CGIAR GENDER PROGRAM

WORKING PAPER, NO. 1

STATUS OF INTERNATIONALLY-RECRUITED WOMEN IN THE INTERNATIONAL AGRICULTURAL RESEARCH CENTERS OF THE CGIAR

A Quantitative Perspective

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PREFACE

The Consultative Group on International Agriculture Research (CGIAR) is an informal association of 40 public and private sector donors that support a global network of 17 international agricultural research centers (IARCs). The international research centers are committed to applying science to improve the quantity and quality of food available in developing countries, particularly for low-income people. The mission statement of the CGIAR reads as follows:

> "Through international research and related activities, and in partnership with national research systems, to contribute to sustainable improvements in the productivity of agriculture, forestry, and fisheries in developing countries in ways that enhance nutrition and well-being, especially among low-income people" (CGIAR Priorities and Strategies, 1992).

In 1991, the CGIAR Secretariat, in collaboration with the Center Directors, inaugurated a CGIAR Gender program. The program aims to increase the effectiveness and efficiency of research in the Centers through a two-pronged approach:

- Promoting conditions and mechanisms within the Centers for ensuring the recruitment, advancement, and retention of highly qualified women scientists and professionals.
- Strengthening the use of gender analysis in research aimed at technology development and in training for developing country researchers to ensure that women's, as well as men's, agricultural enterprises and operations are fully considered when defining research problems and developing potential solutions.

The human resource survey, upon which this report is based, was carried out in 1991 as part of the diagnostic activities of Phase I of the Gender Program. It was administered to all 16 international agricultural research centers supported by the CGIAR in 1991 (see overleaf). The survey compiled, for the first time, data on basic human resource indicators for internationally-recruited staff across all Centers. Indicators included: degree levels, discipline, years of experience; staffing levels, tenure at the Center, funding source, nationality, age, and family status. It is important to stress that the survey covers *only* internationally-recruited staff at the Centers.

The survey had two parts. The first part was designed to provide a comparative profile of the staffing patterns of male and female professionals within the CG System in 1991. The second part collected more detailed information on the approximately 200 female internationally-recruited staff who had worked at the Centers between 1988 and 1991 (ref. Annex 1) Part II of the survey covers all Centers except ICRAF. The survey data provide a baseline from which changes can be monitored in the future.

CGIAR-supported international agricultural research centers

CIAT	Centro Internacional de Agricultura Tropical (Columbia)
CIMMYT	Centro Internacional de Mejoramiento de Maiz y Trigo (Mexico)
CIP	Centro Internacional de la Papa (Peru)
IBPGR	International Board for Plant Genetic Resources (Italy)
ICARDA	International Center for Agricultural Research in the Dry Areas (Syria)
ICLARM	International Center for Living Aquatic Resources Management (Philippines - joined in 1992; not included in survey)
ICRAF	International Center for Research in Agroforestry (Kenya)
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics (India)
IFPRI	International Food Policy Research Institute (USA)
IIMI	International Irrigation Management Institute (Sri Lanka)
IITA	International Institute of Tropical Agriculture (Nigeria)
ILCA	International Livestock Center for Africa (Ethiopia)
ILRAD	International Laboratory for Research on Animal Diseases (Kenya)
INIBAP	International Network for the Improvement of Banana and Plantain (France)
IRRI	International Rice Research Institute (Philippines)
ISNAR	International Service for National Agricultural Research (The Netherlands)
WARDA	West Africa Rice Development Association (Cote d'Ivoire)

I. INTRODUCTION

A. THE REPORT

The report is designed to give a quantitative description and analysis of the status of internationally-recruited women in the 16 international agricultural research centers supported by the CGIAR in 1991.[1] Conventional wisdom, often gleaned from individual perceptions and anecdotal evidence, has prevailed regarding the level and type of participation of women in the CG System. The intention of conducting a survey and preparing this report is to provide objective data to ground further analysis and work in this area.

Attention to the participation of women in the CG System is driven by the recognition of the major changes that have occurred in the composition of the professional pool from which the international research centers draw. The proportion of women in this pool has increased steadily, and in some disciplines, quite dramatically, since the mid 1970's. To ensure that they are attracting the highest quality staff available, the Centers need to make sure that their recruitment practices are reaching women professionals. They also need to make sure that they offer work environments that are conducive to attracting and retaining high quality women professionals.

The discussion and analysis focus on three key areas affecting participation of women professionals: recruitment, retention, and advancement (Brush and Rao, 1991).

The analysis is designed to

- *describe* the profile of internationally-recruited women in the CG System and compare their profile to that of the men
- *assess* areas of strength and weakness regarding staffing of women (to the degree possible from quantitative data)
- *identify* issues which need to be pursued in more depth in the future
- *provide* a baseline set of information from which change can be monitored in the future.

B. PROFILE OF INTERNATIONALLY-RECRUITED STAFF

Before examining the comparative situation of men and women in the Centers, it is useful to have an overview of staffing in general.

In 1991 there were slightly over 1200 internationally-recruited staff working in 16 international agricultural research centers around the world. Approximately 680 of these staff were scientists, 180 were research and postdoctoral fellows or associate experts, 230 were in scientific leadership and management positions, and 110 were in administration and program support positions (including training and information services). In addition, there were approximately 90 visiting scientists. Approximately 45% of the staff came from developing country regions and 55% from developed countries (Fig. 1).

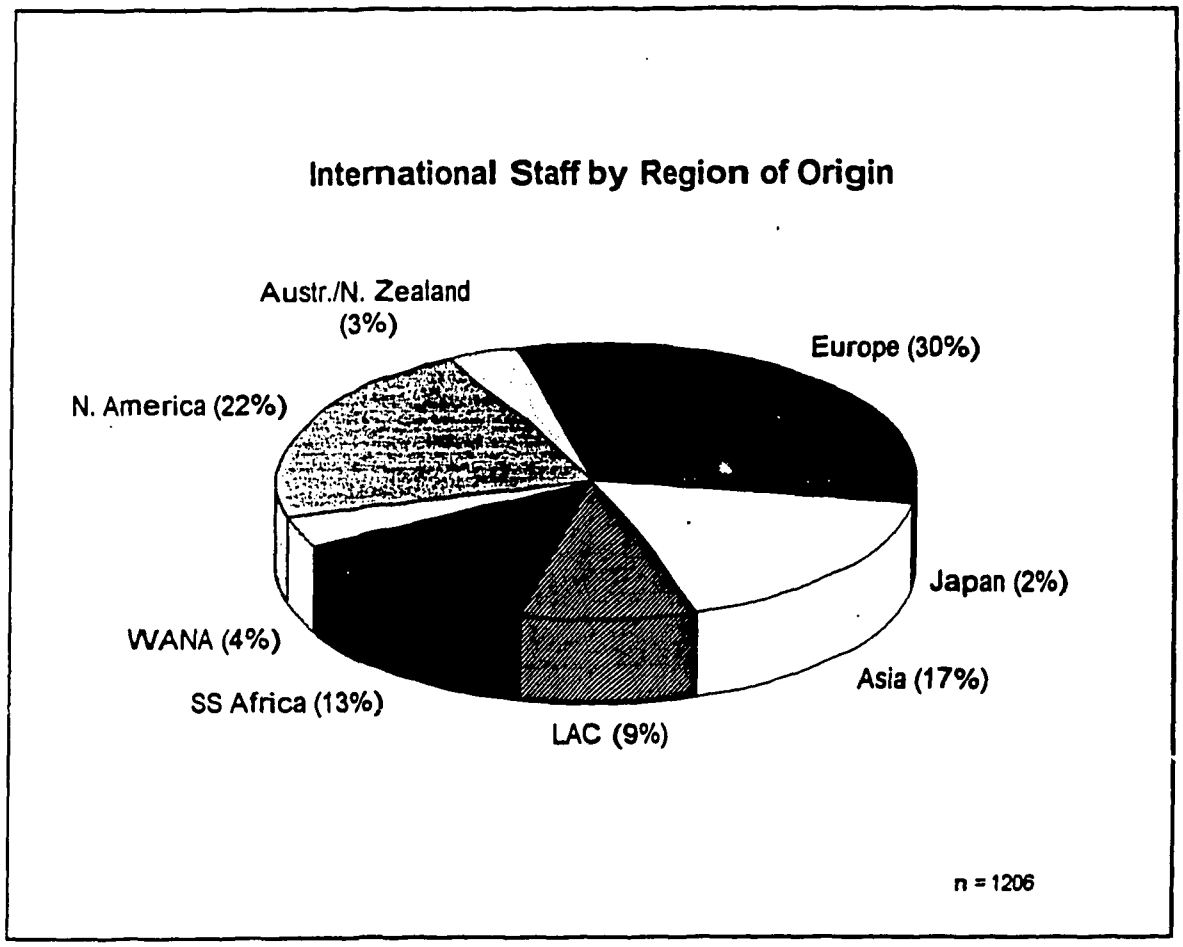


Fig. 1. Breakdown of international staff by region of origin, 1991

Three-quarters of all internationally-recruited staff in 1991 had Ph.D. degrees and more than 10 years professional experience since their first graduate degree. In terms of major disciplinary areas, about 35% of the researchers were trained in crop sciences, 7% in animal sciences, and 2% in forestry and agroforestry sciences. Eight percent were trained in cellular sciences relevant for biotechnology and 10 % in other biological sciences. Another 8% were trained in soil and resource management sciences and 4% in engineering. Fifteen percent of the researchers had degrees in the social and economic

sciences. The remaining 11% of the researcher staff were trained in chemistry, physical sciences, mathematics, and computer/information sciences.

The average age of internationally-recruited staff was 43. Their tenures have been relatively short; two-thirds have been at the Centers less than 6 years.

Seventy percent of the staff were based at the headquarters of the Centers while 30% are outposted to regional positions or in national programs. Most of the staff were on core funded positions; 20% are supported through special project funding.

II. PARTICIPATION OF WOMEN

OVERVIEW

As of mid-1991 145 internationally-recruited women were working in the 16 Centers of the CG System. Women comprised 12% of the total international staff and 11% of the scientific staff (Fig. 2). Approximately 7% of the internationally-recruited women were senior or middle-level managers (n=11), 76% were research and program staff (n=108); and 17% were classified as administrative or professional support staff (n=26).

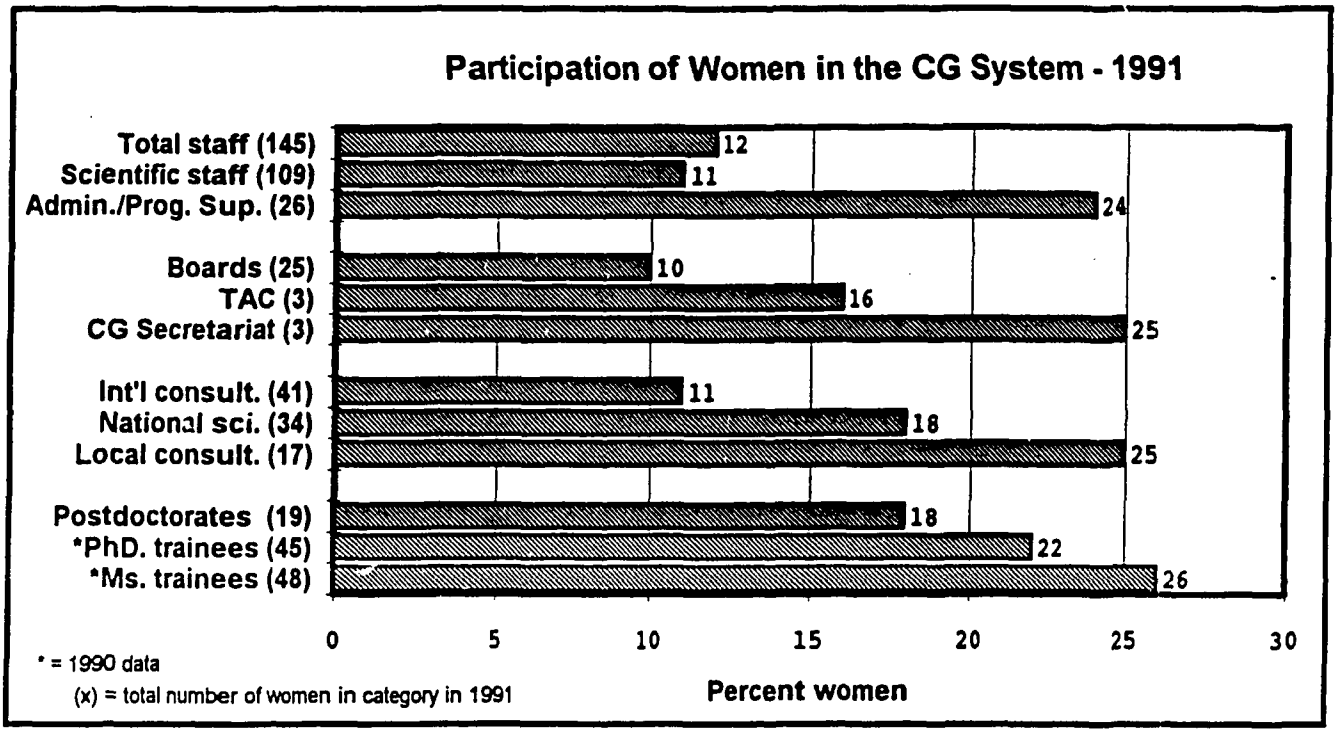


Fig. 2. Women as percent of total staff in each category

Participation of women on the Boards was slightly lower that that of internationally-recruited women on staff of the Centers. In 1991, 25 women constituted 10% of all Board members. Salient features of female Board members are given in Table 1 (page 4).

In 1991, women comprised 16% of the members of the CGIAR Technical Advisory Committee, a group of eminent scientists who advise the CGIAR on priorities and strategies and monitor the scientific quality and performance of the Centers. Women also made up 25% of the professional staff in the CG Secretariat, although these three women were all in more junior professional positions.

The percentage of international consultants in 1990 who were female paralleled the level of female staffing in the Centers (11%). The percentage of female local consultants, however, was higher (25%) as was the percentage of national scientists (18%). These women, although only about 50 in number, could be a potential recruitment pool for other Centers.

With respect to training, somewhat over 90 women were in graduate training at the Centers in 1990. Women represented approximately 25% of the Ph.D. and Msc. trainees at the Centers. Women also comprised 18% of the postdoctoral fellows in the Centers in 1991. These higher percentages of women in training imply that there will be a larger pool of well-trained women scientists, familiar with the work of the Centers, upon which the CG System can draw in the future.

Table 1. Salient features of female members of Center Boards, 1986-91[a/]

	1986	1987	1988	1989	1990	1991
Number of female Board members	10	14	13	13	16	23
Women as % of total Board members	6%	8%	7%	7%	9%	10%
Number of Centers with no female Board members	4	2	3	1	2	3
Disciplinary composition						
Social scientists/management/ administration	60%	43%	30%	15%	25%	40%
Life sciences	40%	50%	70%	76%	63%	48%
Physical sciences	--	7%	--	8%	12%	12%
% of women from developing countries	n/a	57%	69%	54%	62%	64%
% of women nominated by CGIAR	30%	36%	38%	31%	31%	32%

a/ 1986-1990 figures for 13 "pre-expansion" Centers; 1991 for 16 Centers

COMPARATORS

How does the level of 12% participation by internationally-recruited women compare with that in similar organizations? This is difficult to assess since few

organizations tap the same pool of professionals upon which the CG Centers draw. Moreover, gender disaggregated staffing statistics are notoriously hard to obtain. Nevertheless, some indicative comparative statistics are presented in Tables 2a and 2b. Statistics are given for levels of employment of female agricultural scientists in various countries for which information was readily available and for levels of female employment in some research or development organizations with overseas postings of professionals.

Table 2a. Level of participation of women researchers in selected countries

Country	Date	Unit of Analysis	No. of women	% of total. = women	Comments/Source
Austria	1981	Employed agricultural scientists	112	17.6%	Incl. universities and other R&D organizations (Gaubert,1991)
Bangladesh	1990	Scientists in agricultural research systems	130	9.7%	Does not include universities. Includes staff with B.Sc. and above. ISNAR/BARC
Canada	1986	Faculty in agricultural and biological sciences	385	16.5%	Blaklely, 1989
Holland	1988	Agricultural scientists in universities	41	8%	Ministrie van Onderwijs en Wetenschappen (1989). Senior lecturer and above.
Senegal	1990	Researchers in national research organization	13	7.1%	ISRA/ISNAR Human Resource Survey, 1990. Includes Bsc and above
Sri Lanka	1991	Researchers in national agric. research system	60	27.5%	ISNAR Human Resource Survey, Sri Lanka. 1991.Msc & PhD only
Thailand	1992	Researchers in gov't agric. research org.	305	44%	Dept. of Agric., Gender Wise Report, 1992. Msc and PhD. only
Turkey	1989	Academics in agricultural sciences	81	6.5%	Incl. instructor - full professor (Acar, 1991)
United Kingdom	1987	Lecturers in agric., forestry, & vet. science	n/a	27%	In Ladbury, 1990
USA	1987	Employed agricultural scientists (Ph.D.)	1100	7%	Ph.D. recipients only. National Science Foundation (1990)
USA	1987	Employed biological scientists (Ph.D.)	13500	22%	Ph.D. recipients only. National Science Foundation (1990)
Yugoslavia	1987	Faculty in agricultural sciences	196	16.5%	Blagojecic (1991)
Zimbabw	1988	Researchers in gov't research department	17	24%	DR&SS/ ISNAR Human Resource Survey, 1988. Includes Bsc. and above

It should be noted that these data are a collection of relevant statistics which were published and available. They do not reflect a rigorous sampling of organizations. Perhaps the most interesting comparative statistic, not included in Tables 2a and 2b, is that the percentage of women among internationally-recruited staff in the CG System (12%) is equal to the percentage of women on active duty in the United States Armed Forces (Aburdene and Naisbitt, 1992)!

Table 2b. Level of participation of women in selected scientific and development organizations

Organization	Date	Unit of Analysis	No. of women	% of total. = women	Comments/Source
FAO	1990	Tech. Cooperation Officers (agriculture)	n/a	3.4%	Prof.essional staff posted overseas (Ladbury, 1990)
INRA (France)	1990	Research staff	772	29%	Ministry of Research and Space
ORSTROM (France)	1990	Research staff	54	10.4%	Ministry of Research and Space
CIRAD (France)	1990	Research staff	95	10.6%	Ministry of Research and Space
ODA	1990	Tech, Cooperation Officers (agriculture)	10	12.0%	Prof. staff posted overseas (Ladbury, 1990).
ODA	1990	Natural Resource. Advisors (incl. agriculture)	1	6.2%	Advisors based in UK. (Ladbury, 1990)
GTZ (Germany)	1990	Technical Cooperation Officers (all fields)	n/a	7.8%	Ladbury, 1990
IFC	1989	Higher-level staff (Grades 21-30)	410	11%	Women in IFC, 1991
World Bank	1992	Higher-level staff (Grades 22-30)	589	20%	World Bank Report, 1992
World Bank Regional Div.	1992	Higher-level staff (Grades 22-30)	368	16%	World Bank Report, 1992
CARE -USA	1991	Sr. overseas staff	28	25%	InterAction 1991 PVO Gender Survey
OXFAM - UK	1991	Regional representatives	n/a	43%	Ladbury, 1990.
Volunteer Services Org.	1991	Volunteers overseas (agriculture)	n/a	28%	Ladbury, 1990
Ford Foundation	1991	Professional staff	n/a	62%	

The comparative statistics help to provide a broader context for interpreting the level of participation of women in the CG System. It is clear that the CG System is not an outlier. The level of women's participation is somewhat higher than that of the development organizations placing technical officers in overseas posts, but it is less than the percentage of women scientists employed in agriculture and life sciences in universities of some developed countries. Nevertheless, given the rapid increase in the supply of female graduates in agricultural and biological sciences in the past decade (ref. section IV.) and the successful efforts of some Centers to recruit women professionals, one would expect to see the number of internationally-recruited women in the Centers increase markedly in the 1990's.

III. KEY OBSERVATIONS

Analysis of the survey data reveals eleven key observations on the status of internationally-recruited women in the CG System (Box 1). These are discussed below.

BOX 1

KEY OBSERVATIONS ON THE STATUS OF INTERNATIONALLY-RECRUITED WOMEN PROFESSIONALS IN THE CG SYSTEM

A. The number of professional women in the CG System is increasing.

B. The level and type of women's participation varies markedly across the Centers

C. Women are concentrated in more junior scientific positions

D. Few women have attained senior research management or administrative positions

E. Women are disproportionately clustered in administrative and professional support positions

F. Fewer women than men have Ph.D. degrees

G. The share of men and women on core funding is similar.

H. The disciplinary background of men and women differs

I. A larger share of women than men come from developed countries

J. A low percentage of women are married and/or have children

K. The turnover rate for men and women appears to be equal

A. THE NUMBER OF WOMEN IN THE CG SYSTEM IS INCREASING.

No comparable System-wide data are available to give an historical perspective on the level of participation of women relative to men. The survey data do show, however, a 25% increase in the number of internationally-recruited women working in the Centers between 1988 and 1991 (Fig. 3). The increase for female scientists was even greater at 32%. While women made up 16% of the internationally-recruited staff entering into the CG System between 1988 and 1991, they comprised only 13% of those leaving. The level of increase

differed considerably among the Centers, but in some the change has been quite dramatic in the past 4 years (Fig. 4).

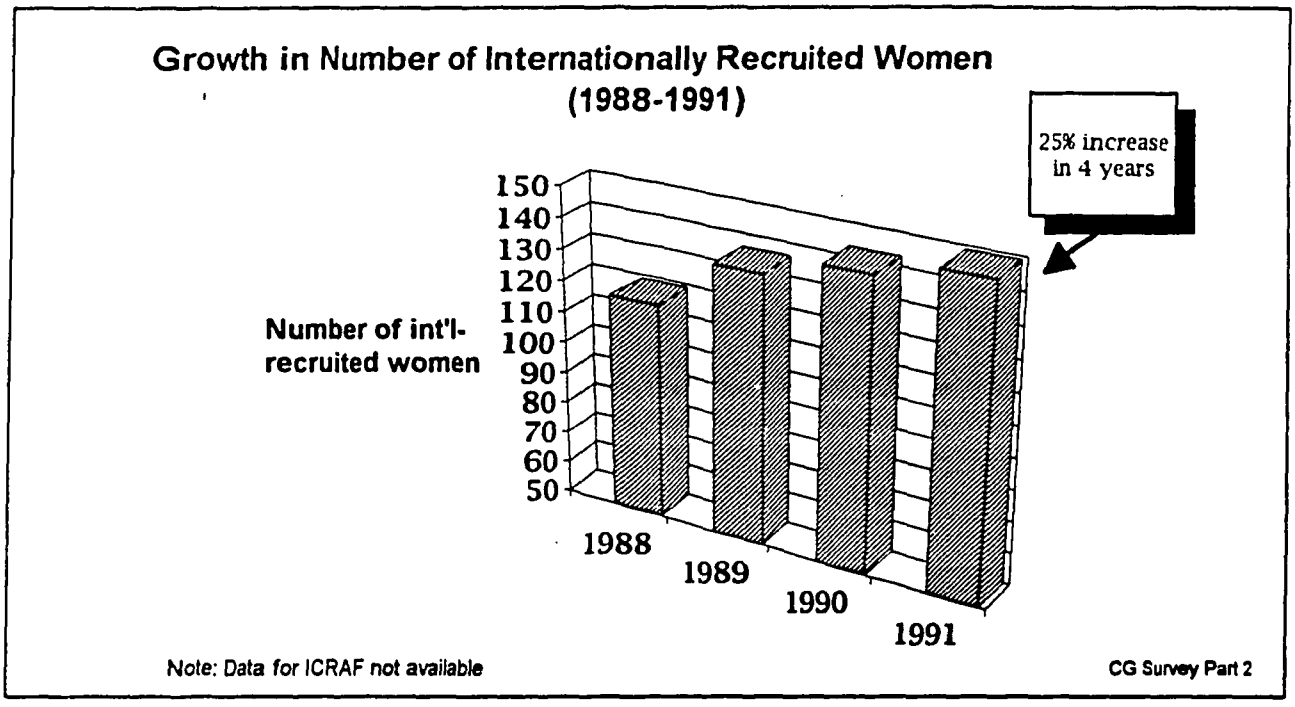


Fig. 3. Number of internationally-recruited women in 15 Centers, 1988-1991.

Participation of women on the Boards of the Centers has also increased. Of the 13 Centers in the CG System in 1990, the number of women on the Boards rose from 11 (6% of all Board members) in 1986 to 16 (9% of all Board members) in 1990. Although the numbers remain small, this represents an increase of 45%.

Increased participation of women has occurred despite low rates of applications for recruitment. In 1990, 136 applications from women accounted for only 7% of the total applications for TAC-approved core positions reported by 11 Centers. Women, however, accounted for 10% of those short-listed and 10% of the 86 people actually recruited. This reflects both the quality of the female applicants as well as the commitment on the part of some Centers to bring in more highly qualified women professionals.

The low percentage of women applicants undoubtedly reflects constraints in supply (ref. Section IV). But it may also reflect weaknesses in the Centers' current recruitment practices for tapping into the pool of qualified women and generating applicants. Developing effective recruitment strategies to identify high quality women professionals and attract them to working in the Centers is clearly an important leverage point for strengthening the level of women's participation in the Centers. Some of the Centers are now trying to broaden

their recruitment strategies and informal networks to ensure that they are not by-passing potentially qualified women candidates.

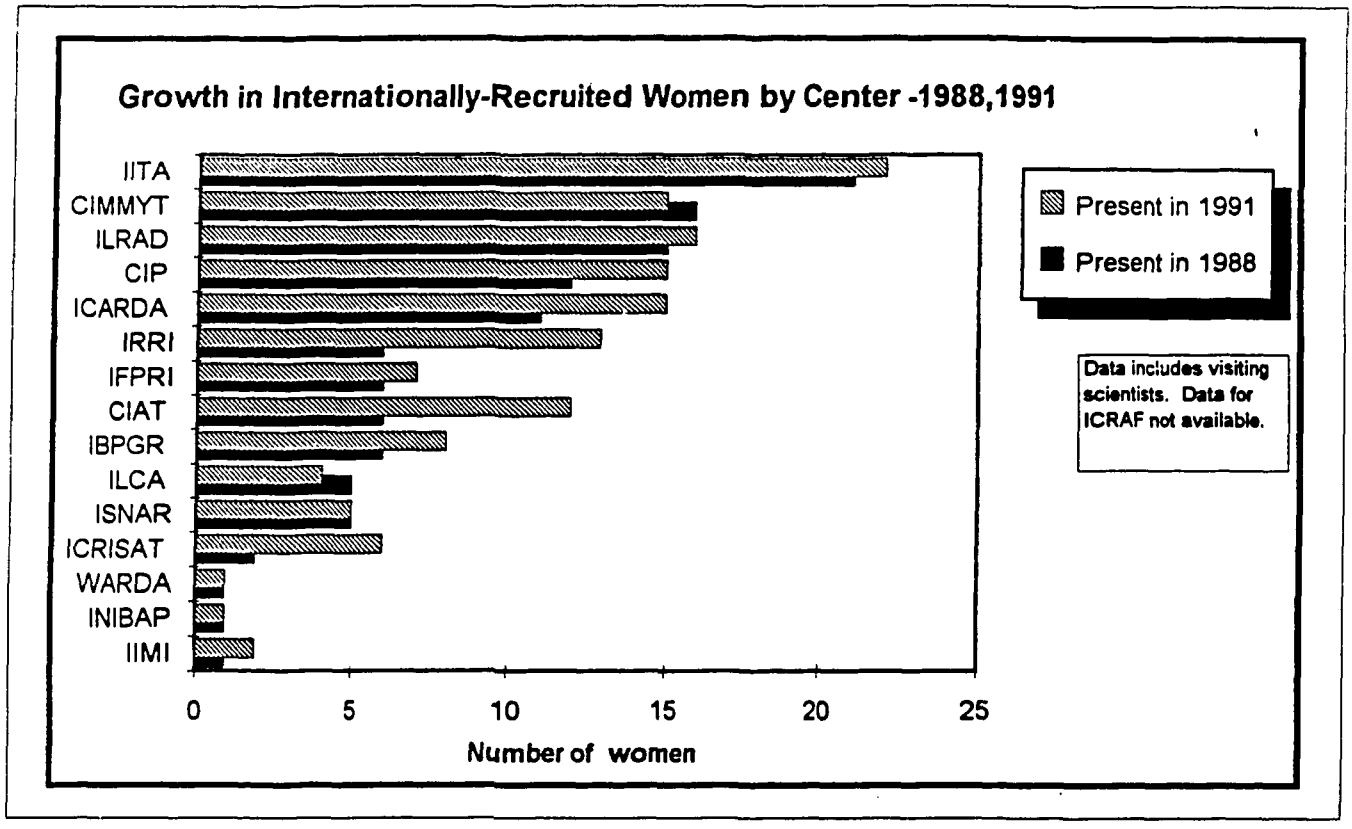


Fig. 4. Number of internationally-recruited women by Center, 1988 and 1991

B. PARTICIPATION OF WOMEN VARIES MARKEDLY ACROSS THE CENTERS

The participation of internationally-recruited female staff varies significantly across the Centers (Fig. 5). The percentage in 1991 ranged from a low of 4% in two Centers to a high of 28% in IBPGR, a small European-based Center. In two-thirds of the Centers between 10% to 15% of the internationally-recruited staff were women. The absolute numbers of female staff in the Centers ranged from 1 to 19 in 1991. The pattern across Centers is somewhat different when looking only at senior or principal scientists (Fig. 5). The range in percentages varies from 0 to 20%, with the largest absolute number (n=8) of female senior scientists at IITA. Figure 6 compares the Centers according to their share of total female staff in the System.

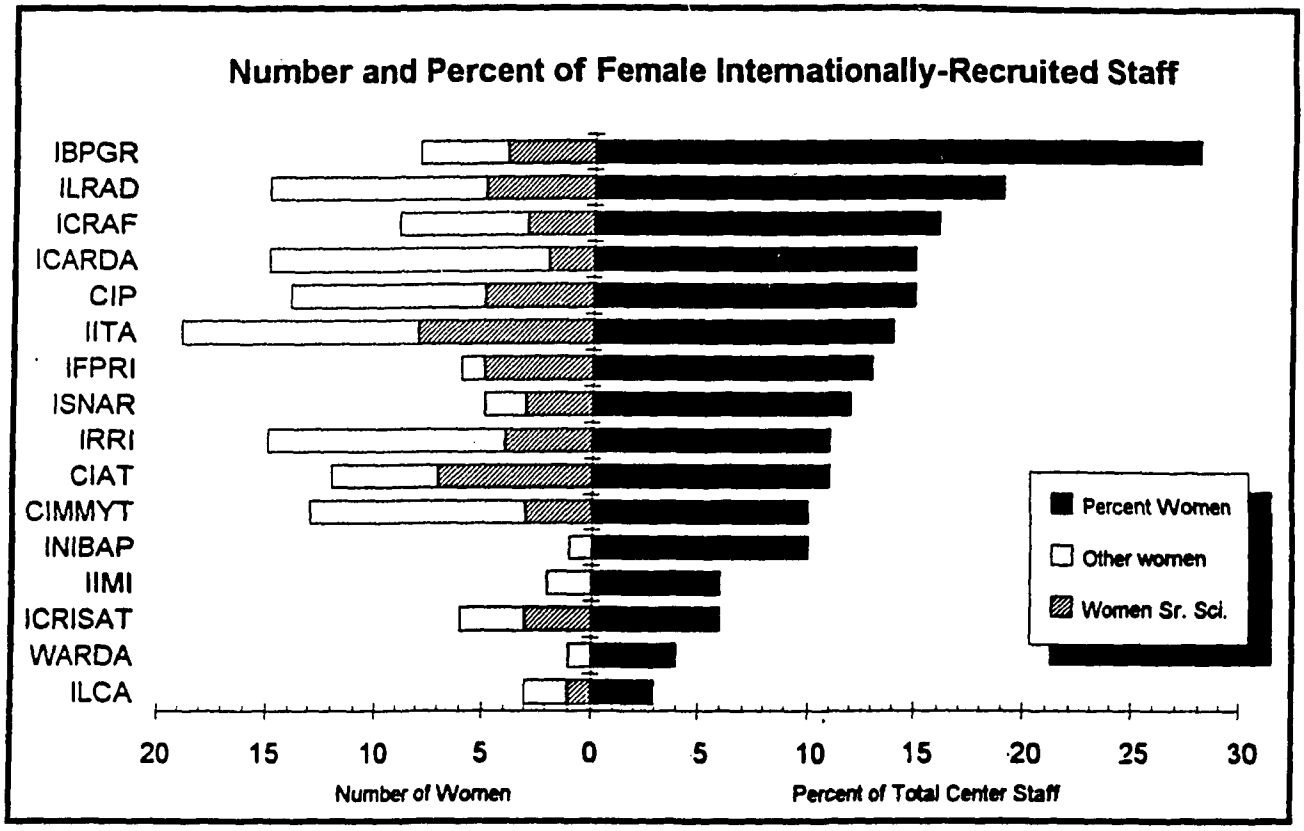


Fig. 5. Number and percent of female staff by Center and number of female senior scientists, 1991

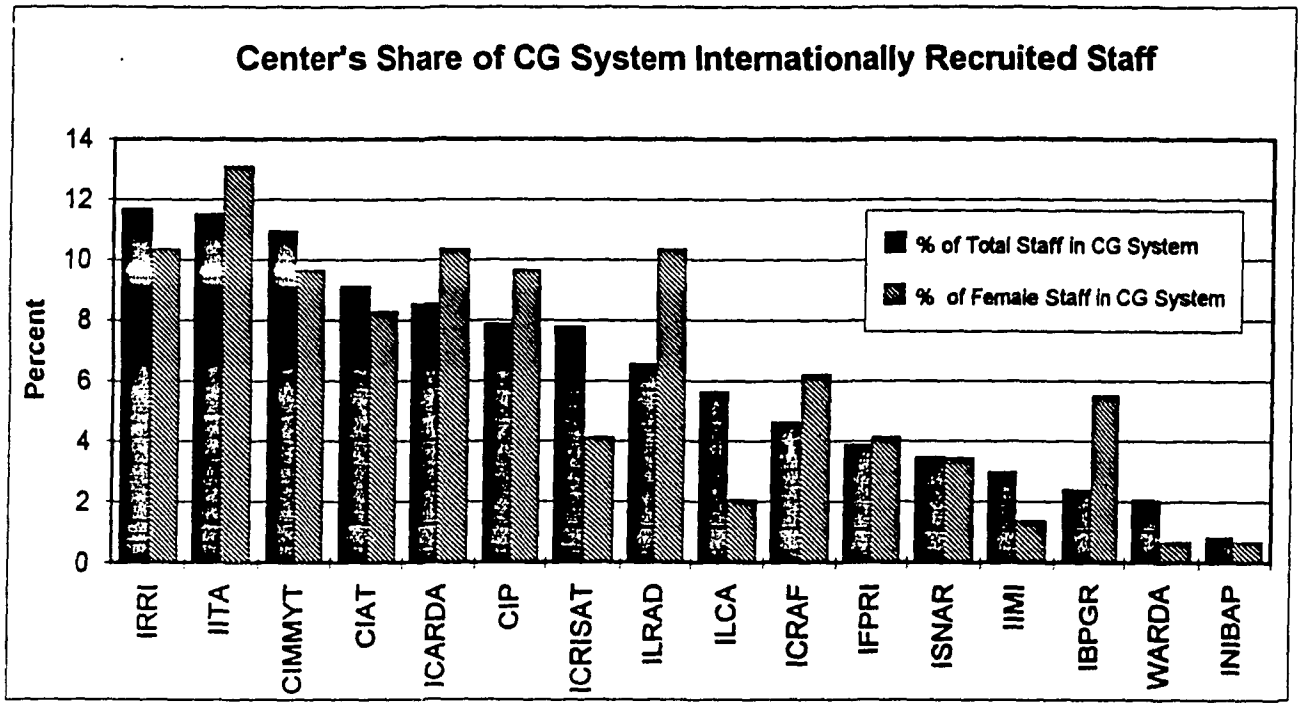


Fig. 6 Comparison by Center of share of total CG System staff to share of total female staff, 1991

Factors influencing the different staffing patterns of women across the Centers need to be probed further. The supply of women scientists in the disciplines relevant to a specific Center is obviously a key factor (ref. section IV). For example, recruitment is easier for a Center such as ILRAD that relies heavily on lab sciences, an area where women traditionally comprise a larger share of the pool of professionals. In 1990, women made up 23% of the applicant pool for 8 positions at ILRAD and 37% of the recruits. This compares to application rates of 2% in some of the other Centers, such as ILCA, for which the pool of potential female recruits in animal sciences is more limited. Similarly, some Centers have recruited women more actively into administrative and professional support positions, areas where the pool of potential recruits is larger.

Contrary to conventional wisdom, the Centers based in countries perceived to have security risks or difficult conditions for women did not have markedly lower percentages of women staff. There was also little variation in the percentage of women across Centers based in different regions of the developing world. The largest number of female internationally-recruited staff worked in Centers with headquarters in Sub-Saharan Africa (n=47). The percentage of female staff was higher in Centers based in developed countries. In these Centers, the average percentage of women was almost 16%. This can be explained largely by the high percent of female staff at IBPGR.

Clearly, the openness of the Center to women, their opportunities for professional advancement, and the commitment of senior management to actively recruiting and retaining highly qualified women are also critical factors influencing the level of participation of women in individual Centers. These factors cannot, however, be quantified and will have to be addressed through more in-depth studies carried out at individual Centers.

C. WOMEN ARE CONCENTRATED IN MORE JUNIOR SCIENTIFIC POSITIONS

The 1991 survey data show that 36% of the women (n=53) were in the more junior categories of researchers (associate/junior scientists; postdoctoral scientists; associate experts[2]) compared with 17% of the men (n=191). In contrast 45% of the men were senior scientists compared to 32% of the women (Fig. 7). Looking at the data from another perspective, while women made up only 9 % of the senior scientific staff, they comprised 23% of the junior and associate research staff and 18% of the postdoctoral fellows.

This pattern is mirrored in the lower average professional experience levels of female staff (Fig. 8). Slightly more than half of the women (n=73) have 10 years or more professional experience post-Msc. compared to three quarters of the men.

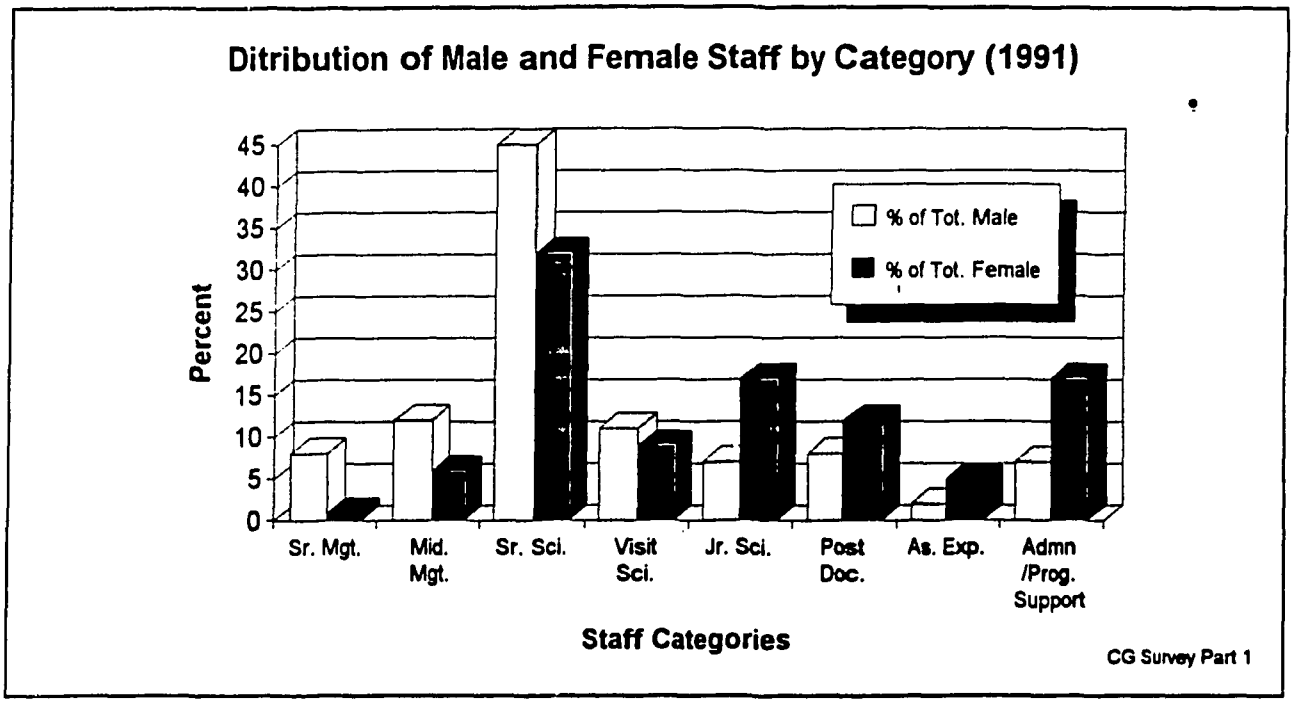


Fig. 7. Distribution of male and female internationally-recruited staff by professional categories (percent)

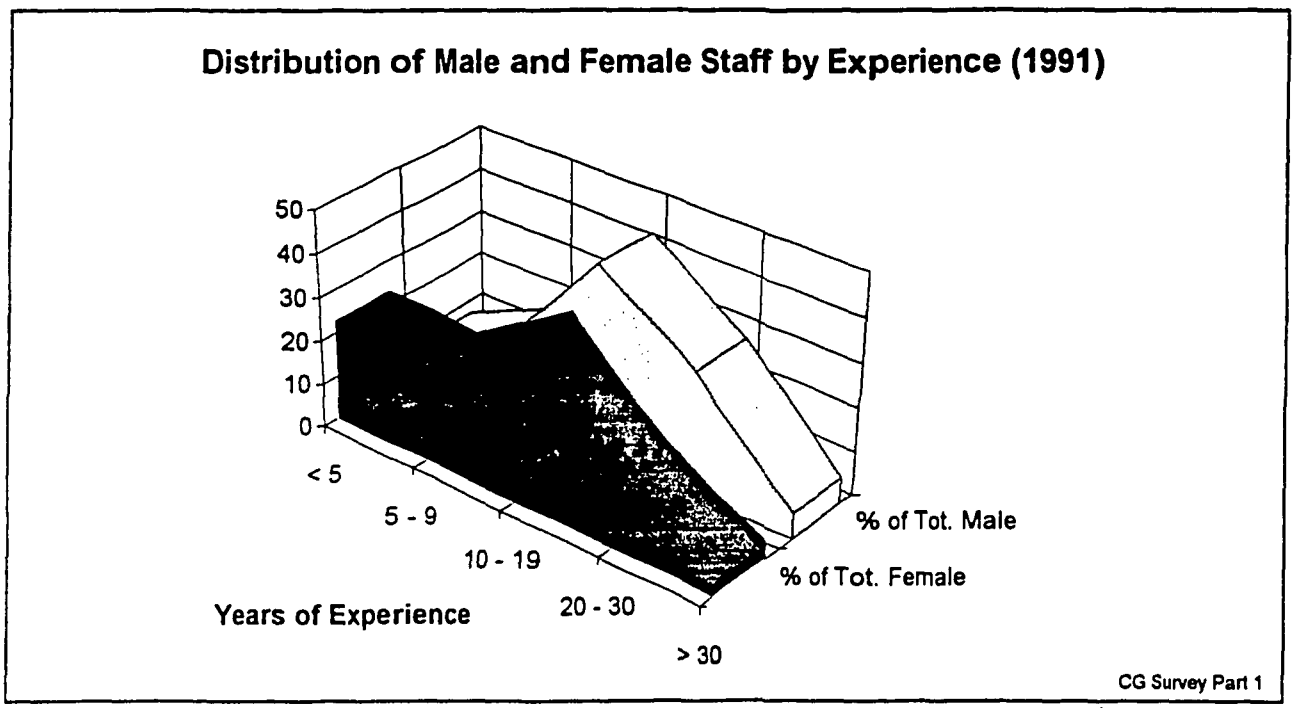


Fig. 8. Distribution of male and female internationally-recruited staff by years of professional experience (percent)

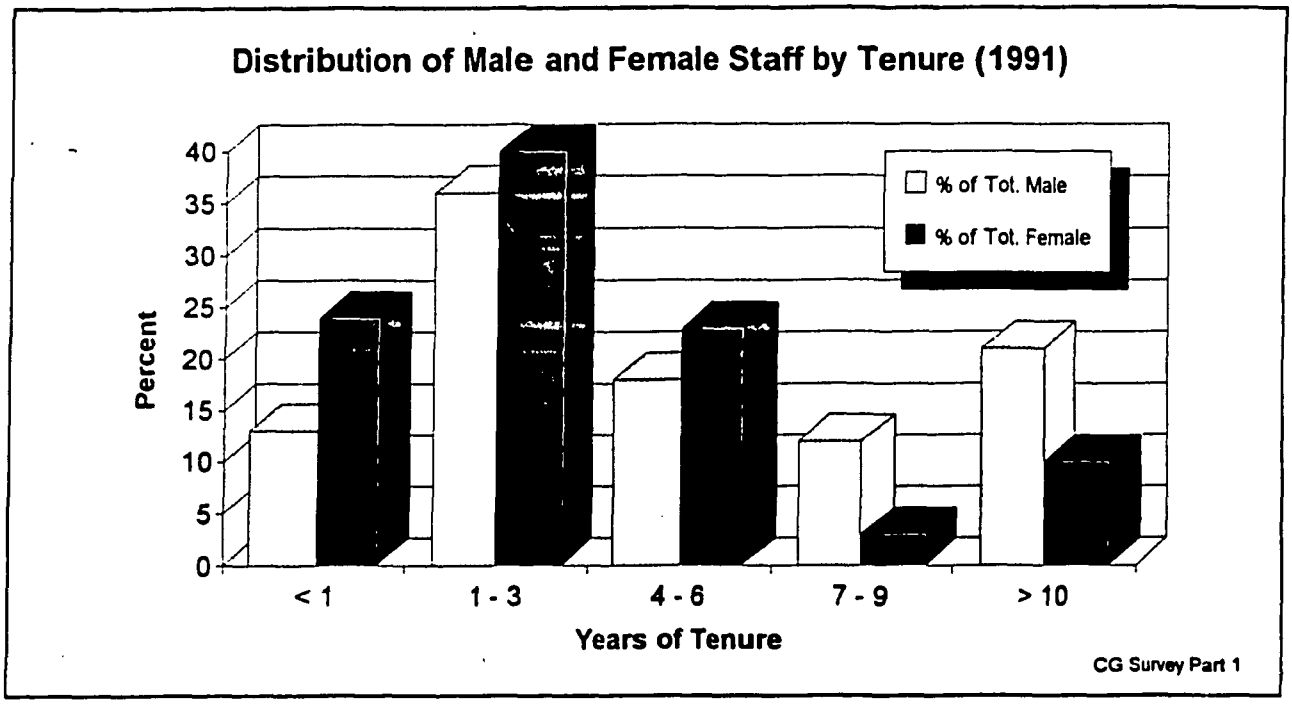


Fig. 9. Distribution of male and female internationally-recruited staff by years of tenure (percent)

Women also have shorter average tenures at the Centers (Fig. 9). Two thirds of the women have been in the Centers three years or less compared to half of the men. Women, on average, are also younger. Over half of the women are 40 or younger compared to about one-third of the men.

The ratio of senior to junior female scientists varies considerably across the Centers (Fig. 10). The variation appears to be explained more by recruitment practices than by differences in retention, or the tenure and advancement opportunities, of the women in the Centers. Some Centers have recruited younger women primarily into postdoctoral and junior scientist positions. A smaller number have hired women directly into more permanent senior scientist positions.

This type of staffing pattern can also be seen in many other types of scientific and academic organizations. For example, 40% of the female employed doctorates in life sciences at colleges and universities in the USA were assistant professors compared to only 20% of the men (NSF, 1990). In Holland, 92% of the women faculty in agriculture were scientific lecturers compared with only 55% of the men (Ministerie van Onderwijs en Wetenschappen, 1989). In the FAO Headquarters, 87% of the women are found in the first three of five professional grades (P1-P3) (Ladbury, 1990). Similar patterns are found at the World Bank (World Bank, 1992).

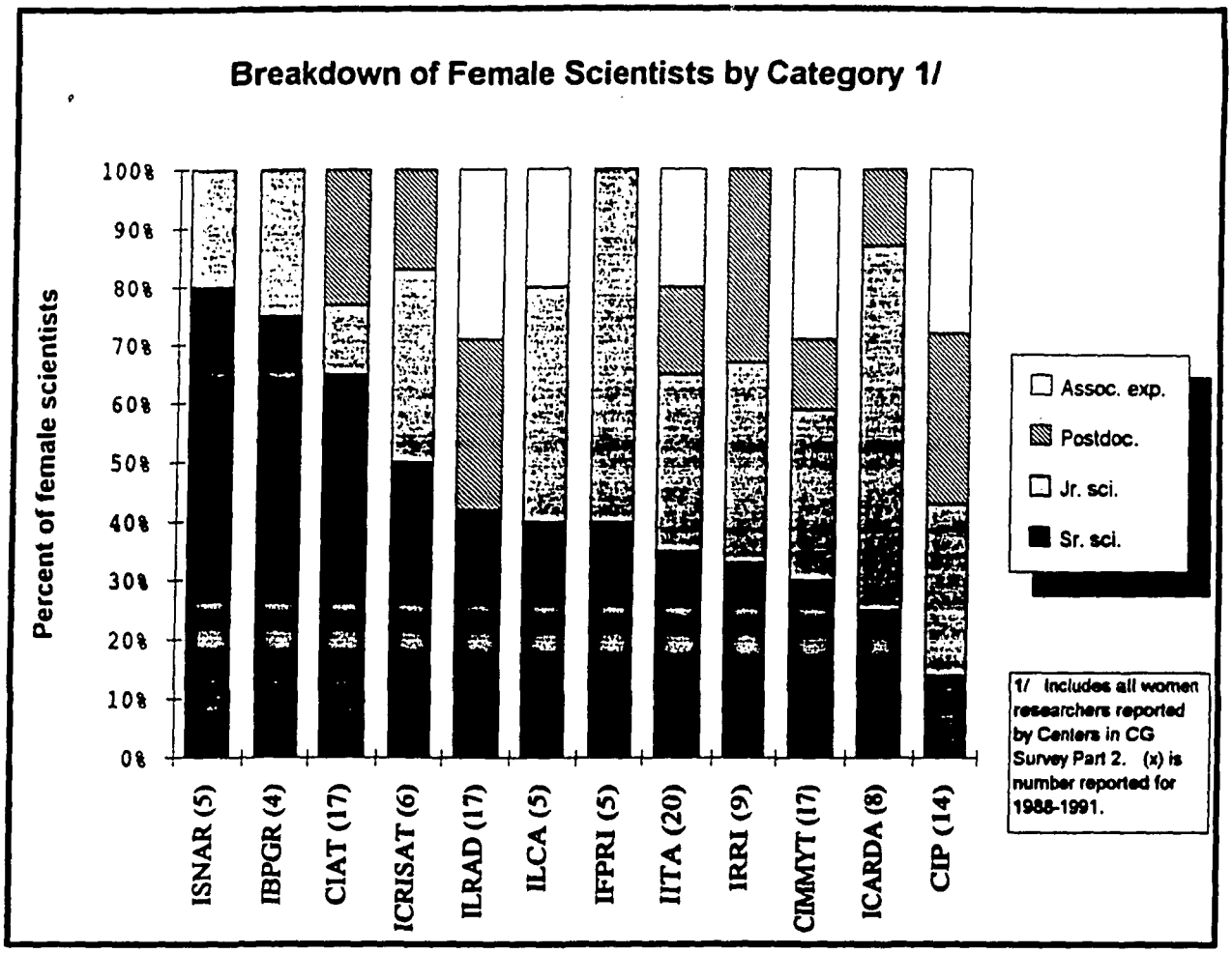


Fig. 10. Breakdown of female scientists at Centers by category (percent of female scientists present at Centers 1988-1991)

Preliminary analysis indicates that this staffing pattern of women distributed disproportionately in lower scientific positions in the Centers reflects two key factors:

- *the recent entrance of women* into the Centers reflecting both the increasing supply of women scientists in disciplines relevant to the Centers' mandates (ref. Section IV);
- *the recruitment practice*, common to many Centers, of hiring young women scientists and administrators in at entry level positions -- post-doctoral fellows and junior scientists -- rather than at more senior levels.

Of the 82 women scientists (postdoctoral and above) working in the CG System between 1988-1991 from 13 Centers for which information was available, 39% came in as postdoctoral fellows and 32% as junior or associate scientists[3]. Moreover, half of the 30% increase in the number of female scientists in the Centers from 1988-1991 was fueled by growth in the number of female postdoctoral fellows. The share of women scientists who were postdoctoral fellows rose from 10% to 17%, during this period while the share constituted by

senior scientists actually declined from 50% to 43%. Unfortunately, no comparable data exists for men to see if higher percentages of women enter at this more junior level.

Two other factors could explain the observed staffing pattern of women clustered in junior positions:

- women are facing barriers to advancement; or
- women at the senior scientific levels have higher rates of attrition.

The data do not show obvious barriers to advancement. Data from 12 Centers on women present from 1988 to 1991 shows that 25% of the 130 professional women who could potentially have advanced had had at least one promotion.[4] The rate was somewhat higher at 30% for female scientific staff alone (n=87). Of the women with Ph.D.'s, 38% had had at least one promotion. On average, doctoral women with one promotion had had tenures of 6.5 years at the Centers and those with two promotions had had tenures of about 8 years. This appears a reasonable rate of advancement, but, for a more accurate assessment, it should be measured against the rate of advancement for men of similar qualifications.

Similarly, the data did not show that disproportional rates of attrition for senior level women scientists. Of the women scientists leaving the Centers between 1988-1991, 32% were senior scientists. This is less than senior scientists' share of the total pool of permanently employed female scientists in the Centers during this same period[5]. Nevertheless, despite a modest increase from 34 to 38 senior female scientists in the 15 Centers for which data is available between 1988 and 1991, these were all non-core positions. This raises questions about the permanence of these senior women in the CG System.

Hiring many women into Centers at the more junior levels may impede the overall advancement of women to higher professional levels. Postdoctoral fellows often have fixed tenures and only a share are hired on as permanent staff after the fellowship is completed. With respect to the female junior scientists, more than half were on special project funds between 1988 and 1991 making their future in the Centers uncertain.

The influx of women at entry level positions does not have to be negative, however. It can represent an important opportunity for the Centers. If these women can be retained within the System, they represent a strong potential pool for more senior scientific and management positions. The management challenge for the Centers will be to provide these women with opportunities for career development and to ensure that the environment of the Centers enables them to be fully productive. At the same time the Centers should endeavor to strengthen their recruitment strategies and policies to ensure that they cast their nets sufficiently wide to reach senior professional women.

D. FEW WOMEN ARE FOUND IN SENIOR RESEARCH MANAGEMENT OR ADMINISTRATIVE POSITIONS

Centers

The survey data indicate that in 1991 women (n=2) comprised only 2% of the 88 staff in senior research management and administration positions in the Centers.[6] The percentage of women in middle-level management positions is also low. Only 6% of the 143 program leaders or department heads in the Centers, were women (Fig. 7).

Taking another view of the data, it can be observed that while 220 men, or 20% of the male staff, were in senior or middle-level management positions, only 11 women, or 7% of the female internationally-recruited staff, were in such positions.

Two-thirds of the female managers were in administrative or program support positions, while one third were in research. This is a common pattern observed in organizations, both public and private. Where women do break through the "glass ceiling" to attain higher positions, they tend to reach these higher levels in areas outside of the core operations. This has been called the "glass pane" syndrome. Often people in such positions do not have the same power or influence within the organization as do managers in mainstream operations. With the changing patterns of supply, one would expect to see more women in senior research management positions in the 1990s.

What is the profile of the women who have obtained management positions? Detailed information is available on only 8 of the 11 managers.[7] Three came into the Centers directly as managers, while the remaining 5 moved up into management positions. The average tenure is 8 years and their average age is 49. All but one of the women assumed their management positions after 1982. Five have Ph.D.'s. Four received their advanced degrees in natural sciences and 4 were trained in administration, information, or education. The female managers have, on average, 20 years professional experience after receiving their Masters degree (two received Masters degrees mid-career). Four of the women came from developed countries, while the other four came from Latin America and Asia. Contrary to the general pattern of women in the System, most of the female managers were married, but only 3 had had children. It would be interesting to compare the profiles of male and female senior managers in the CG System to see if career paths are similar.

The lack of women in senior management positions, although a point of concern, is not surprising given the more recent entry of women into the CG System, their youth compared to men, and the relatively small number of women receiving doctoral degrees in agricultural sciences before the 1970s

(ref. section IV). Nevertheless, it should be noted that Centers have increasingly been able to recruit senior women for their Boards.

The paucity of women in middle-management and program leadership positions, however, raises more questions. In the USA in 1986, as one comparison, 17% of the employed women in the life sciences reported management as their primary responsibility (National Science Foundation). Given that 20% of the internationally-recruited women (n=30) have 20 years or more of professional experience (post-Msc.) and that more than 15% have tenures of 10 years or more at the Centers, it can be questioned if this pattern reflects solely supply-side considerations.

The issue of whether "glass ceilings" -- transparent barriers blocking women as a group from entering management positions -- are inhibiting women's career development in the Centers needs to be examined in more depth through qualitative analysis within individual Centers. This is an area of gender staffing which the management and Boards of the Centers, as well as the donors, should monitor closely over the next five years. The lack of women in management positions can be an important factor dissuading highly qualified women from joining a Center or staying for any significant period of time.

Boards

There have also been few women in leadership positions on the Boards. In 1991 4 women , or 16% of female Board members, held formal positions of leadership on Boards (e.g. Chairs, Vice-Chairs, or Committee Chairs). From 1986 to 1990, however, few women had held such positions. With the exception of 1988, the number of women with major Board responsibilities never exceeded one. Since 1986, no woman has chaired a Board although in 1991 a woman was serving as Vice-Chair at CIAT.

It is difficult to attribute this pattern to lack of experience since almost half of the women on Center Boards during this time held senior management positions in other organizations. Perhaps women have not been willing to assume such responsibilities. Much more likely, is that this pattern reflects their low representation on Boards and their "newcomer" status within the CG System.

E. WOMEN ARE DISPROPORTIONATELY CLUSTERED IN ADMINISTRATIVE AND PROFESSIONAL SUPPORT POSITIONS

In the survey comparing men and women, 17% of the internationally-recruited women were reported to be in administrative and professional-support positions compared to 7% of the men (Fig. 7). Women comprised 24% of the staff included in this category.

The more detailed data from Part II of the survey on women present at the Centers between 1988 and 1991 shows that almost 10% of the women were in

administrative positions (such as assistants to Director Generals), 11% were in program support positions (such as training, publications, information or computer services), and 8% in service positions such as teachers or interpreters.[8] Women in these positions were older than the female scientists and, on average, had had longer tenures at the Centers.

The ratio of female administrative to scientific staff varies across the Centers. For example, some Centers, such as IIMI and WARDA, had no female scientists between 1988 and 1991. In other Centers, such as ICARDA, IITA, and ICRISAT, 40% or more of the internationally-recruited women were in non-scientific positions. In the others, the large majority of women were in scientific positions.

The supply of women for administrative and program support positions is greater than for many of the scientific positions, indicating that the Centers have taken advantage of these opportunities for recruiting women. Nevertheless with the increasing supply of women scientists trained in areas relevant to the Centers, the relative proportion of women in these positions in the 1990s should come more into line with the profile seen for men.

F. FEWER WOMEN THAN MEN HAVE PH.D. DEGREES

The profiles of male and female internationally-recruited staff differed markedly with respect to degree levels (Fig. 11). Only 53% of the female staff have Ph.D.'s. compared to 76% of the men. In contrast 32% of the women have Msc./MA as their highest degree compared with 15% of the men.

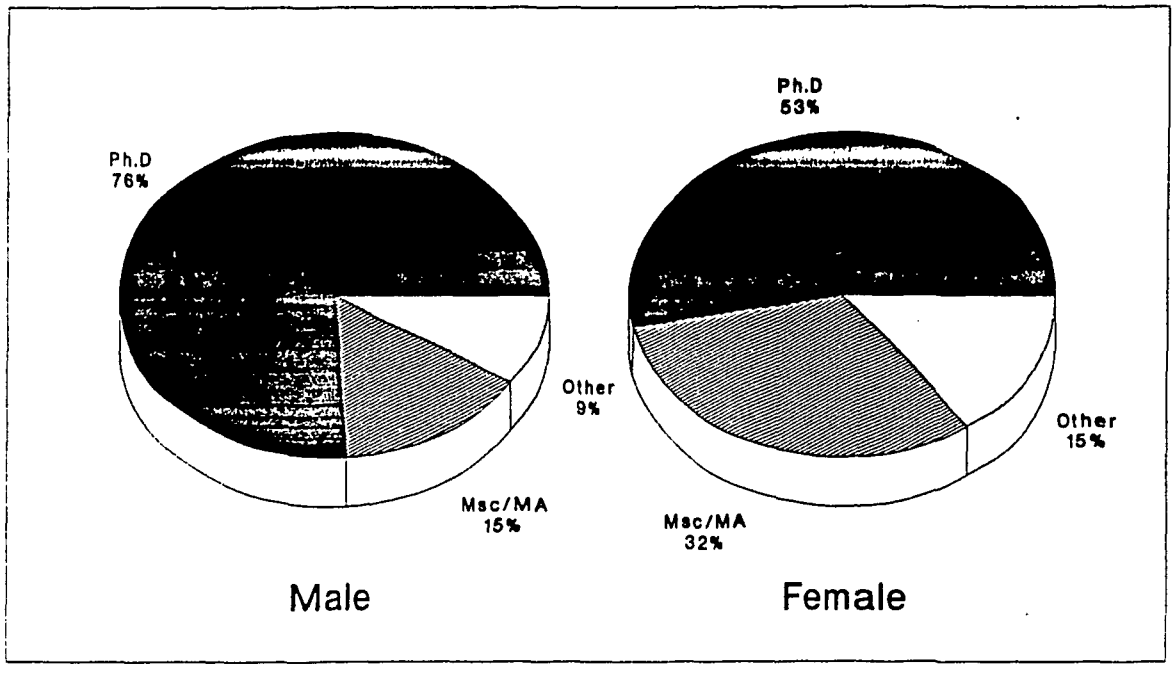


Fig. 11. Comparison of the highest degree levels of male and female internationally-recruited staff, 1991

This difference can be explained largely by the higher share of women relative to men in administrative, program-support, and associate expert positions (Fig. 7). Only 5 of the 37 women in administrative and professional support positions between 1988 to 1991 had Ph.D.'s and none of 19 associate experts had Ph.D.'s. Of the female scientists at postdoctoral level or above, 85% had Ph.D.'s.

The lower percentage of women with advanced degrees may partially explain the lower percentages of women in research management positions within the Centers.

G. THE SHARE OF WOMEN AND MEN ON CORE FUNDING APPEARS TO BE SIMILAR

An encouraging finding from the survey was that, in aggregate, female internationally-recruited staff were not funded disproportionately out of special project funds as has often been asserted. The Centers reported that 76% of the women and 80% of the men were on core funding in 1991.

The share of women on core funding is somewhat inflated, however, by the larger percentage of women in administrative and professional support positions, almost all of which are core funded. Of the women present in the Centers between 1988 and 1991, 74% were funded from core. But of the female scientists, only 65% were on core funding and only 40% of the of the 91 junior/associate scientists were core funded. Unfortunately, comparable data is not available for men. The heavy reliance on special project funding to support younger women scientists in the Centers raises questions about the ability of the Centers to retain these women as they gain more experience.

The proportion of female staff on core funding varies considerably across Centers. At CIP, for example, only 36% of the women are on core funds compared to 78% of the men. This is largely because most of the female scientists are in junior scientist posts (Fig. 10). CIAT and IFPRI also have lower percentages of women than men on core funds. In the remaining Centers, the proportions are comparable for male and female staff.

H. THE DISCIPLINARY BACKGROUND OF WOMEN DIFFERS FROM THAT OF MEN

The disciplinary background of women in the system differs from that of men. A larger share of women compared to the men are trained in socioeconomic sciences, computer and information sciences, cellular sciences, and mathematics and statistics (Fig. 12a).

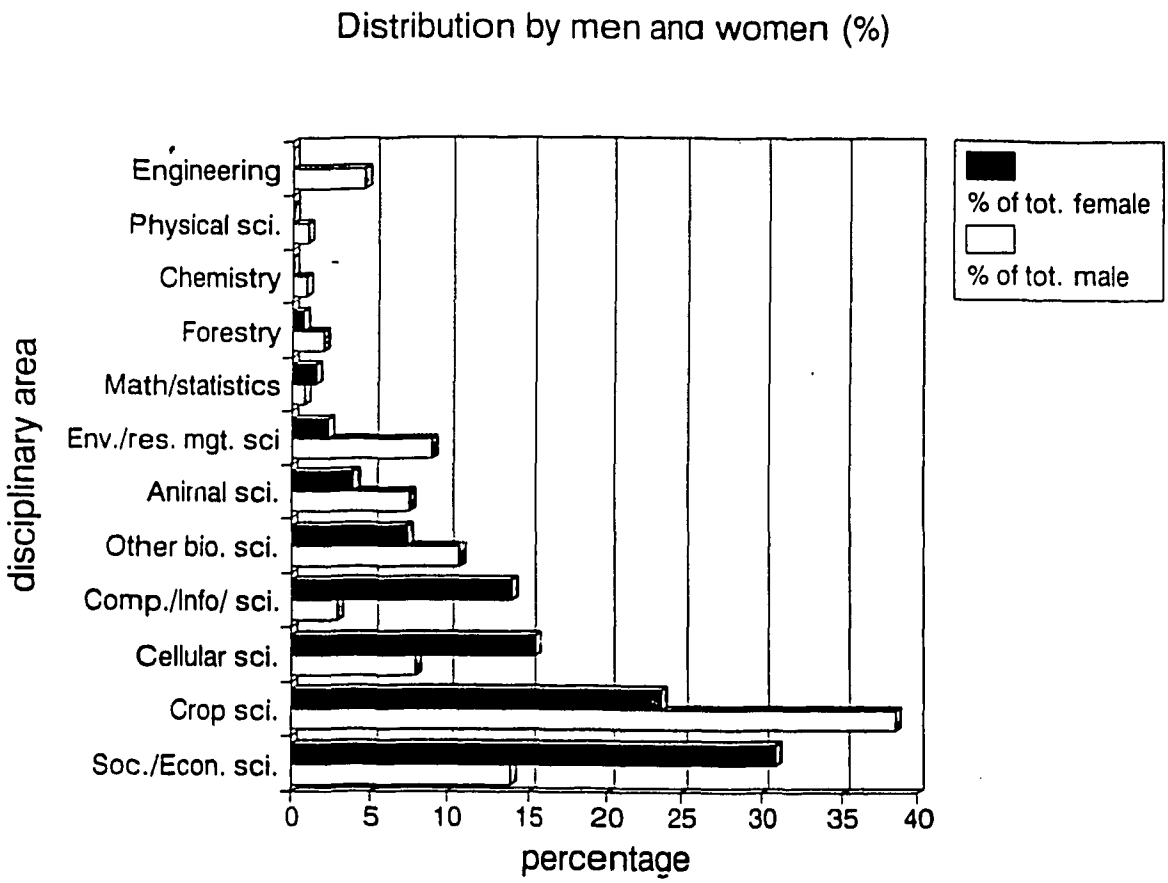


Fig. 12a. Distribution of male and female internationally-recruited staff across major disciplinary areas in 1991 (percent)

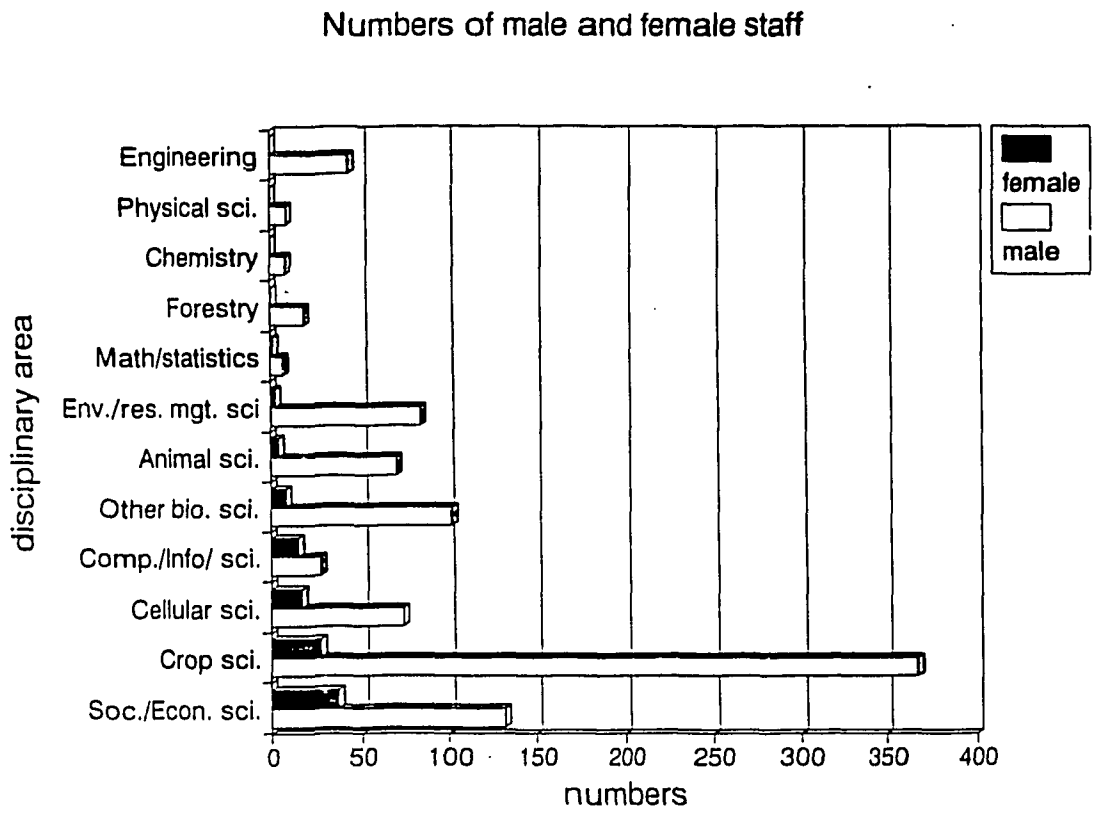


Fig. 12b. Distribution of male and female internationally-recruited staff across major disciplinary areas in 1991 (number)

Of the six major disciplinary areas represented across the Centers (those areas with 50 or more scientists System-wide), women were under represented in four (Fig. 12b). For example, only 20% of the female scientists compared to 35% of the male were trained in crop sciences, the most heavily represented disciplinary area within the CG System. Women constituted only 7% of the 395 crop scientists in all the Centers. The largest concentration was in plant breeding, followed by pathology and entomology. Women were also under represented, although not so dramatically, in animal sciences, environmental /soil/resource management sciences, and non-cellular biological sciences.

In contrast, they made up 23% of the 170 socioeconomists. Approximately 60% of the female socioeconomists were trained in economics or agricultural economics and 40% were trained in anthropology or sociology. Women also comprised 20% of the 94 staff with degrees in cellular sciences, such as microbiology. Women made up 26% of the scientists actively engaged in biotechnology research, a likely area of growth within the Centers.

These patterns reflect, in part, the market, or the supply of women scientists in various disciplinary areas. As a first cut, it is interesting to compare the pattern of female scientific staffing in the Centers with that of employed doctorates in science and engineering in the USA (National Science Foundation data for 1987). This comparison can only be taken as illustrative, however, since the USA data relate to employed doctorates and the Center data combine both doctorates and researchers with a Msc. as their highest degree (Fig. 13).

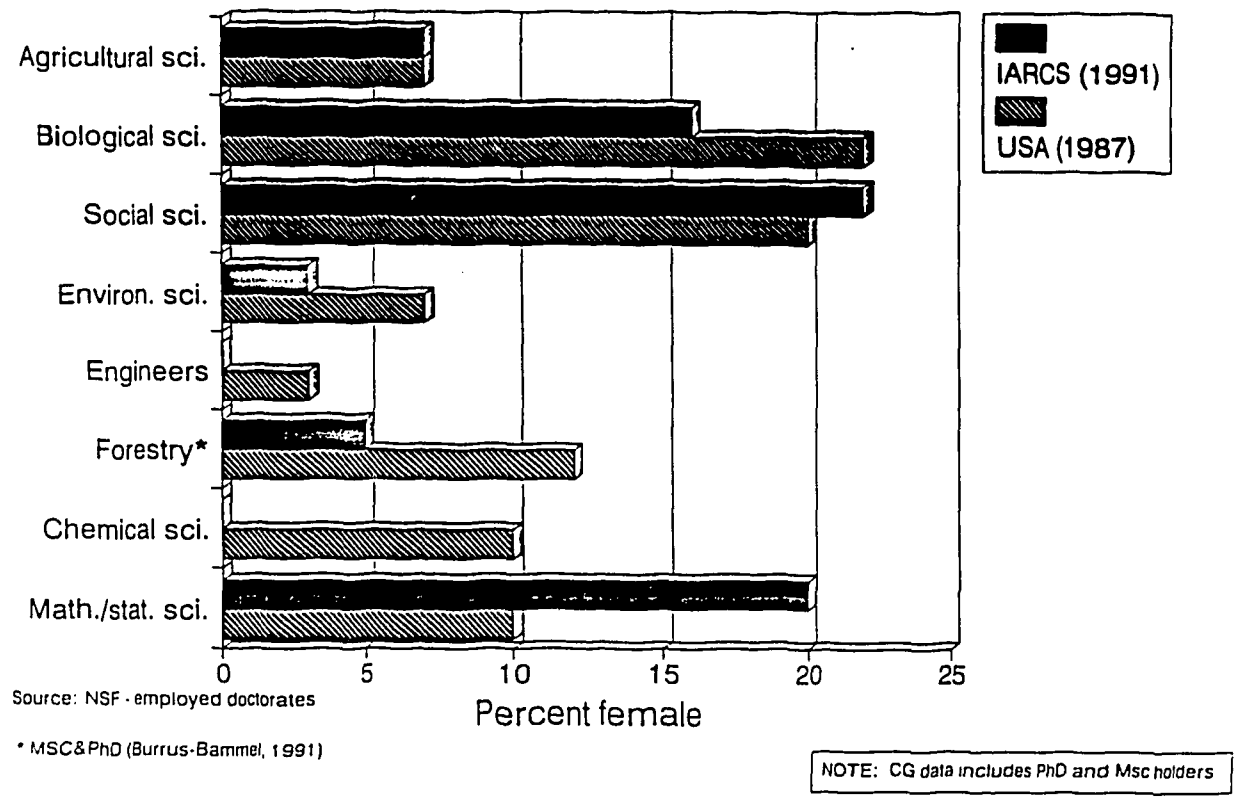


Fig. 13. Comparison of female staffing by disciplinary area within the Centers to employment of doctoral scientists in the USA (females as percent of total)

With respect to the agricultural sciences, the Centers are employing essentially the same percentage of women (both Ph.D. and Msc.) as was found in the USA for Ph.D. only (7%) or in The Netherlands with respect to university faculty. The Centers are employing somewhat higher percentages of women in socioeconomics and mathematics/statistics.[9] . The percentages of women is comparatively lower for the biological sciences, environmental sciences, engineers, forestry sciences, and chemical sciences.

The patterns of supply of women in the disciplines relevant to the centers have changed dramatically since 1980 (ref. Section IV). These changes have and will continue to provide new opportunities for recruiting highly qualified women scientists into the Centers. In particular, as the Centers move more into biotechnology they will need to draw increasingly on disciplines, such as microbiology, where women have had a much stronger representation. To do this, they will have to adjust their recruitment strategies to ensure that they reach these women who currently comprise between 30-45% of the recruitment pool in some developed countries.

I. A LARGER SHARE OF WOMEN THAN MEN COME FROM DEVELOPED COUNTRIES

Nationality is another area where the profiles of male and female staff differ significantly (Fig. 14). Seventy-five percent of the women, compared with 54% of the men, came from developed countries. The difference is most pronounced with respect to North America: 38% of the women (n=55) came from North America compared with 19% of the men. Women comprised 21% of all North American staff at the Centers.

This pattern provides an interesting contrast to the Boards of the Centers. Here Europeans and North Americans have accounted for only about 35% of the women on the Boards (1986-1991) and the heaviest representation has been from Europe rather than North America. The majority of female Board members are from developing countries (Table 1).

There are some interesting differences in the profiles of the internationally-recruited women from different regions. The European women have tended to concentrate in scientific positions, to be younger and single, and to have had shorter tenures. Almost half of the scientists came in as postdoctoral fellows, associate experts, or visiting scientists, all of which are temporary posts. The North American women also have also had somewhat shorter than average tenures, but have been represented more heavily in program support and administrative positions.

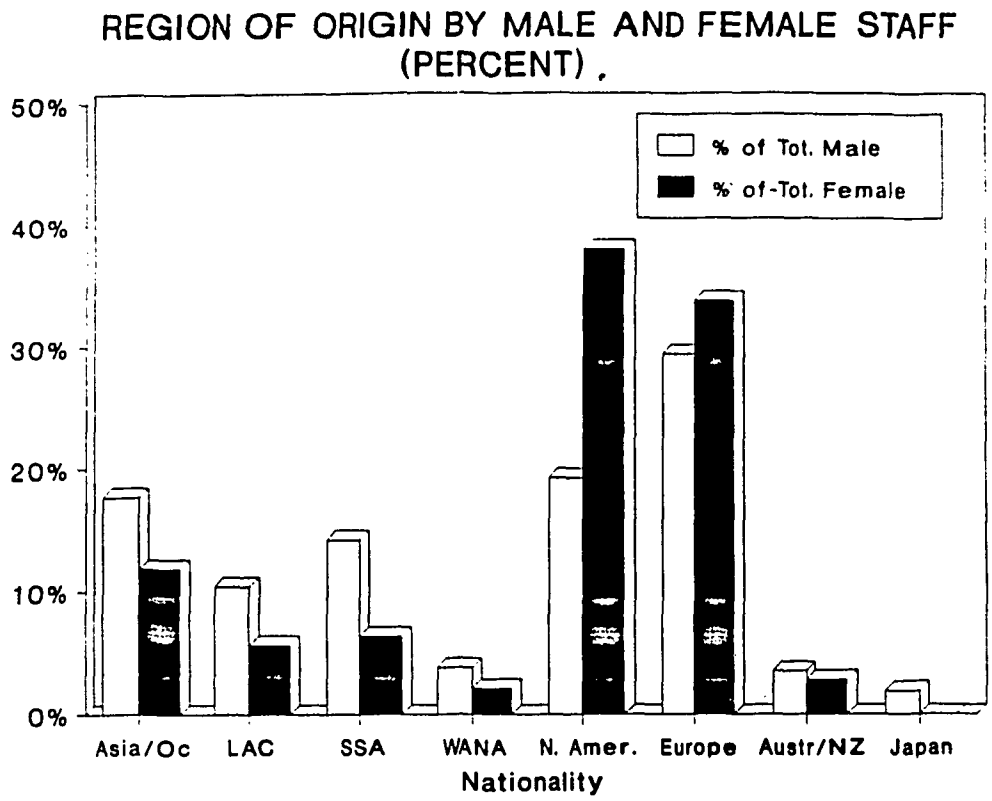


Fig. 14. Distribution of male and female internationally-recruited staff by region of origin (percent)

In contrast, the women from developing country regions were older and had longer than average tenures for women at the Centers. A larger share of women from Latin America and Asia were married with children. Developing country women were quite evenly distributed across major staff categories, except for the African women who were represented disproportionately in administration and service positions. Only 46% of the these women were in scientific positions. When looking at scientists alone, a larger share of developing country women were found in the postdoctoral fellow category than in the junior or senior scientist categories.

The stronger representation of women from North America and Europe undoubtedly reflects the growth in supply of women scientists from these regions (ref. section IV). It also likely stems from stronger informal networks for identifying women in developed countries than in developing. Some donor programs, such as those of Ford and Rockefeller, are helping to increase the number of women postdoctoral fellows from developing countries.

Low representation of women from Asia (12% of women compared to 18% of the men) is surprising since women make up a considerable share of the researchers in several of the large national research systems of the region (e.g. Philippines and Thailand). Women also made up, for example, 27% of the Asian foreign graduate students studying agriculture in the USA in 1990 (Source: IIE,

Profiles, 1991). Asian women have accounted for 12-20% of all female Board members since 1986. Asia may well be an under exploited source of qualified women scientists and professionals for the Centers.

J. A LOWER PERCENTAGE OF WOMEN, COMPARED TO MEN, ARE MARRIED AND/OR HAVE CHILDREN

One of the most striking differences between internationally-recruited men and women at the Centers is in their marital and family status. In 1991, only 54% of the women were married compared to 88% of the men. Similarly, only 50% of the women had children compared to 82% of the men. Women with children had an average of 1.7 children. Comparable data is not available for men.

The differences in marital status between men and women can be explained in part by the fact that women at the Centers are younger than men and in earlier stages of their careers. The lower percentages of married women compared to men also reflects, however, the growing importance of dual career households in many countries and the greater difficulties women face in having professional husbands follow them in career moves and relocations. Similar differences in marital status between men and women were found, for example, among Technical Cooperation Officers posted overseas with the Overseas Development Administration of the UK (Ladbury, 1990). Interviews at five Centers indicate that spouse employment is emerging as one of the most important human resource management issues confronting the Centers. Although this is clearly an area which affects both men and women, it has a larger impact on the recruitment and retention of married women who are still more likely than men to have professional spouses.

A second argument sometimes forwarded to explain low participation of married women in the Centers, or in science in general, is that women, carrying dual responsibilities for career and family, cannot dedicate themselves to their work as is required for rigorous scientific careers. Data from the Centers and other studies on performance of female scientists do not support this argument, however.

Recent research in the USA shows that marriage and motherhood are not correlated with lower rates of publication among female scientists, as is commonly asserted. It is also not consistently associated with reduced career opportunities, such as lower rank or salary, nor with high rates of unemployment. Instead, reduced geographic mobility appears to be the most important factor inhibiting the career attainments of both married and single female scientists (Cole and Zuckerman, 1984; Northrup, 1988; Zuckerman, 1991). It is likely that reduced geographic mobility is also influencing both the rate of entry of women into the Centers and the comparatively low percentage of married women.

Do marriage and family impede a women's career development at the Centers? The survey data indicate that they do not. Married women scientists have actually had more upward mobility than single women. This can be explained in part by differences in entry level. More single women have entered at the associate expert level from which there are few opportunities for advancement. A larger share of married women have entered in postdoctoral positions from which there are more opportunities for advancement. Married women have, on average, also advanced faster than single women. The average tenure for single women scientists (postdoctoral level and above) who had received two promotions was 13.4 years compared to only 7 years for married women.

The tenure of married women was marginally longer than that of single women when looked at across all staff categories, but it was shorter among scientific staff (3.9 years for married women versus 4.5 years for single women). The only significant difference is at the senior scientist level (n=46) where married women stay, on average, one year less than single women (4.7 versus 5.7 years). This likely reflects dual career families and problems of spouse employment. If so, it raises a warning flag for managers of the Centers who may be losing their senior female scientists prematurely.

Similarly, the data do not show that childrearing has impeded the careers of women in the Centers. Women with children were older and had a longer period between when they received their Ph.D.'s and entered the Centers. Once in the Centers, however, they had actually moved up more quickly than women without children. Among scientists only (postdoctoral and above), 41% of the women with children had had at least one promotion versus 25% of the women without children. There is no difference in the average tenure of women with children and those without, except, once again, at the senior scientist level. Here women with children have had significantly shorter tenures than those without (3.5 versus 5.2 years). This is likely explained in part by spouse employment problems noted above. It may also reflect concerns for children's education. These issues need to be looked at in more depth in individual Centers.

Taking maternity leave does not appear to have impeded women's career development in the Centers. Female scientists who took maternity leave, while constituting 18% of the pool of female scientists, represented 33% of those who had received at least one promotion.

The differences in family status among male and female internationally-recruited staff raises several important management issues. A common concern about increased participation of women in the work force is the increased costs of maternity leave and disrupted work programs. Data from Part II of the survey shows that between 1988-1991, 27 women, or 35% of the 78 women with children, took maternity leave. The percentage was higher among scientists (42% of the 50 female scientists with children). The survey data indicate that the average maternity leave was 2.6 months per woman for a total of 70 months in 4 years across 15 Centers.[10] The maternity leave taken

was equivalent to 3% of the total person months of these women in the Center. It averages out to less than 3 weeks per married woman in the Centers. Moreover, based on interviews at the Centers, it appears that women have managed their maternity leaves carefully so as to not disrupt ongoing work in any major way. Based on experience to date, it is clear that maternity leave has not represented a significant cost to the Centers.

Increased participation of women scientists will raise the importance and urgency of resolving spouse employment problems, although this is an issue increasingly affecting men as well. On the opposite side of the spouse employment problem, interviews carried out at four Centers indicate that the single status of a large number of women could also lead to problems in retention in the future. Many of the staff felt that single people in the Centers were discriminated against in terms of benefits and perks (e.g. housing, cars, spouse travel) and that this was a constant source of aggravation and discontent. Isolation was also a major problem. Again this is an issue which affects both men and women, but, given the high percentage of single women, affects women disproportionately.

K. THE TURNOVER RATE FOR MEN AND WOMEN APPEARS EQUAL.

Staffing data from 1990 shows that the average turnover rate across all Centers was about 16% for both men and women. This is a positive sign indicating that women are not leaving the Centers at higher rates than men due to negative forces such as discrimination, sexist work environments, or barriers to career advancement. This data is only indicative, however, given the shorter average tenures of women currently in the Centers and the fact that many are in the early stages of their careers. Factors affecting retention of high quality women professionals in the Centers need to be examined in more detail.

The average tenure of women professionals varies across staffing category (Fig. 15). It is noteworthy that women scientists have had lower average tenures than most other staff categories. Among the scientists, the tenure also varied with level. Senior female scientists have had an average tenure of 5 years, junior scientists had tenures of 3 years, and postdoctoral fellows somewhat less than 2 years. The average tenure of women also varies by Center, ranging from 2-3 years at IIMI and ICRISAT, where women are relatively recent entrants to the Center, to longer tenures of 7-8 years at IRRI and IFPRI.[11] Female scientists have had the longest tenures at IFPRI and ILRAD, 7 and 5 years respectively.

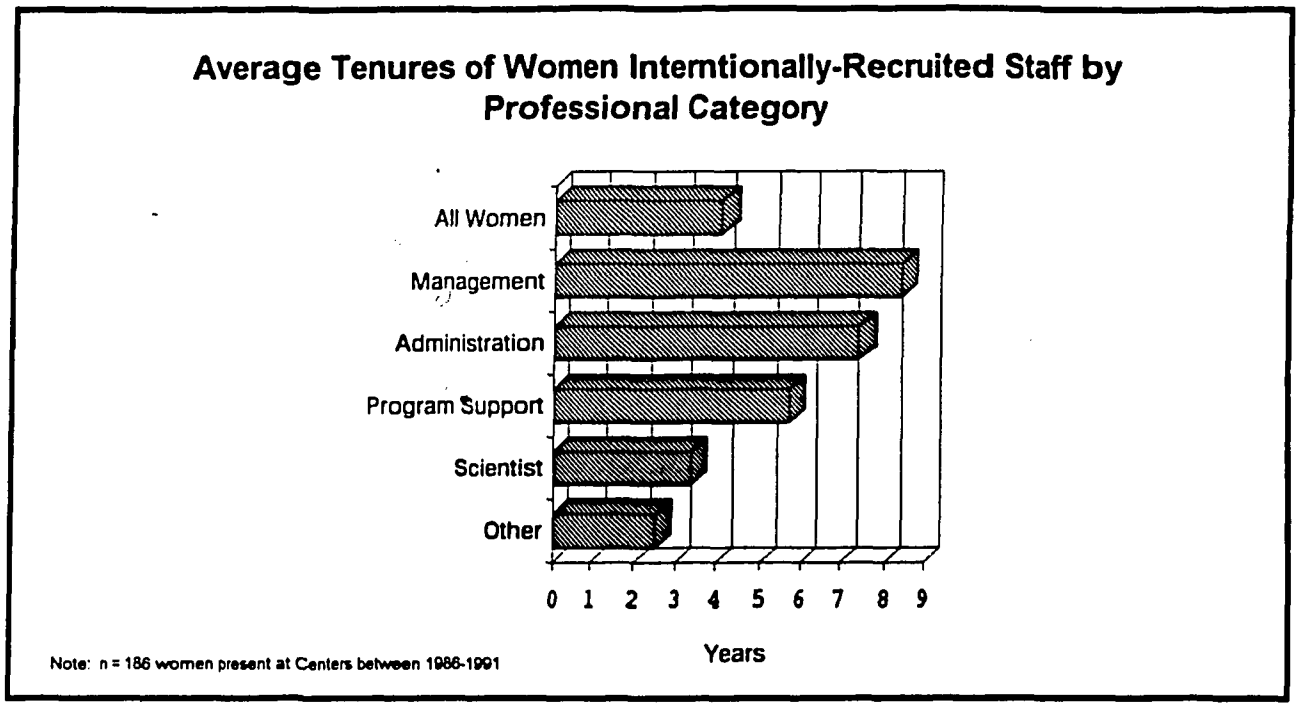


Fig. 15. Average tenure at for internationally-recruited women in different staffing categories

CHANGING PATTERNS OF SUPPLY

The supply of women scientists in disciplinary areas relevant to the work of the Centers has increased markedly over the past two decades. The gender composition of the pool of potential recruits for the Centers has clearly shifted; in some cases quite dramatically. Given these changes in supply, the number of female scientists working in the Centers is expected to grow substantially in the 1990s. Similarly, one would also expect to see women moving more into senior scientist and research management positions

The National Science Foundation in the USA provides detailed trend data on the number of men and women receiving doctoral degrees in major disciplinary areas since 1960 (Fig. 16). These data show that very few women received doctorates in the agricultural sciences in the USA before the mid-1970's; and that women did not even begin to have any significant representation in forestry sciences, for example, until the mid-1980's Women's participation in the social and biological sciences has always been stronger, but major increases in the percent of women receiving doctorates were also registered between 1960 and 1990.

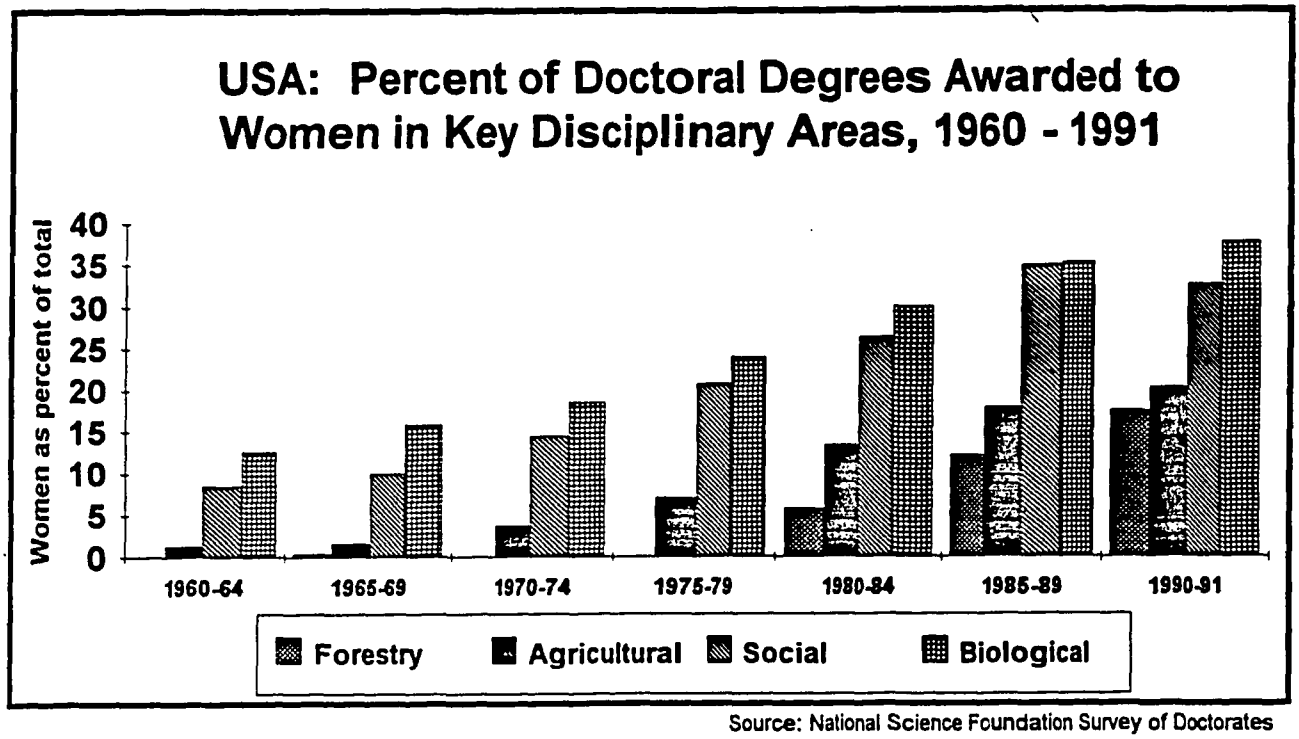


Fig 16. Percent of USA doctoral degrees awarded to women in four major disciplinary areas, 1960-1989

The extent to which women's participation has increased varies across specific agricultural disciplines. Figure 17 shows the changes in the percent of women receiving doctoral degrees in the USA between 1960 and 1989 in several of the major disciplines tapped by the Centers. The largest shift, from 3% to 17% is in phytopathology, which in the NSF data includes plant breeding/genetics, plant pathology, and phytopathology . Separate data for plant breeding, the dominant discipline of most Centers, is only recently available. From 1983 until 1990 the percent of doctorates who were women rose sharply from 18% (n=13) to 28%. (n=20).

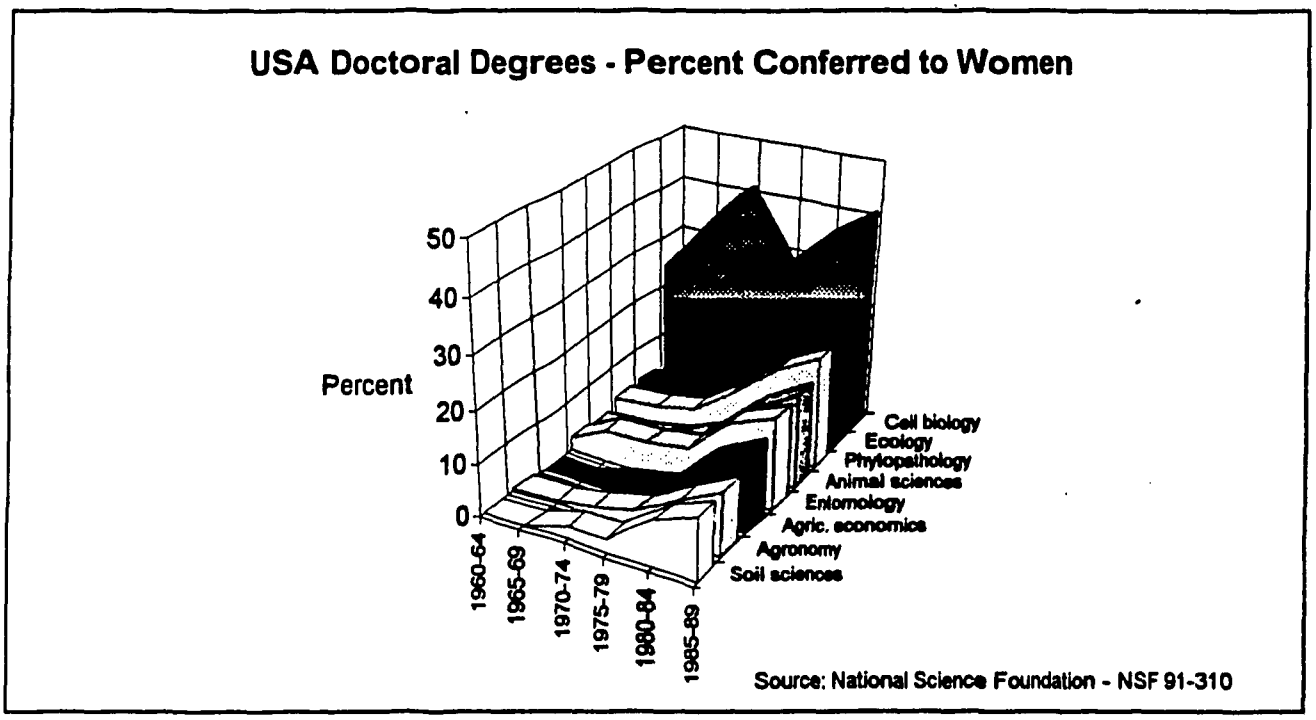


Fig. 17. Percent of USA doctoral degrees conferred to women in selected disciplines, 1960-1989

Data from other developed countries on percent of graduate degrees conferred to women in the 1980s show similar trends to those of the USA (Fig. 18). The increase in the percentage of women receiving graduate degrees in agriculture in Western Europe and Japan is noteworthy. Of particular interest is the high percentage of women in agricultural sciences in the countries of former Eastern Europe. This region will undoubtedly be an expanding area of recruitment for the Centers in the 1990s.

Figure 19 shows the trends in selected European countries for which data was available. The percent of women receiving graduate degrees in the social and behavior sciences in Europe has remained about 35%, again with women's participation higher in countries of former Eastern Europe.

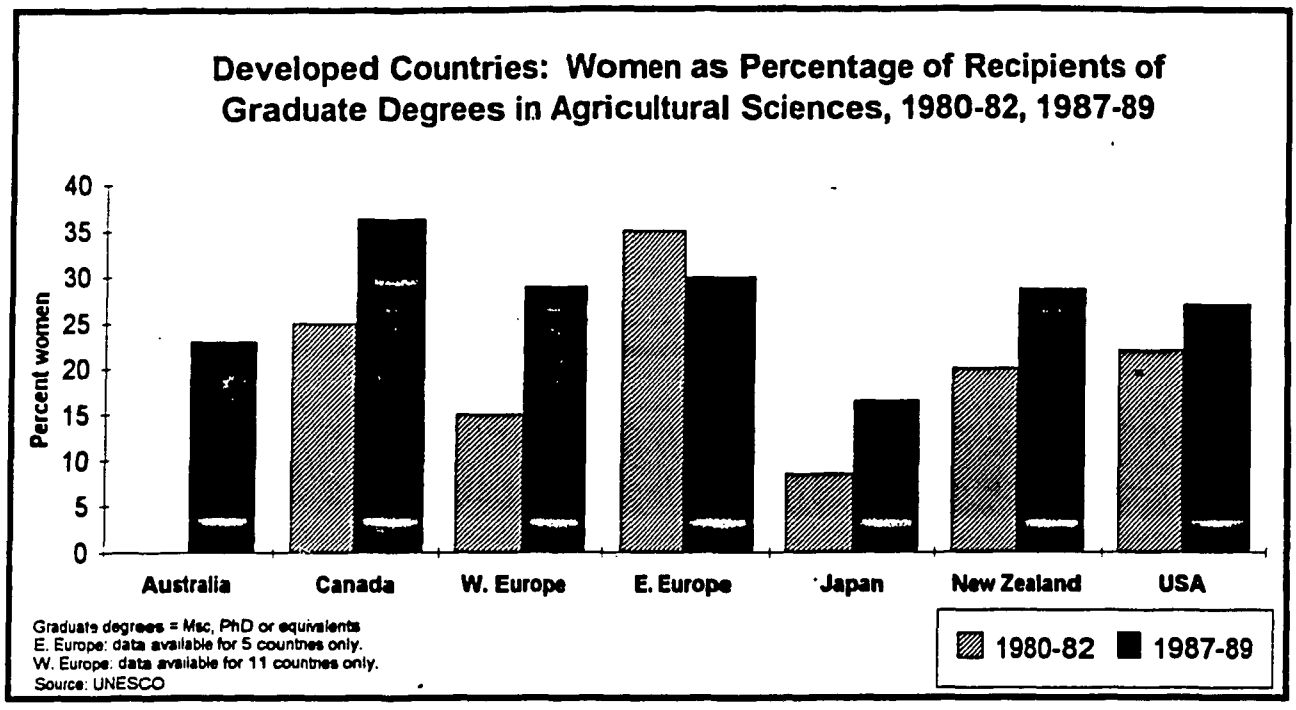


Fig. 18. Developed countries: Percent of graduate degrees in agricultural sciences conferred to women, 1980-82, 1987-89

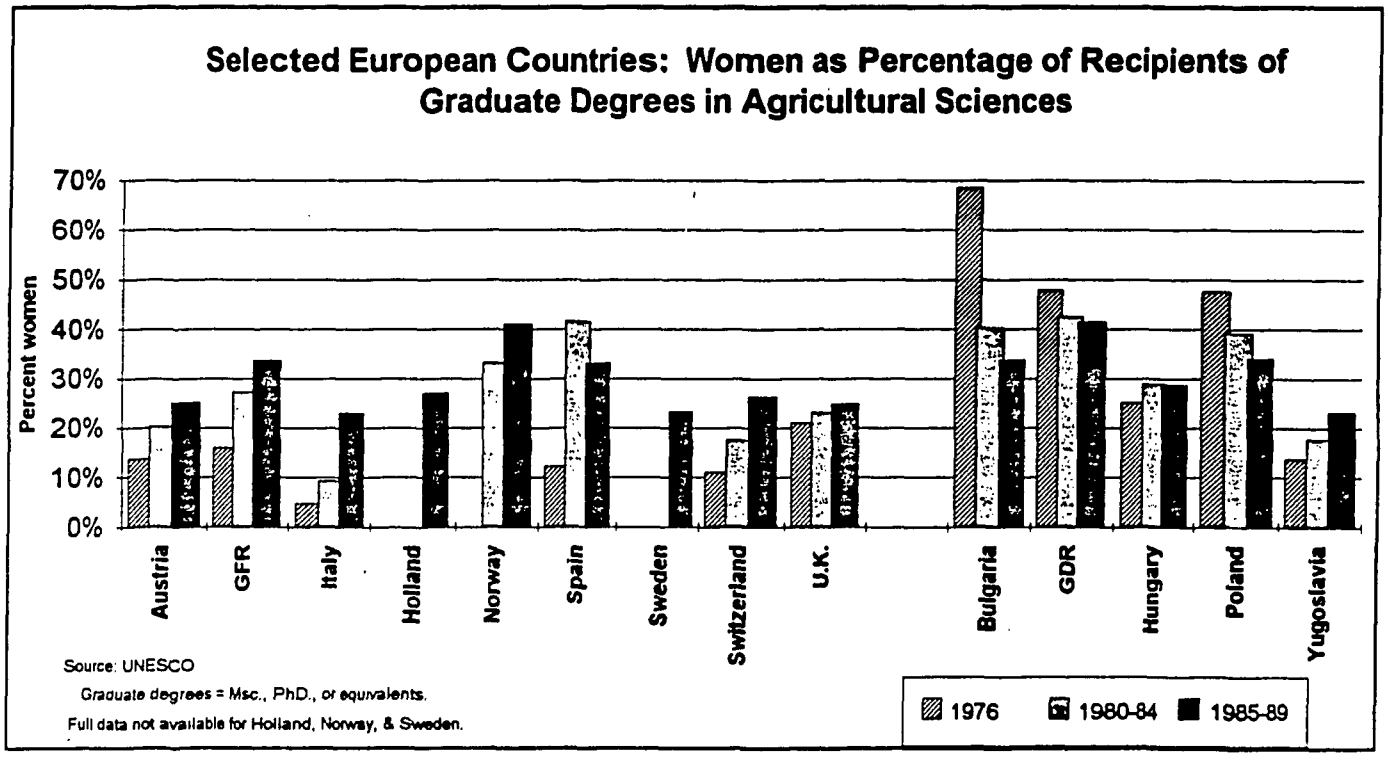
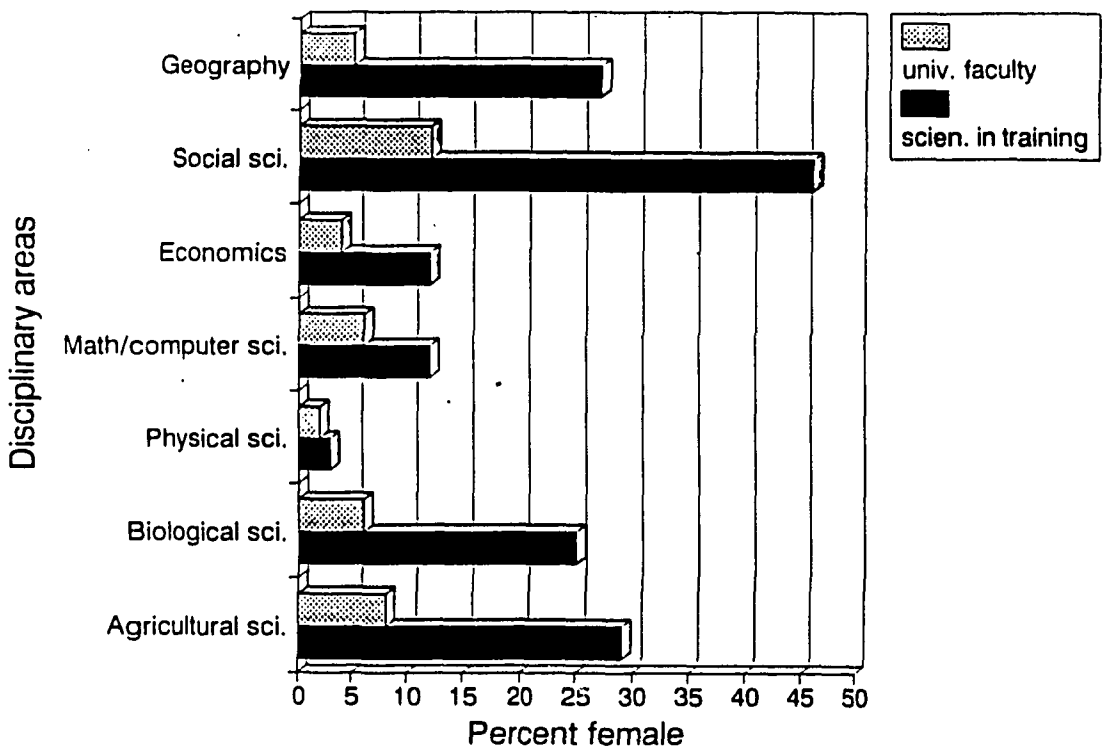


Fig. 19. Selected European countries: Percent of graduate degrees in agricultural sciences conferred to women, 1976, 1980-84, 1985-89

More detailed information is available from The Netherlands and is illustrative of the trends described above (Fig. 20). Increasing supply of women scientists is evident when the percent of women scientists in graduate training is compared to the percent of women faculty in the same disciplinary areas. While women comprised only 7% of the faculty in agricultural sciences in 1988, they made up almost 30% of the graduates in training in agriculture.



Source Hicks (1991)

Fig. 20. The Netherlands: Women as percent of scientists in training compared to university faculty in major disciplinary areas, 1988

Reliable trend data, disaggregated by gender, on graduate training in developing countries is difficult to obtain. Nevertheless, data on the percentage of foreign female students studying in the USA in disciplinary areas relevant to the Centers has increased markedly between 1981 and 1990, except in mathematics and computer sciences (Table 3). Between 85-90% of these students come from developing countries.

The share of women among foreign graduate students studying agriculture increased from 17.5% in 1985/86 to 24.2% in 1990/91. This varied from a low of 13% of students from Africa to a high of women comprising 27% of students from Asia in 1990/91 (IIE Profiles, 1987, 1991). In absolute terms, the number of foreign women graduate students studying agriculture increased from 569

to 883. The same trend was registered at Cornell University where the share of female foreign graduate students studying international agriculture rose from 60, or 22%, in 1980 to 186, or 38%, in 1991. Again, the students are largely from developing countries.

Table 3. Women as percentage of foreign students studying in the USA, 1981, 1990.[a/]

Disciplinary area	Agriculture	Phys./Life sciences	Social sciences	Math/ Computer
% women - 1981	14.7	27.1	33.7	30.7
% women - 1990	24.6	30.9	40.9	25.6

Source: (IIE, Profiles, 1983, 1991)
a/ About 85-90% of the foreign students come from developing countries

UNESCO has data on the number and percentage of women graduates (Msc. and above) in agricultural sciences in selected developing countries (Table 4). The percentage of women ranges from a high of 36.4% in Sudan to a low of 6.7% in Jordan.

Table 4. Number and percent of women receiving graduate degrees in agricultural sciences in selected developing countries, 1980s

Country	Year of Data	Number of Female Graduates	Women as Percent of Total Graduates (%)
Brazil	1982	232	29.0
Colombia	1989	5	21.7
Egypt	1987	335	23.4
Indonesia	1984	800	32.1
Iran	1987	23	13.9
Jordan	1989	2	6.7
Korea, Republic	1989	106	10.9
Madagascar	1988	3	25.0
Sri Lanka	1984	14	26.4
Sudan	1989	20	36.4
Syria	1986	17	44.7

Source: UNESCO Statistical Yearbooks

These data from different sources and regions of the world paint the same picture: women have been increasingly moving into the scientific fields from which the Centers draw. To continue to get top quality staff, the Centers will have to develop recruitment strategies and practices which enable them to draw upon this expanding pool of female scientists and professionals. This is not simply a question of equity for women, although this is important. It is a question of efficiency -- of tapping available resources and deploying them optimally. It is also a question of effectiveness -- of ensuring that the Centers have the highest quality staff available to carry out their mission.

CONCLUSIONS

The survey data and findings from diagnostic visits to the Centers suggest several key areas for future work on gender staffing within the Centers.

- **The situation is dynamic.** There have been rapid and significant changes in the status of women professionals in the CG Centers in recent years. These changes reflect changes in supply of women professionals and the concerted efforts of many Centers to recruit women. These trends are likely to continue. Increasing visibility of women in the Centers may stimulate more women to consider careers in the CG System.

- **The level and type of women's participation varies markedly across the Centers.** The Centers could benefit from examining the factors causing this variability to get a better understanding of the constraints and opportunities for strengthening the participation of women.

- **Strengthening practices for recruiting women will continue to be important.** Centers have emphasized improving recruitment of women professionals in recent years. Although significant progress has been made, most Centers still need to strengthen their ability to reach out and attract high quality women professionals. Most Centers have brought women at more junior positions, such as postdoctoral fellows or associate scientists. More concerted efforts will be needed to stimulate applications from more senior and experienced female professionals. This will require broader recruitment strategies to "cast the net" more widely; specific efforts to target women in recruitment; and taking the steps to ensure gender neutrality in the interviewing and screening process. Centers could benefit from working together to identify women's professional networks, expand their informal networks to more effectively reach women, and strengthen the image of the CG System as an hospitable place for women to work.

- **Advancement and retention are likely to be focal points for attention in the 1990's.** Women currently cluster in the more junior professional positions and very few women are in management positions. This pattern reflects the relatively recent entry of women into the Centers as well as into the professional pools from which the Centers draw. The distribution of women across staffing categories should be monitored in the future. In the next five years, one would expect to see higher percentages of women in senior scientific and administrative positions as well as in middle and senior management positions. If this trend is not visible, it will be important to determine if there are forces or attitudes within the Centers which are setting up barriers to advancement or causing excellent women to elect to develop their careers outside of the CG System.

As more women enter the Centers and they are no longer such extreme minorities, the Centers will find it opportune to examine their work environments and organizational cultures. It is often the informal practices and behaviors in the workplace which generate the most stress for women. The Centers will want to ensure that they are providing a work place that is as hospitable and supportive to women as it is to men; that allows women to work to their fullest potential; and is free of discrimination in any form, whether subtle or overt.

- **Work/family issues are likely to require more attention.** The number of staff at the Centers, both men and women, who are members of dual career families will increase markedly in the 1990's. Managers committed to attracting the highest quality staff and providing an environment which helps them to maximize their productivity, will need to seek creative approaches to helping their staff deal with work/family tensions. Reducing obstacles to spouse employment will be a major leverage point, as will flexible benefit packages and policies which recognize staff members' child and parental care responsibilities. Again, this is an area where the Centers can benefit from working together and pooling experience.

- **Leadership from the top is critical.** The basic lesson that emerges from the experiences of the Centers as well as from many other organizations, is that positive and lasting change will only happen when senior managers place a high priority on strengthening the participation of women (Beresford, 1991). They need to give the issue visibility, demonstrate their commitment and resolve, and put in place the policies and practices which will ensure that they can attract high quality women professionals and keep them. Change within the CG System can only happen through the initiatives of the Centers; there is little opportunity for productive System-wide measures. The CGIAR can support and encourage the Centers to increase the participation of women, but in the end, it is the Centers that have to take action.

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NOTES

1 Since the survey, ICLARM has become the 17th CGIAR-supported international agricultural research Center.

2 Associate experts are generally assistants to senior scientists. These posts are usually staffed by scientists with MSc. degrees and the positions are usually for fixed terms.

3 Does not include women who entered as postdoctoral fellows in other Centers and subsequently transferred.

4 Does not include ICRAF, IRRI, or ICARDA for which information on previous positions was not avaialable. Pool excluded women for whom promotion was highly unlikely, eg. women entering in 1991, women who entered directly into management positions, and visiting scientists.

5 Does not include visiting scientists or visiting research fellows.

6 Senior management positions are considered to be Director Generals, Deputy Director Generals, or Directors, all positions with line responsibilities. Staff positions such as Assistants to the Director General or Planning Advisors have been categorized as "other administrative/professinal support positions"

7 Information is not availble for the 1 senior manager and 2 middle-level magers at ICRAF.

8 Percentages are different from the comparative profile of men and women (Part I data) since a more accurate classification of professional categories could be done on the database of women only. In the larger survey, some Centers classified documentalists and training staff as scientists and others classified them as program support.

9 The comparatively high percentage of wmen in social scientist positions is likely to be due in part to the Rockefeller Foundation Social Sciences Fellowship Program. Twenty-five percent of the female social scientists currently working in the Centers entered as Rockefeller postdoctoral fellows.

10 Some women had more than one pregnancy.

11 The average tenure at WARDA is 10.2, but this represents only one woman internationally-recruited staff member.

ANNEX 1- METHODOLOGY

The survey was designed in two parts. The first was a comparative profile of male and female internationally-recruited staff working at the Centers in 1991. Data was collected on key human resource indicators. Centers aggregated the data. This simplified ease of collection and reporting, but did limit the extent of analysis possible. Since data is not recorded by individual, the data can not be used to make more refined comparisons of, for example, the average age of male and female senior scientists or prepare cross tabulations across indicators.

The second part of the survey collected data on key indicators for each internationally-recruited woman who had been present at the Centers between 1988 and 1991. This included both women who may have left before 1991 as well as those hired before 1988. The intention was to provide a larger pool of women to serve as the basis for analysis. The total number of women included were 191 from 15 Centers. Data from ICRAF was not available. This data does permit cross tabulations across indicators. It also provided more data on career development and family issues. Analysis of career development and promotions is based on a smaller sample of Centers for which data appeared reliable; ICARDA and IRRI are not included.

Interpretation of the data has been facilitated by extensive interviewing of men and women carried out at four Centers (CIAT, ICARDA, ICRISAT, and IITA) as well as additional interviews with more senior women in the CG System. Both authors have also worked at a Center and are familiar with the CG System. Pammi Sachdeva has also served on several external management reviews of Centers.

The preliminary analysis of the data was discussed with a group of senior managers from the centers in a workshop in 1991. Since then clarifications have been sought from the Centers on anomalous data and interpretations reviewed by several outside readers.

ANNEX 2 - DATA TABLE

CGIAR HUMAN RESOURCES, 1991

DISAGGREGATED BY GENDER

QUESTION #	MALE	FEMALE	TOTAL	% of TOTAL	M as % M TOTAL	F as % F TOTAL	M % row TOTAL	F % row TOTAL
Question 1. Total number of internat'l. staff	1061	145	1206	100%	100%	100%	88%	12%
Question 2. Staffing by level – by recruited								
senior management/administration	86	2	88	7%	8%	1%	98%	2%
department heads/research thrust leaders	134	9	143	11%	12%	6%	94%	6%
senior and/or principal scientists	519	49	568	44%	45%	32%	91%	9%
junior or associate scientists	85	26	111	9%	7%	17%	77%	23%
visiting scientists/research fellows	130	14	144	11%	11%	9%	90%	10%
postdoctoral scientists/fellows	88	19	107	8%	8%	12%	82%	18%
associate experts	18	8	26	2%	2%	5%	69%	31%
other internationally recruited	82	26	108	8%	7%	17%	76%	24%
administrative staff/or professional support staff								
TOTAL	1142	153	1295	100%	100%	100%	88%	12%
Question 3. Age (years)								
20–30	49	17	66	6%	5%	12%	74%	26%
31–40	336	63	399	33%	32%	44%	84%	16%
41–50	430	48	478	40%	41%	34%	90%	10%
51–60	197	13	210	18%	19%	9%	94%	6%
61 and above	42	2	44	4%	4%	1%	95%	5%
TOTAL	1054	143	1197	100%	100%	100%	88%	12%

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QUESTION #	MALE	FEMALE	TOTAL	% of TOTAL	M as % M TOTAL	F as % F TOTAL	M % row TOTAL	F % row TOTAL
Question 4. Nationality								
Asia/Oceania	187	17	204	17%	18%	12%	92%	8%
Latin America/Caribbean	100	8	108	9%	9%	6%	93%	7%
Sub-Saharan Africa	150	9	159	13%	14%	6%	94%	6%
West Asia/North Africa	40	3	43	4%	4%	2%	93%	7%
North America	203	55	258	22%	19%	38%	79%	21%
Europe	310	48	358	30%	29%	34%	87%	13%
Australia/New Zealand	37	4	41	3%	4%	3%	90%	10%
Japan	20	0	20	2%	2%	0%	100%	0%
TOTAL	1047	144	1191	99%	100%	100%	88%	12%
Question 5. Tenure at Center (number of *years employed at Center*)								
Less than 1	133	34	167	14%	13%	24%	80%	20%
1-3	377	57	434	36%	36%	40%	87%	13%
4-6	186	33	219	18%	18%	23%	85%	15%
7-9	126	5	131	11%	12%	3%	96%	4%
More than 10	225	15	240	20%	21%	10%	94%	6%
TOTAL	1047	144	1191	100%	100%	100%	88%	12%

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QUESTION #	MALE	FEMALE	TOTAL	% of TOTAL	M as % M TOTAL	F as % F TOTAL	M % row TOTAL	F % row TOTAL
Question 6. Location/ Posting								
Headquarters	730	113	843	71%	69%	78%	87%	13%
Outposted (regional or field position)	321	31	352	29%	31%	22%	91%	9%
TOTAL	1051	144	1195	100%	100%	100%	88%	12%
Question 7. Funding source								
In TAC approved core staff positions	771	100	871	79%	80%	76%	89%	11%
Other staff positions	195	31	226	21%	20%	24%	86%	14%
TOTAL	966	131	1097	100%	100%	100%	88%	12%
Question 8. Staff on part-time contracts (<75%)	11	2	13	100%	100%	100%	85%	15%
Question 9. Degree levels (highest degree received)								
Ph.D. or equivalent	799	77	876	73%	76%	53%	91%	9%
Msc/MA/ or equivalent	158	46	204	17%	15%	32%	77%	23%
Other	95	21	116	10%	9%	15%	82%	18%
TOTAL	1052	144	1196	100%	100%	100%	88%	12%

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QUESTION #	MALE	FEMALE	TOTAL	% of TOTAL	M as % M TOTAL	F as % F TOTAL	M % row TOTAL	F % row TOTAL
Question 10. Discipline (in which highest degree received)								
Crop sciences	366	29	395	33%	35%	20%	93%	7%
Animal sciences	71	5	76	6%	7%	3%	93%	7%
Cellular sciences (microbiology)	75	19	94	8%	7%	13%	80%	20%
Forestry/agroforestry	20	1	21	2%	2%	1%	95%	5%
Other biological sciences	102	9	111	9%	10%	6%	92%	8%
Chemistry	9	0	9	1%	1%	0%	100%	0%
Physical sciences	10	0	10	1%	1%	0%	100%	0%
Environmental/soil and resource management sciences	85	3	88	7%	8%	2%	97%	3%
Engineering	44	0	44	4%	4%	0%	100%	0%
Social/economic sciences	131	38	169	14%	13%	27%	78%	22%
Computer/information sciences	29	17	46	4%	3%	12%	63%	37%
Mathematics/statistics	8	2	10	1%	1%	1%	80%	20%
Management/administration	59	6	65	5%	6%	4%	91%	9%
Other (specify)	37	14	51	4%	4%	10%	73%	27%
TOTAL	1046	143	1189	100%	100%	100%	88%	12%
Question 11. Staff actively engaged in biotechnology research	68	24	92	100%	100%	100%	74%	26%

QUESTION #	MALE	FEMALE	TOTAL	% of TOTAL	M as % M TOTAL	F as % F TOTAL	M % row TOTAL	F % row TOTAL
Question 12. Years of relevant professional exper. (post Msc or equiv.)								
< 5 years	72	30	102	9%	7%	23%	71%	29%
5 – 9 years	169	29	198	17%	17%	22%	85%	15%
10–19 years	430	47	477	42%	43%	36%	90%	10%
20–30 years	276	21	297	26%	28%	16%	93%	7%
> 30 years	56	5	61	5%	6%	4%	92%	8%
TOTAL	1003	132	1135	100%	100%	100%	88%	12%
Question 13. Marital status (# of staff)								
married w/spouse in residence	881	69	950	79%	83%	48%	93%	7%
married w/out spouse in residence	55	8	63	5%	5%	6%	87%	13%
single/divorced/widowed	127	68	195	16%	12%	47%	65%	35%
TOTAL	1063	145	1208	100%	100%	100%	88%	12%
Question 14. Children (number of staff)								
With children	859	69	928	78%	82%	50%	93%	7%
No children	185	70	255	22%	18%	50%	73%	27%
TOTAL	1044	139	1183	100%	100%	100%	88%	12%