

Pr. A-1514-350

Final Report

Gender and Ecuador's New Export Sectors
A Rapid Rural Appraisal Study

By:
Rae L. Blumberg

December 1992
Prepared for:
Office of Women in Development
Bureau of Research and Development
Agency for International Development
Contract No. PDC-0100-Z-00-9044-00

GENESYS

PA-ABN-350
PA 80936

**GENDER AND ECUADOR'S NEW EXPORT SECTORS:
a Rapid Rural Appraisal Study**

The GENESYS Project

December 1992

Rae Lesser Blumberg
University of California - San Diego

Submitted to:
Office of Women in Development
Bureau for Research and Development
and USAID/Ecuador
Agency for International Development
Contract No. PDC-0100-Z-00-9044-00

ACKNOWLEDGEMENTS

This research was conducted under the auspices of the GENESYS Project while the author was employed as a consultant to The Futures Group. It was initiated at the request of the Office of Program and Project Development, USAID/Ecuador, in the fall of 1991. The report has been edited by GENESYS. The views and interpretations expressed in this paper are those of the author and should not be attributed to the Agency for International Development. GENESYS welcomes any comments.

The GENESYS Project
The Futures Group
One Thomas Circle, 6th Floor
Washington, D.C. 20005
Phone: (202) 775-9680
Fax: (202) 775-9694

Office of Women in Development
Bureau for Research and Development
Agency for International Development
Washington, D.C. 20523-0041
Phone: (703) 875-4474
Fax: (703) 875-4633

GENESYS (Gender in Economic and Social Systems) is an A.I.D.-funded project supporting A.I.D.'s efforts to integrate women into the national economies of developing countries around the world. The project provides assistance to A.I.D. staff worldwide for reviewing, initiating, or expanding gender considerations in development activities for sustainable economic and social development. Project components include technical assistance, training, policy research and evaluation, and information dissemination and communications. The sectoral foci are private enterprise, democratization, agriculture and rural development, and environment/natural resource management.

TABLE OF CONTENTS

List of Acronyms

List of Figures and Tables

Executive Summary	i
1. Introduction	1
1.1 Purpose and methodology	1
1.2 Economic environment in Ecuador and A.I.D. assistance	1
1.3 Gender and other socioeconomic issues	2
1.4 Organization of the report	3
2. Findings from the Rapid Rural Appraisal (RRA)	4
2.1 RRA methodology	4
2.2 Overview of the research	4
2.3 Job creation costs in NTAE and industrial firms	7
2.4 Socioeconomic characteristics of the labor force	10
2.4.1 The NTAE Firms and Their Workers	10
2.4.2 The Industrial Sector Firms and Their Workers	24
2.4.3 What Have We Learned About the Workers? Some Patterns	30
2.5 Socioeconomic impact of women and men's income	32
2.6 Special issues in NTAE and <i>maquilas</i>	35
3. Comparisons with Central American Research Findings on NTAE	39
4. Gender-disaggregated Indicators for Trade and Investment	44
4.1 Indicators	44
4.2 Data availability	45
5. Recommendations to USAID/Ecuador	47
Endnotes	51

Annex A	List of Persons Interviewed
Annex B	Rapid Rural Appraisal Methodology
Annex C	Topic List - Managers
Annex D	Topic List - Workers
Annex E	Scope of Work

Bibliography

ACRONYMS

FEDEXPOR	Ecuadorian Exporters Federation
IPM	Integrated Pest Management
NTAE	Non-Traditional Agricultural Exports
PROEXANT	Promotion of Non-Traditional Agricultural Exports (trade organization funded by USAID/Ecuador)
RRA	Rapid Rural Appraisal
T&I	Trade and Investment

LIST OF FIGURES AND TABLES

Figure 1	Age Distribution of Workforce in Largest Flower Firm	14
Table 1	Distribution of Firms Observed, by Type and Location	6
Table 2	Female Employment in Firms Visited	8
Table 3	Average Job Cost by Subsector	9
Table 4	Flower Firm Employment by Gender	11
Table 5	Average Educational Level of Workers in Quito and Cuenca Flower Firms . . .	15
Table 6	Ratio of Women to Men Workers in NTAE Employment	39

EXECUTIVE SUMMARY

Introduction. The present research was carried out August 13-September 22, 1991. The purpose of the study was to provide gender-disaggregated baseline data and recommendations on incorporating "the gender variable" into two projects of USAID/Ecuador - an older one on non-traditional agricultural exports (NTAE) and a newer one on trade and investment (T&I). (The T&I project will not only focus on manufactured exports but eventually will also include the NTAE activities when that project ends.)

A second objective of the research was to provide some comparability with a larger 1991 study on Central America, "Impact of Participation in Non-Traditional Agricultural Export Production on the Employment, Income and Quality of Life of Women in Guatemala, Honduras and Costa Rica," by Amalia Alberti. Both studies had two research objectives in common: (1) illuminating the gender composition and socioeconomic/demographic characteristics of the workers in certain export subsectors, and (2) exploring the impact of that employment. Alberti used formal interviews with a non-random sample of workers and managers in selected NTAE crops in the three countries. She then weighted the results and interpreted them in terms of their proportional representation in the larger population.

Methodology. The methodology used in the present research was Rapid Rural Appraisal (RRA) (see Annex B). With one exception (export flowers), it had no macro-level data with which to compare the results. This is because gender-disaggregated employment data for most major economic subsectors do not exist in Ecuador. During the course of the RRA, data were collected from 293 people. A total of 115 key informants were interviewed (Annex A), including 33 women (29%) and 82 men (71%). The key informants provided data on 23 NTAE firms and 27 industrial exporting firms. In addition, group meetings were held with 178 workers, in groups ranging up to 20 but averaging around 5. In all, 121 women (68%) and 57 men (32%) participated in the focus groups.

The principal firms studied included 27 from the Sierra and 10 from the Coast. NTAE firms (N=23) included 5 Sierra export flower plantations, 12 fruit/vegetable processing firms (8=Sierra, 4=Coast), 3 large Sierra dairy haciendas cultivating broccoli on contract, and 3 Coast fish/shrimp processing companies. Industrial firms (N=14) included 5 cloth products *maquilas* (3=Sierra, 2=Coast), 3 ceramics firms (2=Sierra, 1=Coast), 4 Sierra leather clothing firms, 1 Sierra wood products enterprise and 1 Sierra metal products company. The subsectors were chosen at Mission request as candidates for T&I project aid.

Methodological differences aside, both the present research and Alberti's came to the same overall conclusion: the rapidly expanding workforce for non-traditional exports includes substantial proportions of women, and the net impact on workers in general, and women in particular, of the new export-oriented jobs is generally positive.

The Rapid Rural Appraisal Findings

Gender composition of the labor force. The proportion of women in each type of firm's workforce reflected the gender-based employment patterns in Ecuador: in general, Sierra firms had much higher proportions of women, who also were concentrated in more labor-intensive subsectors. Cloth products had the most women (almost exclusively so in the Sierra), followed by

Sierra fruit/vegetable processing and cultivating firms, and Coast fish/shrimp processing companies (all with around 75% women). On the other hand, there were no women in wood products.

There also were notable gender differences in firms arrayed by job creation costs. The most capital-intensive -- Coast fruit and vegetable processing -- cost over \$30,000 per job and had a 92.5% male labor force. The least, Sierra clothing *maquilas*, cost \$3,435 per job and employed 95% women. The only fairly capital-intensive subsector with a preponderance of women was export flowers (over \$14,000/job, over 60% female). [n.b. These figures, however, only apply to direct job creation; they do not reflect the (often considerable) indirect employment effects.]

The strong gender composition differences by subsector, location and capital-intensity indicate that the final proportion of women participating in the activities and benefits of the T&I project will depend on the precise mix of economic activities and sites chosen for aid. It behooves A.I.D. to choose carefully and consider both gender equity and efficiency criteria.

The generally favorable situation in flowers. The export flower subsector was chosen for the most intensive RRA effort because it was the only one for which macro-level quantitative data were available -- from Will Waters' 1991 study of all firms identified by the trade association. The RRA found that the labor force is over 60% female, in its early 20s, and enjoys above-minimum-wage base rates and full benefits. In the Checa-Quinche area north of Quito, a tight labor situation has been created by the explosive growth of the industry (it has expanded 27-fold from \$500,000 in 1985 to almost \$14 million in 1990). Wages and benefits have risen apace, while formerly stricter educational criteria for hiring workers have eased slightly. The reverse was true in the labor-surplus area south of Quito from Latacunga to Riobamba: fruit/vegetable processing plants were employing *bachilleres* at the minimum wage for jobs done by people with sixth grade education in the Quito area.

Pesticides: thorns in the garden. The only negative impact of the flower jobs was the pesticide exposure suffered by the cultivation workers. A study by a physician from the largest flower plantation showed that women were disproportionately likely to suffer a more than 30% drop in cholinesterase levels -- a concern for long-term kidney and liver damage. (27 of 312 workers directly exposed to pesticides experienced this sharp a drop - and 23 of the 27 were women.) Flower firms, especially the larger ones, have made some efforts to provide cultivation workers with protective clothing.

Pesticide use in other NTAE vegetable crops. In contrast, the Sierra firms growing vegetables (asparagus, broccoli) used a different type of labor force - the largely indigenous day labor pool - as cultivation workers. They treated them like day laborers, expecting them to provide many of their own tools and any protective clothing. Since there were no controls on pesticide exposure and virtually no one had any item of protective garb, pesticide exposure appeared to be drastically higher. One group of broccoli seedling cultivators told of 5-10 visits each to the doctor in the preceding 15 months, due to symptoms of pesticide exposure.

Other NTAE subsectors. In the Coastal area, the largely female labor force in fish/shrimp processing firms stands as an exception to the very masculine labor force of the area, and the still-prevalent ideology that "the woman is for the house." Even though the jobs were classified as temporary, paid straight time for overtime, and had almost no benefits, they provided work for women in an area that offered them few alternatives. In contrast to the Sierra workers

described above, the women working in fish/shrimp processing were more likely to be in their first job and single.

Reproductive vs. productive activities. Marriage and childcare, in fact, present special problems to NTAE processing workers of all types: flowers, fruits, and vegetables. This is because of frequent and unpredictable overtime. In the more conservative areas, consequently, few processing workers were married women living with their husbands. Further, there appeared to be some increase in age at marriage -- taking a husband could mean giving up a locally high pay check.

Industrial subsectors. In the industrial subsector firms, the most mature group of women (including many in their 30s) were found in the Sierra clothing *maquilas*. Over 80% of those who participated in the RRA group meetings were graduates of the three-year post-primary sewing (*corte y confección*) schools. Since employers preferred experienced workers, there was no push to lay them off if they (were) married or had a(nother) child. Because these *maquilas* pay wages well above those paid by the tiny informal sector workshops characterizing the clothing/textile industry in Ecuador, they can attract the best qualified workers.

Some additional patterns. In all the types of firms studied, women were more likely to be temporary employees (i.e., with no benefits). And in none of the firms were unions active. Another commonality was the low fertility rate for women workers under 40 years old. Focus group attendees with children typically had only 1-2 children.

Impact of income. Whether a person could save was related to marital/fertility status, to be sure, along with the fact that the minimum wage most of these firms paid is mandated nationwide, but the cost of living varies greatly by locality. Additionally, an interesting pattern emerged among NTAE workers who lived in households with even a little parcel of land -- investment in animals was reported as a form of "savings account on the hoof."

Virtually all the workers, minus a small proportion of single males (and one married woman getting a long-delayed university degree), contributed to the household purse. Females claimed to put in a higher proportion of income than males. Interestingly, 100% of single women living at home claimed that they gave any money contributed to the mother, not the father. She was expected to use it for family subsistence and welfare. Only the poorest gave more than half their earnings to their families, however. And all the workers interviewed had bought themselves some discretionary items, ranging from clothing and an occasional evening with friends to major purchases. In fact, the research revealed a previously unreported gender difference: the men tended to buy electronics equipment manufactured mainly in Asia, while the women were more likely to buy domestic goods ranging from glasses to blankets to armoires - which are more likely to be manufactured mainly in Ecuador (at least, prior to the cutting of tariffs for the Andean Pact). Therefore, the money earned by women may have a bigger domestic multiplier effect.

Additionally, women's earnings tend to be used on children's well-being if the women has children. Second, the women queried on this issue generally reported that the income they earned (especially if they had not previously earned wage income) increased their self-esteem, the respect of their families, and their input (*voz y voto*) into major household decisions, including control over fertility. Also, as far as could be ascertained, the women claimed that they controlled most of their income. No one -- female or male -- among the single workers living at home

claimed to turn over 100% to their families (mothers), and no married woman claimed that she turned over her earnings to her husband. All these results are in keeping with the worldwide literature on income under female vs. male control. In addition, in the Ecuador RRA, married women tended to claim that they "pooled" income with their husband, but also claimed that they bought food, apparently from retained income. These findings, although qualitative, offer additional support to the growing literature on the empowering and social welfare effects of income under female control.

Two special problems for A.I.D. attention. Two special problems encountered in the research were singled out for further mention. First is the issue of pesticide exposure, in which it is suggested that A.I.D. take a pro-active role. Second is the problem of exporters finding reliable U.S. export partners -- and the desirability of maintaining gender-disaggregated data on owners of exporting firms in Ecuador and importing firms in the U.S.

Alberti's Central American Findings

The proportion of women in NTAE employment in Honduras, Guatemala, and Costa Rica lagged behind the proportions in the Sierra, but far exceeded the proportions in the extremely capital-intensive firms of the Coast. Unlike the Sierra RRA data -- which found more women workers in fruit/vegetable processing, and even cultivation, than in flowers -- Alberti found flowers/ornamental plants the most feminized product in Central America. The 61% female labor force identified by Alberti compares to the 62% female labor force found by William Waters in his 1991 study of Ecuadorian flower firms. In Central America, all flowers and plants were grown in greenhouses, whereas some were grown outdoors in Ecuador. But, as in Ecuador, greenhouse flower cultivators were not treated like an agricultural labor force, and were recruited from a different stratum.

Unlike the situation in Ecuador, however, the women Alberti studied were more likely not to have worked before, or to pursue other employment options if they lost their NTAE jobs (two-thirds would have had to undertake domestic work or become housewives). Ecuadorian Sierra women were a more experienced, committed labor force (with a generally longer tradition of paid labor).

Another difference is that Central American NTAE women were much less likely to be able to advance to supervisory or technical jobs than their Ecuadorian Sierra counterparts in flowers and fruits and vegetables (and even Coastal women working in fish/shrimp processing companies).

Finally, in Central America, there was an educational gap between the women workers and their male counterparts, whereas no such gap emerged in Ecuador. This is in keeping with the fact that education at the first two levels in Ecuador is more or less at gender parity. Finally, all workers studied by both Alberti and the RRA were found to benefit from the NTAE jobs' most clear-cut benefit: a decent or better income by local standards.

Gender-disaggregated Macro-level Indicators: an Urgent Need

The RRA also clarified the types of indicators needed for gender-sensitive monitoring and evaluation of the Mission's T&I and NTAE projects, as well as its Strategic Objectives. Three

types of indicators suggested include:

- **socioeconomic and demographic background variables disaggregated by gender** (e.g., age, education, marital/fertility status, rural/urban, ethnicity);
- **gender-disaggregated job composition variables** (e.g., occupation, skill-supervisory level, employment permanence); and
- **division of resources variables disaggregated by gender** (e.g., amount of income, nature/amount of other resources, female income/resources as proportion of male, benefits received).

Desirable types of data for future labor force studies include gender differences in the patterns of income contributed to the household, and the effects of that income on expenditures and worker's household *voz y voto*.

But these are not enough: something must be done about the fact that there are no macro-level quantitative data on subsectors disaggregated by gender in Ecuador. Each of the existing sources for some of these data are either too limited in scope or do not disaggregate anything by gender. Accordingly, recommendations to fill this gap were proposed (described below).

Recommendations

1. Final decisions on targets for T&I Project assistance should take into account the gender division of labor, including the proportion of women workers expected in each subsector/location.
2. Monitor the labor force composition in T&I subsectors with the most favorable wages and benefits (e.g., export flower plantations in the Checa-Quinche area) to watch for signs of a masculinization of the workforce -- a trend that has been identified in some subsectors in Mexico.
3. Support the creation of gender-disaggregated, quantitative data on key industrial/NTAE subsectors.
4. Consider the use of a Rapid Rural Appraisal methodology where there are no baseline data to provide orientation for the gender-disaggregated indicators needed for project and Strategic Objective monitoring and evaluation.
5. Support the incorporation of gender as a variable in the INEC industrial survey questionnaire and subsequent analysis.
6. Integrate the RRA findings with the upcoming GENESYS study.
7. Choose subsectors for T&I Project assistance that not only employ substantial numbers of women but also are less environmentally damaging, in order to best serve A.I.D.'s -- and Ecuador's -- interests.

8. Take a strong leadership role in promoting better pesticide management practices, including training and the provision of protective clothing in NTAE firms, starting with the larger ones.
9. Facilitate Ecuadorian exporters' quest to locate reliable U.S. purchasers of their products by helping to identify both female and male-owned U.S. companies which are suitable.

1. Introduction

1.1 Purpose and methodology

The research in this paper was carried out in the summer of 1991 in order to provide gender-disaggregated baseline data and recommendations on incorporating "the gender variable" into two projects of USAID/Ecuador - an older one on non-traditional agricultural exports (NTAE) and a newer one on trade and investment (T&I). (This latter project will not only focus on manufactured exports but eventually will also fold in the NTAE activities when that project ends.)

A second objective of the research was to provide some comparability with a larger study on Central America, "Impact of Participation in Non-Traditional Agricultural Export Production on the Employment, Income and Quality of Life of Women in Guatemala, Honduras and Costa Rica" (Alberti 1991). Both studies had two research objectives in common: (1) illuminating the gender composition and socioeconomic/demographic characteristics of the workers in certain export subsectors, and (2) exploring the impact of that employment. The Alberti study involved formal interviews with a non-random sample of workers and managers in selected NTAE crops in the three countries; it then used a technique of weighting the results obtained and interpreting them in terms of their proportional representation in the larger population (Alberti 1991:4).

In contrast with the Alberti study, the present research used a rapid appraisal methodology (described below), and, with one exception (export flowers), had no macro-level data with which to compare or weight the results. This is because gender-disaggregated employment data for most major economic subsectors do not exist in Ecuador. Methodological differences aside, however, both the present research and Alberti's came to the same overall conclusion: the rapidly expanding workforce for non-traditional exports includes substantial proportions of women, and the net impact on workers in general, and women in particular, of the new export-oriented jobs is generally positive.

1.2 Economic environment in Ecuador and A.I.D. assistance

Ecuador is faced with diminishing oil reserves and the vicissitudes of a volatile world market for such traditional agricultural exports as bananas, coffee and cocoa. It has attempted to move into non-traditional export sectors, with shrimp and fish accounting for the highest earnings. But even though total earnings remain small, two additional new export sectors offer exciting promise: (1) non-traditional agricultural exports (NTAE), including flowers, and processed fruits and vegetables, and (2) new industrial exports, including those generated by *maquila* firms created under the 1990 *Ley de maquila*. Challenged by the looming free trade zone of the Andean Pact and grappling with a stubborn recession, the government is engaged in structural adjustment and policy reform. Among other relevant actions, it has attempted to lower tariffs and modify the very generous but oft-flouted labor code.

USAID/Ecuador is attempting to support this recent thrust into non-traditional export sectors with the new Trade and Investment (T&I) Project, which will continue to work with NTAE activities while supporting selected industrial subsectors for the first time, including the fledgling *maquilas*. The T&I project is a six-year, \$10 million initiative aimed at supporting

Ecuador's evolution toward greater reliance on export-oriented growth. The project goal is to support the achievement of broad-based, sustainable economic development. The project purpose is to provide quality export and investment services and support the institutional development of a viable Ecuadorian trade and investment organization. As originally formulated, one of the End of Project Status outputs was to have: "7000 workers (65% women) newly employed or productively reemployed in firms receiving T&I project support" (Project Paper 1991:18-19). The final mix of economic subsectors chosen for assistance, however, could drastically affect both the number and the gender composition of the jobs generated by the project.

1.3 Gender and other socioeconomic Issues

Development is ultimately about growth in people's well-being, over and above growth in GNP or export earnings. Toward that end, the gender, ethnic, educational, marital/fertility and other characteristics of people who stand to gain or lose from a given development initiative need to be investigated. Ethically, development efforts must be held to the same standard as the Hippocratic Oath: first, do no harm. Naturally, a more positive yardstick is aimed at.

For one group, women, the consequences of their being helped vs. hurt by development efforts have been the subject of considerable research. Specifically, a direct relationship has been found between the success of development projects encompassing sectors where women are traditionally active, and women's participation in the activities and benefits of those projects. In fact, the principal finding of A.I.D.'s largest research project on women in development is that:

mainstream projects that ensure women's participation in proportion to their roles and responsibilities within the project's baseline situation are more likely to achieve their immediate purposes and their broader socioeconomic goals than are projects that do not (Carloni 1987:xiv).

Alternatively, projects that inadvertently undercut women's resource base while depending on their labor not only harmed the women and their families, but also often fell short or failed (see literature review in Blumberg 1989a).

With the T&I Project still in its early phases, the timing is right for a baseline study that illuminates both gender and socioeconomic factors. For example, to what extent is the project likely to involve women, or, more specifically, create employment? With respect to gender analysis, one very significant fact is the high proportion of female employment most NTAE and *maquila* activities are expected to entail. But the proportion of women actually reached by the project would be greatly affected by the specific subsectors chosen for T&I assistance: gender segregation of the labor force by economic subsector is quite high in Ecuador, and those being considered for inclusion vary greatly in their proportion of women workers. Clothing manufacture, for example, involves a predominantly female work force; wood products or most metal industries hire almost exclusively male labor. Similarly, numerous studies show that more women are employed in the Sierra than in the Coast (see Blumberg and Colyer 1990 for references). Therefore, *ceteris paribus*, including a subsector such as clothing and focusing on Sierra enterprises would incorporate a vastly higher number and proportion of women than, say, concentrating on wood products and Coastal firms.

With respect to socioeconomic impact, the NTAE and industrial subsectors that are

candidates for inclusion in the project vary greatly in both labor intensity and the average cost of creating each job (from \$3,435 in Sierra clothing *maquilas* to \$30,192 in Coast fruit and vegetable processing, per the sample data in Table 3 below). Moreover, within the same subsector, firms tend to be more labor intensive in the Coast than in the Sierra. Accordingly, the final mix of subsectors and locations targeted for aid will influence the extent to which the project creates jobs as well as export earnings.

More broadly, in order to gauge the human impact of the T&I project, a variety of socioeconomic and gender questions must be asked of the new, nontraditional export sectors, such as: how many jobs for whom, under what conditions and earnings, and with what impact on the worker and his/her household?

1.4 Organization of the report

The remainder of the paper is divided into four sections. Section 2 presents the findings of the field work. These are compared with Alberti's 1991 results for Central America in Section 3. In Section 4, gender-disaggregated indicators are proposed and data availability -- and lack thereof -- is discussed. The last section makes recommendations to USAID/Ecuador based on the research.

2. Findings from the Rapid Rural Appraisal Research

2.1 Rapid Rural Appraisal methodology

Annex B gives a brief description of the methodology, which involves a "triangulation" approach to assuring validity: at least two sources of data -- preferably using different techniques (e.g., group meetings, secondary analysis of existing data, key informant interviews) -- are obtained for each key variable. Usually, six weeks or less in the field are required, since the research agenda is tightly focused and the researchers are typically experienced. In this case, field work covered five-and-a-half weeks.

2.2 Overview of the research

The research undertaken by the author from August 13-September 22, 1991 encompassed all the steps described in Annex B. Data were gathered in both the Sierra (Quito, the Checa-Quinche-Tabacundo area, Latacunga, Ambato, Cotacachi, Cuenca) and the Coast (Manta, Montecristi, Portoviejo, Guayaquil, Babahoyo). At Mission request, data were collected on the following subsectors: (1) NTAEs: (a) flowers, (b) fruits and vegetables, and (c) shrimp and fish, and (2) industrial subsectors: (a) as many as feasible of the eight *maquilas* already certified under the 1990 law, five of which produce clothing/textile products, (b) leather clothing, (c) ceramics, (d) wood products, and (e) metal products.

For both substantive and time reasons, only one firm each was studied in industrial subsectors (d) and (e). One important reason for this is that both wood and metal products are known to have few women workers, and the research's primary funding was "women in development" monies from the GENESYS contract. Another reason is that both subsectors offer serious drawbacks to inclusion in the T&I project. It is feared that promoting wood exports could accelerate the rate of deforestation, already believed to be the highest in Latin America; the fear concerning metal products is that, with the exception of a few isolated factories manufacturing specialty products (e.g., the local firm producing Black and Decker Kwikset locks), Ecuadorian metal-working industries would have dubious comparative advantage once the Andean Pact free trade provisions were implemented.

During the course of the RRA, data were collected from 293 people. A total of 115 key informants were interviewed, almost all individually (Annex A). Of these, 33 were women (29%) and 82 were men (71%).

In keeping with RRA methodology, both inside and outside angles of vision were explored in the key informant interviews. "Outsiders" included experts in various Ecuadorian ministries, research organizations and USAID. The "insiders" interviewed for the NTAE sector represented 23 firms; those interviewed for the industrial component provided data on 27 companies. Those who worked as executives of one of the selected firms were interviewed with a special topic list for managers (see Annex C).

Also, group meetings were held with 178 workers, in groups of up to 20 but averaging around 5. Three of these workers also were interviewed individually. In all, 121 women (68%) and 57 men (32%) participated in these meetings/interviews. They worked for 21 NTAE firms

and 11 of the industrial subsector firms. These interviews used a special topic list for workers (see Annex D).

There is an important caveat concerning the composition of the group meetings. Although only three group meetings included a management observer during part or all of the session, the selection of the group meeting participants was far from random. On a half-dozen occasions, one or more supervisors were included in the group, despite a suggestion to the contrary. In an unknown number of other instances, one of the participants might have been closely identified with management even though he/she held a non-supervisory position. In one processing firm, the executive who arranged the group meeting chose, with one exception, workers with the most years of experience with the firm. Conversely, in another processing firm on a busy day, a group was hastily formed of those who could most easily be spared, mostly young recent hires.

In only one group meeting (of broccoli cultivators, observed disapprovingly by their hacienda foreman), however, was it clear that workers were intimidated to speak out about sensitive issues such as working conditions, benefits and/or wages. Group meetings were overwhelmingly open and frank, to the point that it was possible to get information on the prevalence of contraception among fellow workers from mixed-sex groups.

All in all, these data appear to be unbiased, in the sense that similar views were aired in the group meetings, regardless of how the members of the focus group were chosen. (In only one case, in a broccoli processing plant with a large production line and work groups of about 20, was there actually random selection of focus group members: one of the work groups was chosen randomly.) Since only in flowers is there a subsector-wide quantitative study with which to compare the results, it is heartening that the RRA findings and the larger study of export flowers correspond so well. It is hoped that this pioneer study soon will be joined by others that provide quantitative analyses of the different subsectors' gender composition. Meanwhile, generalizations in subsectors other than flowers must be viewed with caution.

Given the complexity of the sample, and the large number of subsectors, a summary is useful. Table 1 presents the breakdown, by economic subsector and Sierra-Coast location, of firms visited where both management and worker interviews were carried out.

Table 1: Distribution of Firms Observed, by Type and Location

Type of Firm (subsector) and Location	Number of Firms Observed
1. NTAE Firms	
Flowers	
Sierra (not grown on Coast)	5
Fruit/Vegetable Processing	
Sierra	8
Coast	4
Fruit/Vegetable Contract Cultivators (growing for processing/exporting firms)	3
Fish/Shrimp	
Coast*	3
Subtotal:	23
2. Industrial Firms	
Cloth Products <i>maquilas</i>	
Sierra	3
Coast	2
Ceramics**	
Sierra	2
Coast	1
Leather Clothing	
Sierra	4
Wood Products	
Sierra	1
Metal Products	
Sierra	1
Subtotal:	14
TOTAL:	37

* One was also a *maquila*. The other two *maquilas* were not in operation during the time period of the research (see text).

** No regional differences in gender division of labor.

Note: Partial information on 13 other firms, mainly in leather and *maquilas*, was collected from a company key informant and local professional staff from PROEXANT and FEDEXPOR.

2.3 Job creation costs in NTAE and industrial firms

Gender Division of Labor. As will be further discussed in Section 4, gender-disaggregated macro-level data were available for only one subsector, Sierra flowers (Waters 1991). Consequently, the data and discussion on the gender division of labor in this section cannot be cross-validated with gender breakdowns from macro-level sources, with the exception of flowers. There is no way of knowing how representative the firms in the present sample were of their particular subsector.

Despite these drawbacks, the data conform to the literature on the gender division of labor in Ecuador (see references in Blumberg and Colyer 1990): female economic involvement is greater in the Sierra than in the Coastal region. Moreover, patterns were so strong that there also is reason for confidence in three additional generalizations about the NTAE sector. In the Sierra, firms dealing in flowers, fruit/vegetable processing and cultivation of broccoli and asparagus for export have predominantly (over 60%) female labor forces (this also was found by Paolisso and Blumberg 1989). In the Coastal region, fruit/vegetable processing firms have overwhelmingly (over 90%) male labor forces. Despite a Coastal location, firms processing and exporting fish and, especially, shrimp employ very large female majorities. According to a key informant from the largest fish/shrimp processing enterprise -- who is also an official of the fish/shrimp trade association -- firms processing and exporting shrimp or a combination of shrimp and a few larger, pelagic (deep water) fish have female majorities of at least 75-90%. The exception is for firms processing primarily the large pelagic fish (such as tuna), which have roughly equal numbers of men and women.¹

In addition, the RRA showed 95% female employment in garment *maquilas* in the Sierra (in keeping with employment patterns in such firms in Latin America, Asia and the Caribbean; see Joeques 1991; Lim 1990). But it showed male majorities (around 90%) in two clothing/cloth products *maquilas* in Guayaquil. Both firms are owned by two South Korean brothers who prefer men for cultural and personal reasons -- and who attract men with wages that are extraordinarily high by industry standards -- while (admittedly) actively discriminating against hiring women.

Ceramics and leather clothing firms studied also had substantial proportions of women. Based on the RRA, the central tendency was a little above 40%, although women comprised half or more of the workers in two of the three ceramics enterprises visited (both small firms). The wood products firm visited employed only men. Although metal working companies were described by key informants as almost wholly male, the metal products firm visited, a lock manufacturer, employed almost one-fourth women. The president explained the anomaly as due to the need for workers able to assemble minute springs and tumblers into precision locks. Women were preferred for these tasks since they are perceived to have greater dexterity and patience.

The extent of female employment in the firms visited is summarized in Table 2. Two statistics are computed. First, the number of women employed in all the firms in the category is presented, divided by the total number of jobs in the category, and then expressed as a percentage. Second, for each firm in the category, the proportion of men and women was calculated; the average proportion of women in the firms in the category is shown in the right hand column of the table. The second mode of presentation is useful since with only the first statistic and given the small sample, the presence of one large firm with an atypical gender

composition could result in a misleading impression of the category. For example, the macro-level data indicate that 62% of jobs in export flowers are held by women (see below). This compares with figures of 54% and 67% female, respectively, for the first and second calculations in the table.

Table 2: Female Employment in Firms Visited

Type of Firm (Subsector) and Location	# firms	Women as a Share of Total Workers Employed			
		total workers	total # women workers	women as % of workforce: sample average	women as % of workforce: firm average
1. NTAE Firms	22				
Flowers					
Sierra	5	841	457	54%	67%
Fruit/Vegetable Processing					
Sierra	7	443	341	77%	76.5%
Coast	4	313	60	19%	7.5%
Vegetable Contract Cultivators					
Sierra	3	57	42	74%	72%
Fish/Shrimp					
Coast	3*	390	335	86%	73%
2. Industrial Firms	10				
Clothing/Textile <i>maquilas</i>					
Sierra	3	420	392	93%	95%
Coast	2	108	19	18%	12.5%
Ceramics	3	122	55	45%	57%
Leather	2	9	4	44%	41.5%

* Due to fluctuating employment (most fish/shrimp jobs are hourly), the managers interviewed were asked for range and usual level of employment. These figures are the average of "usual employment."

Capital vs. Labor Intensity: A Look at Job Creation Costs. Table 3 presents data on the cost of creating a job in each of the subsector/location categories. The information on number of workers should not be very problematic, since the author was able to cross-validate data obtained from management. (She observed the site and the workers of the firms visited and asked about high and low seasonal employment levels in most group meetings.) In larger firms, data were sometimes provided by the head of personnel from employment lists; in smaller firms, they were typically provided from memory by the official giving the management interview. "Total assets" also must be considered estimates. They typically were given "off the cuff" by the manager interviewed. No independent verification was possible.

Even with these provisos, it is clear that average job creation costs vary widely: from \$3,435 for two Sierra clothing *maquilas* to \$30,192 in three Coast fruit/vegetable processing plants. Comparing Tables 2 and 3, it is interesting to note that the Sierra clothing *maquila* subsector,

with the lowest job creation cost, has the highest proportion of female employees and the Coast fruit/vegetable processing subsector, with the highest job creation cost, has the lowest. The Coast clothing/textile *maquilas*, run by two South Korean brothers, incidentally, are much more capital intensive: it costs \$8,241 to create a job, and their two plants comprise the second most masculine of the subsectors in Table 2. In fact, combining the data from Tables 2 and 3 shows that Sierra firms generally have both higher labor-intensivity and female employment, whereas Coast companies are more capital-intensive and masculine in employment pattern.

Table 3: Average Job Cost by Subsector

Type of Firm (Subsector) and Location	# firms	total assets	# of jobs	average job cost
1. NTAE Firms				
Flowers				
Sierra	5	\$12,050,000	841	\$14,328
Fruit/Vegetable Processing				
Sierra	7	2,350,000	443	5,305
Coast	4	9,450,000	313	30,192
Vegetable Contract Cultivators				
Sierra	3	n/a	n/a	n/a
Fish/Shrimp				
Coast	3	3,550,000	390	9,103
2. Industrial Firms				
Clothing/Textile <i>maquilas</i>				
Sierra	2*	1,350,000	393	3,435
Coast	2	890,000	108	8,241
Average	4	2,240,000	501	4,471
Ceramics	3	n/a	n/a	n/a
Leather	2	n/a	n/a	n/a

n/a = no data available

* Only two of the three coastal clothing *maquilas* observed had data available.

These data have interesting implications for gender differences in employment. First, they reflect two cardinal trends in Ecuadorian economic life: Coastal enterprises are well known to be both more capital intensive and much more masculine in labor force composition. The contrast can be seen in both fruit/vegetable processing and in clothing *maquilas* -- although the Coast clothing *maquilas* reflect the strong preferences/discrimination of the South Korean brothers who own them. Another implication has to do with ease of entry into a given industry: where low capital requirements mean easy entry, there should be increased competition and, hence, less job security. Since women are more likely to work in the less capital-intensive firms, their jobs should be less steady -- and lower-waged -- than in less competitive sectors.

2.4 Socioeconomic characteristics of the labor force

Again, it is worth noting that only the flower subsector has macro quantitative data with which to compare the RRA findings (and hence will be discussed in depth). The remaining subsectors are described solely in terms of the RRA, which involved a small and non-random sample. Therefore, some of the patterns observed here may not be generalizable beyond the present sample. Variables such as proportion of male and female workers, average age, education, marital status, etc., may or may not reflect the situation in the larger subsector. Nevertheless, other patterns may be quite meaningful. For example, if both managers and workers in several firms in the same subsector in the same zone agree that there is a great surplus of workers seeking work, the finding should be generalizable to other firms in that subsector and location.

It is also relevant and, presumably, generalizable that workers of both sexes in every subsector and zone were quite forthcoming that most of their work-mates were limiting family size ("*la mayoria se cuida*"). Ecuador has been one of the highest fertility countries of Latin America until recently but now contraceptive usage rates are going up and birthrates are coming down rapidly (Yamashita 1991). There is no way of knowing if these workers in export firms are any more or less likely than others to contracept. But since the expected cost/benefit ratio of children for the female workers in the RRA sample is probably quite negative (the women work irregular, often long hours and incur high monetary and convenience costs for children), they presumably are more likely to limit fertility than women in more child-compatible occupations, such as many informal sector activities (United Nations 1987, Boserup 1990)

2.4.1 The NTAE Firms and Their Workers

The Sierra Flower Industry in the Quito and Cuenca Areas. The Ecuadorian export flower industry was born just to the north of Quito in the Checa-Quinche area and soon spread to Tabacundo and other towns in the zone (e.g., Cayambe). There is a smaller second pole of development in the greater Cuenca area.

Exports of flowers are growing by leaps and bounds. For example, an article in Hoy on March 19, 1991 (Cordero 1991) estimates that export flowers covered 250 hectares and generated over \$14 million in export earnings. Waters' study provided data on 47 of 50 export flower enterprises identified by the trade association. These data showed 327 hectares in cultivation. According to the Project Paper for the T&I project, flower exports increased over 27-fold from 1985-1990, rising from about \$500,000 to over \$13.6 million. Exports were expected to reach \$30 million in 1991.

The RRA results indicate that even Waters' data may be an underestimate, due to the industry's rapid pace of growth. Four of the five flower export firms included in the RRA are in the process of major expansion of plantations and the fifth is a brand-new venture of one hectare whose first roses are now nearly ready for harvesting. It is not (yet) in Waters' sample. In fact, his data show only one firm with only a single hectare. The co-owner of the new one-hectare venture said that he knows of other fledgling operations of a hectare or so. Presumably, these are still too new and/or too small to make themselves known to the trade association.

At an average cost of \$200,000 for the first hectare of roses and over \$100,000 for

carnations -- the least expensive -- this is a capital-intensive business. Yet it is also quite labor-intensive: 4,994 people work on the 47 firms' 327 hectares, a mean of 15.3/ha.

Flower work is year-round, although there are five peak periods corresponding to the major holidays in the countries to which the flowers are exported (the U.S., and, secondarily, Europe). For firms serving the U.S. market, Valentine's Day and Mother's Day are the busiest. Although most labor, both male and female, is permanent and full-time, a mainly female temporary work force is hired for peak periods. Men also are hired on a temporary basis for construction and expansion work for the fast-growing plantations. Temporary workers in flowers were reported to make lower wages and no benefits, but are less prevalent than in the other NTAE subsectors. (Only two teen-aged girls in one firm were temporary out of 30 focus group members interviewed in five flower firms; even they were newly hired and might become permanent.)

As Table 4 (based on Waters' data) shows, the proportion of women varies widely among the 47 firms, despite their 62% representation. RRA interviews with workers and management revealed that women are overwhelmingly preferred for two types of jobs: classifying/packing ("post-harvest" in industry terms) and cultivation. Men are overwhelmingly preferred for two other types of jobs: fumigation and construction. Of the seven firms employing mainly men (average=71%), the most extreme employs 90% men (108/120). Clearly, this firm has made a deliberate decision to go against industry norms. At the other extreme, the only firm hiring 100% women (30) presumably uses male temporary workers if they need any heavy construction. But beyond that, women predominate in what have turned out to be quite well-paid jobs by local standards. The big question is whether most firms' strong preference for women's perceived "nimble and delicate fingers" will preserve those jobs for women in the face of a growing labor shortage in the Checa-Quinche area and fast-improving wages.

Table 4: Flower Firm Employment by Gender

	Firms with majority female workforce	Firms with about equal representation of female/male workers	Firms with majority male workforce
Number of firms	35	7	5
Highest observed share of female or male labor in a firm's workforce	100%	--	90%

Total No. Workers = 4,994

Female/Male Distribution of Total: 62% female, 38% male

Source: Data obtained by author from Will Waters (September 1991), supplemented by data on two Cuenca firms gathered by author.

Table 2's RRA data on gender composition in the five flower firms included in the sample proved fairly close to Waters' data (Table 4). This is encouraging, since no other subsector has macro data against which to compare the RRA figures on the gender division of labor. Nonetheless, it does not eliminate the need for macro level quantitative data for these other subsectors.

The Checa-Quinche Pole. As the direct result of flower firms' fast growth, the area encompassed by Checa, Quinche, Tabacundo and as far as Malchingui has been profoundly affected. Previously sleepy towns have seen a spurt of economic activity: workers' wages and flower company needs have had strong multiplier effects. This is evidenced by increased commerce in these towns, ranging from new or expanded stores to more vendors on sidewalks. It is quite visible in the amount of new or on-going construction of homes and businesses. It also can be seen in the clothing of the people on the streets: they look more like Quitenos, often in fashionable jeans, running shoes and tops, than rural townspeople.

In previous research on NTAE flower firms (Paolisso and Blumberg 1989), it was found that these enterprises could demand the best-educated and most committed women NTAE workers in the zone due to their high wages and benefits. But as of the summer of 1991, even large flower companies were so concerned about attracting enough workers that they had raised wages still further, relaxed educational minimums, begun to bus in workers from distant Malchingui, and provided more and more benefits: almost free, large, multi-course lunches, for example, had become standard. The two largest firms had hired physicians to provide family planning and treat workers (in part, this is due to pesticide exposure, a topic discussed below), and one had opened a day care center. In response, local workers who previously commuted or moved to Quito for jobs are now joining the local flower firms.

Other NTAE firms in the Checa-Quinche area also were greatly affected by the employment boom in flowers, since these represented the "top of the line" jobs in the zone. For example, one medium-sized strawberry cultivator/packer/exporter found that it was at such a competitive disadvantage in the tight labor market that it, too, had to increase wages, provide free transport to workers from as far away as Malchingui and offer the full-course subsidized lunches. In 1989, Paolisso and Blumberg found that their workers, who were relatively uneducated, quite poor, and included an appreciable proportion of Indians,² were acceptable to most flower firms only as high season temporary laborers. Now, the flower firms are less exacting about the workers they hire and the strawberry firm is losing out. After all, strawberry cultivation is done in direct sunlight, stooping over or on one's knees to tend the low-growing plants. Flower cultivation is done in plastic-topped greenhouses, and most varieties are long-stemmed enough to do away with much stoop labor. Most workers, if given a choice, would choose to work in flower rather than strawberry cultivation.

Both the strawberry and increasing numbers of flower firms have come to rely on the still very rural population of Malchingui for increasing proportions of their workers (e.g., within the RRA sample, they were reported to comprise over 60% in the strawberry firm and 38% in a large Tabacundo rose firm). By fall of 1991, however, the largest flower firm in the country was in the process of opening what will be a huge operation in Malchingui. This will clearly significantly reduce labor availability in the original heartland of the Ecuadorian flower industry.

What are the implications? Few firms can be expected to move to more labor-rich areas - although some may open new plantations away from the "heartland." The microclimate is just too good, the airport just too close, and the sunk costs in expensive flower infrastructure just too great to forecast that there will be few more new plantations, let alone any move away from the area. But with fewer Malchingui women available to be bused in, employers will have to consider hiring more local men, or women bused in from Quito. Both are suspect: they are considered dangerously likely to bring in unions, according to two of the managers.

One of the largest firms, in response, has opened a plantation on land it owned in Lasso, south of Quito, despite the fact that the airport is to the north of the city. Lasso, however, lies in the high unemployment area stretching south from Quito through Riobamba, and the manager of the firm's Tabacundo operation expected them to be able to pick and choose. But for firms not owning suitable land nearby, this option is not very attractive.

So the short-run prospect is for a continued tight labor market in the flower zone north of Quito, with corresponding improvements in wages and benefits for workers and a further relaxation of educational and other screening criteria for employment. The longer-term prospects include a dispersion of the industry and/or an increased proportion of male workers.

Given the high wages paid by these firms, men might compete more and more for "unisex" positions in cultivation. In the RRA, the manager of the largest flower firm noted that they hired both men and women about equally in cultivation, although women were very strongly preferred in most post-harvest operations. A second large flower firm, however, still had an almost exclusively female labor force in cultivation: they had done time and motion studies and found that the average worker cut 4.5 flowers per minute during harvesting operations. The lone male worker in a cultivation job averaged just 1.8 flowers per minute. They do not plan to hire more men for cultivation in the near future. In Mexico, there has been a partial "masculinization" of the *maquiladora* labor force over time. Will the same occur here as flower jobs in the zone pay increasingly attractive wages and benefits? In order to spot any displacement of female labor, not only the proportion of male and female workers should be monitored, but also their job category.

The Cuenca Pole. Two of the three firms visited here are located far enough away from the city to have an abundance of women workers available: everyone agreed that women in the surrounding rural zone have fewer opportunities for work than men. The third firm, located in a truck gardening area near the city, finds male labor tight and the supply of female workers about equal to demand.

In contrast to the situation north of Quito -- with its tight labor market and high benefit levels -- the two smaller Cuenca firms did not enroll their workers in Social Security, and in all three Cuenca area companies, the level of benefits was considerably lower than in Quito. Also, wages were somewhat lower than in the Quito area. One instance of wage discrimination was found: one firm paid a man in cultivation up to 20% more than women cultivation workers; the manager did not indicate whether or not he did the same work. Nevertheless, in none of the three firms were workers paid less than the legal basic wage and all were paid overtime as mandated by law.

As in the Quito (Checa-Quinche) area plantations, workers here assessed their jobs in positive terms. Relatively speaking, they may be almost as well off. After all, there appear to be fewer alternatives in Cuenca, especially for women, and these firms offer steady employment at a locally desirable wage.

In sum, the data on both the Quito and Cuenca areas point out two conflicting trends at work. On the one hand, most firms still prefer women for the more delicate jobs in flower cultivation, even if they have to pay them as much as men in tight labor market areas. They also value village women for their lower perceived propensity to unionize. On the other hand, there is some evidence (e.g., from Mexico) that the more attractive the wages and benefits, the less likely

that women will benefit from new export industries. For the short run, only the Checa-Quinche area seems likely to see a possible increase in men workers; elsewhere (Lasso, Cuenca) high unemployment levels keep wages and benefits down. For men in those areas, migration appears to remain a better option than a local flower job. Still, the issue is quite important and points up the need for USAID/Ecuador to monitor employment in new export industries on a gender-disaggregated basis.

Who are the Workers? The RRA covered a total of 30 workers in 5 Sierra flower firms, of which 27 were women and 3 were men. Their socioeconomic characteristics are summarized below.

Age. For the five firms, age distributions were quite similar: the average age of the workers was early 20's. These data come from the managers as well as the 30 focus group members, and can be considered reliable for the present sample. The most precise data came from a study by the staff doctor of the largest flower firm (Figure 1).

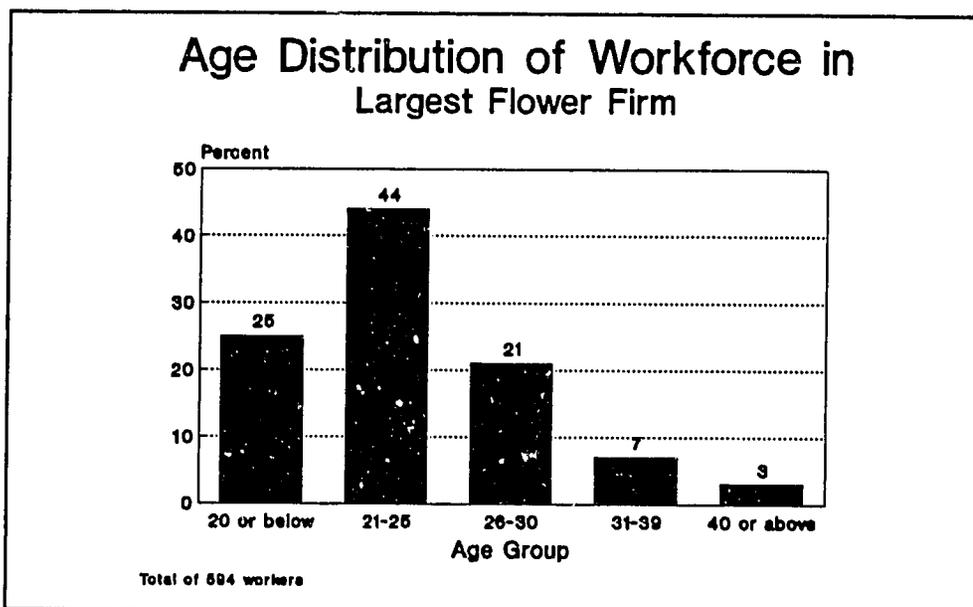


Figure 1

Source: 1990 data obtained by author from firm's physician (sample = 594 workers)

The ages of the workers attending the group meetings are fully in line with the doctor's distribution. Neither these workers nor the managers thought there was any noticeable difference in age for men vs. women, although none had gender-disaggregated data.

Education. Unlike the situation in our 1989 RRA (Paolisso and Blumberg 1989), some women with less than sixth grade were found in the largest Quito (Checa-Quinche area) flower firm. The lowest education level was found among the eight people participating in the group meeting at the most remote Cuenca firm: 4.6 years of education. It is also interesting to point out that no difference was found in educational levels between cultivation and post-harvest processing (classifying/packing) workers. In fact, the person with the highest education was a woman *bachiller* who worked in cultivation. Finally, no male/female education gap appeared - in keeping with the fact that there is near-parity by gender in the first two levels of education in Ecuador.

Table 5: Average Educational Level of Workers in Quito and Cuenca Flower Firms

Location	# of firms	# of workers	average education
Quito	2	15	7 years
Cuenca	3	15	6 years

Previous employment. In the most remote Cuenca firm, several workers were former agricultural day laborers -- the only instances encountered among the 30 flower cultivators. Most commonly, the workers had previous experience in other NTAE employment -- factories, or, occasionally as maids. Five workers said their current job was their first job.

Marital status and fertility. Managers tended to estimate that about 60% of their workers were single, and of the 40% who were married, some 90% had children. This was fairly close to the observed data: group meeting attendees proved 70% single and 100% of the married workers had children, averaging 2 each. (These data will be compared to Alberti's Central American findings in Section 3 below.) The two large Quito area firms had staff doctors who promoted family planning. In the largest firm, the doctor found a 6.3% pregnancy rate (N=14) in a February 1991 study of 219 women employees. Other firms reported lower pregnancy rates. For a firm paying full legal benefits, women's pregnancies are expensive (due to paid maternity leave) as well as a source of lower productivity.

Therefore, where labor is abundant, firms can hire women with low likelihoods of getting pregnant (very young ones, or those whose youngest child already is, say, 6-10). In the tight flower labor market north of Quito, however, they cannot be so choosy. So it is relevant that the pregnancy rate over the last several years was reported as low by both workers and management. This is linked to the fact that only three married women in the five firms said they would become housewives if they lost their job and/or had another child. Everyone else planned to continue working for income. Especially given the frequent overtime demanded by the companies in peak periods and the uncertainties and costs of childcare, fertility becomes burdensome. This finding of low fertility rates and high proportions who intend to continue working, come what may, will be repeated in other sectors, below.

Except in the Checa-Quinche area, management can actively discourage fertility by refusing to take the worker back. Management denied that they do this, and the question did not come up in the group meetings. It bears checking into in any future fieldwork involving export flower firms. The two largest firms, as mentioned, use their physicians to push family planning.

The jobs that call for the heaviest and most unpredictable overtime are in post-harvest processing. Over time, we might expect to find that women working in these jobs have the fewest babies if they wish to continue working -- as almost everyone does. The final possible brake on fertility is pesticide exposure. As discussed below, women are exposed to substantial doses of chemicals, with significant consequences. They were not asked if they had miscarried since working in flowers, nor if they were avoiding pregnancy for fear of pesticide contamination while working in these jobs. This, too, can be investigated -- either as part of any future pesticide study or in any further fieldwork on these firms.

Rural/urban. All but two Quito area flower workers were of rural origin.

The Sierra Fruit/Vegetable Processing Firms. A total of eight firms were visited, five in Quito (RRA N=50), and three in the Cuenca-Paute area (N=9). Group meetings were held in seven of the firms and a lone woman was interviewed in the eighth, a Cuenca firm that was virtually shut down for lack of vegetables to process at the time of the visit. (The lack of raw material for processing is a common problem for the fruit/vegetable firms that will be discussed below.)

Overall, the big differentiator of the characteristics of the workers once again involved the state of local labor markets. Briefly, workers were found to be in absolute glut in the Sierra area south of Quito (from Latacunga to Riobamba), but not so overabundant in the Quito metropolitan area. The situation was intermediate in the Cuenca-Paute area.

The most spectacular manifestation of this difference in labor market supply vs. demand was in the extraordinary level of education encountered among processing plant workers in the area between Riobamba and Latacunga. In 1989, Paolisso and Blumberg found a 75% female labor force of 100% *bachilleres* in a Riobamba processing plant. In 1990, Allen did a case study of another processing plant near Riobamba and also found 100% *bachilleres* (in Hess 1990; see also Blumberg 1990a). In the current RRA research, 70% of a randomly selected work group of 20 from a Latacunga processing plant were found to have the *bachillerato*.

Only two of the Sierra fruit and vegetable processing firms did its own cultivation. One was a strawberry firm in the Checa-Quinche area that already has been discussed: it has had to raise its wage and benefit standards virtually to the level of the flower firms to get (with great difficulty) a sufficient labor force. (According to the manager, "If I try to hire 20 workers, two will come; one will be 13 and the other 50 - if I'm lucky.")

The other cultivating/processing firm grows asparagus in a labor surplus area of Paute, near Cuenca. Its workers were unlike those of the firms that only process, resembling instead the workers encountered on the haciendas that cultivate broccoli on contract, discussed below. This is no accident: until the owner began growing asparagus as an NTAE crop, the hacienda had been run as a traditional *latifundia* for some 300 years. Cultivation was done by a very heavily female labor force, who were treated like agricultural day laborers: the owner identified -- and disparaged -- his workers as Indian (and most of the women wore Indian-style skirts and hats). In keeping with Ecuador's prevailing treatment of temporary farm workers, he paid by the day, and did not provide tools, protective clothing, Social Security or other benefits. He also had the highest turnover encountered in the RRA, replacing 100% of the workers for every eight-week asparagus cycle. This contrasts starkly with the flower plantations which did not treat cultivation workers any differently from post-harvest processing workers and provided both with steady employment, protective clothing, and equal wages and benefits. (Although ethnicity was not ascertained, there was no indication from dress, language or management's descriptions that many flower workers were Indian.)

The labor force in the fruit/vegetable processing subsector - especially in the Coast - was affected by an endemic problem of the industry. The processing firms that did not cultivate were chronically running short of raw material -- only two had contract growers and even they did not have enough to insure a steady supply. They frequently were forced to limp along on a small percentage of installed capacity, although all sometimes briefly experienced gluts of product that kept their workers busy nights and week-ends. As will be further discussed below, the main

reason for the recurring deficit in raw material was that they paid growers a price insufficient to elicit enough production of the needed fruits or vegetables.

Accordingly, even when jobs were permanent and fairly comparable to flower firm jobs in wages and benefits, the hours in fruit/vegetable processing tended to be much more irregular and unpredictable. This created a particular problem for married women whose husbands expected dinner and daily domestic services and for mothers without reliable arrangements for night-time childcare.⁴ Workers in many firms told of working into the early morning hours with no prior notice when a shipment of product arrived unexpectedly. For instance:

In one Quito export vegetable processing plant paying nearly 40% above the government's basic wage, one single mother with two girls, 5 and 3, told of coming home at 10:00PM or later, after unexpected late nights, hoping that her mother or sister had looked in and fed and cared for the children. She has been unable to get reliable evening childcare and has more than once found the two, all alone and unfed, sleeping in each others' arms. One of her co-workers has twin toddlers; when she doesn't get home, her husband must take over. With no telephones, comparably paying jobs hard to get, and an urgent need for income, these women could only hope their childcare arrangements wouldn't collapse.

Despite the irregular, late hours characterizing NTAE processing, however, many other women have made satisfactory childcare arrangements, as illustrated by this vignette:

A 28-year-old woman who works in another fruit/vegetable processing plant in the Quito area has had three children (now, 6, 3 and 1-1/2) in the 9 years she has been with the firm. In some months work goes on until 10-11 PM, yet 80% of the workers are women, and "the majority are married or single mothers." In non-peak months, she works until about 7 PM. She pays a sitter to care for the children until her husband gets home at 5:00; he watches them until she returns. Her income is only slightly below her husband's and he helps with household chores as well as childcare. She had some childcare problems with her first child, but "now my husband is used to it."

The RRA survey of managers also indicated that the proportion of temporary workers is higher in this subsector than in flowers, but those interviewed tended to be vague about their numbers and gender composition.

Who Are the Workers? The RRA covered a total of 58 workers in 7 Sierra fruit/vegetable processing firms, plus one individual interview in an eighth firm. 49 of the workers in the sample were women, while 10 were men. Their socioeconomic characteristics are summarized below.

Age. The age spread was visibly greater in many of the Sierra fruit/vegetable processing firms than in all but one flower firm. Average ages of attendees at the seven group meetings ranged from 18.9 to 31.7, for example, as contrasted with the strong tendency for younger workers in their early 20's in the flower industry.

Education. Here, the main differentiating factor was whether or not a firm did only processing, or cultivated its own product. In the latter case, workers' education was much lower.

The lowest was in the asparagus cultivating/exporting firm near Paute, where interviewees averaged 2.2 years and two had never been to school. The strawberry workers interviewed in the Checa-Quinche zone near Quito had the second lowest level of education, 5.3 years; most of them also worked in cultivation. In contrast, the average for group meeting attendees from all of the Sierra processing plants that did no cultivation (all located in urban or periurban areas) ranged from 7.6 to 11 years. These results correspond to the generally much lower education of agricultural workers. It should be emphasized that export flowers is a strong exception: cultivation workers there apparently have the same educational characteristics as post-harvest workers. They clearly are not drawn from the local day labor agricultural pool, as were the asparagus firm workers in Paute and, to a lesser extent, the strawberry firm workers in the Checa-Quinche zone.

Previous employment. In the Latacunga firm whose employees were mainly young, single *bachilleres*, 11 of the randomly selected 20-person work group were in their first job. This was the only case, however, with such a high proportion of new labor market entrants. Close to three-fourths of group meeting attendees at the other non-cultivating Sierra fruit/vegetable processing firms visited had previous employment. They had worked in factories, shops, and other NTAE firms (including flowers); several had been maids but none had been farmworkers. In contrast, all the interviewees at the asparagus cultivation/export firm had worked as agricultural day laborers, and considered it their main occupation.

Marital status and fertility. Two of the seven firms where group meetings were held showed strong preferences for single, childless women. In the others, manager and worker informants said that substantial proportions of workers (perhaps 40-50%) were married. The married workers interviewed had an average of 2 children. There were only five children among 39 single group meeting attendees. Once again, almost everyone intended to continue working for income, if they lost this job, or got married, or had a(nother) child. Although most volunteered economic reasons, several women said that they wanted, as well as needed, to work and that they would not stay home to please a *machista* husband. Sierra men's attitudes about working wives have become less hostile with economic crisis and what might be termed "modernity," but many still would prefer a housebound and dependent wife. So these women were probably discussing an actual, vs. hypothetical, pressure from a husband. (As discussed below, although the overwhelming majority of women in Coast firms visited in the RRA also intended to continue working for income, there was only one comparably assertive woman: Coastal men's attitudes are much more *machista*.)

Rural-urban. Although roughly 60% of those interviewed came from a rural background, this group was clearly more urban than the lower workers in current residence and self-identification.

The Coast Fruit/Vegetable Processing Firms. Only one of the four firms visited regularly employed women (30% of workers), despite the fact that many of the tasks, such as classification, bottle washing, and labeling were almost exclusively female in the Sierra. (A second very occasionally hired a small number of women for these tasks in peak periods.)

In the one firm with the women workers, almost all of them were temporary (overall, 60% of the men were temporary also). The manager agreed that it is more difficult for women to get work on the Coast. The reasons include strong cultural factors: he himself said that "women

distract the men," although he thought his own women employees were very productive.

Another reason for preferring men may be the markedly higher level of capital intensity and, sometimes, wages, among Coast firms than in counterpart plants in the Sierra. There are more jobs tending complex, technical machinery and fewer involving hand labor than in the Sierra, and the machine-linked jobs pay better. In the Coastal region, also, the traditional ideology proclaims that "the woman is for the house." Women are less likely to have (or be perceived to have) the technical abilities to run the machinery and preference is automatically given to men for better-paying jobs.

In fact, in one firm, wholly owned by a large multinational corporation, a very telling interview with the production chief took place:

Surrounded by \$3,000,000 in state-of-the-art processing equipment, he averred that he would really like to hire women for classifying, bottle washing and labeling jobs but could not, because of a "structural problem." The problem is that the plant had not been built with a mixed gender labor force in mind, he explained: "there's only one locker room and bathroom on the plant floor." The woman chemical engineer who is soon to take over his job concurred in an independent interview: women would be very desirable in certain jobs but the firm has no facilities for them and no plans to provide any. Nor did she think that there were any plans to employ women in the near or medium term.

It was in these Coastal firms that the problem of insufficient raw material for installed capacity reached its most extreme, with plants working at an average as low as only one-fifth of production capacity. (This is apparently more than enough for survival, however.) Managers gave a variety of reasons why farmers were not raising enough product to keep them supplied. They also wanted development agencies and financial institutions to provide productivity-enhancing aid to farmers (e.g., credit, agricultural extension).

None, however, attributed the deficit to what has been found to be the main reason in A.I.D.-supported studies: their firms pay prices too low to provide incentive to producers. Moreover, in the case of passion fruit, the A.I.D.-funded research found processors to have had a cartel-like arrangement to limit prices to producers. One manager claims that the price of passion fruit now has started to rise sharply, which he hopes will ease the problem. Until prices rise, however, one would not predict any major increase in employment.

In three of the four Coast fruit/vegetable processing firms visited, a core of (male) workers had permanent jobs, wages and benefits were paid directly by the firm, and workers did not express dissatisfaction with their jobs. In the fourth, employment was temporary and contracted through an intermediary firm which took 15% of the wage. They also deducted for Social Security but had not yet enrolled the workers, despite promises. Understandably, morale was extremely poor among the firm's group meeting attendees.

Who are the Workers? The RRA covered a total of 15 workers in 4 Coast fruit/vegetable processing firms, of which 2 were women and 13 were men. Their socioeconomic characteristics are summarized below.

Age. Except in the firm using the temporary labor contractor, where the average age of the interviewees was 19, workers attending the group meetings averaged in their late 20's.

Education. Educational levels were comparable to slightly higher than for counterpart Sierra plants, with the lowest average being 6.7 years and the highest 11.4 (10.5 excluding the university-educated supervisor). The lack of an educational disparity between the almost wholly male Coast fruit/vegetable processing workers and their largely female counterparts in the Sierra firms is not surprising: in Ecuador there is little remaining gap between boys' and girls' rates at the primary and secondary levels.

Also, in three of the four locations, management is able to ask for high levels of education because of a shortage of alternate local opportunities for people with secondary schooling. In the fourth, in Babahoyo, a contradiction emerged: management claimed that there was a severe shortage of labor due to higher wages being paid by the banana plantations; the workers, however, complained of a severe shortage of local jobs. This was the plant with the highest average level of education (*bachillerato-plus*). There was no way to explore the contradictory views in the time available. Still, since the work does not inherently require such high levels of education, the worker's claim of a local shortage of jobs would seem to have greater face validity.

Previous employment. For those who did not join these firms just out of school (roughly 70%), prior jobs tended to be factory or other NTAE plant positions. Other occupations ranged from a farmer to a store clerk to a primary school teacher.

Marital status and fertility. The only two women group meeting attendees were single *bachilleres* of 22 and 24 years of age. There was a slight majority of single men among those interviewed. In two of the plants, however, management and workers agreed that the majority were married. Married men did not have large families. They, too, claimed that this is now the tendency among their co-workers, especially the younger ones. Some men in their 40's in their plant, they noted, had very large families of well over six children, but this was not the case among those in their 20's and 30's, many of whom were practicing family planning. They named no more than three children as the ideal family size. The workers interviewed had even smaller families than that: only 60% of the married group meeting attendees had children and it was only one child each.

Rural-urban. The Babahoyo firm had a mainly rural labor force. In the other firms, the group meeting attendees identified themselves as urban.

Overall, comparing the demographic characteristics of the Sierra and Coast fruit/vegetable processing firm workers, the most striking difference is their gender: in terms of age, education, and other socioeconomic characteristics, the differences are fairly small.

A much more dramatic contrast is between the largely female employees of Sierra fruit/vegetable processing firms compared to employees in cultivating firms, where no processing takes place. The cultivators have much lower levels of education, wages, benefits, and come from a different ethnic and social stratum. The differences are so great as to justify describing the cultivation labor force separately, as is done below.

Sierra Fruit/Vegetable Contract Cultivators. The research here grew out of an attempt to solve a mystery -- it became a target of opportunity rather than something envisioned in the Scope of Work (Annex E). The broccoli processing firm in Latacunga had 100 hectares being grown on contract. The manager noted that broccoli cultivation averages 10 workers per hectare, a figure also mentioned by another key informant. This meant that the firm was providing about eight times as much indirect employment as direct employment (N=130). Who were these workers? He didn't know.

What he did know, however, is who the contract cultivators were: they were large-scale *hacendados* whose primary income came from dairying. Because of government price constraints on milk, this politically and economically powerful group wanted a high value crop as an income supplement. Since the price of broccoli on the world market has been quite favorable, the processing plant was able to sign contracts with a number of these rich landowners who agreed to grow a small number of hectares in return for free seedlings and a fixed price.

Ultimately, the Latacunga manager permitted his two technical assistance/extensionists to take the author to three cultivation operations. What was revealed was an ethnic, as well as a gender, factor. The extensionists claimed that the cultivation labor force was 100% Indian and very heavily female. The field visits corroborated their assertions, with ethnicity ascertained by dress and/or accent. (All interviews were conducted in Spanish.) The workers came from nearby traditional indigenous villages; we visited one. They were treated like agricultural day laborers (e.g., required to bring their own tools). In two of the three cases, however, management claimed -- in the presence of workers -- that they had Social Security. The workers did not contradict their bosses and there was no opportunity to pose the question to them away from management presence.

Agricultural day laborers normally are expected to supply not only their own tools but also any protective clothing. The health implications of the resultant lack of protective clothing will be discussed below.

Wages were considerably below the level of the processing plants; indeed, they were below the government basic minimum wage (around 40,000 Sucres; at the time of the research US\$1.00 = 1100 Sucres), averaging in the mid-30,000 Sucres range. Nevertheless, they were quite a bit higher than in many surrounding traditional haciendas, for which the Indians normally work as agricultural day laborers. This was dramatically illustrated in one of the field sites:

A group meeting was being conducted late in the afternoon with five members of the almost all-female work team that planted and tended broccoli seedlings for the processing plant. (The seedlings are given (free) to contract growers at five-six weeks.) They were explaining that they earned s/34,000 per month when a work-worn, toothless, and raggedly dressed middle-aged Indian woman trudged past and stopped to listen. She was a 39-year-old widow, and only made s/500 per day as a day laborer on a traditional hacienda, she told us, and it wasn't enough to feed her children. The broccoli cultivators earned about three times as much. She said she would love to earn as much as they; they stressed that they earned less than the firm's processing plant workers.

In two of the three field sites visited, men and women earned the same. In the third site,

men earned 36,000 Sucres as compared to women's earnings of 34,000 Sucres.

Who Are the Workers? The RRA covered a total of 3 Sierra fruit/vegetable contract cultivating firms. One completed group meeting was composed of 4 female workers and 1 male worker. Their socioeconomic characteristics are summarized below.

Age. The only completed group meeting took place in the hacienda where the processing plant ran a specialized operation raising broccoli seedlings for distribution to the contract growers (the dairy hacendados). Although all the seedling cultivators interviewed in the group meeting were 16-18, their team of 13 (12 women) ranged in age from 14 to 37, with a strong central tendency in the late teens. At the second hacienda, the work team visited consisted of about 24 persons planting broccoli, of which 70% were women. This group had a much broader age spread, including several children and several older people. (One girl who looked perhaps ten years old said she didn't know her age; she had never been to school). On average, the largest single group appeared to be in their mid-late teens. The attempt at a group meeting was brief here: the foreman glowered at the workers in the informal group of six which had been answering my questions. At the third site, workers were described by the hacienda owner and foreman as averaging around 30 for men and 20-25 for women; it proved too late in the day to hold a group meeting -- cows were already being milked and this took precedence over rounding up the broccoli cultivators.

Education. Data were obtained directly from only the broccoli seedling cultivators. All those interviewed had sixth grade. In the second hacienda, only one of the six directly queried had sixth grade. He said that most of the work crew had considerably less. (Visually, they were very raggedly dressed and reticent; it would not be surprising if their average education was under 3-4 years.) The owner and foreman of the third hacienda agreed that average education of the broccoli workers was "less than sixth grade."

Previous employment. These Indians are farmers who work on their own small parcels and earn income as agricultural day laborers. The broccoli seedling tenders interviewed, for example, all had worked in asparagus cultivation before; they would continue to seek paid cultivation work if this job ends.

Marital status and fertility. The broccoli seedling cultivators provided the only direct data: of those interviewed, none had children and all but one was single. Three other women among their group, however, were married and had two children each. The owner at the third hacienda claimed that his workers averaged four children. This could not be independently confirmed.

Rural/urban. These people are 100% rural.

Coast Fish/Shrimp. The size of the fish processed affects the gender composition of the labor force: north of Manta are two firms that process shrimp, one almost exclusively. Both have overwhelmingly female employment. The third plant visited is located in Montecristi. It processes mainly tuna and employs a slight majority of men. The owner noted that his less heavily female employment pattern is common for firms processing the larger, pelagic fish. They often buy them already frozen; considerable heavy lifting is involved and men are preferred for operations before the actual processing line.

In all three fish/shrimp firms, many workers typically work on an hourly basis: almost 100% in one, 80% in a second, and almost half (all women; the men are permanent) in the third. Hourly rates were 224-250 Sucres in the two larger plants; workers can earn 45,000 Sucres or more a month if they work every day, even without overtime. These temporary workers get straight time for overtime, and overtime was frequently abundant in two of the three firms. From time to time, however, there is scarcity of fish/shrimp for processing. (The larger firms are moving toward their own boats for fish and their own lab for shrimp larva in order to overcome the problem.) Nevertheless, during peak periods, even hourly workers can earn quite a lot of money by local standards.

Temporary workers receive no Social Security or other major benefits. (In the two shrimp firms, which draw workers from a fairly wide area, they do, however, receive almost free lunches and transportation.) Even so, the only complaints heard from the temporary employees concerned the cold and discomfort of working with ice and cold water.

The rapid expansion of shrimp/fish processing for export has resulted in growing job opportunities for women. They are greatly welcomed because they occur in an area where, aside from the coffee harvest in July and August, women have few economic alternatives.

Who Are the Workers? The RRA covered a total of 18 workers in 3 Coast fish/shrimp firms, of which 13 were women and 5 were men.

Age. The group meeting attendees averaged from age 22 to 29 in the three firms, but overall labor forces were clearly younger in the two shrimp processors. In the largest firm (a shrimp processor/*maquila*), the workers claimed that most were 15-20 and single; in fact, the focus group included a 12-year-old new hire.

Education. Here, the influence of access was clearly apparent. The first plant was located in a zone without a public post-primary school and education averaged 6 years. The second plant (also mainly a shrimp processor) was located in a town with a public *colegio* and the average educational level was 8 years. The third, which processed mainly tuna, was located in a town where educational access has improved in recent years. It had a bigger spread in both the age and educational levels of the workers, averaging 6.8 years, but with younger workers having more schooling.

Previous employment. Unlike the average Sierra firm or Coast fruit/vegetable firms, over 60% of focus group members of both sexes were in their first job. In the tuna firm, the two women attendees had been housewives taking care of their children before getting their jobs. At the other two, the women interviewed were all single and they claimed that so were the great majority of their co-workers. At all three plants, it was agreed that it was harder for women to get work. Manabi is the province frequently held to be the most *machista* and with the most masculine economic base. The combination means that many women do not actively seek work outside the home even when they urgently need the income. Consequently, any firm or project that creates paid employment for Coastal women -- especially in Manabi -- will be providing a social benefit over and above its other ends. The evidence indicates, however, that the main beneficiaries will be young, single women who do not need a husband's grudging permission to work.

Cultural factors clearly affect Manabi women's access to employment. At one shrimp plant, the women noted that the majority of men still don't like women to work outside the home; there are few married women working there, and many of them have problems with their husbands. At the tuna plant, where the men are permanent and the women temporary, the owner emphasized (paternalistically) that women are never given overtime.

Marital status and fertility. As noted, all the women interviewed in the two shrimp plants were single. Of 11 female single group meeting attendees, two women had one child each and one had four children. The two married women in the tuna plant had one and seven children, respectively. The latter noted, in front of a mixed group, that she recently had been sterilized. The married men averaged three children.

Rural-urban. The question was asked in one shrimp plant, where the great majority of group meeting attendees classified themselves as urban. It was also asked in the Montecristi tuna firm where all came from rural households with access to land.

2.4.2 The Industrial Subsector Firms and Their Workers

NTAE consists of a few clearly defined subsectors, and the Mission specified the major categories to be explored. Accordingly, the preceding discussion attempted to present a separate overview for each relevant subsector and location.

In contrast, there are quite a few industrial subsectors that are currently or potentially exporting and no consensus as to which ones will receive A.I.D. assistance via the Trade and Investment project. Aside from the clothing/textile *maquila* subsector, not enough firms were visited to merit the lengthy treatment accorded to the NTAE subsectors and locations. In this section, the discussion is broken down into two main categories, the *maquilas* making clothing and textiles, and "other," with selected categories briefly treated.

The Clothing/Textile *maquilas* of the Sierra vs. Coast. Of the eight *maquilas* approved to operate as of August 1991, six are in this subsector. Five were found operating during the RRA although two had not yet exported a single container. The sixth, located in Manta, was temporarily closed down because its owner had not received an order from the U.S. firm with which it had a *maquila* contract in some months.

The essential difference between Sierra and Coast clothing/textile *maquilas*, as noted above, is that the latter category consists of two Guayaquil firms owned by two South Korean brothers who have made a deliberate decision to employ males in preference to females to the maximum extent possible, whereas the three Sierra firms employ almost exclusively women. Because it is very difficult to recruit men with sewing experience in Guayaquil, the brothers stated, they had to bring in most of their workers from the Sierra. Although their blue jeans factory (which produces for a South Korean-owned Los Angeles company) currently has 19 women imported from the Sierra out of a labor force of 77 (25%), the brothers ultimately intend to replace them with men. As noted, the brothers pay very high (piecework) wages, in fact, the highest average wages encountered in the RRA. Many earned two to three times the basic wage of a little over 40,000 Sucres.

It should not be thought, however, that the Sierra clothing *maquila* workers were poorly

paid. They generally earned above the basic wage -- which is frequently not the case in the notoriously low-paying clothing manufacturing subsector, where most firms are small and struggling.

Who are the Workers? The RRA covered a total of 26 workers in 5 clothing/textile *maquilas*. Of these, 3 firms with 16 women were in the Sierra, and 2 firms with 2 women and 8 men were on the Coast. Their socioeconomic characteristics are summarized below.

Age. Based on data from both the RRA group meetings and management, the general age range in all firms was fairly similar, from the late teens through the 30's, with a strong central tendency in the 25-30 year range (in one Sierra firm, 30-35 years). In general, there was no notable difference by gender.

Education. Management of the three Sierra firms claimed that probably a majority of their workers had completed or nearly completed the three-year post-primary training course in clothing manufacture (*corte y confección*). The group meeting attendees bore this out: 14 of the 16 women in the Sierra meetings were graduates. The men of the Guayaquil firms were much less likely to have had this training, since few males enroll in this curriculum (only one of eight had a formal course although it was not clear if this was the same three year post-primary training the 16 Sierra focus group women had graduated from). Overall, the women group meeting attendees had slightly more education: 9, 8 and 9 years, respectively, in the three Sierra firms; the men of the two Guayaquil firms averaged 8 and 7 years.

Previous employment. Workers and management in all firms agreed that it is easy to get women graduates of the *corte y confección* training course; there is a surplus in supply. This, of course, also works to keep women sewers' wages down. Men with tailoring/sewing experience are rarer. But there are several places in the Sierra that have traditions of male clothing/textile workers, such as Pelileo and Ambato. The South Korean-owned blue jean factory had recruited its overwhelmingly male labor force from just those places. Indeed, all three Sierra men in that group meeting had come from these two sites. (The firm's Sierra workers of both sexes received free dormitory lodging as another benefit.)

Almost 100% of the women focus group members from the Sierra firms had previous sewing jobs, as had the employees of the blue jean factory in Guayaquil (including the two women group meeting attendees). In the all-male Guayaquil nylon bag factory, however, only one of four group meeting attendees had previous sewing experience: all were from the Guayaquil area and were being trained; two were in their first job and one had been a farmer.

Marital status and fertility. The majority of women in all three Sierra firms were described as married, with an average of 2-3 children. The group meeting attendees show just this pattern. They also averred that most of their younger co-workers were practicing family planning. Large families could be found among the small number of workers over 40, but were rare among those younger. All agreed that there had been a definite reduction in fertility norms and behavior in recent years. In two Sierra firms, management estimated that only about 10% or less of the single women were mothers. Among six single group meeting attendees, there was only one woman with a child. In no firm did the workers estimate that more than this, i.e., one single woman in six, had children. Overall, however, the Sierra clothing *maquila* workers clearly are older and farther along in the family cycle than women in any subsector examined to this point. With

experienced workers often preferred by management (very strongly in one *maquila*), and such a glut of supply, it is likely that younger, less experienced women may have to begin their careers in informal sector workshops, rather than in sizeable, stable, and relative to the industry, well-paying, enterprises like these.

Rural/Urban. Two of the three Sierra enterprises are in Quito and all 13 women in the corresponding focus groups considered themselves urban, as did 80% of the interviewees in the Latacunga firm. Similarly, both Coastal enterprises are in Guayaquil. Only one man, who lived in a far-out zone and had a rural background, considered himself something other than urban. In short, there is an overwhelming urban majority among clothing/textile *maquila* workers interviewed.

In sum, although the clothing/textile *maquila* subsector is quite small in Ecuador today, if the industry is able to overcome current problems with the reliability of foreign contractors, there could be an explosion of such ventures. With that possibility in mind, several issues bear restating:

- The gender composition of the two Coastal firms appears idiosyncratic. Future ventures in either the Sierra or the Coast should have overwhelmingly female labor forces.
- Working conditions in clothing/textile *maquilas* should be as good as to significantly better than the average in the Ecuadorian clothing/textile industry. This is because the industry is characterized by a handful of large firms and large numbers of small, marginal and informal ones. The latter typically offer lower wages, no benefits and unstable work.
- Low average costs of job creation (see Table 2) imply that if, indeed, the clothing/textile *maquila* subsector takes off, the potential exists for substantial numbers of women gaining employment in this labor-intensive industry. According to Jauregui (1991), there is a correlation between low job creation costs and female employment in many sectors of the Ecuadorian economy.

"Other" - Ceramics, Leather Clothing, Wood and Metal-working. A brief discussion of select industrial subsectors follows. Observations about socioeconomic characteristics in each subsector are included in the main discussion here, rather than highlighted separately as in previous sections.

Ceramics. Mission concerns about the ceramics industry were based on the fact that most of the largest ceramics firms in the country are under the control of one well-known Cuenca-based family. Therefore, of three firms visited, one was a large, highly successful Cuenca "art ceramics" firm that is part of the oligopoly and two were independent. These two were quite small ventures located in Cuenca and Portoviejo, producing mass market and upscale "art ceramics," respectively.

It appears that the upcoming development of Andean free trade zones could cause considerable difficulty for all Ecuadorian ceramics firms - associated with the oligopoly or not - that do not have a specialized market niche. The most promising may be "artistic," according to informants, and, as noted, two of the three firms visited fall into that category. In terms of labor force characteristics, however, the main differentiator among the three firms visited was not

oligopoly control or not, or type of market niche; rather it was size of the firm.

The large ceramics firm observed has a highly stable, experienced, well-paid labor force that is 62% male and 38% female. The average age of the five group meeting participants (3 women, 2 men) was over 32, and they averaged 7.5 years of education. For most, it was their first - and career - job. All the group meeting attendees were married with children (averaging 2 each). Their backgrounds were primarily rural but they themselves are urban. The personnel director's estimates for the total labor force differed very little from these statistics, except that she estimated that only about 70% of workers were married. She also thought that men workers might average three children and women workers 1-2, even though in the group meeting, the men had fewer children.

In contrast, the labor force in the two small firms was not only more female (82% and 50% for the Cuenca and Portoviejo firms), it was also less experienced and less well paid. Average age was in the low 20's. This figure was reported by the owners of both small firms and actually corresponded to the ages of the three women who attended the group meeting in the Cuenca enterprise (it did not prove possible to have a group meeting at the Portoviejo firm because of timing problems). Education among non-supervisory workers was sixth grade (from both the group meeting attendees and the owner's report) for the Cuenca firm and an estimated fourth grade for the Portoviejo enterprise. Both firms had almost as many temporary workers as permanent ones (in roughly the same proportion by sex as permanent employees), reflecting the fluctuating production levels of these more precariously situated enterprises. Concerning marital/fertility status, in both, most workers were single and childless. Concerning rural/urban identification, in the small Cuenca firm, workers considered themselves urban; in the small Portoviejo firm, the owner said all his employees came from rural backgrounds. It is not known if they identified as urban or rural, however.

Basically, what the data show is that the two small firms are much closer to the informal sector (the Cuenca one, for example, does not provide Social Security even to its permanent employees). Their workers have characteristics (such as gender=female, age=young and education=low) which are less well rewarded in the labor market, and indeed, they pay much lower wages.

The marginality of the small firms need not be a deterrent to USAID support, in view of the Mission's history of commitment to micro and small enterprise. Nor need the oligopolistic control of the larger firms deter Mission support, since these large, oligopoly-controlled firms and small, marginal ones almost never are in direct competition and hence the oligopoly should have no reason to hinder their operations. The Mission must decide if the quite small ceramics sector is an appropriate locus for T&I investment. The subsector is so small in comparison with the larger economy, that supporting it or not through the T&I project will not affect either total export earnings or total employment. Nor does the location of most ceramics firms -- in the Sierra -- give this subsector the social justification of the fish/shrimp processing subsector, which provides jobs to women in the area of the country where they are in shortest supply. If aid is given, however, it could help stabilize the prospects of the smaller firms, which should have a positive impact on their substantially female labor forces.

Leather clothing. Here, again, the RRA found an oligopolistic control structure: one firm controls 70% of the fine leather coming into Cuenca, where the best-quality leather clothes

suitable for export are made. This is because the head of this dominant firm used to be a top manager of the largest (and best) leather tanning company in the country. He apparently is the only one they supply in the Cuenca area, and he, in turn, sells to the local workshops that make the leather clothes. But because he wants to promote an export market in which prices must remain internationally competitive, this structure of control need not hinder the operations of smaller firms. (If he charged the top workshops too much for the leather, they would have no incentive to produce the volume of jackets and other export-quality clothing he hopes to be able to elicit, consolidate and sell.)

The individual workshops producing export-quality garments tend to be quite small and family run. New employees often come from a background in cloth garment manufacture (women) or shoes (men). Overall, the interviews (involving three firms but no group meetings) indicated that over 40% of the workers are women. Wages and conditions of employment could not be well enough ascertained to discuss. But, due to the small size of workshops, they are unlikely to much exceed the government basic minimum wage and unlikely to reach the formal sector benefit package. Insufficient information was collected on age, education, etc. to present.

Ecuador has a potential international market niche in the middle and upper-middle reaches of the leather clothing market, according to key informants, so long as it remains competitive on price. The leather itself is produced primarily in Ambato, with considerable environmental pollution of rivers and underground water. This environmental question should be further explored. It should be noted, however, that the workshops producing export-quality clothes are more likely to be located in Cuenca than in Ambato. Cotacachi has not only many other workshops but an already developed chain of retail/export shops to which Colombian and other exporters come. These shops employ primarily women. Like any other type of clothing, leather garments are a labor-intensive business. The potential seems to exist for more employment than in the case of ceramics.

Wood. The largest export firm, which was slated to be included in the RRA, went bankrupt during the field work. The firm actually visited is a small operation producing mainly doors and door frames. It is run, however, by the man who is the president of the association of small exporters and he gave insights on the conditions in the industry, not just his own firm.

The employment in his firm is 100% male, and in the industry, nearly so. Workers with carpentry and wood-working skills have alternate employment venues, so the small firms may not be able to compete successfully for enough labor, especially experienced labor: once trained, their workers can get higher wages elsewhere. In fact, even small firms have to pay above the government basic minimum wage. Unlike the situation in clothing manufacture (*corte y confección*), there is no glut of three-year training course graduates competing for jobs. With so little data (the group meeting in the only firm visited consisted of two men), none of the other parameters of worker characteristics merit discussing.

Several issues come to mind in terms of support for firms in this subsector. First, even more than clothing, this is a single-sex subsector with respect to employment -- and the sex is male. Consequently, there is no way that a report focused around taking gender into account and enhancing the involvement of women in A.I.D. activities and benefits could advocate choosing wood as a high priority subsector for the T&I project.

Second, the raw materials for the industry come from the accelerating deforestation of the Amazon. Ecuador's Amazon was described by several key informants as experiencing the most rapid rate of deforestation in the hemisphere and containing the greatest biodiversity, making its loss even more devastating. Logging practices by colonists and small-to-medium-scale operators and brokers tend to be very wasteful. These smaller firms often get the less desirable wood: The head of the firm interviewed complained that much of the wood they get is damaged, reflecting the fact that it was logged by the least knowledgeable -- and most destructive.

It was not possible to collect data on the potential amount of export revenues or employment the subsector could generate. But on the basis of even this information, further investigation seems necessary before a final assessment can be made of the desirability of targeting the wood products subsector for T&I project support. Clearly, part of the problem is the lack of environmental regulation of the logging industry, both large- and small-scale. A.I.D.'s current emphasis on privatization has promoted "lifting the regulatory burden" in other sectors. The forest sector appears to be different. With current regulations fostering little, if any, replanting, the irreplaceable biodiversity of the forest could soon be gone along with the trees. At minimum, if USAID decides to push forward with the wood subsector for the T&I project, the Mission should do it in close cooperation with the resident environmental specialists.

Metal-working. Nine employees in one firm were observed in this subsector, of which 3 were women and 6 were men. Here, again, only one firm was visited and it was atypical in several ways. First, it was a subsidiary of a large U.S. multinational. Second, it manufactures locks with such tiny, precision parts that a labor force of great patience and manual dexterity is needed for several operations. This resulted in women constituting about one-fourth of the employees. Third, the firm stressed ingenuity and self-sufficiency and created many of its own machines and machine tools, rather than importing them. This gave it significant cost advantages.

Other Ecuadorian metal products firms may not have the advantages of a multinational's backing and guaranteed sales, or the engineering expertise to create their own small-scale "industrial revolution." The comparative advantage of the metals subsectors bears further investigation, considering that the raw materials must be imported and that it appears that even Venezuela, which has rich sources of iron and bauxite for steel and aluminum products, has not had uniform success with its metal industries.

With respect to its labor force, the firm provided extremely stable employment that paid more than double -- and for specialists, triple -- the government basic wage, in addition to offering full formal sector benefits. Workers had often started as a first or second job and then stayed for a career (the average among the nine people in the group meeting was over 10 years of experience; among the three women, it was almost 15 years).

The average age of those in the group meeting was 33; they averaged 9.4 years of education. Concerning marital/fertility status, all but two were married (one man and one woman). The other two women had three and four children, respectively, in their years of employment and had the lowest levels of education (6th grade). This firm's employees' skills are extremely specialized and may not have another outlet, according to the president of the firm. If the two married women lost their jobs, both said they would probably stay home (both have one child each age 6 or less). In contrast, the single woman -- a *bachiller* -- said she would continue working regardless of marriage or children; if she lost her present job, she would work at

something else. The seven married group meeting attendees averaged 2.7 children each. Concerning rural/urban status, all were urban.

Since this firm is unique in Ecuador, there is no way of generalizing the above information to other metal products companies. However, several informants said that most other metal working firms have all male employment. A firm manufacturing small electrical appliances was mentioned as another exception.

The firm provides an interesting vignette about the unexpected pitfalls facing those entering the export market:

The firm opened what it hoped would be a Peruvian market when it sold 1,900 chrome doorknob lock sets in Lima, Peru. These have long worked perfectly in Quito, but Lima has a high level of saline humidity. They had never even thought of this. The sets promptly began to corrode.

Finally, metal products industries tend to be quite capital intensive. This firm is no exception: with \$1,000,000 in fixed assets and 74 employees, it costs \$13,514 to create each job. This is just a shade behind flowers, as a comparison with Table 3 shows. It also shows that it is less than half the cost of a job in the Coast fruit/vegetable processing firms but about four times as much as the Sierra clothing *maquilas*.

The only possible conclusion is that more study is needed before a final assessment can be made of the desirability of including this sector, from either the export earnings or employment generation/socioeconomic perspective.

2.4.3 What Have We Learned About the Workers? Some Patterns

Several conclusions can be drawn about the workforce in the NTAE and industrial firms observed in the research.

- There are clear patterns involving the gender division of labor. These include:
 - a) There is a location factor. Sierra firms have higher proportions of women than Coast firms.
 - b) There is a subsector factor. Women were the overwhelming majority in Sierra clothing *maquilas* and Coast shrimp/fish processing; Sierra flowers and fruit/vegetable processing also registered strong female majorities. Conversely, men were the overwhelming majority in wood, metal and Coast fruit/vegetable processing. Ceramics and leather clothing were closer to parity than the above subsectors.
- Based on employee perceptions, the RRA has shown that wages and working conditions in the export industries visited compared favorably with other opportunities open to men and women workers.
 - a) In general, the larger firms provided better wages and benefits than the smaller.

b) Within the NTAE sector, the flower jobs -- especially in the Checa-Quinche area north of Quito where a tight labor market had pushed up earnings and fringe benefits -- had the highest wages and best working conditions. Their only drawback is pesticide exposure, which occurred even in the largest firm, despite some deliberate efforts to deal with the problem.

c) Within the industrial sector, the clothing *maquilas* had particularly positive wages and benefits relative, especially, to the smaller firms of the non-*maquila* clothing industry (a number of which were investigated for the 1990 informal sector assessment; see Blumberg 1990b chapter in Magill).

- Wages and benefits are strongly influenced not only by the size of firm and subsector (e.g., within NTAE, flowers generally offered better compensation than fruit/vegetable processing), but also by the state of the local labor market. For example, since 1989, expansion of the flower export industry in the Checa-Quinche area has created a labor shortage, and raised earnings and benefits for not only flower workers, but also strawberry workers in the zone, since the strawberry firm studied is now disadvantaged in competing for labor.
- Education levels of the workers reflect both local variations (e.g., is there a post-primary school in a remote town?) and the extent of local labor surplus-shortage. For example, in the high unemployment areas south of Quito, those processing vegetables and fruits were typically *bachilleres*; in the other areas, unemployment was lower and average education of fruit/vegetable processing workers was several years less. From all indications, the higher education levels encountered in the labor surplus areas reflect a management sorting device, rather than something linked to higher productivity, or the fact that better educated people had better access to job information. Moreover, the results of the current RRA jibe with those of the Paolisso and Blumberg study (1989) in this regard.⁵
- There is an ethnic factor. In NTAE, Indian women were more likely to be employed as agricultural workers and paid substantially less than mestiza women working in the processing plants. While the Indian women had less education, the main difference seems to be that they were categorized as ordinary farm workers. (In contrast, in export flowers, cultivation workers were categorized as export firm workers treating a high value crop.)
 - a) Being treated like an agricultural day laborer means having to bring one's basic tools, boots, and any protective clothing -- a clear risk factor that made Indian cultivation workers those with highest pesticide exposure of all the workers studied in the RRA.
 - b) Even so, Indians working in NTAE cultivation for larger firms reported being paid more than counterparts cultivating non-NTAE crops on traditional haciendas.
- Women are more likely than men to be temporary workers with no benefits.
- Almost all women intend to keep working even if they marry or have a(nother) child. Almost none intended to retire from the labor force if they lost their present job. Indeed, in the firms and subsectors (e.g., clothing *maquilas*) where women were experienced and older (30's), they were more likely than not to be partnered and/or mothers.

- Fertility among workers under age 40 is generally low, with ideal family size being three children or less.
- None of the workers in any firm visited were union members.

2.5 Socioeconomic impact of women and men's income

The scope of work (SOW) for the present research (Annex E) notes that:

Secondary impacts, such as effects on local labor patterns and labor supply, small farm agriculture and fertility patterns could also be pursued. This baseline data will be particularly important given that the end of project evaluation is scheduled to measure the impact on men versus women, and on family income and well-being.

Further, the SOW suggests obtaining indicators on spending patterns and on the proportion of household income generated by the worker (instead, the RRA asked for the proportion of worker's income contributed to the house and the proportion of total household income that contribution represented). Of these topics, two already have been discussed:

- The effects of T&I firms on local labor patterns and labor supply already have been treated above, in the discussions of local labor deficit/glut. These effects, as has been seen, are as any economist would have predicted: workers for firms providing prevailing wages, along with overtime and formal sector fringe benefits, had higher human capital (education) in labor glut areas; in labor deficit areas, wages and benefits were higher and workers had more variable but generally lower human capital.
- Fertility patterns also were considered. The workers interviewed are a fairly low fertility group. In addition, the research revealed a strong consensus as to the undesirability of having families of larger than about three children that crossed gender, location and industrial subsector lines. Actual fertility patterns followed suit, with very few exceptions.

The RRA also selectively collected data on use of income. It is worth emphasizing here that the basic minimum wage is determined for the country as a whole, but the cost of living varies substantially from region to region. In some areas, workers were able to contribute to their households and accumulate substantial investment and/or consumption goods with the money they retained for themselves. In other areas, almost none of the workers interviewed claimed that they had savings and they stated that they had been able to make very few consumer purchases. Instead, their income went for basic necessities. The situation in areas of higher cost of living was intensified by marital/fertility status, of course, with the higher levels of obligations of those with partners and/or children resulting in fewer non-subsistence uses of income.

Several additional patterns were also noted in the course of the research. Before presenting them, however, some caveats are in order. The income questions came toward the end of the group meeting and because of their sensitivity, were phrased in a voluntaristic manner ("*me quieren decir...*" [would you like to tell me]). Since a topic list, rather than a formal questionnaire,

was used, they were not always asked, or asked in the same manner, and they were not always answered. Sometimes, they were pursued via a discussion rather than by asking each focus group member in turn. In a couple of group meetings, the workers used the discussion format to answer generally, about "the workers here," rather than about themselves. Also, the second interviewer handled the income items somewhat differently than the author if she sensed reluctance in the focus group, further reducing comparability. Accordingly, it is not possible to make precise statements about the number of people espousing these patterns, e.g., "8 out of 10 women with children or husbands claimed...." Nevertheless, even with these provisos, it is illuminating and useful to see the broad patterns that emerged.

Investment and savings. When women workers lived in a rural area and their household had even a very small parcel (*parcela*) of land, if they lived in a lower cost of living area, they tended to invest in animals ranging from guinea pigs to cows. Most of the animals were small: chickens, guinea pigs, rabbits, pigs and sheep. (Not enough men were asked this question to draw a conclusion, but only one of those queried had bought animals.)

Both the mestiza women post-harvest workers in the largest flower firm and the poor Indian broccoli seedling cultivators were queried extensively on this issue. The flower workers were earning well above the minimum wage in a fairly low cost of living area. The broccoli workers were making more than prevailing wages for traditional crops on local haciendas, even though they were earning below the government minimum. Both groups were mainly single and both bought animals as their main form of investment/savings: guinea pigs, rabbits, chickens, pigs (the most frequent), and, among the Indian cultivators, even a burro and a cow.

There was a tendency for more men to claim savings accounts than women but the sample sizes were low and the reliability of the data questionable. Workers seemed less comfortable talking in an open group meeting about whether they had savings than whether they had invested in animals.

Contributions to the household. Levels of contribution to the household were associated with marital/fertility status as well as gender. With one exception (a married woman with children who was using her income to finish her long-delayed university degree), women with partners and/or children claimed to contribute all or virtually all their earnings to household maintenance. Married men also said that their income went to support their families, but few volunteered that they put it all in. Since the number of married family men interviewed was small and this question was not consistently asked, it is not prudent to compare more closely.

Among single, childless workers, poorer ones contributed higher proportions of their earnings (n.b. Alberti found the same). There were only a few, less poor, workers who claimed that they contributed "only once in a while," or "nothing or almost nothing." All were single males. However, several young, single women claimed to contribute as little as s/5,000 per month. In general, few workers admitted to contributions below 10,000 Sucres per month (which would come to less than one-fourth of the basic minimum wage).

Expenditures. All workers in the sample admitted to at least the occasional expenditure on a piece of clothing or recreation -- although for women with partners and/or children, this might be only several times a year, at most. Young, single workers -- even poor ones -- treated themselves more often, with all those who reserved at least half their wages for themselves

agreeing that they buy all their own clothes and entertainment.

Often, married women reported buying the household's food themselves, even when they claimed that they pooled income with their husbands (the extent to which they pooled was not ascertained). In other words, despite the pooling claim, many of those who were probed on this issue reported spending much of their "pooled" wage income themselves -- on household provisioning.

Women with children claimed they spent their money overwhelmingly on food, health, education and clothing for their offspring. They were less likely to name consumer items when asked about spending patterns. A "social desirability" effect might conceivably have been working, however: a woman with small children may not wish to admit before a group of co-workers that she has just bought a stereo sound system.

With respect to discretionary income, women -- both married and single -- were much more likely to buy household items of various sorts, ranging from sets of glasses to linens to furniture. These items were almost always made in Ecuador. In contrast, men -- especially single men -- were likely to buy electronics such as stereos and TVs. These items were almost always made in Asia. Therefore, the local multiplier effect of women's income seemed to be higher. (A few women did buy TVs, but in no instance was this the sole household purchase mentioned.)

Education was mentioned prominently as an expenditure category by parents of both sexes. In contrast, only a handful of single workers volunteered that they were paying educational expenses for siblings in the household. Time constraints prevented deep probing on this issue.

Finally, the broccoli cultivators, who were exposed to serious pesticide contamination and had no Social Security, were the only ones who mentioned high health expenses as a major spending category.

Women's control of earnings. Only a handful of very young women (almost all teens in their first job) claimed that they turned over all their earnings to their mothers. No one -- female or male -- among the single workers living at home claimed that he/she turned over income to their fathers: it was invariably the mothers. No married woman claimed that she turned over her earnings to her husband. Many claimed that they pooled income (to an unspecified extent) with their husbands, but, as noted, spent for specified categories out of their own retained earnings.

Impact of women's earnings. In line with the worldwide literature (Blumberg 1988, 1989a), in the six RRA focus groups, women -- especially those who had not worked for income before -- generally agreed that they felt that their earnings and household contributions increased their self-confidence; increased the respect they got from their families; and increased their say in the household (*voz y voto*).

With respect to control over fertility, in every worksite where the question was asked (all but a handful), women responded that a majority of female co-workers were using some form of contraception ("*se cuidan*"). In the worldwide literature cited above, women who control income tend to increase their control over fertility. No women who did not earn/control income was queried, so no direct comparison is possible. But the working women interviewed appeared to

have high leverage over fertility, as inferred from their statements. The frequently heard phrase, "*se cuidan*," in reference to their female co-workers, appears to refer to their use of female methods. This inference may also be drawn from their statements that they intended to have only two or three children (the most frequently mentioned desired family size), without mentioning husband's role in this decision. In the discussion about family size, no one said, "I don't want any more but my husband does, so I'll have 'o continue." This was a frequent response the author encountered in Guatemala among rural women who earned little or no income (Blumberg 1989b, forthcoming.) More exact data would be required to specify this further, however.

In sum, the RRA findings offer additional qualitative support to the worldwide literature on the empowering and social welfare effects of income under female control (Blumberg 1988; 1991). Those women asked (not all were) claimed that the income enhanced their domestic position and personal self-confidence. The child-focused spending of those with provider responsibilities presumably enhanced children's well-being. It may have buttressed their control over fertility as well. The findings should be interpreted as representing general patterns, in contrast to items such as age, which was directly queried of each participant in each group meeting. The workers' general characteristics (gender, age, education, rural-urban, etc.) were elicited in all group meetings in roughly comparable fashion, and at the beginning of the meeting. In contrast, as noted, the questions on income and its impact were at the end and much less consistently elicited. It also is not known if the women's income is additional, or merely substituting for men's, since this was not asked.

The greater domestic multiplier effect of women's as compared to men's discretionary income is a new finding in the present research, and one with a fairly solid basis. Ecuador manufactures items like blankets and sheets, drinking glasses and *armoires*, but not TVs or sound systems, and there was a clear-cut gender difference in the types of items bought with their earnings.

2.6 Special issues in NTAE and *maquilas*

In this section, two special issues are discussed. Both have WID and broader significance and merit separate treatment in the still-formative stage of the T&I project. The first is pesticide-related illness among NTAE cultivation workers. The second is the identity and vulnerability of the U.S. firms that might become the export partners of the new Ecuadorian *maquilas*.

Pesticide-related Illnesses, Gender and A.I.D. Leadership. In Paolisso and Blumberg (1989), the pesticide issue was raised as a source of concern for the then-new NTAE project. In the brief RRA field work for that report, a correlation was seen between size of firm and protective measures taken for cultivation workers.

The worst offender in the 1989 research proved to be a traditional hacienda that used Indian contract labor for its new NTAE *babaco* and tree tomato crops, and provided them with no protective clothing. During the field visit, the research team saw unprotected teen-age boys spraying a particularly deadly pesticide only several feet away from a group of cultivation workers. The more extensive RRA research for the present report revealed that protective clothing and other measures are minimal to non-existent when NTAE cultivation workers are categorized as agricultural day/occasional laborers: then, traditional practice puts the burden of supplying such items as gloves and masks on the worker. The occasional exception is when a firm which treats

cultivation workers by the standards of day labor hires a full-time fumigation worker, who may be paid a specialist's wage and given special protective gear.

The 1989 study found the country's biggest export flower firm at the other end of the spectrum: it had its own physician to treat pesticide symptoms; provided all regular cultivation workers with masks, rubber boots and gloves; removed them from the flowers during spraying and kept them out for a few minutes thereafter, and garbed its male fumigators in head-to-toe protective clothing. Management claimed that its supervisors also were expected to provide some informal training to new workers -- although a couple of workers still in their three-month probationary period were observed in dangerous practices, e.g., working in recently sprayed areas with their disposable paper masks just hanging around their necks. The firm's physician was just beginning cholinesterase testing of workers' blood to measure exposure to the types of pesticides most prevalent in Ecuador (organophosphates).

During the present RRA, the author revisited the same flower firm. The physician's cholinesterase testing study revealed some disquieting findings. He had tested 397 workers, 314 of whom were directly exposed to pesticides. A total of 27 registered a drop in cholinesterase levels of 30% or more. This level is still asymptomatic, he explained, but of concern for long-term liver and kidney damage.

The most disturbing finding is that of the 27, 23 were women. The physician is not a statistician and could have used help in how to pursue hypotheses about differential exposure, but he did find that gypsophila (baby's breath) workers registered the highest rate (8 cases) and those tending carnations the lowest (3 cases) among the cultivators. They averaged 36 months' experience but with a great deal of spread (i.e., high standard deviation). In all, of 136 men directly exposed to pesticides, 3% had a cholinesterase drop of this magnitude; but fully 13% of the 178 women dropped 30% or more. There is still no explanation of why this should be the case, but with a pregnancy rate of 6.3%, and a number of other women breast-feeding, the danger is not only to the women themselves but also to their children.

During the RRA at this firm, one of the two group meetings was held with five women from a work team of gypsophila cultivators. Among the five, they regularly experienced all the classic symptoms of pesticide exposure, especially after reentering recently sprayed areas: These include headaches, nausea, stomach aches, nose-throat and eye irritations. They told of one failed company experiment to spray at night: the pesticides did not dry, however, and they began work the next morning with the flowers still wet -- and hence most dangerous. They also told of the company increasing the time before they go back to a newly sprayed area (now 30-60 minutes).

The other group meeting was held with four women post-harvest processing workers. The company occasionally sent them to do cultivation work for two weeks at a time during especially low points in the export cycle. In general, they described a much milder level of symptoms and seemed less concerned.

The opposite extreme encountered in the present RRA involved the Indian, almost all-female, team cultivating broccoli seedlings for the Latacunga plant. Since they raise the seedlings for the processing firm, they are considered its direct employees -- even though they work on land contracted from a local hacienda. Here is their story:

The four women focus group members had worked there 15-16 months (the man was a recent hire). Since they were treated as agricultural day laborers (a category correlating with Indian ethnicity in the Sierra, it appears), they were not given any equipment or protective gear. They often had complained to the manager, requesting boots, tools, and gloves without results. They particularly wanted the boots, since the pesticide-laden seedlings are wet in the morning, and those without their own boots work in flimsy shoes or even barefoot, which they know is dangerous as well as cold.

In their work, they have to use a backpack sprayer. They were not given training in protecting themselves during fumigation. In order to minimize each person's exposure, they rotate the sprayer among the entire group. Two months ago, the company hired two new agricultural extension agents. These men had seen the situation and requested that the processing plant provide masks, gloves and some tools, at minimum. The gloves arrived one month ago and the mask two days prior to the RRA visit.

When the author arrived, accompanied by one of the extensionist agricultural engineers, one woman of 18 was using the backpack sprayer, wearing the new pair of gloves and mask, and a pair of her own torn rubber boots. She had only a t-shirt between her skin and the sprayer, not the recommended protective pad. None of them had known that protection of this sort is needed. Several of the workers were barefoot.

They also had made repeated requests for Social Security, to no avail. Without access to Social Security, when they got sick from suspected pesticide exposure, they had to pay for a doctor's visit out of their own pocket. During the previous 15 months, each of the four women had made 5-10 doctor's visits. They had to pay 2,000 Sucres for the consultation and considerably more for the prescriptions. During the period, five women and three men left. They attributed this, in part, to health problems from pesticide exposure.

An enormous contribution could be made by A.I.D. if it took a pro-active role in pesticide protection during the T&I project. It could provide technical assistance to the flower firm's doctor in analysis of his data. It could help develop minimum training packages and basic protective equipment and procedures. It could develop procedures to disseminate these, with costs, perhaps, being shouldered in whole or in part by firms benefitting from the NTAE aspects of the project (e.g., those getting PROEXANT technical or marketing assistance). It could promote Integrated Pest Management (IPM), and undertake comparative studies of yields and profits from export firms that used IPM vs. conventional heavy spraying and chemical application. The flower industry would make an excellent pilot case for evaluation of the IPM approach, since it is the one with the most available data on pesticide exposure and the most rationalized production and accounting techniques.⁶

Building Bridges to Beneficial U.S. Export Partners for *maquilas*. A frequent complaint that surfaced among various exporters (both NTAE and *maquilas*) during the present research is that they were at the mercy of unknown, and sometimes fly-by-night, U.S. firms which bought their products. Key informants explained that two of the eight *maquilas* approved by the

government (both in Manta) were currently not operating because of a hiatus in deliveries of material from their U.S. supplier/export partner. The two firms were a clothing manufacturer owned by a woman and an electronics components recycler with a male owner.⁷ Another *maquila*, also a clothing firm, had been involved in protracted negotiations with its supposed U.S. *maquila* supplier/partner. It appears, however, that the U.S. firm was not serious. After going through all the time, expense, and aggravation of qualifying under the government's *maquila* Law procedures, the female owner of this Ecuadorian *maquila* found the U.S. supplier did not intend to sign the contract and send the materials to be sewn. Rather, the U.S. firm had been using the possibility of the Ecuador supplier as a bargaining chip to obtain better terms in its negotiations with a Colombian firm that had been supplying them. The owner of the "jilted" *maquila*, as well as several of the non-*maquila* NTAE exporters visited, asked for assistance in locating reliable U.S. export partner firms.

Once again, A.I.D. could take a pro-active role with WID implications. This is especially true in the clothing/textile subsector, since the industry has a substantial number of women-run firms in both Ecuador and the U.S. This means that promoting export partnerships for additional clothing *maquilas* would benefit proportionately more women entrepreneurs in both countries than promoting virtually any other non-traditional export subsector. This again underlines the gendered nature of the different subsectors that A.I.D. could choose to help, and the gendered consequences of the final mix of subsectors chosen for the T&I project.

3. Comparisons with Central American Research Findings on NTAE

Alberti (1991) studied the impact of NTAE work on the employment, income and quality of life of women in Guatemala, Honduras, and Costa Rica. The NTAE crops studied were melons, greenhouse-grown ornamental plants/flowers, and specialty crops specific to each country (highland vegetables in Guatemala, squash in Honduras and processed tropical fruits in Costa Rica).

Especially in Honduras and Costa Rica, women's traditions of economic activity are closer to those of the Ecuadorian Coast than the Sierra. In other words, there is more of the mestizo culture attitude of "the woman is for the house." A priori, then, lower rates of female NTAE participation are to be expected for Alberti's data than for the Ecuadorian Sierra. In fact, this proved to be the case.

To facilitate a comparison of the results, Alberti's order of presentation in her Executive Summary will be followed.

NTAE workforce composition. Alberti claimed that in explaining workforce composition by gender, type of work - field cultivation, packing, and greenhouse production - proved to be more important than the product or crop. Table 6 summarizes the gender division of labor by crop and type of work in three Central American countries.⁸ The table shows that flowers/ornamental plants were the most feminized product in Central America. This goes along with her figures showing that greenhouse work is the most feminized job: The flowers and ornamental plants are grown in greenhouses, hence the percentages are the same.

Table 6: Ratio of Women to Men Workers in NTAE Employment

Product/Job	Guatemala	Honduras	Costa Rica
1. Product			
Flowers/plants	55:45	71:29	58:42
Melons	23:77	21:79	52:48
Specialty*	60:40	59:41	54:46
ALL**	42:58	33:67	54:46
2. Job			
Field	31:69	22:78	29:71
Packing (non-field)	57:43	35:65	59:41
Greenhouse (non-field)	55:45	71:29	58:42
ALL	42:58	33:67	54:46

Source: Alberti 1991, Tables 1 and 2, pp. 5-6.

* Specialties were highland vegetables in Guatemala, hard or winter squash in Honduras, and processed tropical fruits in Costa Rica.

**The "All" line is not the mean of the columns above it; rather it presumably reflects the weights yielded by the parametric data.

In keeping with the fact that of the three countries, Honduras has the strongest traditions of male farming systems/"the woman is for the house" ideology, it should be no surprise that Honduran women do the least field work (in melons and squash). Greenhouse cultivation there, as in Ecuador, is seen in a different light than outdoor fieldwork, and attracts a different (and better off) female labor force. In all three Central American countries, however, women's non-field work (packing or greenhouse) is about double women's field work involvement. Since labor days in field work exceed labor days in processing/packing by ratios of 3:1 to 20:1, however, employment for women is less than if did field work.

NTAE Workforce Composition in Ecuador. With respect to the division of labor by product, the Waters' data for the export flower industry indicates that women are 62% of flower workers in Ecuador, compared to an average of 61% for the three Central American countries. In the RRA, all five flower firms had overwhelmingly female labor forces in post-harvest classifying/packing (80-100%), and at least half-female labor forces in cultivation. Numerically, there are more cultivation than post-harvest workers, as noted by Alberti.

No firm in the RRA sample processed melons or squash, although various processed tropical fruit. The Quito area processing companies used a three-fourths female labor force and medium-low to high levels of capital and technology to produce various fruit products. In contrast, the Coastal firms visited used an almost all-male labor force and high to very high levels of capital and technology to produce a somewhat similar range of fruit products.

With respect to type of job held, in cultivation, both regional and ethnic factors inflated the Ecuadorian percent female over Alberti's Central America findings. Cultivation was researched only in the Sierra, where both Indian and mestiza women are much more active economically than Coastal mestiza women (with Sierra Indian women far more active than mestizas). Indian women were about 3/4 of the cultivators of broccoli and asparagus in the firms visited; in the strawberry firm, a mainly *mestiza* labor force proved 83% female.

The closest analogue to Alberti's "packing" category is fruit and vegetable processing, but in Ecuador, the Sierra vs. Coast factor must be taken into account since the labor force in the former is three-fourths women and in the latter well over 90% male. In short, Ecuador proved more regionally gender-polarized than the three Central American countries.

Finally, just as in Central America, the only greenhouse workers encountered in the current research worked in flowers. In Ecuador, however, not all flower cultivators worked in greenhouses: certain flowers were grown outdoors in one of the Cuenca firms visited.

Socioeconomic/demographic characteristics of the workers. In one aspect, there was considerable overlap between the two areas: in both Central America and Ecuador, women field workers had a greater age spread (more of the youngest and the oldest) than flower or processing/packing workers. Women field workers also had less education, and, if partnered, more children than flower or processing/packing workers. Nevertheless, in Ecuador, women had as much education, overall, as men, whereas this was not the case in Central America.

Overall, then, the RRA data on Ecuador's NTAE labor force drew disproportionately from Sierra activities and indicate a higher proportion of women than in Central America.

Does NTAE lure a new labor force to agriculture-related jobs? Alberti found that in both post-harvest processing/packing and in flowers, "the conditions . . . are such that they invite to the workplace women who, because of social constraints, would not ordinarily work -- or be permitted to work -- in jobs related to agriculture that are normally available in their areas" (Alberti 1991:iii). This may be slightly overstated vis-à-vis the Ecuadorian Sierra, but it is clear that few post-harvest processing or flower workers would otherwise have been full-time agricultural field workers. In fact, flower and fruit/vegetable processing workers were drawn from a better educated labor pool that otherwise worked in factory, store, or maid jobs, rather than in either housework or agricultural day labor. Of course, the ethnic factor also enters into the Ecuadorian RRA, where the cultivators in broccoli and asparagus were all Indians whose alternative was field work in traditional hacienda crops. *Mestiza* women would not generally be in that same labor pool, i.e., agricultural day labor on Sierra haciendas.

Earnings, permanence and advancement effects. Under the subhead of the impact of NTAE on women's income, Alberti notes: (a) the overall assessment is positive; (b) women's jobs were more likely to be permanent than men's in Guatemala and Honduras, but even in Costa Rica, permanent employment is remarkably high for both men and women;⁹ (c) opportunities for women in supervisory jobs were almost non-existent, and (d) women usually were paid the government-established minimum wage.

In Ecuador, (a) also is true -- NTAE contributed quite positively to women's income. With respect to (b), however, a location factor entered. There seemed to be no difference between the permanence of men and women's NTAE jobs in the Sierra, but in the Coastal region, women were dramatically less likely to have permanent jobs than men: The few women employed in fruit/vegetable processing almost all had temporary jobs (and, it will be recalled, the overwhelming number of shrimp/fish processing jobs also were temporary). A vivid contrast emerged with respect to (c), however: unlike their Central American counterparts, Ecuadorian women had significant access to supervisory positions in Sierra flowers and fruits/vegetables (and in Coast shrimp/fish). Women also were found working in certain professional-technical positions. For example, quality control chemists in fruit/vegetable processing were often women, and the chief production agronomist in a sizeable flower firm near Lasso (not in the current RRA sample) is a woman. Finally, results for (d) also converged: in Ecuador, NTAE provided the government minimum wage or better for all women except the broccoli seedling cultivators. The broccoli field workers were paid a monthly wage slightly below the minimum, but well above what other Indian women earned in field work on traditional haciendas. (The asparagus cultivators were paid a daily wage of 2,000 Sucres -- high enough to yield the government minimum if they worked full-time during the month.)

What is not known, however, is the extent to which the minimum wage actually buys the minimum level of subsistence in each country in Alberti's sample. In Ecuador, the minimum wage has fallen far behind its former purchasing power due to the disastrous inflation and low economic growth rates of most of the 1980s. Wages in the informal sector (representing at least 38% of the labor force, according to conservative studies cited in Blumberg 1990b) often fall below the minimum, and rarely reach it in agriculture. So large proportions of the Ecuadorian public scrimp and scrape to survive on a decreasingly survivable wage.

One saving grace for Ecuadorian workers in many rural parts of the country is that the minimum wage is determined at a national level and in their areas, living costs are much lower.

This effect emerged clearly in the present research where workers in the smaller cities and towns were able to buy more consumer goods out of their earnings -- although those with children bought far less than childless workers.

Overtime, alternative employment and working conditions. Under the subhead, "Impact of NTAE on the Quality of Life of Women," Alberti writes that: (a) NTAE employment is generally positive (at worst neutral) on the quality of life of women, from an economic perspective: women got better hours and recognized payment of overtime; (b) NTAE is practically the only employment available: two-thirds of the women would otherwise have had to work as maids or stay home; and (c) NTAE multinational enterprises provide satisfactory physical/sanitary working conditions.

Concerning (a), overtime also was common in Ecuador (sometimes, in fact, to the point where processing/packing workers would toil into the wee hours and all week-end). Permanent workers received time-and-a-half (or better, for Sundays/holidays); temporary workers received straight time, but none reported being shorted. Workers could accumulate earnings well above the minimum wage as a result. There was a big difference, however, with respect to (b) in the Sierra: here, women flower workers and fruit/vegetable processors with prior job experience constituted a strong majority, according to data both from RRA focus group members and from managers. They had held a wide variety of other jobs, mainly in factories, stores, and other NTAE plantations or processing plants; a few had been maids and even fewer housewives. Those in their first job were committed to the labor market also. In fact, less than a handful of women in the RRA -- in both the Sierra and the Coastal region -- said they would withdraw to unpaid work in the home if they lost their present NTAE job. (A couple of women who said that if they lost their employment, they intended to return home to spend more time with children, also said they would engage in weaving for cash from their homes. In other words, they remained committed to earning income, even if not at an outside job.) It does not appear that in Ecuador, these women were lured into the labor force by NTAE work, and would be unwilling or unable to find other work if they lost their NTAE jobs.

Finally, for (c), results in Ecuador largely paralleled Alberti's: physical working conditions ranged from locally acceptable to excellent for processing workers, whether they worked as post-harvest flower workers or in fruit/vegetable processing. Alberti doesn't discuss the pesticide issue, although, presumably, cultivation workers also were exposed in all three Central American countries. Cultivators in Ecuador manifestly were exposed to pesticides, regardless of whether they worked in flower greenhouses or fields, strawberries, broccoli, or asparagus. Pesticides aside, cultivation working conditions were much more pleasant for the Checa-Quinche area flower and strawberry workers; the tight labor market in the zone brought additional amenities. In addition to transportation, subsidized lunches -- and nice places to eat them -- clean bathrooms, and the like, the two biggest flower firms had physicians, and the second largest had a day care center. Even the strawberry company had fixed up amenities ranging from a chapel to lovely gardens and shaded grassy areas for lunch. In the labor surplus areas around Cuenca, the transportation, lunches and other expensive extras were gone, but clean bathrooms and lunch areas were provided to flower cultivators and post-harvest workers alike. In contrast, the Indian broccoli and asparagus farmers seemed to have more pesticide exposure and lacked physical amenities. Another difference also should be noted. Alberti found that temporary jobs disproportionately went to single women living at home, whereas women with partners and/or children predominated in permanent jobs. No such clear-cut effect was found in Ecuador.

To sum up, the Central American women's lower prior experience and promotion possibilities, and educational gap with men, appear to reflect a greater degree of female disadvantage than Sierra women. But Sierra, Coastal and Central American women all were found to benefit from the NTAE jobs' most clear-cut benefit: a decent or better income by local standards.

4. Gender-disaggregated Indicators for Trade and Investment

4.1 Indicators

The Mission is currently engaged in a large-scale effort to develop indicators that can be used to measure progress toward the principal objectives formulated by USAID/Ecuador. In accordance with A.I.D. practice and Congressional mandate, these indicators must provide gender-disaggregated data of relevance to broader end, as well as specific projects. In fact, Strategic Objective 1 (SO1) calls for "increased trade and employment in non-traditional exports. Performance Indicator 1b is an "increase in employment in firms engaged in production for export, disaggregated by sex."

Some gender-disaggregated indicators are important enough to be collected in every baseline, monitoring, and evaluation:

- **Socioeconomic and demographic background information, disaggregated by gender, concerning the groups of interest -- which would generally include:**
 - (a) age
 - (b) education
 - (c) marital/fertility status
 - (d) rural/urban
 - (e) ethnicity

- **Gender division of labor in the activity/job in question: number and percentage of males vs. females in each relevant category, including:**
 - (a) occupational group/activity
 - (b) occupational category
 - (c) permanence of employment
(e.g., permanent/temporary, full-time/part-time, year round/seasonal)

- **Gender division of resources in the activity/job in question:**
 - (a) amount of income,
 - (b) nature/amount of other resources
(e.g., small animals purchased as "savings on the hoof"),
 - (c) female income/resources as proportion of male
 - (d) benefits received by gender.

The current research made some preliminary attempts to describe these three categories of indicators, using a small, purposive sample. Only the export flowers subsector has any macro-level quantitative data with which to compare (Waters 1991), and that data extends only to gender composition of the work force and number of women supervisors (not in comparison with men, unfortunately). Beyond this, the present study is an exploration of terra incognita. Nevertheless, several gender-disaggregated indicators that would be useful if there are time and resources to collect them include the following:

- (a) amount and proportion of income spent on/contributed to household basic necessities
- (b) how this is contributed: by regular amount or proportion of income, by paying for specific categories of expenditure (e.g., purchased food), on an "as needed" basis, etc.
- (c) contribution to specific categories of basic expenditure (e.g., food, children's education, health, clothes, shelter)
- (d) proportion of total household income contributed
- (e) expenditures on consumption items other than basic necessities (e.g., household furnishings, small appliances, electronics)
- (f) savings/investment (e.g., type and number of small animals, savings account).

There is a major drawback to achievement of Mission objectives, even if all these data were to be collected for all future projects. They would refer to the individuals who happened to constitute the sample -- usually this sample would be non-random and small. And, because of a gaping hole in current Ecuadorian data collection procedures, there would be no macro-level parametric data disaggregated by gender and economic subsector with which to compare these results.

4.2 Data Availability

The lack of data has been abundantly highlighted in the present report. During the course of the August-September 1991 research, the shortcomings of several available data sources were examined.

The Census (INEC) studies of economic sectors. The questionnaire does not ask for sex of workers, so no gender-disaggregation is possible. The data are presented down to the fourth digit of the U.N. economic subsector codes (the International Standard Industrial Classification, ISIC), so data are available on the number of people working in very precise economic activities. But not on their gender.

Another limitation concerns the size of enterprise. Thus, for example, the INEC study of manufacturing contains wonderful information concerning firms employing 10 persons or more. As it happens, over 97% of the firms in Ecuador have nine or fewer employees and somewhere between 38% and 60% of the labor force works in small, informal sector enterprises, depending on the definitions used (see Blumberg 1990b chapter in Magill).

Consequently, the net result is doubly limiting. Precise information is available about the characteristics and number of jobs of the largest firms in the country, but these are not broken down by gender. No information is available about the smaller firms in an economic subsector, by gender or anything else.

The Household Survey of the National Employment Institute (INEM). This involves annual random samples of 5,000 urban and 5,000 rural households. The sex of the informant and all other household members is explicitly queried, as is detailed information about the informant's economic activities during the reference period. These data are coded (allegedly to the third digit) using the standard occupational coding scheme (the International Standard Classification of Occupations, ISCO). The economic subsector (*rama de actividad*) data are coded to the third or fourth digit of the ISIC codes. The problem lies in the fact that with such small samples, the number of people found working in specific economic subsectors or occupations will be small.

So the INEM data provide a very detailed picture about the sample, from which inferences can be made about proportions in the total population. But it is not possible to make inferences about the absolute number of people employed, by gender, in specific subsectors because too few cases can be expected for each subsector or detailed occupation.

The Central Bank data. The Bank maintains data on specific subsectors of the Ecuadorian economy, on exports by product, and other information relevant to the T&I project. They even maintain lists of firms with addresses and selected business parameters. But there is nothing whatsoever related to gender.

Waters' study of export flowers. The Waters' study has been referred to repeatedly in this report. As far as could be ascertained, it is unique in Ecuador, in that it provides information about both economic parameters of each identified firm in the industry (e.g., hectarage) and employment parameters, (e.g., number and sex of workers, and number of women supervisors).

The Puga study of fruit/vegetable processors/exporters. This study also provides a census of a major subsector of NTAE: Puga (1990) found 94 firms in this business, including 51 that exported in a processed state (e.g., puree, frozen), and 43 that exported fresh. He chose a sample of 27 of the 51 processing exporters but only 11 of the 43 exporters of fresh fruits and vegetables. For the 27, he reported data on total employment (1,204), but it was not broken down by gender. For the 11, no employment figures were obtained. (His study focused on aspects other than employment.) The Puga data offer a starting point for a follow-up study that, at minimum, would list the number of workers and supervisors for each of the 94 firms, broken down by gender. This would replicate Waters' achievement for flowers.

The INSOTEC studies of the leather and garment industries. Although these studies provided very useful economic information about two subsectors relevant to the T&I project, they did not include any gender-disaggregated employment data.

While the possible existence of another subsector study (e.g., of wood products exporters) cannot be ruled out, no evidence was found that studies such as the Waters, Puga or INSOTEC efforts had been done on other subsectors of T&I project relevance.

5. Recommendations to USAID/Ecuador

Within the context of its T&I program, A.I.D. has a wonderful opportunity to take a proactive position that would benefit not only its own projects, but also the people of Ecuador. Talks between a representative of A.I.D.'s Office of Women in Development and INEC officials indicated that they would consider generating sex-disaggregated data in the future. They would want aid and resources to undertake this, however.

Additionally, one of INEC's top statistics experts is currently contracted by USAID/Ecuador for work in MAG and is interested in conducting a study to generate the number of worker and supervisory jobs in two selected subsectors, broken down by gender. The two subsectors proposed are clothing/textiles, and fruit/vegetable exporters (the same 94 firms identified by Puga, discussed above). The Puga follow-up research is not expected to be too difficult: telephone calls and visits to the (surviving) firms would be all that would be needed; hopefully, these could be carried out by a research assistant if the Mission and PROEXANT backstopped the effort via a preliminary letter. Fortunately, PROEXANT is going to repeat the Puga study in 1992 and has agreed to include gender-disaggregated data. A study of the clothing subsector is more complicated since several sources of data must be combined: INEC and Central Bank data will be used to generate a preliminary list of firms, and then these would be contacted and asked for the number of worker and supervisory jobs disaggregated by gender. An additional concern is presented by the Lautenberg Amendment, whereby the inclusion of clothing/textile *maquilas* in an A.I.D.-funded study may not be permitted.

The major drawback to the garment industry study is that because most firms are small, getting gender information on the multiplicity of tiny ventures would be prohibitively costly. Therefore, the restriction of the INEC industrial studies must be retained: only firms with 10 or more employees should be included.

It is not advisable to attempt to ascertain permanent vs. temporary workers, disaggregated by sex, at this stage. The RRA indicated that management underreports temporary workers, who receive no benefits and thus are cheaper. But management may not want to reveal how many of its long-term workers are paid as temporaries, and/or it may not have good data on the total numbers of occasional workers hired irregularly and in varying numbers. In short, the data would not only be difficult to collect in a quick, low-cost study they would also be of doubtful validity. The only way to begin to get an accurate picture of the level of non-permanent employment is to cross-validate personnel records with worker interview. But this would so increase the study's price and difficulty as to make it not recommendable at this time.

Based on the RRA research, the author made several recommendations to USAID/Ecuador, regarding next steps and future actions. These are presented below.

- **Take into account the gender division of labor -- including the proportion of women -- to be expected in each subsector/location in making final decisions on targets for T&I Project assistance.**

Since the extent to which women will be incorporated into the activities and benefits of the Trade and Investment Project (incorporating the Non-Traditional Agricultural Export Project) will depend largely on the mix of economic subsectors and locations (Sierra vs. Coast) chosen for assistance, the gender division of labor to be expected in each subsector/location must be actively considered in the final choices.

This report makes a first foray into identifying the gender composition of some of the subsectors considered for assistance, as well as the interaction of subsector and Sierra/Coast location. Even though the RRA research on which the report is based is essentially qualitative, some of the patterns encountered are both clear-cut and consonant with other studies on the gender division of labor in Ecuador. Therefore, as a first approximation, the findings of this study should be used to help guide the final selection of subsectors and locations. The findings show that women are more involved in Sierra than in Coast NTAE work (except for fish/shrimp processing), and in labor intensive than capital intensive activities. Factoring in the traditional division of labor and looking at the industrial subsectors suggested for possible T&I assistance, women are more involved in clothing/textile work and least involved in wood or (most) metal products, with ceramics and leather products intermediate.

- **Monitor T&I subsectors with the most favorable wages and benefits -- such as export flower plantations in the Checa-Quinche area -- for edging out of women.**

This recommendation is based on studies of export processing/manufacturing in Mexico show a gradual reduction in the proportion of female employees, and there is some indication that women are squeezed out of the most desirable jobs. The flower jobs north of Quito are the ones where men could presumably be trained in the technical skills without undue expense (vs. the situation in clothing/textiles where so many workers are graduates of a three-year post-primary specialization). If masculinization does, indeed, occur in a particular job category/subsector/location, the gender-disaggregated monitoring indicators would provide an early warning. USAID could then work on why this was occurring and see if policy options could be developed so that women need not be overwhelmingly displaced.

- **Support the creation of gender-disaggregated, quantitative data on key industrial/NTAE subsectors.**

This is the key recommendation for the next step, especially in the light of the fact that, aside from Waters' study of the export flowers subsector, no parametric data exist - and the major INEC and INEM studies discussed in Section 4 are not presently set up to generate such information. Consider the use of a pilot study for at least two subsectors, clothing/textiles and fruit/vegetable processing for export.

- **Consider the use of a Rapid Rural Appraisal methodology where there are no baseline data to provide orientation for the gender-disaggregated indicators needed for project and Strategic Objective monitoring and evaluation.**

This approach was used in the present research to get gender-disaggregated patterns of employment by level, location and socioeconomic and demographic (e.g., age, education,

marital status/fertility, ethnicity) characteristics of workers. It can be a low cost method that serves as a first approximation so that better-tailored indicators can be formulated for monitoring and evaluation. But it should be combined with larger-scale, quantitative data in order to turn a "first snapshot" into a "finished portrait."

- **Support the incorporation of gender as a variable in the questionnaire and analysis of the INEC industrial surveys.**

Several INEC officials are well-disposed to this idea but need resources and technical assistance to change not only the questionnaire, but also the computer analysis program. INEC includes only firms with 10 or more employees, so the value of its data would be limited. But even so, adding a question on gender would be a significant step forward in generating a data base that would be useful for both A.I.D. and a wide array of Ecuadorian users.

- **Integrate the RRA findings with the upcoming GENESYS study.**

If the two studies are integrated, this research on gender-disaggregated employment patterns in T&I subsectors will ultimately result in gender disaggregation becoming available for a wide range of Ecuadorian economic data, ultimately going far beyond T&I subsectors. Moreover, the GENESYS study will use the INEM data, another national-level sample. The analysis of the INEM data and the "triangulation" of those findings with the results of the present RRA, should begin sketching out the picture of gendered employment in Ecuador. This analysis should also point to future modifications of the INEM instrument that could fill in many more details.

- **Choose subsectors that not only employ substantial numbers of women but also are less polluting for the T&I project, in order to best serve A.I.D.'s -- and Ecuador's -- interests.**

On these grounds, metal-working industries and wood products are both questionable. Even leather clothing is the "downstream" activity of a polluting process: tanning the leather from which the clothing is made.

- **Take a strong leadership role in promoting better pesticide management among NTAE firms -- including training and the use of protective clothing -- starting with the larger firms.**

A.I.D. should extend its protection efforts so that they reach Indian and other cultivators raising fruits/vegetables for growers with processing firm contracts. It should develop cost information on protective gear needed by people working in different climates and levels of pesticide exposure, and simple training materials to explain the most important "do's and don'ts" of pesticide use and misuse. Specifically, it should cooperate with and further extend PROEXANT's efforts vis-à-vis pesticides (e.g., the 1992 study), including collaborating with the Floricola physician who began cholinesterase testing of employees in 1989. It also should support Integrated Pest Management (IPM), and, with PROEXANT, promote comparative studies of the costs/benefits of IPM vs. conventional high pesticide methods of growing major NTAE crops such as flowers.

- **Facilitate Ecuadorian exporters' quest to locate reliable U.S. purchasers of their products by helping to identify both female- and male-owned U.S. companies which are suitable.**

Gender-disaggregation should go beyond keeping tabs on proportions of male and female workers and supervisors; it should extend also to the entrepreneurs who export the non-traditional items and the importers who buy them. But the focus of this recommendation is more than collecting statistics on gender of entrepreneurs: it also extends to helping the Ecuadorian firms locate reliable partners. This entails monitoring performance and/or complaints of non-performance on the part of brokers, potential U.S. partner firms for *maquilas*, etc.

ENDNOTES

1. The figures in the three firms visited bear him out: The firm that processed shrimp almost exclusively had a labor force that was over 90% female. The firm that processed shrimp plus some pelagic fish had an 80% female work force. The third processed mainly larger, pelagic fish and employed 45% women.
2. Ecuadorians identified as Indians are not ethnically distinct from those classed as mestizos. The Indians, however, tend to retain more of traditional costume and language (especially the women), and to follow indigenous customs - including a more active and equal role for women (Blumberg and Colyer 1990 give references). Here, the people identified as Indians were either so described by their employers or visibly identifiable by dress and accent. Asking if one is an Indian, however, is not considered appropriate in this sort of interview.
3. In contrast, the manager of the large fruit/vegetable processing plant in Latacunga, a labor surplus area, said that if he put out a notice that he was seeking 20 workers, "at least 50, maybe 100, maybe more, would come."
4. The problem of some workers being required to work into the night, often unexpectedly, is also found in some flower firms - although apparently at a lower level than in fruit/vegetable processing. A previous case study (Siguenza, in Hess 1990) of one of the Cuenca flower firms found workers expected to be on 24 hour call. Post-harvest workers quit at 1:00AM or later in peak periods. This is a conservative *mestizo* area where, ideally, "the woman is for the house." Local husbands would not put up with the night and week-end hours, so some women were postponing marriage so as not to have to give up their locally very high income. In the RRA, the manager claimed that no single woman who married ever has stayed, but attributes this to cultural norms rather than the firm's frequent extra hours. Nonetheless, three of the eight group meeting attendees were married women with children who needed income, had assured childcare, and were recent hires in cultivation. The husbands of two had migrated; the third couple lived with her parents. The manager also claimed that a recent efficiency study would eliminate most late shifts - but the problem seems unavoidable in peak periods.
5. In that study, it emerged that the *bachilleres* in the Riobamba vegetable processing plant viewed their jobs more positively than sixth-grade-educated Quito-area women whose modal prior occupation was maid. The Riobamba workers said that this was the best job available, mainly due to the frequent overtime. The Quito workers, with a richer array of alternate jobs, were not particularly impressed. (The Riobamba plant was cleaner and newer, but not much higher-tech.)
6. Moreover, as discussed in Blumberg 1992, Petyros, a firm in the Lasso area (under the management of the only woman chief agronomist in the industry) uses IPM and has obtained high yields.
7. One other maquila of the original eight was not yet in operation during the field work: the firm will produce dried flowers once the imported machinery arrives and is in place.
8. One caution should be noted in interpreting the data in Table 6. Alberti does not describe the number of firms visited or the number of workers interviewed, nor the source of the parametric data used to weight the raw, sample-level information.

9. Actually, there is an anomaly about her data on permanent employment. Her Table 14 is as follows:

Country and Gender-specific Breakdown of Permanent Positions of NTAE Workforce by Type of Work (# indicates % of persons in category with permanent employment)

Type of Work	Guatemala		Honduras		Costa Rica	
	Male	Female	Male	Female	Male	Female
Field	23	41	1	1	40	14
Packing	67	62	12	1	60	33
Greenhouse	100	100	44	30	100	86
ALL	41	49	7	10	77	66

As in many of her tables, the "All" line is not the mean of the column entries, presumably because it is weighted by number of persons in the category. In this case, her Executive Summary speaks of the greater permanence of women in Guatemala and Honduras based on the "all" line, whereas her discussion of Table 14 on p. 20 says: "Perhaps most relevant for differences in male and female employment opportunities, however, is the observation that there are consistently less permanent positions held by women than by men regardless of the country or the type of work involved." Clearly, this statement is based on comparing male and female figures for each row (field, packing, greenhouse).

ANNEX A

Persons Contacted (Key Informant Interviews)

A. Quito

USAID/Ecuador:

Robert Kramer, Deputy Director
Paula Goddard, Chief, PPD
Richard Peters, Chief, ETIO
Peter Lopera, Incoming Chief, ETIO
Milton Nunez
Edgar Guillen
Aida Lafebre
Guillermo Juaregui
Randy Reed
Kent Eaton
David Alverson

USAID/Washington and its Consultants:

Edgar Ariza
Karen Anderson
Nena Vreeland
Carolyn Barnes

Proexant and its Consultants:

Marco Penaherrera
David Anderson
Pablo de la Torre
Jorge Ibarra
Lina Ronquillo de Kolesnikov
Carmen Lopez
Paulina Montez de Oca
Kenneth Weiss
Jim Murphrey
Jose Puga (author of fruits/vegetables study)

Corporacion Financiera Nacional/FOPEX (Fondo de Promocion de Exportaciones):

Jorge Ortega
Sonia de Merino
Gloria Lara

CENDES:

Rodrigo Santamaria
Jaime Jurado
Ana Lucia Andrade

Universidad San Francisco de Quito:

William Waters, Dean
Maria Clara Bertini Chiriboga

CEPLAES:

Lucia Salamea
Mercy Balarezo

INSOTEC:

Paulina Garzon
Cecilia Vasquez

Others in Quito:

Carlos Criollo, MAG/INEC
Jorge Carvajal, MICIP
Coronel Luis Baquero Paez, EXPOFLOR
Hugo Ceron, FEDEXPOR
Susana Balarezo, FAO Consultant
Susan Poats, CIAT
Ruby Ortega H., Creagram-Europa
Jaime Florex, Tilati Ecuador/Conservera del Valle
Edgar Mata, Conservas Snob/SIPIA
Luis Holguin Perez, Fuego Verde/PROCECONSA
Andrew Wilkening, shrimp biologist

FLORICOLA:

Armando Palacios
Dr. Eduardo Andrade
Ketty Andrade
Tatiana Nunez (Floremit)

FLORINSA:

Dr. Enrique Teran
Sofia Mejia
Betty Ponce

FRUAGRO:

Marcelo Beltran
Marco Sotomayor

CONFENASA:

Maria Elena Lopez
Ramiro Davila

Maderas de Ecuador:

Hernan Carrera
Pablo Carrera

Angela Baquerizo/Ego Ecuatoriano:

Angela Baquerizo
Gonzalo Viteri Garzon

Cerraduras Ecuatorianas:

Jorge Zalles
Jorge Jarrin

B. Latacunga

PROVEFRUT:

Aurelio Echeopar
Patricio Mena
Orlando Bravo
Luis Jaramillo
Ligia Hidalgo

LUVIC:

Jairo Martinez
Laura Valladares

Hacienda Callo Mancheno:

Federico Arteta
Cesar Campana

Foreman (preferred anonymity), Hacienda Nintanga

C. Cuenca

Santiago Amaya, PROEXANT
and Pacaria Flor

ARTESA:

Alvaro Crespo Seminario
Patricia Crespo

San Joaquin Flores/FLORANDES:

Teodoro Acosta
Gustavo Burbano

Edgar R. Puyol, Bemani Flowers

Luis Canto, INPROALCA

Pablo Arevalo, Alimentos Rossini

Francisco Andrade Ordonez, Agro-Industrial de Paute

Juan Malo J., Juan Malo J./CONCUERO/CURTESA/MULTICUERO

Francisco Vintimilla G., Ceramica y Porcelanas del Valle

D. Manta

Alfredo Sierra, FEDEXPOR

Sergio Palomeque, PROEXANT

PESIA:

Alberto Cevallos
Jorge Mero

Neptuno:

Luis Cuadrado Cevallos
Gustavo Reyes

E. Montecristi

IDEAL:

Jose Agudo Alvarez
Maria Teresa Valle de Agudo

Rosendo Delgado and his wife, who chose anonymity, hat workshop/exports

F. Portoviejo

Teodoro Viteri, PROMAGIN
David Saltos, Ceramica Artistica "Bambi"

G. Guayaquil

PROEXANT:

Jorge Tello
Ernesto Ledesma
Alberto Plaza

JOKKO, S.A.:

Yong Min Yun Kwon
Yong Kyu Yun Kwon
Steven Liu
In Hyang Kim

Mabelle:

Yong Hee Yun Kwon
(also interviewed Yong Min Yun Kwon and
Yong Kyu Yun Kwon again)

Ecuajugos:

Galo Cevallos
Peter Ficht
Martha Ledesma
Carlos Salavarría

Tropifrutas:

German Lopez
Victor Villaroel

H. Babahoyo

Ecuavegetal:

Francisco Larrea
Ramon Escobar
Julio Borquez

Total = 115: 33 (29%) women and 82 men (71%)

ANNEX B

RAPID RURAL APPRAISAL

Rapid Rural Appraisal (RRA) is a still-evolving methodology first named in a 1978 conference at the University of Sussex. Despite its name, it is a multi-methods technique that can be applied in urban as well as rural settings. It is based on a "triangulation" strategy to cross-validate its data. This means that, wherever possible, two different methods and/or sources are used to cross-check key variables. For example, management's claims about wages and benefits paid should be compared with those of workers. RRA usually involves six weeks or less in the field, experienced researchers, and a focused research agenda.

Because of its unique "triangulation" feature, RRA can provide generally reliable and valid data on a delimited list of variables. This is important, since, quite often, the findings of an RRA have immediate policy, program or project application. Decisions affecting people's lives may be taken or modified on the basis of RRA data. For example, the results of an RRA baseline study may better enable development officials to decide who is to be included and who is to be excluded from specific initiatives. Another common RRA objective is to assess the positive and negative impacts on certain categories of people (e.g., men vs. women, ethnic majorities vs. minorities, rich vs. poor, rural vs. urban, landed vs. landless, etc.) of specific development programs and projects.

RRA methodology combines qualitative and quantitative techniques in a multi-stage process. Research often begins with a review of existing literature and project documents, in the U.S. as well as in the host country. This is generally followed by interviews with two main types of "key informants," those representing "insider" vs. "outsider" angles of vision. In other words, one does not confine one's data collection to officials and potential beneficiaries involved in a particular development effort. For example, in a microenterprise credit project, one would query officials of credit-granting organizations not involved in the project as well as those from participating agencies. A broad net should be cast of informants from relevant ministries, private sector organizations and enterprises, academic and development experts, as well as those involved in the planning and implementation of the development initiative.

A next major step involves group meetings with sub-groups of potential beneficiaries and, where possible, comparable non-participants. Many critical issues can be well-explored via the group meetings, which also serve to reveal which topics or sub-groups of people require further follow-up. This follow-up is often accomplished via a highly focused "mini-survey." Overwhelmingly, such surveys involve a purposive, rather than a random, sample. This is because in applied development research it is rare to have lists depicting the universe of potential beneficiaries/control groups from which random samples can be drawn.

An important feature of RRA is feedback from people at different levels: preliminary findings should be discussed with groups of key informants as well as participants. This typically entails a series of briefings.

In sum, RRA involves not only multiple checks and cross-checks on the accuracy and interpretation of the data, but also an intensive investigation of the context of those data. These features appear to foster greater validity than a typical large-scale sample survey, with its narrow quantification of data divorced from context. In addition, RRA is also cheaper and faster than survey research. Given RRA, it is feasible and, according to Robert Kramer, desirable, to empirically ascertain the baseline situation of every USAID/Ecuador development effort.

ANNEX C

LISTA DE TOPICOS - GERENTES

A. Empresa

1. Cuales productos/cultivos distintos tiene la empresa?
2. Cuanto tiempo tiene la empresa de fundada?
3. Productos exportados=?
4. % de la produccion exportado=?
5. Otros topicos, p. ej., tiempo exportando, mercados

B. Empleo

1. No./% de hombres/mujeres por trabajo (obrero=m/f, supervisor=m/f, otros rangos=m/f).
2. No./% de hombres/mujeres en cargos permanentes vs. cargos temporales (ha cambiado esta situacion en el ultimo año - como?)
3. Sueldos por cargo.
4. Beneficios (Seguro Social, horas extras, transporte, comida(s), medico/dispensario, permiso de maternidad, bonos p. antiguedad).
5. Preferencias/productividad/ problemas: hombres/mujeres como mano de obra, p. ej., rotacion.
6. Estan satisfechos con la division de trabajo por sexo o piensan cambiar (a mas hombres/mujeres en ciertos cargos, porque?).

C. Caracteristicas Socioeconomicas/Demograficas de la Mano de Obra

1. Edades (promedio, distribucion; indique si es exacta o estimacion).
2. Educacion (promedio, distribucion).
3. Estado civil y % con hijos (% solteros por sexo, con y sin hijos; % casados por sexo, con y sin hijos; indique no./% de madres solas con hijos (solteras; esposas abandonadas; casas chicas).
4. Origin rural/urbano y de clase social de los obreros, por sexo.

D. Oferta/Demanda de Mano de Obra

1. Hay un exceso o un deficit de obreros (por sexo) en la zona?
2. Ha cambiado la oferta en el ultimo año y como?
3. Si la oferta ha disminuido, cuales medidas habian tomados para asegurar su fuerza laboral?

E. Otros Temas

1. Piensan exportar mas (si-no-porque?)
2. Problemas con sus exportaciones.
3. Sugerencias para la AID para el nuevo proyecto de estimular exportaciones.
4. Activos totales (puede ser una estimacion).

F. Observaciones

ANNEX D

LISTA DE TOPICOS - OBREROS

Filtro: Que cargo desempeñen actualmente (eliminar gerentes)

A. Características Socioeconómicas/Demográficas

1. Edad
2. Educación
3. Tienen hijos? Si/No; SI=cuántos, edades?
4. Estado civil/jefe del hogar?
5. Cuántas personas viven en la casa vs. cuántas personas trabajan (quienes? en que?)
6. Rural/urbano
7. Rural: su familia tiene terreno? Si/No; SI=tamaño? (sondeo: consumo/venta; cultivos)

B. Empleo

1. Cuánto tiempo tienen trabajando para la empresa?
2. Horario de trabajo: Cuántas horas/semana y/o cuántos meses/año (o sea, permanente, eventual, y/o tiempo parcial); horas extra (explicar; si tienen hijos, quien los cuida)
3. Trabajo previo=Si/No; SI=En que/duración
4. Si no siguen trabajando con la empresa, que harían - quedarse en casa, buscar otro trabajo (en que?)
5. Es fácil o difícil encontrar otros trabajos en la zona? (Especifique, por sexo)
6. Beneficios que da la empresa (Seguro Social, extra para horas extras, bonos para alta productividad, sueldo extra por antigüedad, permiso de maternidad, transporte, almuerzo, merienda, médico o dispensario, otros)
7. Cuánto tiempo dura el viaje al trabajo? Cuánto gasta?
8. Piensan continuar trabajando aquí si se casan y/o tienen/tienen más hijos? (Preguntar en términos del estado civil/fertilidad de c/u)
9. Que cargo desempeñen actualmente.

C. Ingreso

1. Cuánto ganan? (básico, horas extras) - el sueldo promedio/quincena (especifique, p. ej., estación alta vs. baja)
2. Como/con quien comparten el ingreso: madre, padre, marido, otro (especifique si/no y a quien; SI=cantidad y/o % que dan/quincena)).
3. En que gastan el ingreso? (comida, educación para hijos o hermanos (cuántos estudian & en que grado/cursos), otros gastos para hijos=?, salud, cuenta de ahorros, crían animales - especifique tipo, número y más para comer o más para vender)
4. Han comprado artículos de consumo para la casa en el último año: especifique
5. Gastan en ropa, recreo (cine, pasear con los amigos, fútbol, lotería, etc.) para ellos mismos? Especifique
6. Pensando en las otras personas en el hogar que contribuyen ingreso, aproximadamente que % del ingreso total del hogar contribuyen.

D. Otros Temas

1. Horas de trabajo: la empresa exige hora. largas o disponibilidad las 24 horas del dia, y/o 7 dias/semana durante temporadas altas? SI: con que frecuencia? Con cuales consecuencias en el hogar (especialmente si es casado).
2. NTAE: Problemas-sintomas como resultado de pesticidas: leves---graves, cuales?
3. La mayoría de las mujeres aqui se cuidan? Promedio de niños por edad de la madre. No. de embarazos en el grupo de trabajo en el ultimo año.
4. Promedio/distribucion de edad de los compañeros de trabajo.
5. Promedio/distribucion de educacion de los compañeros
6. Patrones de estado civil de los compañeros
7. Problemas de los compañeros (e.g., con pesticidas, horarios largos de trabajo).
8. Impacto del ingreso de la mujer en su confianza en si, respeto recibido de la familia, y voz y voto en ciertas decisiones del hogar (economicas, domesticas, fertilidad).

E. Observaciones

File L.P

SCOPE OF WORK

**Gender Issues in Industrial and Agricultural Export Promotion:
Recommendations for USAID/Ecuador's NTAE and T&I Projects**

BACKGROUND

An important component of USAID/Ecuador's portfolio is to "support achievement of broad-based, sustainable economic growth by encouraging the adoption of and continued adherence to economic policies that promote investment, productive employment and export led diversification" Two projects in particular support this goal: the Non Traditional Agricultural Export (NTAE) Project, and the Trade and Investment Project (T&I). In both agricultural and industrial exports in Latin America, research has shown that women will make up a significant percentage of the labor force involved.

A recent sector assessment of gender roles in agricultural production in Ecuador (Waters, 1990 GENESYS) investigated the participation of women in agriculture and highlighted areas for special consideration by the mission. Prior research by Blumberg and Paolisso (1989 ICRW) found that the NTAE project will involve women to a major degree -- they range from significant to predominant cultivators in most of the relevant crops and are the great majority of workers in most processing operations. Other studies have been conducted (e.g., Cuvi, 1990 CEPLAES) listing women's roles and level of effort of household members in rural families in Ecuador.

In countries where export manufacturing has developed, Joekes (1991) argues that labor supply, educational level, work experience and absolute wage levels have varied so much that none of these factors can be said to be "critical to the establishment and performance of the export industry. On the other hand, the use of female labor is a constant feature." Studies of export processing/manufacturing in the LAC region find a heavy female majority in the workforce, with estimates ranging to 90%. Likewise, although estimates of women's participation in overall industrial production range from 11-19% for the LAC region (ILO 1987), the numbers are increasing and thus warrant attention, particularly as USAID helps promote growth in this sector. For example, during the period 1970-1980, over 20% of the increase in women's labor force participation in the LAC region was absorbed by industry (UN 1991).

In November of 1990, USAID/Ecuador commissioned a Women in Development Implementation Plan which provided project specific recommendations for the mission. The recommendations for the NTAE project (Alberti, et al., p. 28) included collection of the following baseline data:

- characteristics of the jobs women hold (e.g., seasonal, full or part time, rotating shifts, comparison with men's employment opportunities in the same enterprises

61

- types of contractual arrangements, including whether access to social services (e.g., health and child care) is provided
- employee profile of persons providing unskilled and semiskilled labor

Such information will allow the mission to measure the qualitative impact of proposed expansion of the industry on the lives of the people it employs. Secondary impacts, such as effects on local labor patterns and labor supply, small farm agriculture and fertility patterns could also be pursued. This baseline data will be particularly important given that the end of project evaluation is scheduled to measure the impact on men versus women, and on family income and well-being.

Moreover, the NTAE project team will be designing processing plants in late summer 1991. In order to most appropriately meet the needs of the workers, the team should have information on the workforce, including the above items recommended for baseline study.

Similar information is needed to properly inform the development of the Trade and Investment project, which is in an earlier stage. The concept paper (Nov. 1990) suggested that a number of issues be explored in the area of export diversification:

- potential for exploitation of maquila labor
- harmful effects of increased pesticide use
- environmental damage
- possibility that new activities will generate an unfavorable balance of additional benefits/burdens for women

The concept paper did not however indicate where and when these issues would be explored.

Finally, the LAC Bureau has commissioned research by the GENESYS project on gender issues in its trade and investment initiative. A field study is to be conducted by a local research institution in Ecuador this fall. The focus of the field study and the implementing institution are still to be determined, pending completion of a synthesis paper this summer. Information on both the roles of women and the constraints to their participation in the export sectors in Ecuador will be valuable input for the study design.

CURRENT ACTIVITY

Given the information requirements of the two projects, and the prospects for input to the upcoming field study on gender and T&I, USAID/Ecuador has requested that PPC/WID provide technical assistance through the GENESYS project. A consultant is required to conduct a baseline study and make recommendations to the mission for both the NTAE and the T&I projects. The recommendations should be developed using the baseline data and project specific information in order to be of maximum use to mission and project staff. Wherever possible, the consultant should draw on work done for the mission in the past to avoid duplication of effort (e.g., the agriculture sector assessment). Further, the research for the baseline should produce data comparable in scope to that gathered

by Alberti for ROCAP's PROEXAG project ("Impact of Participation in Non-Traditional Agricultural Export Production on the Employment, Income and Quality of Life of Women in Guatemala, Honduras and Costa Rica," Alberti 1991). This will facilitate cross-country comparisons of the impact of export production projects. The methodology will be based on the triangulation strategy of Rapid Rural Appraisal. In order to feed into the mission's monitoring and evaluation efforts, the consultant will recommend gender disaggregated indicators for each project.

DELIVERABLES

The consultant will:

- attend a planning meeting with PPC/WID and GENESYS staff prior to departure for the field work.
- conduct a preliminary briefing for USAID/Ecuador staff on findings and take any feedback into account.
- conduct meetings with NTAE project staff to mutually decide information needs for the project, particularly in light of the processing plant design component. Similarly, work with T&I project staff (or design team) to ensure maximum compatibility of results with project needs.
- ensure that research design produces results comparable to those produced for the ROCAP PROEXAG project.
- conduct a final briefing for mission staff which clearly delineates the implications of the research for the NTAE and T&I projects, making project specific recommendations for better incorporating gender issues in the two projects. Such recommendations should be discussed and agreed to with project staff prior to the final briefing.
- prepare a final report for the mission. A draft of this report will be submitted to GENESYS no later than ten days following completion of TDY. Following review by GENESYS and PPC/WID and incorporation of any comments, the draft report will be submitted to the mission for approval, no later than one month after completion of TDY.

This report will include:

- (a) an executive summary (maximum length 5 pages) with a summary of recommendations specific to USAID/Ecuador programming;
- (b) discussion of research methodology and findings;
- (c) project specific recommendations to the mission concerning the incorporation of gender issues into the NTAE and T&I projects, including how to incorporate women, reduce constraints to their participation, and suitable gender-disaggregated monitoring and evaluation indicators for each project. Such recommendations are to be arrived at in conjunction with project staffs whenever possible;
- (d) recommendations for further research, especially that which may be conducted under the auspices of the LAC Bureau field study on gender and T&I.

TIMING

It is estimated that a total of 45 days will be required to complete this assignment. The consultant will meet with PPC/WID and GENESYS prior to going to the field for a brief planning session, and return to Washington for a debriefing upon completion of the TDY.

- 34 days in the field
- 3 days travel
- 2 days in Washington
- 6 days report preparation and editing

64

BIBLIOGRAPHY

- Alberti, Amalia, 1991. "Impact of Participation in Non-Traditional Agricultural Export Production on the Employment, Income, and Quality of Life of Women in Guatemala, Honduras, and Costa Rica. Guatemala City/Washington: U.S. Agency for International Development (ROCAP)/Chemonics.
- Blumberg, Rae Lesser. 1988. "Income Under Female vs. Male Control: Hypotheses from a Theory of Gender Stratification and Data from the Third World." Journal of Family Issues 9 (1):51-84.
- _____. 1989a. Making the Case for the Gender Variable: Women and the Wealth and Well-being of Nations. Washington, D.C.: Agency for International Development, Office of Women in Development.
- _____. 1989b. "Work, Wealth and a Women in Development 'Natural Experiment' in Guatemala: The ALCOSA Agribusiness Project in 1980 and 1985. Pp. 85-106 in Women in Development: A.I.D.'s Experience, 1973-1985. Vol. II. Ten Field Studies, edited by Paula O. Goddard. Washington, D.C.: Agency for International Development, Center for Development Information and Evaluation.
- _____. 1990a. "Gender and Development in Ecuador." Quito: USAID/Ecuador. Draft.
- _____. 1990b. "Gender and Microenterprise in Ecuador." Pp. 61-91 (Chapter 2) in Ecuador Micro-Enterprise Sector Assessment: Key Characteristics of the Micro-enterprise Sector, by John H. Magill, et al. Washington, D.C.: GEMINI Technical Report No. 12.
- _____. 1991. Gender, Family, and Economy: The Triple Overlap. Newbury Park, CA: Sage.
- _____. forthcoming. "Women, Work and Family Survival Strategy: The Impact of Guatemala's ALCOSA Agribusiness Project." In Women, the Family, and Policy: A Global Perspective, edited by Esther Ngan-ling Chow and Catherine White Berheide. Albany: SUNY Press.
- _____ and Dale Colyer. 1990. "Social Institutions, Gender and Rural Living Conditions. Pp. 247-266 in Agriculture and Economic Survival: The Role of Agriculture in Ecuador's Development, edited by Morris D. Whitaker and Dale Colyer. Boulder, CO: Westview.
- Boserup, Ester. 1990. "Economic Change and the Roles of Women." Pp. 14-24 in Persistent Inequalities: Women and World Development, edited by Irene Tinker. New York/Oxford: Oxford University Press.
- Carloni, Alice. 1987. Women in Development: A.I.D.'s Experience, 1973-1985. Vol. I. Synthesis Paper. Washington, D.C.: Agency for International Development. A.I.D. Program Evaluation Report No. 18.
- Cordero, Francisco Febres. 1991. "Una Rosa para Tabacundo: Ya Salieron a Bailar la Rosa con el Clavel." P. C-1 in Hoy. March 19, 1991, Quito.

- Hess, Barbara (ed.) 1990. Estudio de Casos Sobre la Realidad de la Mujer Ecuatoriana en Sectores Criticos del Desarrollo. Quito/Cuenca: USAID/PUCE.
- Juaregui, Guillermo. 1991. Interview. Quito: USAID/Ecuador. September.
- Joekes, Susan. 1991. Women in the World Economy. INSTRAW. New York: Oxford University Press.
- Lim, Linda. 1990. "Women's Work in Export Factories: The Politics of a Cause." Pp. 101-119 in Persistent Inequalities: Women and World Development, edited by Irene Tinker. New York/Oxford: Oxford University Press.
- Paolisso, Michael and Rae Lesser Blumberg. 1989. "Non-Traditional Agricultural Exports: Labor, Gender and Socio-Economic Considerations." Washington, D.C./Quito: International Center for Research on Women-USAID/Ecuador.
- Project Paper: Trade and Investment Project (518-0094). 1991. Quito: USAID/Ecuador. Sixth draft, August 14, 1991.
- United Nations. 1987. Fertility Behaviours in the Context of Development. New York: U.N. Department of International Economic and Social Affairs. (ST/ESA/SER.A/100).
- Waters, William F. 1991. "Rosas y Claveles: Reestructuraciones de la Agricultura Ecuatoriana y el Sector de Productos No Tradicionales." Draft.
- Yamashita, Ken. 1991. Interview. Quito: USAID/Ecuador. September.