha	ton.	400	20.085	97	P	Nacional-subregional

Nota: \*Personal ocupado  
\*\*Prioridad

Actividades y Proyectos	Localización Tentativa	Capacidad Anual Proyectada		Inversión Miles de Sucres	*	**	Orientación del Mercado
		Unidad	Cantidad				
<u>MAQUINARIA NO ELECTRICA</u>							
Maquinaria para la industria maderera	Pichincha	ton.	400	15.000	70	P	Nacional-subregional
Implementos agrícolas	Pichincha	ton.	150	8.764	32	P	Nacional
Pulverizadores manuales	Imbabura	unid.	3.000	2.250	20	P	Nacional
Aparatos, maquinaria, y equipo hidráulico	Manabí Pichincha	ton.	800	40.000	80	P	Nacional-subregional
Máquinas, herramientas con arranque de viruta y tornos para metales	Pichincha Guayas	ton.	500	12.000	50	P	Nacional-subregional
<u>MAQUINARIA ELECTRICA</u>							
Aparatos de corte y seccionamiento hasta 1.000 v.	Azuay	ton.	2.500	180.000	200	P	Nacional-subregional
Motores eléctricos hasta 10 HP	Pichincha Azuay	HP	10.000	7.450	76	P	Nacional
Transformadores hasta 10 KVA	Pichincha	KVA	300	35.800	89	P	Nacional
Motores diesel	Pichincha	unid.	2.000	24.000	90	P	Nacional-subregional
Calefactores, ventiladores, y acondicionadores de aire	Azuay	unid.	60.000	14.000	85		Nacional
Contadores de electricidad	Pichincha	unid.	200.000	15.000	40	P	Nacional
Unidades selladas para refrigeración de más de 0.5 HP	Guayas	unid.	12.000	7.400	51	P	Nacional-subregional

Nota: \*Personal ocupado  
\*\*Prioridad

Actividades y Proyectos	Localización Tentativa	Capacidad Anual Proyectada		Inversión Miles de Suces	*	**	Orientación del Mercado
		Unidad	Cantidad				
<u>MAQUINARIA ELECTRICA</u>							
Aparatos para uso médico quirúrgico	Guayas	ton.	1.000	8.000	30	P	Nacional-subregional
Máquinas y herramientas electromecánicas	Manabí	unid.	15.000	7.700	67	P	Nacional-subregional
Resistores fijos	Guayas	unid.	30.000.000	7.500	50	P	Nacional-subregional.
Resistores variables	Pichincha	unid.	1.500.000	8.750	60	P	Nacional-subregional
Capacitores electro- líticos	Azuay	unid.	5.000.000	15.000	120	P	Nacional-subregional
Dispositivos semi- conductores	Pichincha	unid.	5.000.000	17.500	140	P	Nacional-subregional
Cañones electrónicos para TV	Guayas	unid.	300.000	2.000	60	P	Nacional-subregional
Calculadoras electró- nicas	Pichincha	unid.	3.000	25.000	70	P	Nacional-subreg.-mundial
Teléfonos	Pichincha	unid.	100.000	25.000	150	P	Nacional-subregional
Equipos de radio- comunicaciones	Pichincha	unid.	2.000	10.000	30	P	Nacional-subregional
Radios, radiolas, TV	Pichincha	unid.	4.500	6.500	72		Nacional
<u>MATERIAL DE TRANSPORTE</u>							
Astilleros navales	Guayas	ton.	15.000	112.000	420	P	Nacional-subregional
Tractores agrícolas	Pichincha	unid.	4.000	53.900	403	P	Nacional-subregional
Partes para automoto- res	Azuay Manabí	ton.	800	37.000	295	P	Nacional-subregional
Ensambladora de auto- motores	Manabí	unid.	6.000	180.000	200	P	Nacional-subregional

Nota: \*Personal ocupado

\*\*Prioridad

<u>Actividades y Proyectos</u>	<u>Localización tentativa</u>	<u>Capacidad Anual Proyectada</u>		<u>Inversión Miles de Sucras</u>	<u>*</u>	<u>**</u>	<u>Orientación del Mercado</u>
		<u>Unidad</u>	<u>Cantidad</u>				
<u>DIVERSAS</u>							
Artículos de plástico	Guayas Pichincha	ton.	720	15.500	23		Nacional
Manómetros	Azuay	unid.	100.000	30.000	80	P	Nacional-subregional
Instrumentos de medida y control	Azuay	ton.	600	80.000	160	P	Nacional-subregional
Relojes	Azuay	unid.	80.000	60.000	200	P	Nacional-subregional

Nota: \*Personal ocupado  
\*\*Prioridad

Appendix 3  
SUMMARY OF ESTABLISHMENTS VISITED IN ECUADOR  
1973-1974

SUMMARY OF ESTABLISHMENTS VISITED IN ECUADOR  
1973 - 1974

Wednesday, November 21, 1973

CUENCA

Parque Industrial de Cuenca. At 9:00 a.m., we visited what will be the Parque Industrial de Cuenca (industrial park), which has now just been started. This will be the first such park in Ecuador. The Centro de Reconversión Económica del Austro (CREA) bought the land (about 80 hectares) in 1964 and they finally have been able to start construction. At present, some industries are established in the park, which will give it a good starting nucleus. For the past few months, Dr. Wolfgang Englander of the United Nations has been working directly with CREA in the design of the park. Dr. Englander was present, and he explained the project.

Three types of building lots will be available: 1,500 square meters, 2,400 square meters, and 3,500 square meters. These will be sold at about \$/100 per square meter, which is far below present land values. All services will be available, as well as roads and drainage. The first phase has started and covers 17.5 hectares. CREA has created a company to run the park and has turned over the land holdings to them to be operated on a nonprofit basis.

The following industrial enterprises are at present located over the 80 hectares of the park:

- Compañía Ecuatoriana de Caucho (rubber products)
- Industria Mecánica Mejía (machine shop)
- EDCA (slaughterhouse)
- TIGER (cement pipes)
- Curtiembre Cuenca (tannery)

The first phase will provide 26 building lots and all the internal roads and services. An electric substation is just outside the property, and power is already installed. They will build speculative buildings and set up lease-purchase agreements with small industries that wish to move in. Main interest is in the mechanical industries and service industries. The road outside the park goes to Guavaquil and requires about four hours of driving time (220 kilometers); all is not paved but will be finished by 1974. A Cuenca-Cojabamba-Quito road also is under construction.

Compañía Ecuatoriana de Caucho. This is an affiliate of General Tires that was established in 1964 in Cuenca. It is the best tire plant in Ecuador, producing about 1,000 tires per eight-hour shift, working only one shift a day, 40 hours a week and 237 days per year. They employ about 250 persons and are at present greatly expanding the plant. Some local natural rubber is now being used from the area of Santo Domingo de los Colorados, where the company participated in the creation of a 1,000 hectare rubber plantation. According to the general manager, Eng. Florencio Malo, their plantations in Southeast Asia require seven years before the rubber trees reach the eight-inch diameter which permits rubber extraction. In Ecuador, the tree is ready for production in five years and, furthermore, produces a larger quantity. They expect to go as high as 8,000 pounds per hectare a year in Ecuador. The firm plans to continue the planting and would like to obtain up to 3,000 more hectares, so they can be free of the Southeast Asia dependency. They are very happy with the type of employees they have found in Cuenca. The present value of the plant is about S/260 million (over \$10 million), and they plan to expand and purchase more equipment as follows: about \$2 million in 1974, about \$1.8 million in 1975, and about \$2 million in 1976.

Fábrica de Resortes Vanderbilt. The president of this company, Sr. Alfredo Peña Calderón, took us on a tour of his plant. They manufacture leaf springs for trucks and general vehicles. All the steel stock is imported from Japan. The company manufactures 4,000 different types of automotive leaf springs and carries all in stock. They have a nice plant which employs about 20 persons, and their sales volume is well over S/50 million per year. The machine shop is very good and handles all the plant repairs.

Tubería Galvanizada CIAL. This industry, owned by Mr. Rafael Peña Calderón, manufactures galvanized pipes and steel pipes. The largest size manufactured is a four-inch metal pipe for the oil industry. All stock is imported from Japan and manufactured in the plant. They also make galvanized sheet metal (corrugated). His partner is a Mr. Hamilton, who is a native-born North American. Employment totals about 30 persons.

Industria Mecánica Mejía. This very large and well-equipped machine shop is owned by Mr. Rosendo Mejía. The shop can do any specialty job on parts for heavy equipment. They also manufacture some standard items such as grain mills, silos, and feed mixers.

Mejía also has a foundry, and they can cast iron, aluminum and brass. They plan to expand and set up a small blast furnace to be able to produce steel as needed by them.

Colegio Técnico Salesiano. This is a local church-vocational school at what we would call junior college level. They have good facilities in both electrical and mechanical laboratories, shops, and classrooms. About 40 students are graduated per year in each field -- electrical and mechanical. Many go on to the Tecnológico in Quito to become engineers, but others enter industrial jobs in Cuenca. Mr. Mejía, owner of the Industrias Mecánicas Mejía, is a graduate of this school.

Cámara de Industrias. The Chamber of Industry is headed by Mr. Alfredo Peña. He and his board met with us to explain their problems and answer any questions we might have. The Chamber has 153 member companies, of which Compañía Ecuatoriana de Caucho, with about 250 employees, is the largest. They consider that better than 70% of the membership would fit the small or medium-size category. They are in favor of the industrial park, and some plan to change locations once the park is ready. Their biggest single problem appears to be "finding money," the cost of which at present runs at 12% per year plus bank commission and other fees which bring it up to 18% to 20% per year.

The Cámara requested from CENDES that, once they open an office in Cuenca, "management and technical services" be provided to them by CENDES technicians. CENDES indicated that they are unable to provide such services and that is one of the reasons they are asking USAID/Ecuador to establish a program with Georgia Tech to provide the necessary technicians to carry out "consultant" work in these areas.

Thursday, February 28, 1974

#### QUITO

Industria Arctectum. This is a small plant employing 50 persons in the manufacture of wood and metal office furniture. The owner is Eng. Arturo Carvajal. He imports metal parts; he also imports veneer from Peru, but uses Ecuadorean plywood. The plant is seven years old, family-owned, and would be classified as medium size. It averages \$/4.5 million sales per year and is growing. Product line is diversified and in demand. The firm also is in ceramics. The firm has requested a loan for \$/1.5 million for equipment and

plant. The new plant, to be the fourth largest in Ecuador, will have 90 employees, 8,000 square meters of land, 1,850 square meters of roofed plant, at a total cost of \$7 million. Owner wants a kiln for wood drying. His main problem is finding trained workers.

Industrias Unidas. Owner is Eng. Faustas Ayaraza (EE, ME). The plant produces dies for plastic industries, forming dies for bottle industry, and does electrical hardware foundry castings. Total employment is 14. The firm takes orders from customers, and gross sales last year were \$/300,000. It produces 500-pound foundry castings of bronze, brass, iron, and casting is done twice a month. Reasons to keep small are labor unions, scrap scarcity, and molding sands. Problems are space in machine shop, money to set up production casting lines, and need for quality control laboratory. Owner is interested in establishing a relationship with a U.S. firm.

Molino Santa Rosa. Owner is Claudio Espinoza. This flour mill with cattle feed by-product is 30 years old and the equipment is about 25 years old. Output is 390 stoness per day. It has a long-standing staff of 14 workers.

Thursday, July 4, 1974

#### ESMERALDAS

Consejo Provincial de Esmeraldas. This was our first call. Met with Dr. Tiberio Patiño, Prefecto Provincial, and several members of his staff. Dr. Patiño is about one year away from ending his four years in this elected position. His main programs at the province level have been oriented to road building, education, and housing. Esmeraldas has only one road which links it with Quito and, for a city of about 70,000 which is now the oil exporting terminal for Ecuador, it is understandable that they are so concerned with infrastructure projects.

Oficina de Desarrollo Urbano y Provincial. Mr. Trujillo is the Director of this office. He stated that the Oficina de Desarrollo had started on several plans since being set up as the CENDES counterpart in that province. Mr. Trujillo then reviewed the following projects:

1. Sr. Alfonso Fernández has been appointed to work with the Oficina de Desarrollo Urbano and will go to CENDES/Quito for four weeks of training before starting in his new job.

2. The project Camal Frigorífico (freezer meat) is well advanced. Dr. Valdez of OAS has provided technical know-how at no cost. Dr. Valdez is in residence for OAS and provides technical assistance to the development centers. A copy of the final report will be mailed to IDD when available.

3. Progress also has been made on the project Secador de Madera (wood kiln). It now appears that a Belgian group represented by a Mr. Klien is interested. They will set up a particleboard plant and may consider the drier (kiln) project. The particleboard plant would cost about S/120 million, to be totally financed by the Belgian group. The local sawmill owner and operators are now trying to determine the volume of wood waste available yearly for this operation. The group has returned to consider a possible offer to be made to an interested group in Esmeraldas.

4. Project on Pasteurizadora de Leche (milk processing and pasteurizing). Little interest has been shown by the local dairy farmers. Little information is available to the group, so Mr. Espinosa of CENDES offered to forward some data from CENDES/Quito.

5. The following projects are being considered at this time, but studies have not yet started:

- Ingenio Azucarero (sugar mill)
- Planta de Cemento (cement plant)
- Elaboradora de Carne (meat packaging)

The three staff engineers working on the above projects are: Eng. G. Torres, Ricardo Estupinan, and Holger Pazmiño.

Departamento Técnico, Consejo Provincial. The Director is Eng. Montaña, who explained all of their plans for infrastructure development during the following year. For better details, please refer to Plan de Inversiones de los Caminos Vecinales 1973-1977.

Friday, July 5, 1974

ESMERALDAS

Cooperativa Pesquera Las Palmas. This is a small cooperative group that fishes and processes shrimp. This was a rather large business years back which went bankrupt, in part due to labor demands. When the business went into receivership, the courts decided to turn it over to the cooperative. After a few months, the cooperative found out they could not operate it, so it

was leased to the present manager and operator, Mr. Heliodoro Lozano. The plant has no employees, and only a few hundred pounds (300 to 400) are processed a day for the local market. The fishermen and their relatives do the processing after the small boats come in. In winter months, when the big fishing boats are in the area, they get to do some of the overflow work for them and may process up to 100,000 pounds of second and third-rate shrimp; no "jumbo" -- as this is done on board the big fishing vessels.

At the time of this visit, they had not operated in the last 60 days, except for the small daily haul. Mr. Lozano believes they will have to close in a short time, and he would like to be able to borrow funds to buy four mid-size fishing boats as a company fleet to assure them of a steady flow of raw material. Mr. Lozano believes that the packing plant cannot survive without a supply of raw material. He has to compete with a large packing plant in Guayaquil. Every time he lines up suppliers, the Guayaquil plant raises prices until the Esmeraldas plant is forced out; then prices return to normal. The plant equipment is old but serviceable -- a small cooler unit and the usual work tables for cleaning, heading, and deveining shrimp. Mr. Lozano believes he will just end his lease and walk out from the business. The cooperative will then need to find another interested party, or apply for the loan themselves for the four needed ships.

Maderera Rhor-Hadatti. This sawmill is owned by two persons, one of whom was interviewed, Don Vicente Hadatti. This gentleman was Governor of the Province of Esmeraldas in 1967 and since then has stayed out of politics. His sawmill is one of the better ones in the province where, at present, there are 42. The total number of sawmills in this province (Ecuador has 19 provinces) represents about 20% of the national total. In this area, it is estimated that 28% of the labor force is in forestry. They process mainly the following woods: laurel, cedro, machare, virola, and sandes.

In Ecuador it is prohibited by law to export "rounds," or rollos, so at least one manufacturing process must be added. Mr. Hadatti purchases all his raw lumber from dealers or private individuals, since they own no forest land. Because of this, Mr. Hadatti has to finance his small producers of raw materials to assure the needed flow.

The sawmill processes 150,000 board feet a month, but due to his very old equipment, he calculates that at least 33% of his raw material is wasted in the cutting process. He would be willing to assume a loan for new equipment

if it were available, but he knows of no sources now. I suggested that he, assisted by Eng. Espinosa, look into some known sources for possible solution to his financial problem.

The plant requires 30 employees and has been owned by Hadatti for the past two years. He is also interested in getting a small kiln dryer for his plant, so he can export a better product at a better price. He also believes people in Ecuador are too concerned with the oil situation and are not looking at some of the basic things, like his operation and the many other small sawmill owners.

CODESA. This is a large plywood plant in Esmeraldas, one of three in Esmeraldas and one of a total of four in Ecuador. The manager was not able to let us in for security reasons. After a lengthy wait outside the perimeter fence, we departed.

Ice Plant. This is the larger ice plant of the two ice plants in the city, and is owned by Mr. Jorge Rad Estrada. It is downtown and is installed in an old building. The equipment is of the Vintage York, ammonia type, but is well kept and operational. They process 104 ice blocks per day at 110 pounds per block, all of which is for the local market. Over the past 10 years, demands have been increasing, so they finally decided to increase production. Mr. Estrada has purchased and was installing another unit of about the same capacity to more or less double his production. There are only two persons in the plant, and in normal operation Mr. Estrada takes off and leaves the employees to operate the simple system.

Maderera Trujillo. This is a rather small woodworking operation on the outskirts of town. The owner, Mr. Trujillo, just started several months back and, at present, he buys boards from Mr. Hadatti and further processes them for local carpentry shops. He wishes to go into the furniture business, but needs money for equipment.

Monday, July 8, 1974

AMBATO

Tenería Alemana. This is the largest leather tannery in Ecuador and it is owned by Mr. Motis Cobo. The company has been operating in its present manner for about 10 years. It is not large by our standards, but it does employ 75 persons. Much of the leather is used in Ecuador for manufacturing

of leather goods. We took a brief tour of the plant and explained to management the research I was conducting and the fact that in the future CENDES plans to open a regional office in this area to serve the province of Tungurahua.

Rectificadora Peñafiel. A middle-sized machine shop, very well equipped, and capable of doing good precision work. They prefer to work only on crankshaft grinding, but do other jobs. They now employ about 50 persons that they have trained; their levels of experience range from mechanics to toolmen. Again, management was advised of the fact that CENDES will be opening a regional office in this city.

Taller Varma. Another metal shop where bus bodies are fabricated. This is a fairly nice shop and they are capable of producing tailor-made bus bodies for assorted types of truck chassis. The company is not too old; they indicated that they have been in operation for the last eight years and that they employ 60 persons.

#### RIOBAMBA

Mayor's Office. We went to visit the mayor, but his office was closed due to a local holiday. CENDES has just completed a feasibility study for an industry to dehydrate onion and garlic which may be installed in Riobamba. The CENDES/Ouito office has contacted a group of investors in this city, and it is possible that the plant may be installed in the near future. Investors were contacted and these projects were reviewed:

1. Dairy Plant. This project is well on its way. The buildings are nearly finished; the equipment has been imported and is presently in storage. The plant will process 40,000 liters of milk per day, employ 25 persons, and represent an investment of about S/20 million (\$900,000).

2. Meat Packing Plant. The studies are all completed. Twenty-one companies (international) have bid on the equipment needed, but the bids are now being studied. Plans call for building to start in less than six months.

3. Dehydrated Onions and Garlic. A group of investors has been formed and has come up with S/60,000 to cover some studies that are needed. The final project is estimated at about S/10 million. Part of the study has been subcontracted by CENDES to the Instituto Técnico de Chimborazo, which is a local engineering college.

4. Industrial Park. This is a municipal project and the land area is where the dairy plant is being built. This is a long-range project at this time.

Tuesday, July 9, 1974

PORTOVIEJO

Centro de Rehabilitación de Manabí (CRM). We visited with Eng. Jaime Cevallos Viteri, who is the project director for the Pota Honda project. This government-sponsored project is aimed at generating potable water for a series of cities, as well as irrigation for the farmers of the area. When completed, 10,000 hectares will be irrigated and water will be provided to 30,000 persons, mostly in the city of Manta, which is 40 kilometers from Portoviejo. This is a very large project calling for the construction of several dams, pipelines, water tanks, aqueducts, treatment plants, and other facilities. The government of the Federal Republic of Germany has provided a large credit line for equipment purchase and donated the required technical services.

While in Portoviejo, we also visited Mr. Jorge Lora who is the CENDES representative for this area. CENDES has the following projects for the area of Manabí:

1. Dairy Plant. Study is being made at present. Little or no pasteurized milk is available in this area and all must come from Guayaquil. Manabí has a very large cattle population and there is a large demand for milk; because of these factors, CENDES is doing a feasibility study for a dairy plant in the area of Portoviejo-Manabí.

2. Meat Processing Plant. This province is also the largest producer of hogs. A study is under way to determine the feasibility of a hog-meat processing plant in the area.

3. Yuca Starch. Another study is being done to determine if it is feasible to produce "yuca starch" in this area to be sold to the box manufacturers in Guayaquil that at present import this product.

4. Fruit Cannery. The fourth study being done by CENDES is more general in that it covers canning of pineapples, other tropical fruits, and tomato paste. This study has just been started by the CENDES Guayaquil office.

Taller Jorge Mena Cobena. This enterprise started several years ago as a motor mechanic shop. About two years ago, Mr. Mena Cobena built two small

lathes by himself and started turning small metal objects. He now employs three persons full time making simple aluminum cups, dishes, and small metal objects. They manufacture 2,400 cups and dishes per day. This is a very small back-room operation, but it appears to be slowly growing.

#### MANTA

INEPACA. This is the largest industry in Manta. It is a tuna fish processing plant owned by Van-Camp Sea Food, Inc. Mr. Donald L. Baldwin from the California plant met us and guided us through the installation. They employ about 250 persons and have been in operation 20 years in Manta. This large operation is totally financed by Van Camp, and all the necessary technology comes from the U.S. as needed. It was very interesting, but not the type of industries we have defined for this case history.

LORIGAN. Another fairly large industry, manufacturing cookies. They employ about 200 persons and have been in the area the last 15 years. The plant is very labor intensive, so it also is one of the largest employers in the area.

Compañía de Intercambio y Crédito. Coffee processor, a medium-size plant which was installed about 10 years ago and which now employs 50 persons. Although they have a processing plant, I gathered from the interview that coffee trading was the predominant activity.

Lonja Frigorífico de Manta. This is a very small government-funded fish processing plant with a staff of six, hiring additional men when needed. They work only "white fish" at the rate of about 60 tons per year. During the lobster season, they process lobster for the internal market only. They are now closed and will remain so for two more months while the freezer rooms are repaired. They plan to be back at work on or about October 1974.

Thursday, July 11, 1974

#### CUENCA

Industrial Park. Visited the park with Dr. Rómulo Neira Carrión, General Manager of Parque Industrial Cuenca. I am familiar with this project, as some time ago (perhaps six months), I visited the city and reviewed the project. The park is now under construction, so we visited the site. CENDES has participated strongly in this project, not only technically, but also financially. The construction is going on as scheduled and, at this time, they

have expanded from 17 hectares to a total of 65 hectares. The Nacional Financiera de Mexico has helped them greatly, both technically and financially.

All infrastructure will be ready by the end of this year. At present, 10 companies have signed with them to purchase land, build plants, and move in at the earliest possible date.

Centro de Reconversión Económica del Austro (CREA). Mr. Enrique Arizaga Toral is the president of CREA. He reviewed for us all the plans they have for the area and how they will be implemented. We all agreed that the industrial park will bring great activity to Cuenca and may be the start of some future industries. Mr. Arizaga then told us about the wristwatch plant that Bulova is setting up in Cuenca. They will be operating by the end of the year, according to the present schedule.

INDUTECNICA. This company manufactures small pressure boilers (up to 50 hp), water filters, water heaters, hydrotanks, autoclaves, and other similar products.

INDURAMA. The second company manufactures small ranges, both gas and kerosene, and also pots and pans and household locks.

Both companies were started about three years ago by the owner, Mr. Pablo Jaramillo, who is a graduate of the Polytechnical Institute in Quito. The original investment was \$/300,000, and the present worth of the two companies is well over \$/2 million. One of the interesting points is that Mr. Jaramillo and his "technical manager" designed and fabricated all the machine tools in the plant, among which are a metal cutter, hydraulic press, metal punch, cleaning and pickling vats, drill presses, lathes, metal bending, stamping and other equipment. They only purchased the electric motors as needed. The equipment looks very good and the plant operates very smoothly. They also designed all the products they manufacture. The range is the best-selling item of all their products.

Here is a case where the company owns all of the technology; there are no patents or royalties to be paid to the outside. At present, 50 persons are employed to produce 100 ranges per month. They are now getting ready to go into larger production and plan to manufacture 1,000 ranges per month within the next year. The small range (four burners, no oven or grill) retails for \$/1,600 plus \$/200 additional for a metal stand (optional). The total \$/1,800-package is about \$/800 less expensive than any comparable model on the market

today. The plant is a showplace. It is well kept, clean, with very good material flow and fine production techniques.

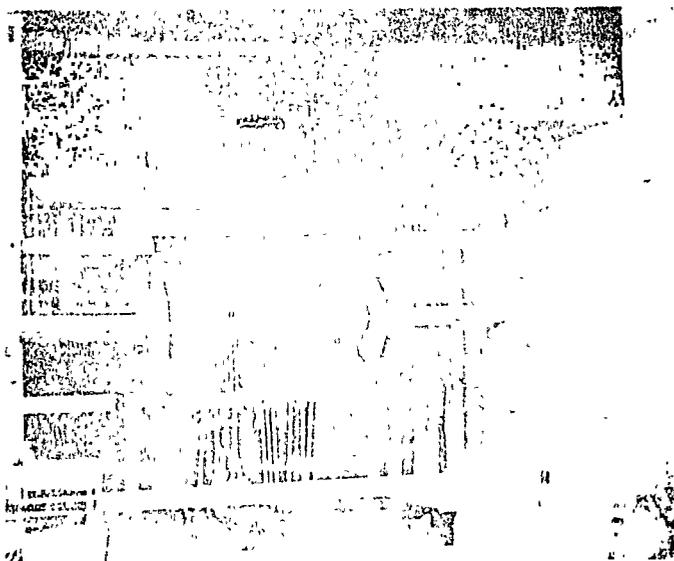
Cerámica Andina. Manufacturers of china and tiles. The company started in 1967 and today is the largest and best-known producer of china in Ecuador. They have about 200 employees and produce 350,000 units per month, all of which are sold nationally.

All the equipment was imported and the technology was provided by the financial source, Cerámicas Carabobo in Valencia, Venezuela. At present, they are undergoing a large expansion and plan to increase production to 800,000 units per month within the next year. Cerámicas Carabobo keeps several engineers at the plant, one of whom I knew back in Valencia when we had the project there. This, too, is a very well operated plant.

Wednesday, September 25, 1974

OTAVALO

Tejidos Lema. Small weaving shop with five persons employed. The company owns several hand looms and two old Blackburn machines built in 1923 by Henry Liveney. All raw material (yarn) is imported from Quito. They refused to give information on production or sales. Mr. Lema was not present and a lady (one of the workers) took care of us.



Picture No. 7 Foot-Operated Loom at Tejidos Lema

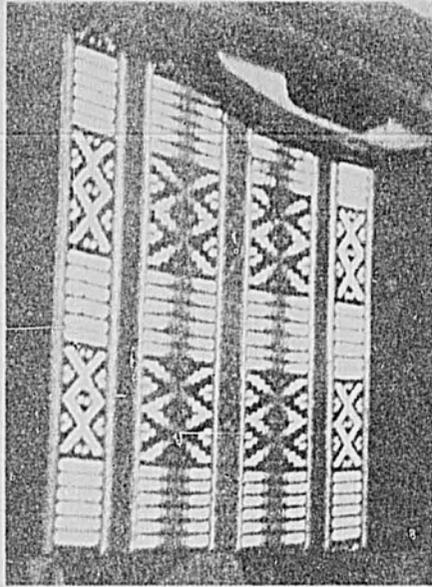
Tejidos Marlene. Very similar to "Lema," but much smaller operation. Three hand looms are available, but not all are in operation due to lack of weavers. Total employment is four persons. They produce about 30 meters of cloth, 60 centimeters wide, per week. Raw materials are brought in from Quito. The system is as follows: The weaver buys the yarn in Quito on credit; at the end of several weeks he brings his finished goods to the yarn salesman in Quito, who now purchases the finished goods, acting as a wholesaler. The cost of yarn is discounted and the weaver keeps the balance. The system is started again with a new yarn purchase. Obviously, the weaver totally depends on the yarn salesman for materials, credit, and sales of the finished product.

#### PERUCHI

Enrique Fichambe. This is a typical cottage industry, in the front room of a two-room adobe house, with a dirt floor. Mr. Fichambe has two hand looms made in Ecuador, date unknown. He works both looms and his wife helps him in some of the tasks. The production runs to about 15 meters per day, but this is a 12-hour day. The same system that has been explained is used by him for raw materials, etc. His biggest problem is lack of capital. He indicated that if he had some money he could be free of the system and could sell his products at better prices.

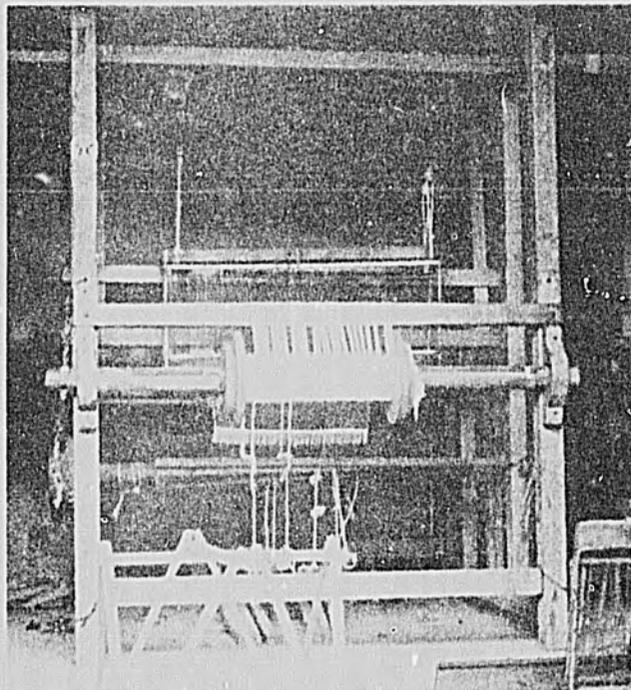


Picture No. 8 Mr. Fichambe Operating His Loom



Picture No. 9 Woven Material Made by Mr. Fichambe

Alonso Fichambe. Cottage industry. This gentleman is a brother of Enrique Fichambe. He has four hand looms, but no weavers except for his wife. Mr. Fichambe now is employed by "La Joya" industry as a weaver. Mrs. Fichambe indicated it was better for them (economically speaking) that Mr. Fichambe work as a weaver with the industry than for himself.



Picture No. 10 Loom at Mr. Fichambe's Home

Marcos Lema. Another cottage industry, with one weaver and two hand looms. It is practically a carbon copy of the first one visited (Enrique Fichambe). We could not visit with Mr. Lema because, according to his wife, he had been gone for several days on a big drunk. Mrs. Lema was not too happy at the time of our visit.

SAN ANTONIO DE IBARRA

Taller de Tallados y Esculturas Carlos Espinosa. A small woodworking shop (mostly carvings) owned and operated by Mr. Carlos Espinosa, assisted by five other persons. Each person will carve four to six figures (one model) and will do all the tasks from start to finish. There is no attempt to produce in steps and have each person do one given task. Only hand tools are used, and wood is sun dried and varies in color. Mr. Espinosa (master craftsman) has to make up new models whenever he feels they are needed. The wood carvers get an average of S/1,000 a month (S40.00). Mr. Espinosa claims that his profit comes from his direct sales to tourists visiting the area. He sells all his figurines in the store where he is located.



Picture No. 11 Inside of Mr. Espinosa's Artisan Shop



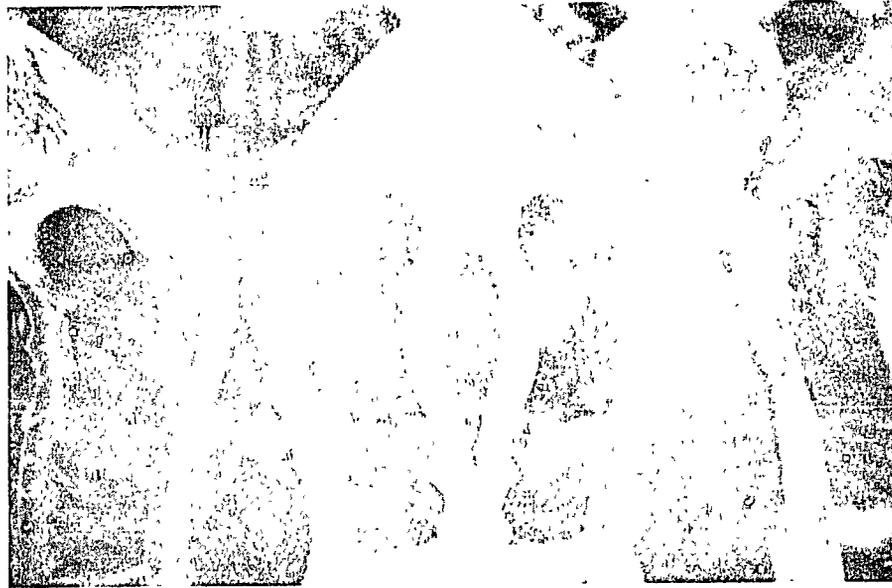
Picture No. 12 Hand-Carved Wood Figure Made by Mr. Espinosa

Taller Caspicara. This shop is located across the park from the other wood-carving shop. Mr. Caspicara has four employees who manufacture wooden figurines, fruits, small animals, and hand-carved frames. Production is sold directly in the store; none goes to other cities. The operation is limited by lack of working capital, undependable carvers, the high cost and poor quality of wood. The owner considers Mr. Espinosa as his competition. I suggested they unite into a larger operation, but Mr. Caspicara did not like my suggestion.

#### IBARRA

Fábrica de Muebles Ibarra. The owner, Mr. Pedro Herrera Nieto, manufactures furniture, bedroom and living room suites -- all hand carved with great detail. This small, well-kept plant has 10 employees who cut, assemble, and upholster the furniture. The cut pieces go out to several carvers who do their work at home; carved pieces are picked up once a week and new parts are delivered for carving. At first Mr. Herrera had the carvers at the plant, but he said this was a big problem as the carvers are undependable, will not adjust to work hours, and may not show up for days, etc. Now he has them on a piece rate, and they work at home when they want to. The average carver makes about S/100 a day, according to his piece rate, if he works, but many of them, according to Mr. Herrera, will work only when they are out of money.

The moment they get paid, they stop working. Mr. Herrera is considered one of the better manufacturers of Ecuador. He supplied the furniture for several rooms in the Presidential residence. At the time of our visit, he was finishing a beautiful bedroom suite for the President's wife. The wood used is mostly laurel and nogal, all of which he purchases kiln-dried and then processes into this very nice line of furniture.



Picture No. 13 Carved Chair Prior to Staining at Muebles Ibarra



Picture No. 14 Finished Chair at Muebles Ibarra

Secador de Madera Ibarra. A kiln-drying operation, located next door to the furniture manufacturing plant, and managed by the same Mr. Herrera. He does not own the company, but is a partner together with several other persons. They purchase raw timber and cut some to dimensional stock for building purposes. They also dry all the lumber that is needed for the furniture manufacturer. The firm employs about 20 persons. The kiln is used 100% of the time for the furniture plant. Both of these industries were assisted by CENDES when they started operations about six years ago.

Productos Lácteos Floralp. This small milk processing and cheese manufacturing plant has a capacity of about 6,000 liters of milk per day, but currently, operates with about 3,000 liters of milk per day due to a milk shortage. All the raw milk is going to Cayambe to the Nestle plant and local milk producers are not selling to Floralp. The total plant installation was valued at S/2.6 million when it started back in 1967. Owner Mr. Puchart started with a small operation about 16 years ago and later got a loan and set up the present plant. There are 10 employees, and Mr. Puchart is a working owner. The biggest problem is lack of raw material due to Nestle's contracts with producers.

#### COTOCACHI

Manufactura Albuja. This leather tooling shop employs three persons in the manufacture of leather hats, dice boxes, suitcases, and leather coats. The production orders of this very small operation run to two or three dozens of any given item. The average man in the shop makes about S/1,000 a month salary (about \$40.00). All the leather is brought in from Quito and the finished product is usually sold back to the leather wholesaler in Quito. The products I saw were of poor quality. Owner is Mr. J. Albuja.

J. Andrade Manufactura de Cuero. The shop is operated by a labor syndicate and they all share in the profit of the company. It is a small leather working operation with about seven persons employed at present. They manufacture leather suitcases, very poorly made by hand. There are three children (under 15 years of age) who do all the hand stitching on the suitcases, but the thread is of poor quality and there is no uniformity in the stitching. The major problems are lack of working capital and lack of credit. They would like to purchase a few sewing machines and other basic equipment. Leather is purchased in Quito and the finished product is sold back to the leather wholesaler.

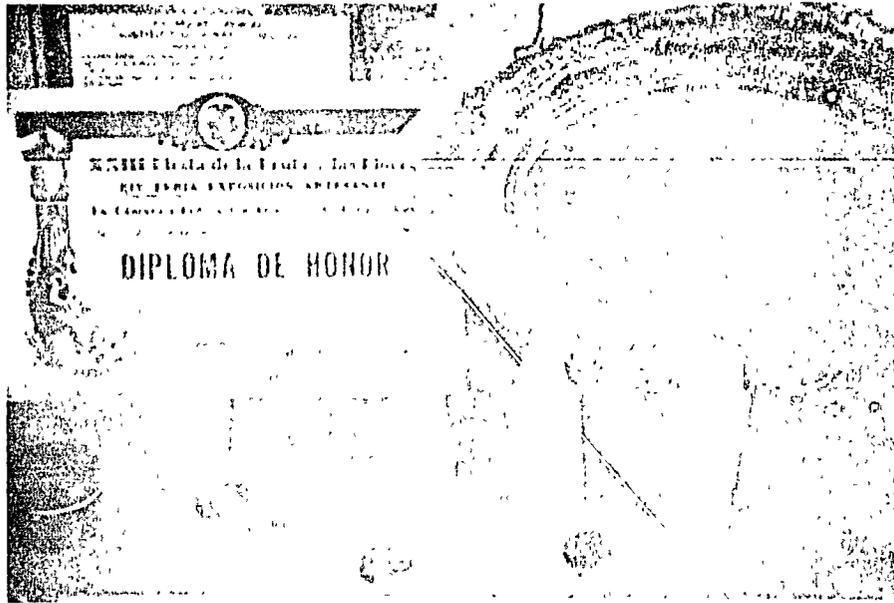
Friday, September 27, 1974

AMBATO

Plásticos Brothers. This is a very nice shop producing plastic parts. The business is owned and operated by two brothers, one of whom I met, Mr. Carlos Anibal Gamboa Robles, a young man under 30 who has an engineering degree from the Polytechnical Institute of Ecuador. They produce all types of bottle tops (threaded and non-threaded), hair curlers, triangles, parts for baby pacifiers, and other items. The company started two years ago after Mr. Gamboa went to Canada and studied with a die maker in that country. The two brothers took out a bank loan and set up the company. All equipment is new and well maintained. They manufacture their own dies, so they have a good machine shop. At present, three persons are employed besides the two owners. Their main product is a bottle top which they manufacture for "Conservas Blanche" (a producer of fruit preserves and jellies). Presently, they operate 12 hours per day, five days a week. The operation is tailored to their orders. As soon as they pay back their loan, they plan to purchase another plastic injecting machine.

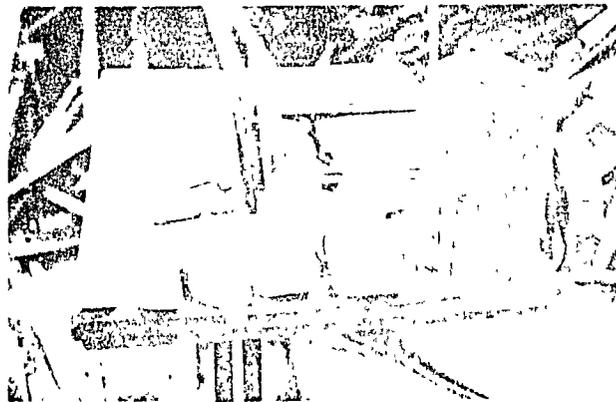


Picture No. 15 Mr. Gamboa Robles and His New Lathe



Picture No. 16 Some of the Products Made by Mr. Gamboa

Fábrica La Nacional. This is a manufacturer of wooden shoe forms (as used by shoemakers), wooden heels for shoes, and wood soles for ladies' shoes (platforms). The owner, Mr. A. Moya, is the uncle of the two brothers who own the plastic manufacturing company next door. Mr. Moya has been in business for the past 20 years. Wood is purchased in cut logs and pre-formed with a small circular saw. The pre-formed pieces are then carried to another company that has a "copying machine" to rough finish the shoe forms to size. These are then brought back to Mr. Moya's shop and finished, cut, and assembled with dowels and screws. Mr. Moya would like to borrow money to purchase his own "copying machine," but has not been able to obtain a loan. At present, six persons work with Mr. Moya in his operation.

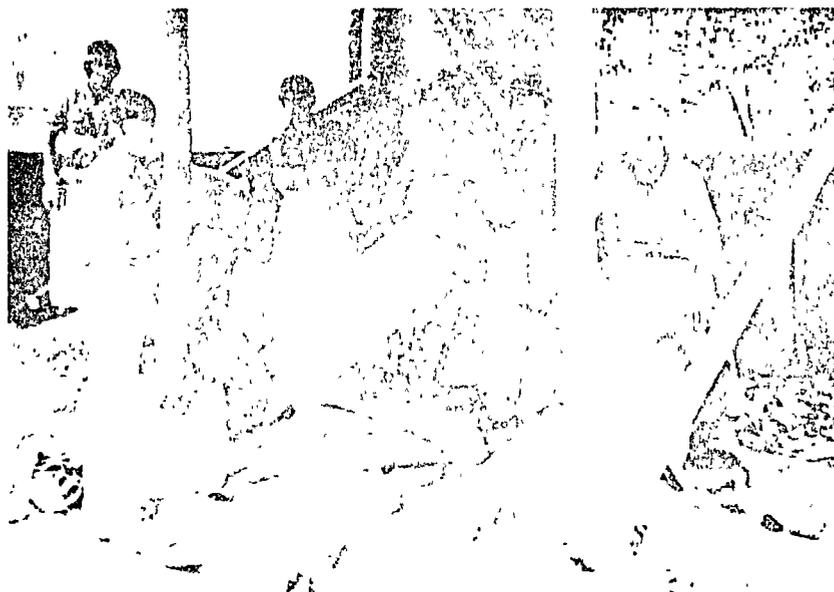


Picture No. 17 Different Stages of Wood Shoe Forms

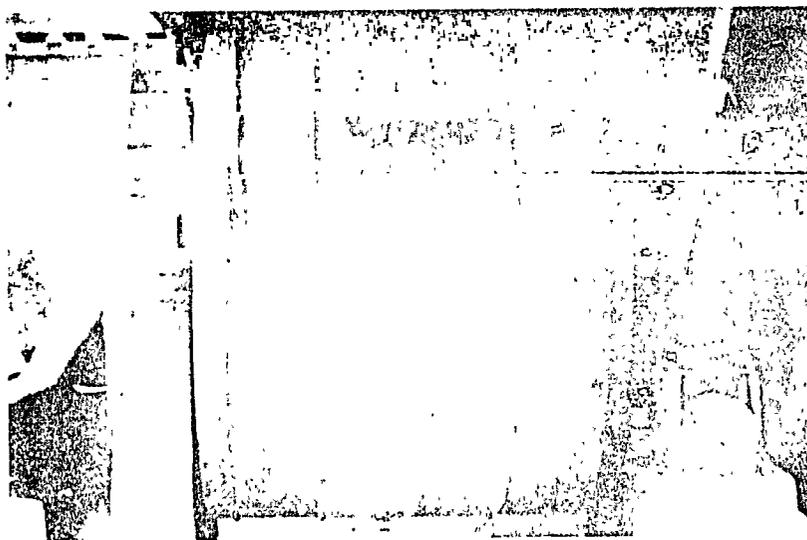


Picture No. 18 Plant Equipment at Fabrica Nacional

Curtiembre Ambato. A tannery owned by Dr. Jorge López Chico and operated by a group of tanners (14 persons). The individual tanner buys the green hides (average of 20), brings them to the shop, and helps process them, using the equipment available. He pays for the use of the equipment and pays a piece rate to the men that operate the equipment. He then sells the tanned hide or uses them if he is a craftsman. The plant has been working for eight years and seems to be doing well. The foreman indicated they need technical assistance on better techniques for tanning hides, products to be used, and processing.



Picture No. 19 Cleaning Green Hides



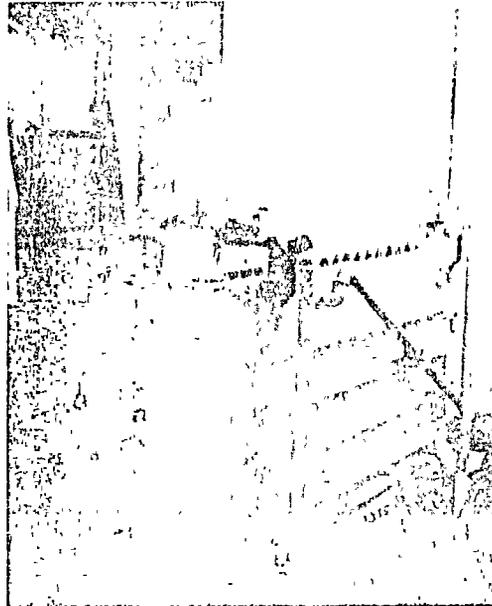
Picture No. 20 Tanning Vat at Curtiembre Ambato

Editorial Atenas. Printing shop owned and operated by Mr. Luis Sánchez Ramirez (also President of Small Industry Association of Tungurahua). The printing shop employs four persons. The equipment is fairly new and they have a very nice selection of types. Mr. Sánchez indicated that they are the largest print shop in Ambato and that he has been in business for nearly 20 years. Mr. Sánchez is thinking of expanding and moving to a new location, as his present location is very small.

Asociación de Pequeños Industriales de Tungurahua. The Small Industry Association of Tungurahua has 180 members out of about 220 small industries. Each member pays monthly dues of S/20, which is just about enough to support a small office in the city of Ambato. The President, Mr. Sánchez Ramirez, would like to build up a small library and information center, but this would require an increase in dues and he does not believe the members will accept it. They provide no services other than personal. If a manufacturer has a problem, a member of the board accompanies him to visit the proper authority to present his case. Monthly meetings are held, but few members come to the meetings (usually about 20 who have a sincere interest in the association).

Organización Industrial Bolívar Pacheco. This wax candle manufacturing establishment is owned and operated by Mr. Bolívar Pacheco. He has nine hand-operated candle-making machines and produces 30,000 pounds of candles per month. The paraffin is imported from China, melted, and poured in the forms.

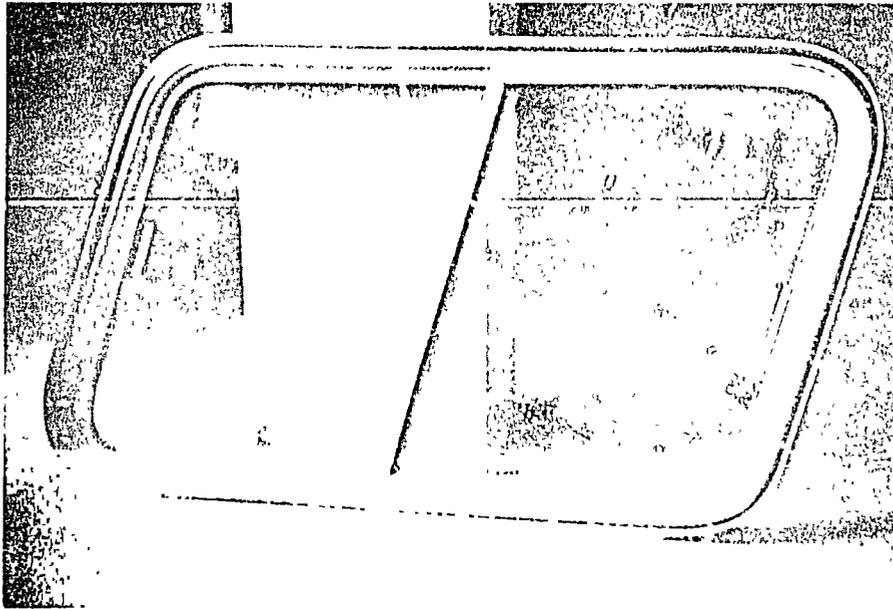
All the packing and wrapping is done by hand. The employees own 40% of the company, and Mr. Pacheco has the balance. All year-end profits are shared in that manner; however, for the last two years, profits have not been shared, but have been used in paying off mortgages on the equipment. There are 15 employees and Mr. Pacheco. All candles are for the internal market and are sold in Quito, Ambato, and other large cities.



Picture No. 21 Candle-Making Equipment at Mr. Pacheco's Enterprise

Salchichera Miraflores. The producer of sausages, salamis, and other meat products is a very small operation that has been in business for 30 years. It is unbelievably filthy -- the worst I have ever seen. The plant has a dirt floor, several dirty caldrons, and two wood tables that appear unwashed. I do not understand why the Sanitation Department has allowed this place to remain open.

PACASA. Aluminum window frame manufacturer, owned by Mr. A. Pacasa. The owner traveled to Argentina, Chile, Peru, and Colombia before he went into business. He saw different manufacturers of window frames and decided to start building these frames for buses. All the raw material is imported from Peru or Colombia, cut to size, bent and shaped, cleaned, anodized, and assembled. He employs nine persons and has been in operation two years. He is now moving into a new plant and plans to expand next year. The shop is small, but looks neat and well managed.



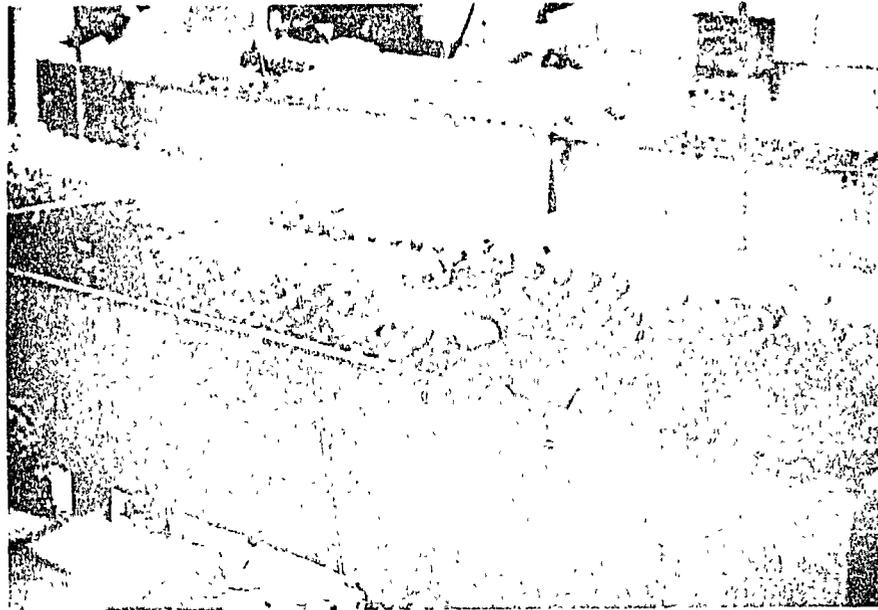
Picture No. 22 Bus Window Frame Made by PACASA

Producto Caucho Fénix. A rubber heel and sole manufacturing establishment owned and operated by Mr. Juan Gustavo Morales, employing four persons. This is a backyard operation, most of which is in the open. The product is sold in Quito, Guayaquil, Ambato, and Riobamba. Rubber is pressed to desired thickness, cut to shape in a hand press, placed in a form, heated under pressure, finally cut and packaged in dozens. A shoe manufacturer in Colombia wishes to contract with Mr. Morales for all of his production, but he is afraid he would not be able to fill the Colombian orders due to his low production.



Picture No. 23 Mold Used by Caucho Fénix

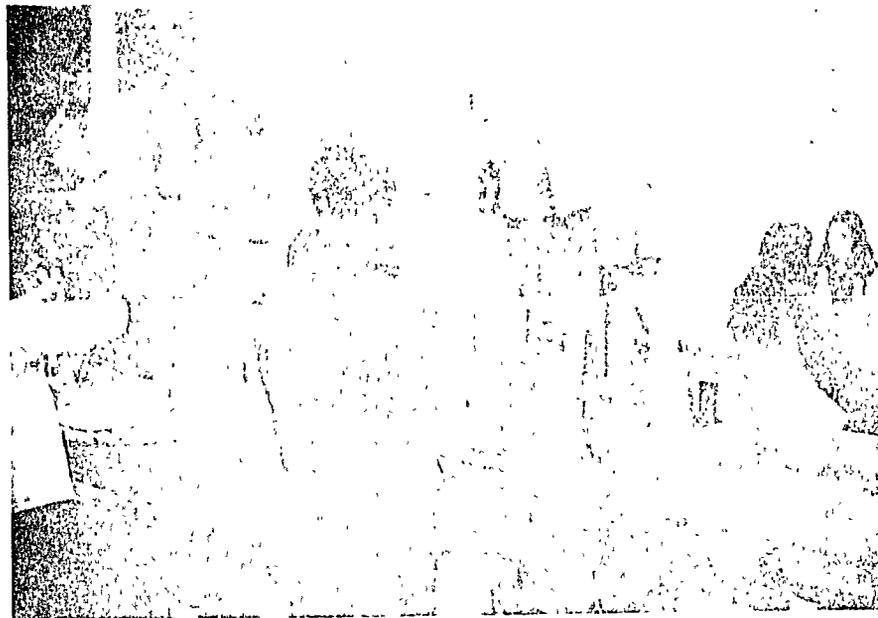
Industria Licorera Asociada. Manufacturer of "aguardiente," wine, and after-dinner drinks. The very nice plant is owned by the Santana family; all 10 members of the family work here and Mr. Segundo Santana (the father) is the general manager. The company started 25 years ago in the city of Puyo and moved to Ambato two years ago. Their products sell nationally, and the plant employs 25 persons. They have two big problems: 1) The price of glass bottles has gone up from S/39 a dozen to S/59 a dozen, and 2) flavors are imported from Switzerland and now the exporter is limiting his shipments due to other larger demands. Used bottles are purchased, hand-washed, filled (small six-spout filler), inspected, capped, hand-labeled, and packaged in used cartons. They plan to expand and go into the soft-drink field, producing their own brand of "cola" drink and several flavors such as orange, guayaba, and others. This is a very nice operation, well controlled and managed.



Picture No. 24 Bottle Washing at Licorera Asociada



Picture No. 25 Overview of Licorera Asociada Plant



Picture No. 26 Bottle Filling at Licorera Asociada

Monday, September 30, 1974

CUENCA

Andina de Alimentos. This is a small canning operation owned by five persons, with Mr. Juan Chaón as general manager. At present, they are working on a line of tomato juice, naranjillas, figs, and strawberries; in the next few months, they also plan to can petits pois, tomato paste, and catsup. The plant is only three months old and now employs 10 persons (nearly all females). Both figs and naranjillas are being exported to Olympic Company of New York. The first load of 500 cases of figs will be going out next week. They are having problems with cans from local manufacturers, as there are not enough cans when needed and they are also of poor quality. This firm would like to have technical assistance on processing, cooking time, and canning techniques. They plan to move to a larger location soon if funds are made available. This is a small operation that could use some technical assistance.

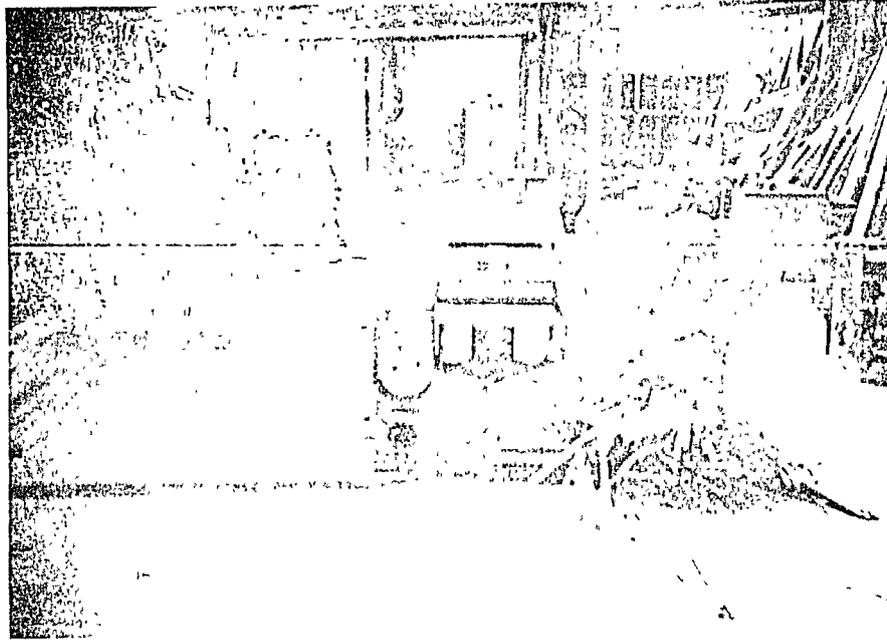


Picture No. 27 Canning Line at Andina de Alimentos

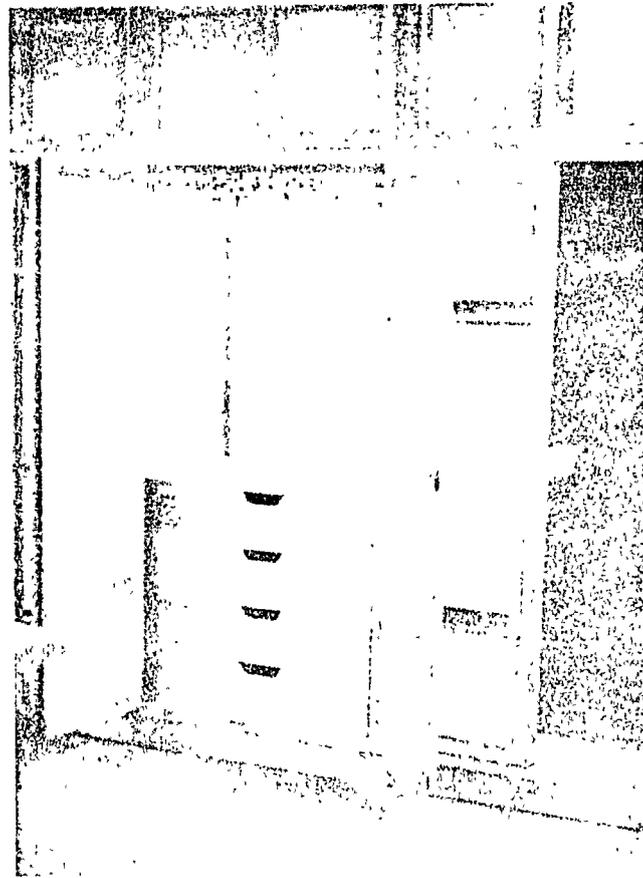


Picture No. 28 Preparation of Fruit Preserves at Andina de Alimentos

CODECO. This company manufactures wood doors, closets, and windows. The two partners, Mr. Raul Peña Carrasco and Enrique Fernandez de Córdova, have been in operation for the past five years. They not only manufacture the items to specifications, but also install them, employing 35 persons at present in a large plant area outside the city. Nearly all the equipment is "home-made" and not as good as equipment of standard manufacture. They wanted to purchase some equipment (\$/90,000) and applied for a Banco de Fomento loan; however, the bank wanted as security all of the plant, equipment, land, and personal property, which would have been well over \$/1 million, so they did not take the loan. They believe that, at present, little or nothing is being done to assist small industries or to provide funds or technical assistance. The owners indicated they have to turn down business due to lack of manufacturing facilities and cannot expand due to lack of good credit sources. One suggestion was to have the architects and government set up building standards for doors, windows, etc. If standards were in existence, they would drop manufacturing costs by going into standard production runs.

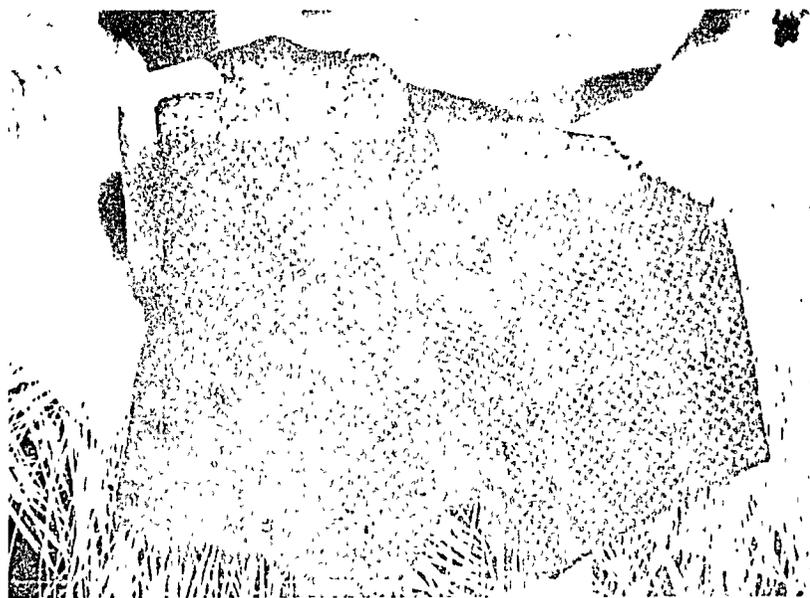


Picture No. 29 Production Line at CODECO



Picture No. 30 Finished Product at CODECO

Arturo Delgado. This person owns and operates a small "artesanía," manufacturing straw (toquilla) items such as hats, vests, sandals, and pocket-books. He has developed his own process for treating the "toquilla" so that the final product has a cloth look rather than straw. Mr. Delgado has been in this line of business for the past 20 years, and his son, a chemical engineer, has assisted him in developing the process. At present, three persons are employed by him. Mr. Delgado indicated that he has not been able to get any help from the government in developing from an "artesano" into a small industry. He would like to expand, but has no credit line and does not know how to go about getting loans. The few loans he has had have been personal, and he does not think he could assume a large loan for an expansion on the basis of personal credit. His finished product is very good and could be well accepted in the marketplace.



Picture No. 31 Toquilla Straw Vest Made by Mr. Delgado

ALUTEC. This is a small manufacturing company making aluminum windows and doors. Owners are Mr. Julio Lozano and his brother. They have been in operation for the past two years and have moved to this new location within the past 12 months. The plant employs about 20 persons, all trained by the owners at their own expense. They used to import all the raw materials, but in the past year they have purchased their own dyes and now have a company in Guayaquil making the profiles they need. There are several problem areas: getting raw material from Guayaquil as needed, not being able to import because orders are too small, lack of credit lines to expand operation,

lack of good machinery to produce precision work (most of the equipment is homemade), and need for long-term credit lines to allow them to build up the company.



Picture No. 32 Production Line at ALUtec

Talleres Doña Eulalia. This small government operation is managed by Mr. Agustin Valdivieso and owned by him, his wife, and his mother-in-law, Mrs. Eulalia. They do garments and some embroidery, but the latter is farmed out to local persons as cottage industry and on a piece rate. There are 14 workers at the plant, which is in a home in the city. They have been in operation since 1971 and started out as a cottage industry. They buy the cloth and cut to sizes, preassemble and farm out for the needle work. The embroidered pieces go to final assembly and to either retail sale or export. One of their problems is the poor quality of local textiles, both in the cotton (denim) line and in the wool line. Many of their export sales are returned because of faulty textiles. Another problem is lack of good qualified labor, as many girls make false claims as to their ability to sew or embroider. Nearly all the employees have been trained by them. The third large problem is lack of long-term credit lines, and the fourth is difficulty with present rules, laws, and regulations insofar as imports, exports, taxes, etc., are concerned. The firm would like to have technical assistance regarding cutting and standard sizes for the U.S.A. market.

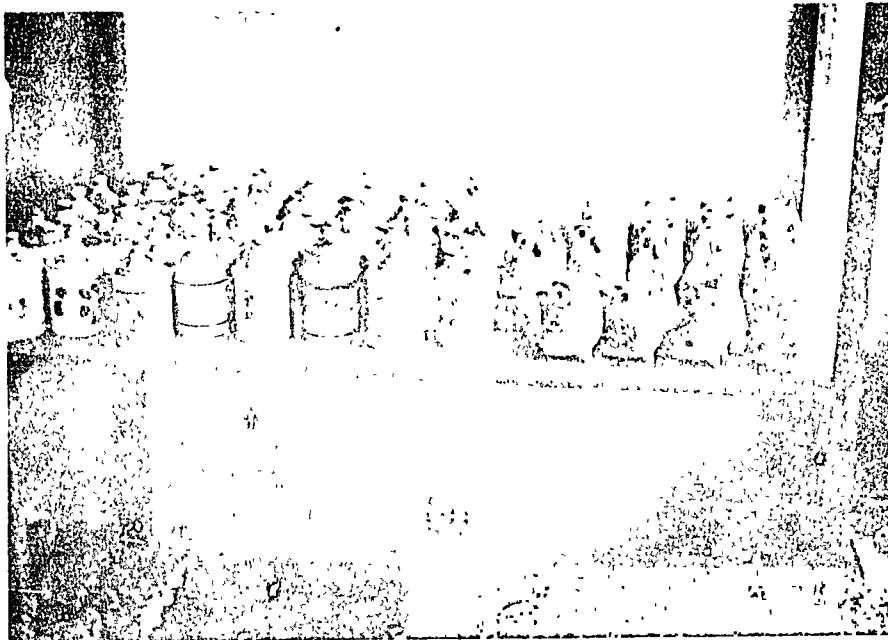


Picture No. 33 Sewing Operation at Talleres D. Eulalia

Yapacunchi Cía. Ltd. Two main products are made by this company: artistic furniture and ceramics. The company is owned and operated by Mr. Pablo Crespo Ventimilla and has been in operation for the past six years. In the furniture line, they used to manufacture furniture but had so much trouble with the "artesanos," labor laws, and other regulations that they sold the manufacturing equipment to the "artesanos" on credit, no interest, on the one condition that 90% of production be sold to Yapacunchi. They now purchase unfinished furniture and decorate, paint, etc., in their shop. The ceramic line is new; they have only been in it a few months. Nearly all the production is decorative and what could be called "handcraft." They employ about 20 persons in a small plant in the home of Mr. Crespo. Problems are in the areas of credit, import of raw materials (paints, varnish, etc.), and laws regulating small industries and artesanias.



Picture No. 34 Paper basket Made by Yapacunchi



Picture No. 35 Ceramics Manufactured by Yapacunchi

Fábrica Rocafuerte. This co-op manufactures cement floor tiles and is managed by one of the members, Mr. Miguel Ushka. Formerly, it was a small industry that went broke a few years back. The Seguro Social closed down the operation because the owners had not paid the Seguro Social for over five years. Once closed, the laborers got together, formed a co-op and requested that the plant be reopened under their administration. Later, they took out a loan from the Banco de Fomento and paid off the Seguro Social. They used to have 42 persons working here, but since 1971, when the co-op took over, they have been able to operate with 21 persons. They have several needs: 1) a new loan to purchase an industrial site and move from the present location, where they pay S/3,300 rent per month; 2) better sources for raw materials in the color line (pigments, etc.); 3) extension of the pay-back period on the loan presently outstanding with the Banco de Fomento; and 4) equipment upgrading, either through updating of present equipment or purchase of new equipment.



Picture No. 36 Production Line at Rocafuerte



Picture No. 37 Floor Tiles Made by Rocafuerte

Industrias Craft. This is a new company manufacturing jewelry and polish stones (semi-precious). It is owned and operated by Mr. Rodrigo Guerrero and currently employs four persons. Nearly all the raw materials (stones, etc.) are imported and finished in Cuenca. The stones are then set into rings, bracelets, earrings, and other items that are manufactured by Craft. The company is only two months old, but Mr. Guerrero was in this line of business in the U.S.A. in several locations in the Southwest. He would like to export, but does not have enough capital to risk on this idea. He would like to get a long-term loan to go into the export field.

Tuesday, October 1, 1974

GUAYAQUIL

Exportadora Cariban. This company produces canned seafood (black clams) and is owned by several persons, but managed by Mr. Carlos Peña. The management was not very open and did not wish to answer too many questions. It appears that they have been in operation several years (five or so) and that the normal plant staff is about 12 persons. A large part of the production is exported to the U.S.A. They have had problems with the quality of cans (local product) and, at times, with fermentation in the finished product. They would be interested in long-term loans, if available, and new canning techniques.

Batallón Suburbio. This is not an industry or artesanía per se, but it is an interesting activity in Guavaquil. The "ghetto" area called "Flotante" has been a constant source of problem to the city, so the local military unit started this program. Small military centers are established and, in them, vocational training is being offered, mostly to females in such skills as cutting, sewing, and needlework. After training, small manufacturing contracts are made available (many for military clothing), so that now they have evolved into small manufacturing units within this distressed area. We did not see Lt. Col. González Albear, who is in charge of the operation, but were shown around by an officer. We were told that about 1,000 persons have completed the training program and they now have 60 sewing machines in production work.

El Palacio del Sueño. This is a very small manufacturing operation which would probably be classified as cottage industry; it produces mattresses and pillows out of wood waste. At the time, the owner was not available and all we could do was look around. Four persons were working, and the end product would be considered of poor quality.

Friday, October 4, 1974

QUITO

Calzado El Mundo. This small shoe manufacturer, also retail sales, has been in operation for the past 20 years in a location in downtown Quito. The owner-operator, Mr. Luis Pacheco Reyes, is the designer, and he has five persons working in the manufacturing end. At present, ladies' shoes (rubber sole with canvas top, wood sole with canvas top or leather top) are being made. The average ladies' shoes sell for about S/250 (\$10.00) and they appear to be of the quality found in discount stores in the U.S.A. He indicated they could manufacture a dozen pairs per day, but, at times, this is not possible due to lack of raw materials, such as rubber soles or blue denim material. His employees average S/600 a week (US\$20.00), and he has them on an incentive program geared to production. The largest problem area, he indicated, is lack of coordination between present laws governing "artesanos" and small industry. Another is poor quality of rubber soles and canvas and lack of metal buckles, buttonholes, etc. About 50% of the raw materials needed are imported. The owner suggested the government do something about the existing laws governing small industry and handicrafts.

Asociación de Pequeños Industriales de Pichincha. This is a small-industry association for the Province of Pichincha, with a total membership of 400 companies out of about 1,200 in existence. The President, Mr. Luis Erazo López, indicated that they have been in existence since February 12, 1970. They have three goals at present: 1) credit line for small industry, 2) technical assistance for small industry, and 3) international contacts with other organizations.

Credit. They have been working with the government to help small industry through low-rate credit. Through Fondo Financiero (Banco Central), a S/64 million line of credit was established last February for small loans to small industry (maximum loan, S/150,000). All credit was absorbed in 120 days; then the Junta Monetaria established a new line of credit for a total of S/200 million with same purpose (maximum up to S/1 million, which was well received). The Banco de Fomento also has a S/3,000-million loan program of which S/700 million are being made available to small industry. The AID loan is not being used due to Decree 374 of April 1974, which forces all private banks to use 20% of capital (25% if non-Ecuadorean) to finance small-industry loans. If banks do not do this, they must then purchase Treasury Bonds (25 years at 7% interest). The bank can make a small-industry loan and rediscount 80% with Banco de Fomento. The bank makes 19% of their 20%, plus handling. They estimate 29% of the package. Due to this, small industry prefers this type loan because it has no limitations on origin of equipment, carrier, insurance, etc. The bottleneck on credit continues to be the loan guarantee. They can only borrow up to 60% of collateral and, at present, they want to have that increased to 75%.

Technical Assistance. They have presented seminars on topics such as bookkeeping, cost accounting, taxes, internal revenue, purchasing, and others. They plan to offer their first technical seminar next year. Topics are the following: production control, plant layout, quality control, and others.

International Relations. They plan to start that activity next year by sending a delegation to the Small Industry Conference in Mexico City. Mr. Erazo also owns and operates a small industry called Industrial Fanngalo Cía., Ltd., which I visited later in the day, but it was not operating at that time due to repairs to the equipment.

Banco de Fomento. The bank was created by the government to provide loans to small industries. They make individual loans up to S/500,000 and company loans up to S/1 million, both at 8% with seven to ten years for pay-back. At present, the rediscount line has S/200 million available for industrial development. The system is working very well and small industry is eager for the credit. A meeting was held with Econ. Carlos Fuseau Perez, who is Chief of the Department of Small Industries.

Cámara Artesanal de Pichincha. This group represents the "craftsmen" in the Province of Pichincha and has been in operation since October 1965. We met with Mr. Luis Bolívar Luna, Coordinator of the Cámara, and Mr. David Amores, President of the Construction Crafts. They have 11 crafts (groups): leather, textiles-garments, wood and furniture, graphic arts, construction, common metals, fine metals, beauty, stone-marble, car upholstery, and others. There are 3,000 members who pay an initiation fee of S/200 and no further fees. No services are provided at present. Their main activity is setting up exhibits at fairs in the area.

Servicio Ecuatoriano de Capacitación Profesional (SECAP). We met with Dr. Herminio Altuna, Sub-Dirección de Programas. This group is very similar to INCE in Venezuela and SENA in Colombia. They train about 6,000 persons per year in some 520 programs for a total of 32,000 hours of training. From the looks of the programs, they appear to be lengthy, i.e., basic electricity, 100 hours; welding, 285 hours; waiter, 90 hours; shop supervisor, 120 hours. There is a large variety of programs.

Appendix 4  
LISTING OF SMALL-SCALE INDUSTRIES TO BE CONSIDERED BY CENDES  
1973-1977

Centro de Desarrollo  
Industrial del Ecuador  
C E N D E S

(Agosto de 1974)

LISTA DE ACTIVIDADES DE LAS CATEGORIAS PRIMERA Y SEGUNDA PARA LAS  
ARTESANIAS Y PEQUEÑAS INDUSTRIAS

De acuerdo con lo dispuesto en el artículo 15 del Decreto Supremo número 1147, que reforma a la Ley de Fomento de la Artesanía y de la Pequeña Industria, publicado en el Registro Oficial número 288, de 16 de agosto de 1971, corresponde a la Junta Nacional de Planificación y Coordinación Económica elaborar las listas de las artesanías y de las pequeñas industrias para ser clasificadas en las categorías Primera y Segunda de la Ley vigente; y,

Una vez que el Directorio de la Junta Nacional de Planificación ha emitido dictamen favorable para la expedición de las mencionadas listas.

R E S U E L V E:

Artículo 1º.- Podrán recabar la Categoría "Primera" establecida en la Ley de Fomento de la Pequeña Industria y Artesanía, las empresas que, cinéndose a las bases que se determinan en la presente resolución se dedicaren a las siguientes actividades manufactureras:

1. Embutidos
2. Quesos y mantequillas
3. Frutas, carnes y legumbres enlatadas
4. Frutas deshidratadas
5. Purés, jaleas y mermeladas

6. Tripas naturales o artificiales para embutidos
7. Harina de sangre y huesos
8. Harina de Yuca
9. Productos dietéticos
10. Concentrados alimenticios para uso animal
11. Ponchos, chales, bufandas y tapices
12. Alfombras
13. Cordelería y artículos de fibras duras
14. Tejidos y confecciones con bordados a mano
15. Parquet
16. Tallas de madera
17. Bobinas y carretes de madera
18. Mangos de madera para herramientas
19. Muebles de madera tallados y de estilo
20. Silicato de Sodio
21. Insecticidas
22. Esencias naturales
23. Colorantes vegetales
24. Resinas y gomoresinas naturales
25. Productos de vidrio
26. Vidriería artística
27. Productos de cerámica
28. Cerámica artística
29. Vajilla cerámica
30. Calcomanías para cerámica
31. Cal de calidad uniforme para construcciones
32. Esmeriles y ruedas abrasivas
33. Lijas para madera y metal
34. Fundición de hierro y piezas moldeadas
35. Fundición de latón
36. Fundición no ferrosa
37. Herramientas en general
38. Tornillos de banco y similares

39. Cizallas y guillotinas
40. Instrumentos veterinarios
41. Aparatos de Ortopedia
42. Grifería
43. Moldes y matrices
44. Molinos manuales
45. Maquinaria agrícola, partes y piezas
46. Aparatos y equipos para la avicultura
47. Cultivadoras de arroz
48. Vibradoras para homogenizar y compactar materiales
49. Concreteras
50. Maquinaria industrial, partes y piezas
51. Máquinas herramientas con motor incorporado
52. Grúas, elevadores, motocargas y equipo similar
53. Bombas manuales
54. Implementos para seguridad industrial
55. Válvulas para fluidos
56. Reguladores
57. Soldadoras eléctricas
58. Transformadores
59. Hornos industriales y de laboratorio
60. Partes y piezas metálicas para artefactos eléctricos
61. Partes y piezas para motores
62. Engranajes
63. Partes y piezas metálicas para vehículos automotores
64. Instrumentos de medida y control

Artículo 2º.- Podrán recabar la categoría "Segunda" establecida en la Ley de Fomento de la Pequeña Industria y Artesanía, las empresas que, ciniéndose a las bases que se determinan en la presente resolución, se dedicaren a las siguientes actividades-manufactureras:

1. Empacadora de aves
2. Pasta y salsa de tomate

7. Aceite y mantequilla de maní
8. Harina de plátano
9. Almidones y dextrinas
10. Alimentos balanceados
11. Lavadora de lana
12. Calzado de cuero
13. Guantes de trabajo
14. Secado y tratado de madera
15. Tratamiento y preservación de madera
16. Estaquillas, mondadientes, bajalenguas
17. Briquetas de carbón
18. Curtiembre de pieles
19. Hilos de caucho vulcanizado
20. Reencauchaje de llantas
21. Artículos de caucho para uso técnico
22. Artículos de caucho para usos higiénicos
23. Concentrados de sabores
24. Espirales de Piretro
25. Recuperación de Aceites lubricantes
26. Uniones y accesorios para tuberías
27. Cuchillería
28. Armería
29. Garruchas, ruedas y similares
30. Herrajes, guarniciones, bisagras y picaportes
31. Hebillas, ganchos y similares
32. Resortes de espiral para usos técnicos
33. Cerrajería artística
34. Muebles metálicos para usos médicos y quirúrgicos
35. Instrumentos manuales para medida o control

36. Utensilios de acero inoxidable para cocina
37. Baterías de acero inoxidable para cocina
38. Baterías de hierro enlozado
39. Pulverizadores manuales para insecticidas
40. Cocinas a gasolina o a gas
41. Calentadores eléctricos o a gas
42. Tanques y otros recipientes para uso agrícola o industrial
43. Repujado de metales
44. Taller de galvanoplastia
45. Implementos para oficina
46. Extinguidores
47. Hornos y cocinas eléctricas
48. Wafleras, tostadoras, sartenes eléctricos y similares
49. Planchas eléctricas
50. Boquillas, tomacorrientes, interruptores y similares
51. Partes y piezas de caucho o plástico para artefactos eléctricos.
52. Remolques, semiremolques y tanques
53. Filtros de aceite para automotores
54. Radiadores
55. Silenciadores y tubos de escape
56. Orfebrería
57. Juguetes de metal y/o de madera
58. Monturas para lentes
59. Instrumentos musicales
60. Estuches para artículos e instrumentos técnicos.

Artículo 3°.- Las empresas manufactureras que se dedicaren a las actividades enumeradas en los artículos anteriores, para que puedan ser calificadas dentro de las categorías "Primera" y "Segunda", se sujetarán a las siguientes bases:

## BASES GENERALES

- a) Deberán estar financiadas con un capital propio no menor del 20 por ciento de las necesidades de inversión del proyecto.
- b) Los equipos a instalarse serán nuevos, salvo que el empresario solicitante se sujete a lo previsto en el párrafo segundo del numeral 8 del artículo 17, de la Ley vigente.
- c) Las materias primas que se utilicen en la producción serán nacionales. Podrán importarse las materias primas que se establecen en las bases particulares, mientras no se produzcan en el país.
- d) Las capacidades mínimas de procesamiento de las plantas deberán ser las que se señalan en las bases particulares y se referirán al producto terminado en 250 jornadas de trabajo al año, de 8 horas cada una.
- e) Para la clasificación se considerarán los precios de venta - propuestos por la empresa, los que se evaluarán en relación con el Valor CIF del similar importado, de modo que la nueva producción no signifique elevación de precios para el consumidor y tenga capacidad competitiva especialmente dentro del mercado regional y subregional.

## BASES PARTICULARES PARA LOS PROYECTOS DE CATEGORÍA "PRIMERA"

### 1. Embutidos

Capacidad mínima: 50 toneladas

Exoneraciones para la importación de especerías, preservantes y tripas artificiales.

2. Quesos y mantequillas  
Capacidad mínima: 100 toneladas  
Exoneraciones para la importación de cuajo, parafina y papeles especiales destinados al empaque.
3. Frutas, carnes y legumbres enlatadas  
Capacidad mínima: 100 toneladas  
Exoneraciones para la importación de productos químicos y especerías.
4. Frutas deshidratadas  
Capacidad mínima: 50 toneladas
5. Purés, jaleas y mermeladas  
Capacidad mínima: 100 toneladas  
Exoneraciones para la importación de productos de gelificación y preservantes
6. Tripas naturales o artificiales para embutidos  
Capacidad mínima: 10 toneladas  
Exoneraciones para la importación de celulosa y productos químicos.
7. Harina de sangre y huesos  
Capacidad mínima: 100 toneladas  
Exoneraciones para la importación de preservantes
8. Harina de Yuca  
Capacidad mínima: 500 toneladas
9. Productos dietéticos  
Capacidad mínima: 100 toneladas

Exoneraciones para la importación de vitaminas y minerales

10. Concentrados alimenticios para uso animal

Las empresas que se dediquen a esta actividad deberán proceder a la formulación y producción de concentrados alimenticios, no simplemente al envasado de premezclas.

Capacidad mínima: 10 toneladas

Las instalaciones deberán contar con los laboratorios de control y análisis adecuados que garanticen la calidad de las materias primas que utilicen y de los productos que elaboren.

Exoneraciones para la importación de vitaminas, minerales y antibióticos, siempre que no se produzcan en el país.

11. Ponchos, chales, bufandas y tapices

Capacidad mínima: indeterminada

Exoneraciones para la importación de tintes.

12. Alfombras

Esta actividad se refiere a las alfombras de fabricación artesanal. Excluye los tripes elaborados a máquina.

Capacidad mínima: indeterminada

Exoneraciones para la importación de tintes.

13. Cordelería y artículos de fibras duras

Capacidad mínima: 40 toneladas

Exoneraciones para la importación de tintes y preservantes.

14. Tejidos y confecciones con bordados a mano

Capacidad mínima: indeterminada

15. Parquet

Capacidad mínima: 12.500 metros cuadrados

Exoneraciones para la importación de pegas

16. Tallas de madera

Capacidad mínima: indeterminada

17. Bobinas y Carretes de madera

Capacidad mínima: 600.000 unidades

18. mangos de madera para herramientas

Capacidad mínima: indeterminada

Exoneraciones para la importación de lacas y barnices especiales.

19. Muebles de madera y de estilo

Capacidad mínima: indeterminada

Exoneraciones para la importación de colas, lacas y barnices especiales.

20. Silicato de Sodio

Capacidad mínima: 2.000 toneladas

Exoneraciones para la importación de carbonato de sodio

21. Insecticidas

Se incluyen en esta actividad la producción en líquido o en polvo de herbicidas, fungicidas, pesticidas, matamalezas, etc.

Capacidad mínima: 75 toneladas

Las plantas que se instalen deberán utilizar materias primas nacionales en una proporción no menor al 50 por ciento del valor total de las materias primas necesarias.

Exoneraciones para la importación de productos químicos básicos.

22. Esencias naturales  
Las empresas que se dediquen a esta actividad deberán producir esencias a base de materias primas nacionales.  
Capacidad mínima: 5 toneladas  
Exoneraciones para la importación de disolventes y productos químicos que no se produzcan en el país.
23. Colorantes vegetales  
Capacidad mínima: 5 toneladas  
Las empresas que se dediquen a esta actividad deberán producir colorantes vegetales a base de materias primas nacionales.  
Exoneraciones para la importación de disolventes.
24. Resinas y gomoresinas naturales  
Capacidad mínima: 5 toneladas  
Exoneraciones para la importación de productos químicos.
25. Productos de Vidrio  
Capacidad mínima: 50 toneladas  
Exoneraciones para la importación de carbonato de sodio, feldespatos y colorantes.
26. vidriería artística  
Capacidad mínima: Indeterminada  
Exoneraciones para la importación de carbonato de sodio, feldespatos y colorantes.
27. Productos de Cerámica  
Capacidad mínima: 50 toneladas  
Exoneraciones para la importación de fritas y esmaltes cerámicos

28. Cerámica artística  
Capacidad mínima: indeterminada  
Exoneraciones para la importación de fritas y esmaltes cerámicos.
29. Vajilla Cerámica  
Capacidad mínima: 3.000 docenas  
Exoneraciones para la importación de fritas y esmaltes cerámicos.
30. Calcomanías para Cerámica  
Capacidad mínima: indeterminada  
Exoneraciones para la importación de composiciones vitrificables.
31. Cal de calidad uniforme para construcciones  
Capacidad mínima: 1.000 toneladas
32. Esmeriles y ruedas abrasivas  
Capacidad mínima: 50 toneladas  
Exoneraciones para la importación de materiales abrasivos y resinas.
33. Lijas para madera y metal  
Capacidad mínima: 50 toneladas  
Exoneraciones para la importación de materiales abrasivos y resinas
34. Fundición de hierro y piezas moldeadas  
Capacidad mínima: 250 toneladas  
La materia prima deberá ser nacional, pudiéndose importar los faltantes en forma de chatarra o arrabio y los metales

necesarios para las aleaciones; estos últimos, que no excedan los porcentajes técnicos necesarios.

35. Fundición de latón

Capacidad mínima: 200 toneladas

Exoneraciones para la importación de lingotes de cobre y zinc

36. Fundición no ferrosa

Capacidad mínima: 120 toneladas

La materia prima a emplearse será chatarra que se adquiriera en el país. Exoneraciones para el raltante, que podrá importarse en lingotes.

37. Herramientas en general

Capacidad mínima: 15 toneladas

Exoneraciones para la importación de hierro o acero en láminas y perfiles

38. Tornillos de banco y similares

Capacidad mínima: 25 toneladas

Exoneraciones para la importación de barras metálicas

39. Cizallas y guillotinas

Capacidad mínima: 1.000 unidades

Exoneraciones para la importación de láminas y perfiles de hierro, aceros especiales y elementos químicos para tratamiento térmico.

40. Instrumentos veterinarios

Capacidad mínima: 15.000 unidades

Exoneraciones para la importación de láminas o filetes de -

acero.

41. Aparatos de ortopedia  
Capacidad mínima: indeterminada  
Exoneraciones para la importación de láminas y perfiles metálicos.
42. Grifería  
Capacidad mínima: 20 toneladas  
La materia prima a emplearse será chatarra que se adquiera en el país. Exoneraciones para el faltante, que podrá importarse en lingotes.
43. Moldes y matrices  
Capacidad mínima: 2 toneladas  
Exoneraciones para la importación de barras y láminas metálicas.
44. Molinos manuales  
Capacidad mínima: 2.500 unidades  
Exoneraciones para la importación de lingotes, barras y láminas metálicas.
45. Maquinaria agrícola, partes y piezas  
Capacidad mínima: 25 toneladas  
Exoneraciones para la importación de chapas y perfiles metálicos, rodamientos, cuchillas y demás herramientas para corte, sistemas eléctricos, aparatos de control y comprobación que se integren a la maquinaria.

46. Aparatos y equipos para la avicultura  
Incluye incubadoras, criaderos eléctricos y a gas para pollos, clasificadores de huevos y otros equipos similares. Excluye - jaulas de alambre, bebederos y comederos  
Capacidad mínima: 500 unidades  
Exoneraciones para la importación de planchas, perfiles y barras metálicas, elementos internos de precisión y control que no se produzcan en el país.
47. Cultivadores de Arroz  
Capacidad mínima: 500 unidades  
Exoneraciones para la importación de planchas y perfiles metálicos así como de rodamientos, cuchillas y más herramientas - para corte que se integren a la maquinaria.
48. Vibradoras para homogenizar y compactar materiales  
Capacidad mínima: 250 unidades  
Deberán contar con las instalaciones necesarias para corte, - estampado, maquinado y tratamiento térmico de los materiales - incorporados en el producto.  
Exoneraciones para la importación de láminas y barras de acero, rodamientos metálicos y mangueras de alta presión.
49. Concreteras  
Capacidad mínima: 250 toneladas  
Exoneraciones para la importación de barras, perfiles y planchas metálicas, rodamientos y aparatos de control que se integren a la maquinaria.
50. Maquinaria industrial, partes y piezas  
Capacidad mínima 25 toneladas

Exoneraciones para la importación de chapas y perfiles metálicos, rodamientos, cuchillas y mas herramientas para corte, sistemas eléctricos, aparatos de control y comprobación que se integren a la maquinaria.

51. Máquinas-herramientas con motor incorporado

Capacidad mínima: 10 toneladas

Exoneraciones para la importación de láminas y perfiles metálicos, rodamientos, motores, aparatos de control y herramientas de corte, mientras no se produzcan en el país.

52. Grúas, elevadores, montacargas y equipo similar

Capacidad mínima: 120 unidades

Exoneraciones para la importación de hierro en planchas y perfiles.

53. Bombas manuales

Capacidad mínima: 1.000 unidades

Exoneraciones para la importación de planchas y perfiles metálicos.

54. Implementos para seguridad industrial

Esta actividad se refiere a productos tales como: pantallas para protección facial, ocular, respiratoria, auditiva y similares.

Capacidad mínima: 10.000 unidades

Exoneraciones para la importación de láminas metálicas y fibras, resinas, vidrios y textiles especiales.

55. Válvulas para fluidos

Las empresas que se dediquen a esta actividad deberán fabri-

car válvulas para regulación, control o paso de fluidos líquidos o gaseosos.

Capacidad mínima: 20.000 unidades

Deberán contar con las instalaciones necesarias para el tratamiento térmico, corte, maquinado y control de calidad.

Exoneraciones para importar metales en barras o perfiles y elementos internos de precisión, mientras no exista producción nacional.

56. Reguladores

Las empresas que se dediquen a esta actividad deberán fabricar reguladores de paso de fluidos líquidos o gaseosos.

Capacidad mínima: 20.000 unidades

Deberán contar con las instalaciones necesarias para el tratamiento térmico, corte, maquinado y control de calidad.

Exoneraciones para la importación de metales en barras, o perfiles y elementos internos de precisión, mientras no exista producción nacional.

57. Soldadoras eléctricas

Capacidad mínima: 100 unidades

Exoneraciones para la importación de barras, perfiles y planchas metálicas, materiales aislantes y elementos de precisión y control.

58. Transformadores

Capacidad mínima: 250 unidades

Exoneraciones para la importación de planchas y perfiles metálicos, aceite para transformadores y materiales aislantes.

59. Hornos industriales y de laboratorio

Capacidad mínima: 250 unidades

Exoneraciones para la importación de planchas y perfiles metálicos, resistencias, vidrio térmico, materiales aislantes y elementos de precisión y control.

60. Partes y piezas metálicas para artefactos eléctricos

Capacidad mínima: 10 toneladas

Exoneraciones para la importación de planchas y perfiles metálicos.

61. Partes y piezas para motores

Capacidad mínima: 10.000 unidades

Deberán contar con instalaciones para realizar una transformación básica de la materia prima a través de procesos como fundición o maquinado.

Exoneraciones para la importación de barras, perfiles, láminas y alambres.

62. Engranajes

Capacidad mínima: 10 toneladas

Exoneraciones para la importación de perfiles metálicos.

63. Partes y piezas metálicas para vehículos automotores

Capacidad mínima: 50 toneladas

Exoneraciones para la importación de planchas, perfiles, tubos y alambres metálicos, que no se produzcan en el país.

64. Instrumentos de medida y control

Esta actividad se refiere a productos tales como: barómetros, manómetros, voltímetros, amperímetros.

Capacidad mínima: 1.000 unidades

Exoneraciones para la importación de perfiles, láminas y re

contes metálicos y resistencias eléctricas.

BASES PARTICULARES PARA LOS PROYECTOS DE CATEGORIA " SEGUNDA "

1. Empacadora de aves  
Capacidad mínima: 250 toneladas  
Exoneraciones para la importación de productos químicos
2. Pasta y salsa de tomate  
Capacidad mínima: 200 toneladas  
Exoneraciones para la importación de preservantes
3. Jugos de Frutas y legumbres  
Capacidad mínima: 250 toneladas  
Exoneraciones para la importación de preservantes.
4. Cebollas deshidratadas  
Capacidad mínima: 50 toneladas
5. Ajos deshidratados  
Capacidad mínima: 50 toneladas
6. Banano deshidratado  
Capacidad mínima: 250 toneladas
7. Aceite y mantequilla de maní  
Capacidad mínima: 100 toneladas  
Exoneración para la importación de papel especial de empaque
8. Harina de plátano  
Capacidad mínima: 100 toneladas

9. Almózarres y serrerías  
Capacidad mínima: 100 toneladas
10. Alimentos balanceados  
Capacidad mínima: 1.000 toneladas  
Exoneraciones para la importación de minerales, vitaminas y antibióticos
11. Lavadora de lana  
Capacidad mínima: 100 toneladas
12. Calzado de cuero  
Capacidad mínima: 12.500 pares  
Exoneraciones para la importación de pegamentos
13. Guantes de trabajo  
Capacidad mínima: 18.000 pares  
Exoneraciones para la importación de tela de asbesto y otros materiales que no se produzcan en el país, para guantes especiales.
14. Secado y tratado de madera  
Capacidad mínima: 500 metros cúbicos  
Exoneraciones para la importación de productos químicos para preservación.
15. Tratamiento y preservación de madera  
Capacidad mínima: 500 metros cúbicos  
Exoneraciones para la importación de productos químicos concentrados, para preservación.

16. Estaquillas, montadientes, bajalenguas  
Capacidad mínima: 20 toneladas
17. Briquetas de cartón  
Capacidad mínima: 3.000 toneladas
18. Curtiembre de pieles  
Capacidad mínima: 150.000 pies cuadrados  
Exoneraciones para la importación de productos químicos
19. Hilos de caucho vulcanizado  
Capacidad mínima: 30 toneladas  
Exoneraciones para la importación de aceleradores y más productos químicos.
20. Reencauchaje de llantas  
Capacidad mínima: 3.000 unidades
21. Artículos de caucho para uso técnico  
Capacidad mínima: 30 toneladas  
Exoneraciones para la importación de aceleradores y más productos químicos y caucho sintético en la proporción necesaria.
22. Artículos de caucho para usos higiénicos  
Capacidad mínima: 30 toneladas  
Exoneraciones para la importación de aceleradores y más productos químicos.
23. Concentrados de sabores

Capacidad mínima: 20 toneladas

Las empresas que se dediquen a esta actividad deberán formular y producir concentrados de sabores, mediante procesos de transformación básica que incluyan las fases de homogenización y secado al vacío; y no simplemente su dilución o mezcla.

Deberán contar con las instalaciones necesarias para la realización de los procesos mencionados, y con laboratorios de control y análisis suficientes que garanticen la calidad de las materias primas que utilicen, así como de los productos que elaboren.

Exoneraciones para las importaciones de aceites esenciales, colorantes y productos químicos básicos, mientras no exista producción nacional.

24. Espirales de piretro

Capacidad mínima: 13.000 pares

Exoneraciones para la importación de nitrato de potasio y colorantes.

25. Recuperación de aceites lubricantes

Capacidad mínima: 25.000 galones

Exoneraciones para la importación de aditivos y productos químicos, mientras no exista producción nacional.

26. Uniones y accesorios para tubería

Capacidad mínima: 50.000 unidades

Exoneraciones para la importación de barras, perfiles y planchas metálicas

27. Cuchillería

Capacidad mínima: 20.000 unidades

Exoneraciones para la importación de láminas metálicas y elementos químicos para tratamiento térmico.

28. Armería

Capacidad mínima: indeterminada

Exoneraciones para la importación de perfiles y tubos metálicos.

29. Sarruchas, ruedas y similares

Capacidad mínima: 10.000 unidades

Exoneraciones para la importación de láminas y barras metálicas y rodamientos.

30. Herrajes, guarniciones, bisagras y picaportes

Capacidad mínima: 30 toneladas

Exoneraciones para la importación de láminas y alambres metálicos.

31. Hebillas, ganchos y similares

Capacidad mínima: 5 toneladas

Exoneraciones para la importación de láminas y alambres metálicos.

32. Resortes de espiral para usos técnicos

Capacidad mínima: 10 toneladas

Exoneraciones para la importación de alambre de acero.

33. Cerrajería artística

Capacidad mínima: indeterminada

Exoneraciones para la importación de planchas metálicas

34. Muebles metálicos para usos médicos y quirúrgicos  
Capacidad mínima: 50 toneladas  
Exoneraciones para la importación de láminas, perfiles y tubos metálicos
35. Instrumentos manuales para medida o control  
Comprende instrumentos como: calibradores, niveles, metros, esquadras, reglas y similares  
Capacidad mínima: 20.000 unidades  
Exoneraciones para la importación de barras y láminas metálicas, aceros especiales, resinas sintéticas y elementos químicos para el tratamiento térmico.
36. Utensilios de acero inoxidable para cocina  
Se refiere a productos tales como abridores de lata, exprimidores, batidores, ralladores, afiladores de cuchillos, etc.  
Capacidad mínima: 50.000 unidades  
Exoneraciones para la importación de láminas, flejes y alambres metálicos.
37. Baterías de acero inoxidable para cocina  
Capacidad mínima: 25.000 unidades  
Exoneraciones para la importación de láminas de acero inoxidable y alambres.
38. Baterías de hierro enlozado  
Capacidad mínima: 25.000 unidades  
Exoneraciones para la importación de láminas metálicas y fritas para enlozado.
39. Pulverizadores manuales para insecticidas  
Capacidad mínima. 2.500 unidades

Exoneraciones para la importación de láminas metálicas

40. Cocinas a gasolina o a gas

Capacidad mínima: 3.000 unidades

Exoneraciones para la importación de láminas metálicas, gasificadores, fritas de vidrio para enlozado y vidrios refractarios.

41. Calentadores eléctricos o a gas

Capacidad mínima: 2.500 unidades

Exoneraciones para la importación de láminas y perfiles metálicos, válvulas y resistencias.

42. Tanques y otros recipientes para uso agrícola e industrial

Capacidad mínima: 25 toneladas

Exoneraciones para la importación de láminas metálicas

43. Repujado de metales

Capacidad mínima: indeterminada

Exoneraciones para la importación de planchas y perfiles de metales comunes.

44. Taller de galvanoplastia

Capacidad mínima: 6.250 metros cuadrados

Exoneraciones para la importación de productos químicos y metales empleados en galvanoplastia.

45. Implementos para oficina

Incluye, perforadoras, emgrapadoras, aguzadoras y similares.

Capacidad mínima: 25.000 unidades

Exoneraciones para la importación de láminas, alambres y per

files metálicos

46. Extintores

Capacidad mínima: 1.500 unidades

Exoneraciones para la importación de planchas y perfiles metálicos y válvulas.

47. Hornos y cocinas eléctricas

Capacidad mínima: 3.000 unidades

Exoneraciones para la importación de planchas metálicas, resistencias y termostatos, fritas de vidrio para enlozado y vidrios refractarios.

48. Wafleras, tostadoras, sartenes eléctricos y similares

Capacidad mínima: 5.000 unidades

Exoneraciones para la importación de planchas metálicas, resistencias y termostatos

49. Planchas eléctricas

Capacidad mínima: 3.000 unidades

Exoneraciones para la importación de láminas metálicas, mica, resistencias, e instrumentos de control de temperatura.

50. Boquillas, tomacorrientes, interruptores y similares

Capacidad mínima: 15 toneladas

Exoneraciones para la importación de láminas metálicas y resinas plásticas, mientras no se produzcan en el país.

51. Partes y piezas de caucho o plástico para artefactos eléctricos

Capacidad mínima: 15 toneladas

exoneraciones para la importación de caucho sintético o plástico y productos químicos.

52. Remolques, semiremolques y tanques

Capacidad mínima: 60 unidades

Exoneraciones para la importación de chapas y perfiles metálicos, agujas de enganche y tubos para ejes.

53. Filtros de aceite para automotores

Capacidad mínima: 12.500 unidades

Exoneraciones para la importación de láminas metálicas, material filtrante y empaques de caucho especial.

54. Radiadores

Capacidad mínima: 1.500 unidades

Exoneraciones para la importación de lingotes, barras, láminas y tubos metálicos.

55. Silenciadores y tubos de escape

Capacidad mínima: 15.000 unidades

Exoneraciones para la importación de láminas de hierro y acero.

56. Orfebrería

Capacidad mínima: indeterminada

57. Juquetes de metal y/o de madera

Capacidad mínima: 25 toneladas

Exoneraciones para la importación de láminas y resortes metálicos y motores adecuados que funcionen a base de pilas o similares.

58. Monturas para lentes

Capacidad mínima: 25.000 unidades

Exoneraciones para la importación de resinas plásticas y bisagras.

59. Instrumentos musicales

Capacidad mínima: indeterminada

Exoneraciones para la importación de madera, pegos, lacas y barnices especiales, para instrumentos de cuerda; de láminas y tensores metálicos, para instrumentos de percusión.

60. Estuches para artículos e instrumentos técnicos

Capacidad mínima: 5.000 unidades

Exoneraciones para la importación de bisagras, láminas, y resinas sintéticas.

Artículo 4º.- Las empresas de pequeña industria y artesanía que desarrollen nuevas actividades manufactureras y que no constando en las listas anteriores tuvieren mérito para ello, podrán solicitar al Comité Interministerial su inclusión y clasificación, las que se harán previo dictamen favorable de la Junta Nacional de Planificación.

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