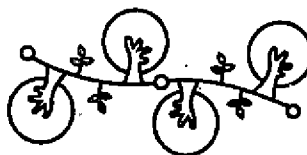


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# Engendering Undergraduate Agricultural Education

## A Resource Guide



**M. S. SWAMINATHAN RESEARCH FOUNDATION**

in collaboration with the

**INDIAN COUNCIL OF AGRICULTURAL RESEARCH**

and supported by the

Royal Netherlands Embassy

and

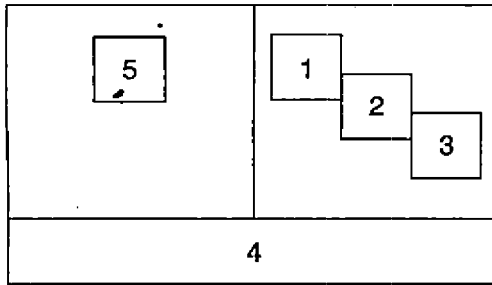
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# Foreword

An important recommendation made by the participants at a workshop on the **Technological Empowerment of Women in Agriculture**, organised jointly by the National Commission for Women (NCW) and the M S Swaminathan Research Foundation (MSSRF) in December, 1997, related to the need for integrating the gender dimension in the curricula of Agricultural, Veterinary and Forest Colleges and Universities. This suggestion was followed up by a Task Force of the NCW and a workshop was organised by Indian Council of Agricultural Research (ICAR) at the National Academy of Agricultural Research Management at Hyderabad early in 1999. In order to finalise the detailed methodology for engendering agricultural curricula, particularly at the undergraduate level, a Brainstorming Workshop was organised at MSSRF, Chennai on 16–17 December, 1999. This publication contains the proceedings and recommendations of the Brainstorming Workshop, and other resource materials.

The workshop participants have made practical and implementable recommendations. Without further loss of time, the Rural Agricultural Work Experience (RAWEX) programme can be made gender-sensitive. An ounce of practice is worth tons of theory. Hence, the young male and female students of Agricultural Universities can see for themselves gender roles in all production and post-harvest operations in villages. They will see the long hours of labour which characterise the daily life of women farmers and agricultural workers. They will not only observe the life of drudgery and deprivation experienced by rural women, but also learn how and why research and extension systems have tended to bypass women. A careful analysis of the reasons for the large prevailing gap between potential and actual yields and between theoretical “know-how” and field level “do-how”, will show that overlooking gender roles in agriculture has been a major cause of the low productivity and profitability of many farming systems.

Curriculum change, leading to a change in the mind set of the “change agents” (i.e., farm graduates) is fundamental to further progress in Indian agriculture. Therefore, no further time should be lost in implementing the recommendations of this workshop.

I am indebted to Dr. R S Paroda, Director General, ICAR, for his inspiring inaugural address, Ms. Mina Swaminathan and members of the planning and organising committee and Ms. Sunita Rabindranathan for her dedicated and tireless work as Organising Secretary. Financial support from the ICAR, the Royal Netherlands Embassy and UNIFEM is gratefully acknowledged.

27<sup>th</sup> February, 2000

**M S Swaminathan**  
*Chairman*  
*M S Swaminathan Research Foundation*

# About this Publication

Development initiatives in a predominantly agricultural country like India have to focus on agriculture and the rural scenario. Women play a significant role in agriculture, being involved in all major operations right from sowing to harvest and post-harvest operations, working as family or unpaid labour in their own fields, or as paid labourers in holdings of big farmers. Further, with the increasing migration of men from rural to urban areas, management of agriculture in many cases is done solely by women. Yet, women's role in agriculture has received little or no recognition so far, and official statistics do not record their contribution in full. Consequently, research and extension interventions in agriculture are often not designed from this perspective, with implications not only for agricultural development of the country, but also for the empowerment of women.

Effective improvement of extension efforts in agriculture calls for an understanding of the dynamics of class, caste and gender relations in rural society as well as of women's roles in agriculture operations, especially among extension workers, development workers and government functionaries. Agriculture as technology or science cannot divorce itself from the social scenario in the villages and the people who practise farming as an occupation. A reorientation of the existing curriculum of the Agricultural Universities at the undergraduate level is one step towards sensitising young minds to these aspects. This would help to a great extent in "humanising" and "genderising" extension efforts, leading to not just greater agricultural production but social change towards a more just and equitable society.

## Background

The initiative to include gender dimension as part of the agriculture curriculum at the undergraduate level was taken in December 1997 when the M S Swaminathan Research Foundation and the National Commission for Women jointly organised a workshop on the **Technological Empowerment of Women in Agriculture** at Chennai. One of the outcomes of this workshop was the setting up by the National Commission for Women (NCW) of a national-level Task Force on Women in Agriculture in collaboration with Indian Council of Agricultural Research (ICAR). The role of the Task Force was to identify, prioritise, plan and monitor research, policy and extension efforts on women in farming systems.

The first meeting of the Task Force, held in August 1998 at Delhi, identified four major issues of concern and set up sub-groups to go into them in depth.

- Reorientation of course curricula
- Reduction of drudgery of women in farm operations
- Policy and legislation including credit
- Occupational health hazards of women in agriculture and environment.

The first subgroup held two meetings at the National Academy for Agricultural Research Management (NAARM), Hyderabad under the Chairmanship of Dr. S L Mehta, Deputy Director General (Education), ICAR in December 1998 and March 1999 respectively and recommended that gender issues be built into already existing courses.

A review of the existing course curricula at the undergraduate level of agriculture universities identified forty-seven possible courses in seven specialisations with scope for introduction of gender issues. The following recommendations were made.

- Unanimous acceptance of the need for mainstreaming gender in the curriculum.
- Need to identify specialists who could be sensitised on gender issues and who in turn could develop necessary courses.
- Development of multimedia materials on gender issues as a pedagogical tool.
- Analysis of existing content of courses to identify scope for introduction of gender issues.
- Need for adequate training of teachers and development of suitable methodologies, resource materials and modules.

At the meeting of the Task Force held in June 1999, these recommendations were accepted and it was decided to initiate the process with a workshop bringing together selected Faculty of Agricultural Universities in order to develop a methodology for introduction of gender in the existing undergraduate curricula of agricultural universities.

The objectives of the workshop were:

1. To identify themes and topics appropriate for inclusion in the curriculum
2. To suggest pedagogic processes and strategies for teaching these topics and
3. To identify appropriate resource materials and resource persons for preparation of curricular materials / modules

The participants included subject matter specialists in various disciplines in agriculture and related areas, social scientists specialising in gender studies and facilitators.

The workshop focussed attention on both the content and process of curriculum, that is, the what and the how, and came up with a series of concrete recommendations which have been sent to the ICAR, the NAARM, NCW, Indira Gandhi National Open University (IGNOU) and other concerned agencies so that action for curricular change can be initiated.

## **The Resource Guide**

The first part of this resource guide is a report of the workshop, including the theme papers, concept notes and recommendations.

The second part is a collection of resource materials, based and expanding on the materials collected for the workshop, which include:

- Useful articles
- Readings
- Identified list of courses where gender elements can be introduced
- Collections of videos, journals and web sites and
- Books/Monographs.

It is hoped that this publication will be the first step in the movement towards engendering the agricultural curriculum, and also the first implement in the vast tool kit of resource materials needed to power that movement.

**Mina Swaminathan**  
*Hon Director, GEMDEAVOLIR*  
*M S Swaminathan Research Foundation, Chennai*

# **ENGENDERING UNDERGRADUATE AGRICULTURAL EDUCATION**



## **PART I BRAINSTORMING WORKSHOP**

# Part I : Brainstorming Workshop

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# Programme Schedule

## Date & Time

16.12.99

9.00 –9.30 a.m.

9.30 a.m

### Registration

### Inaugural Session

#### Welcome Address

*Prof P C Kesavan, Executive Director, MSSRF*

#### Special Address

*Dr Gopa Pandey, Professor, Indira Gandhi National Forest Academy, Dehradun*

#### Inaugural Address

*Dr R S Paroda  
Director General, ICAR & Secretary, DARE*

#### Presidential Address

*Dr M S Swaminathan, Chairman, MSSRF*

#### Vote of Thanks

*Ms MINA Swaminathan,  
Hon. Director, GENDEAVOUR, MSSRF*

11.15 - 1.00 p.m.

### Technical Session 1

#### The WHAT of Engendering the Curriculum : the Content

*Chair : Dr B N Chaudhary  
ADG, ICAR, New Delhi*

#### Foundations and Building Blocks for Integrating Gender Into the Agricultural Curriculum

*Dr Lisa Leimar Price, Associate Professor, Gender Studies in Agriculture, Wageningen Agricultural University, Netherlands*

#### Trends in Development and their Gender Impact

*Dr S Uma Devi, Head, Department of Economics,  
Kerala University, Trivandrum*

#### Women and Agriculture in the B.Sc (Agri) Curriculum : A Note

*Dr V B Athreya, Prof. and Head, Department of Economics,  
Bharathidasan University, Tiruchirapalli.*

2.00 – 6.00 p.m.

### Technical Session 2

#### The HOW of Engendering the Curriculum: the Pedagogic Process

*Chair : Dr I V Subba Rao  
Vice Chancellor, Acharya N G Ranga Agricultural University,  
Hyderabad*

#### Fieldwork : A Pedagogic Tool for Learning

*Dr Ila Patel, Associate Professor, Institute of Rural Management,  
Anand*



**The HOW of Engendering the Veterinary Curriculum...  
Some Reflections**

*Dr Sagari R Ramdas, Director, ANTHRA, Hyderabad*

**Gender in the Undergraduate Agricultural Curriculum : An  
Alternative Pedagogy**

*Ms Mina Swaminathan, Hon Director, GENDEAVOUR and  
MSSRF team*

**Engendering the Agricultural Curriculum : Student's view**

*Sunita Rabindranathan, Research Associate, MSSRF*

**17.12.99**

9.00 - 9.30 a.m.

**Group Formation and Group Tasks**

*Facilitators : Ms Mina Swaminathan & Ms Lisa Leimar Price*

9.30 – 12.00 a.m

**Group work**

**Strategies for Engendering the Curriculum**

12.00 - 1.00 p.m.

**Technical Session 3**

**Module Preparation**

*Chair : Dr K V Raman*

*Director, B V Rao Centre for Sustainable Development, MSSRF*

**A New Approach to RAWE**

*Dr K N N S Nair, Vice Chancellor,*

*Kerala Agricultural University, Thrissur*

**Curriculum Development of Awareness Generation**

**Programme through Distance Education**

*Prof Prabha Chawia, Project Director, Women's Empowerment,  
IGNOU, New Delhi*

2.00 – 4.30 p.m.

**Concluding Session**

*Chair : Dr M S Swaminathan, Chairman, MSSRF*

**Group Reports**

*By Rapporteurs of Groups*

**Action Plan**

*Ms Mina Swaminathan*

**Chairperson's Remarks**

*Dr M S Swaminathan*

**Vote of Thanks**

*Ms Sunita Rabindranathan*

# **THEME PAPERS**



# Need for Engendering the Agricultural Curriculum

*Gopa Pandey*

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**H**uman development, if not engendered, is endangered. And more difficult days are awaiting humanity ahead, if gender equity is not realised and attained in human society on a war footing. The art and science of agriculture demands to internalise gender equity; more so, because it is this delivery mechanism which is measured across the counters of consumption, especially in this part of globe. The agriculture economy in India has succeeded in laying the foundations for a strong market force, which not only envelops food sufficiency but also encompasses the hi-tech of software production. Incidentally, it may not be out of place to mention here that the technology of extension from laboratory to land in agriculture sector is more than successful in bringing out prosperity through production. Let us see if our efforts can introduce a brief conscientisation of the practical process on socio cultural planes, which in turn, can translate success into the real satisfaction of the society. However, our scales of measuring production prosperity and perpetuity are purely on the hypothesis of economics where social satisfaction has little space. It is high time that we initiate introspection and charter the course of future action on the firm belief that the ultimate self-actualisation in a democracy lies in its social stability.

Food and nutrition, an outcome of agriculture, are handled by women at household level. This is the last of four institutional sites where vectors are directly affecting the inputs and outputs for a society. The major deciding sites of state, community and market are occupied mostly by men who handle it with their perception. When goods and services reach the household, the thin dividing line between production and

consumption processes attains greater importance. It is at this site that sudden enlargement of the role of women is realised and its faint linkages with other three sites start precipitating. The effort to engender the functions at these institutional sites to facilitate women can be of immense help in streamlining the processes of both production and consumption. To ensure a sustainable livelihood, the need for creating space and opportunity to access agriculture technology and training equitably for men and women is to be realised very soon.

The agricultural practices differ immensely in diverse agro-climatic zones. Due to this diversity in occurrence and handling of resources, curricula have to be designed to address the differential demands pertaining to physical features, geographical limitations and human opportunities. A model designed for the agro-social canvas of the North East may not be identical with that for Thar deserts. The strategic gender interests and needs have to be designed to protect stakes of men and women in agricultural sector. It will be appropriate to incorporate tools and techniques in the syllabus so that the site-specific application may immediately yield a basis for gender-sensitive action planning. This will generate synergy of action and boost up production.

I decipher the agriculture curriculum, from the viewpoint of engendering, into four major fractions. These are not separate compartments but maintain actual passages and affect one another's pace. We know it all, we have it, we do it and we can do it better. The Humans perfection is never complete and it takes

civilisations to act and react for betterment. Those four fractions are agriculture context, resources, activity and program action. This is not my invention but is actually hypothesized by FAO in 1994 and is being practised in all parts of the world for gender-sensitive action planning. This is just a tool to fine-tune the existing roles and responsibilities of men and women in resource management according to a justified division of labour between the two. While the step one of context introduces the background, step two profiles its resources, step three outlines the focussed activities and step four proposes a pro-active methodology for action in future. If we take, for instance, context of seed production, a pair of simple questions like what is getting better and what is getting worse may explain the context profile. Next, what are the seed resources, who controls it and who owns it, where it is used, describes the resource profile. In the third step, who does what for seed resource, that is, who sells it, who buys it and who sows it may describe the activity profile. Now it is amply clarified through steps as how the seed as a resource is being handled by whom at which stage so that the program action profile may contemplate easing out the process or develop suitable technology which can make life better for men and women. Similar instances may be quoted for access to

agriculture extension and technology. A simple introduction of how it works can attribute to gender equity in access, use and control of goods and services.

It may not be out of context to raise an alarm against the negative publicity on gender equity. In fact we are losing lot of time and resources on highlighting what is going wrong. The time is mature, the understanding sufficient and this place most appropriate to install a technique on the lighted paths of agriculture prosperity in India. The students of agriculture, who are the torch bearers of this massive economic force behind sixty million people in India, will definitely internalize these techniques and take it to the doorsteps of rural countryside, the heartthrob of our democracy. They need to teach and preach on how men and women can paint well in the canvas of agriculture without creating breaches in society.

I request Dr Swaminathan to kindly take this effort to a logical conclusion by getting the concept absorbed in the syllabus of under graduation in ICAR Universities. The message of conscientising practical gender equity will be subtle but natural in this manner, yet proving to be an asset to the development of agriculture sector.

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● Dr. Gopa Pandey is Professor, Indira Gandhi National Forest Academy, PO New Forest, Dehradun.



# Engendering the Curricula of our Agricultural Universities

*R S Paroda*

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I am indeed pleased to participate in this important workshop and to share my thoughts and concerns with you relating to engendering the curricula, methodology and modules for effective implementation in the Agricultural Universities and other Institutes representing our National Agricultural Research System (NARS). I congratulate Dr M S Swaminathan and Mrs Swaminathan for having taken the initiative to organise this workshop which is indeed timely and to address an important subject. I have already expressed my views relating to the empowerment of farm women in the April-June 1999 issue of ICAR News Letter. With valuable inputs in this workshop, you all are likely to help considerably the NARS to correct one of the missing dimensions of our current agricultural educational system.

Although women form about 50 percent of our human population and their role in agriculture and allied sectors is more than two third, yet their participation in both decision making process and programmes at the National and State level is not commensurate with their involvement in the farm operations and allied agricultural activities. Women are involved in every stage of food production from growing and gathering to processing, storing, packaging and selling. They are also the custodians of indigenous technologies and have helped in conserving and utilizing judiciously our precious natural resources. They also spend considerable time in the management of farm-animals, besides their added responsibility of cooking and serving the food. All these jobs they indeed perform remarkably without any formal training and despite unequal opportunities to own the land, and participate in

the decision making process. Women in many villages still carry water, fuel and fodder from long distances. The drudgery in their "on-farm" and "off-farm" work often affects their health and efficiency adversely. Thus, women struggle against enormous odds to feed their families as well as the nation while carrying the double burden of production and reproduction and contending with steadily depleting natural resources must draw attention of the entire nation, especially the scientists, teachers and the policy makers. Besides, all this work done by the women is something that is invisible and often not recognized and also at times rather underestimated.

Meeting the food needs in the coming years will depend even more than it does now on the capabilities and resources of the women to deal with the three pillars of food security – food production, food access and food utilization. In this context, women's technological empowerment and education assume significance. It must be noted that the female literacy in India is only 39 percent presently. For this, various socio-economic factors are responsible such as early marriage patriarchal system, engaging the girls in household activities including upbringing of younger siblings etc.

We all agree that education empowers individuals to think rationally and logically. Literacy, particularly the female education, has been found to be most important determinant of various demographic decisions of the individuals / families like preference for son, discrimination in education to boys and girls, discrimination in opportunities for women, birth

rate and infant mortality rate which are still high as compared to many developed countries and even some developing countries.

Women's abilities can be enhanced by improving their education, training, access to resources, technology, information and knowledge. It must also be appreciated that the women have quite different levels of education, experience, skills, physique, stamina etc., compared to men.

Obviously, therefore, there is need to design appropriate technologies for the farmwomen matching to their specific educational and anthropometric capabilities and needs.

It is indeed satisfying that out NARS has laid considerable emphasis on various aspects relating to women in agriculture. About 20 Home Science Colleges have the mandate to address the problems of farm-families and for improving the quality of their life. These colleges provide technical training for girls students on food and nutrition, child and human development, family resource management, clothing and textiles and extension education at the undergraduate and post-graduate levels. A new scheme, viz., Rural Agricultural Work Experience (RAWEX), has been added recently in the curriculum of home science to draw rural-families close to the scientific developments. In 1986, the ICAR had also started an All India Co-ordinated Research Project on Home Science for developing technologies for the betterment of rural families and for women empowerment. During the VIII Five year Plan, ICAR has also established a separate National Research Centre for Women in Agriculture at Bhubaneswar, which is first of its kind. Besides, most of the ICAR institutions and SAUs have research programmes related to the development of technologies especially suited to out farm women. The existing 261 Krishi Vigyan Kendras (KVKs), supported by the ICAR, have also the trained home-science faculty addressing the training needs of farm women and girls, and thus playing a catalytic role in empowering out farm women to lead a

better life. Also ICAR has initiated important activities to overcome drudgery of farm women and also towards review and reorientation of educational programmes for women in agriculture. We have also revised the course curricula of Home Science subjects through a brainstorming session involving the Deans of Home Science Colleges and have also made the degree programme of 4 years in uniformity with other agricultural disciplines. We must also reorient our efforts to suitably cover the gender related matters in courses of our agricultural and veterinary colleges. Even admission policies are made gender neutral irrespective of the discipline including Home Science. The progressive step has already been initiated by some SAUs and other must follow the spirit.

The above efforts by the NARS, I consider, are at the best modest and have to be expanded and intensified to harness the vast, unrealised and unutilised potential existing with women power in rural India. It is to be noted that there is spurt in the number of women students in agricultural universities. With the rapidly changing agricultural scenario against the backdrop of globalisation of agriculture, contribution of professional women in overall development on the one hand and emancipation of rural women on the other assumes considerable significance. Issues like access to resources to farm women, laws governing women's rights to land (both civil and religious) and livelihood, local customers, insecurity on account of land tenure systems, inability to use land as collateral and thus have access to credit by women, etc., are to be examined in depth and properly addressed. All these issues must also be covered in the curricula to appraise all the students, who are prospective change agents and are likely to address these issues in right perspective. Our experience in the last few years suggest that there are very few takers of home science education because there are no job opportunities after B.Sc. (Home Science) and again limited opportunities after higher education. Home science education may need

to be totally re-organized and should be made more relevant to overall agricultural needs and thus, both attractive and lucrative. There is a strong feeling that its professional status needs to be elevated and also it need not be gender biased. The curriculum should also be changed to include options like management of biodiversity, biotechnology, seed technology, food technology, renewable energy management, social science and policy, information technology and GIS mapping and all these through interdisciplinary approach. It may also be necessary to build as well as strengthen required infrastructure facilities, particularly the girls hostels in the college campuses. ICAR has taken a policy decision to provide 100 percent grant for the construction of girls hostels in the State Agricultural Universities and now plans to ensure women admission to at least 30 percent seats in different colleges.

It is befitting that the issues raised above are being discussed at the M.S. Swaminathan Research Foundation, an organisation already championing this cause and piloting studies and framing guidelines for gender related issues in particular. Earlier efforts in this area at the Foundation in association with the National Commission on Women would obviously provide an added advantage to establish required leadership in this area. ICAR would like to build required partnership with the Institute and promote activities that relate to empowerment of our farm women.

I am confident that all the eminent scientists and educationists, both from India and abroad, gathered here will deliberate on all gender related concerns. We must look at depth various

interlinked subjects like role of women in agriculture, health, nutrition, livelihood options, media, legal issues, political participation and all other related matters so that they lead to not just greater agricultural production but social change towards a more just and equitable society. More broadly, what I personally would consider important include the following:

- Right to survival – including issues relating to health, nutrition, sex ratio, reproductive health, occupational health hazards, etc.
- Right to livelihood – including issues of land ownership rights, environment, employment, livelihood options etc., and
- Right to Empowerment – including issues of education, culture, multi-media, public awareness, political participation etc.

All these issues need to be addressed in a comprehensive manner so that these are built into curricula, pedagogic processes and strategies and modules to be adopted to ensure a perceptible difference in our approach to ensure harmony between what we preach and what we practice. This is the only way by which we shall be able to build strong social fabric of our society and make India a developed nation through progress in agriculture. Pandit Jawahar Lal Nehru had once said “One could tell the condition of a nation by looking at the status of its women”. Hence, let us build a strong nation around its strong women.

I wish the workshop a great success and look forward to receiving the recommendations. Once again, I thank Dr Swaminathan and Mrs Swaminathan for providing me this opportunity.

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- Dr R S Paroda is Secretary, Department of Agricultural Research & Education and Director General, Indian Council of Agricultural Research, New Delhi .

# Engendering the Agricultural Curriculum



*M S Swaminathan*

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**C**urriculum reform is fundamental to bringing about a change in mindset and value system. When I was a student at the Agriculture College, Coimbatore, over 50 years ago, the agricultural syllabus was such that it practically ignored the very important role performed by women in all aspects of farm operations, and particularly in post-harvest operations and animal husbandry. Gender insensitivity in agricultural education and development programmes led to large national extension initiatives like the Training and Visit (T&V) system introduced in the eighties with World Bank loans concentrate entirely on the male in a farm household.

Gender insensitivity in agricultural education, research and development programmes is now recognised to be a key factor responsible for the stagnation in agricultural production in many countries of Africa, where food crops are grown mainly by women. The next stage in India's agricultural evolution, which I have often referred to as the era of an **ever-green revolution**, will come only if we pay integrated attention to strengthening gender roles in various aspects of agricultural production. This will call for engendering the syllabus of Agriculture, Veterinary, Fisheries and Forestry colleges. Also, there is need to mainstream gender considerations in the training programmes of Krishi Vigyan Kendras. The Rural Agricultural Work Experience (RAWWE) programmes of Agricultural Colleges provide an excellent opportunity for sensitising both male and female students on the gender dimensions of agricultural operations. An end to end approach will be needed, starting with land preparation and sowing of the seed to the time the food reaches the consumer's plate.

Mahatma Gandhi said nearly 70 years ago that Indian agriculture will continue to stagnate unless we end the divorce between intellect and labour. If we analyse the responsibilities assigned to Gram Panchayats under the Eleventh Schedule of the Constitution Amendment No.73, we find that women play a dominant role in most of the 29 areas listed in the Schedule. In addition to their critical role in seed selection and saving, the tasks relating to the following are carried out largely by women.

- Organic recycling
- Rural energy management
- Animal husbandry, dairying and poultry
- Fisheries
- Social forestry and farm forestry
- Minor forest produce
- Small scale industries, including food processing industries
- Drinking water
- Fuel and fodder
- Non-conventional energy sources like biogas
- Primary and secondary school education
- Markets and fairs
- Child development
- Maintenance of community assets.

During the last 30 years, we have made considerable progress in increasing agricultural production. We now occupy the first or second



## *Engendering the Agricultural Curriculum*

position in the world in relation to the area and production of important crops (Table 1). We are also the largest milk producer in the world and the second largest producer of vegetables and fruits. However, our average productivity is very low and hence our rank in the world in terms of yield per hectare is very low (Table 2). We can bridge the productivity gap only if we pay serious attention to improving the knowledge and skills of both the men and women members of a farming family. Women's technological and skill empowerment is vital for the further progress of agriculture as well as for rural prosperity. The starting point for launching a happy farming family and a sustainable farming system movement is curriculum reform. We should lose no further time in making the curricula of Agricultural Universities gender-sensitive and responsive.

I also see great opportunities during this decade to achieve a fundamental transformation of pedagogic methodologies. In a few years time, students will be able to get all the information they need from computers and internet in homes or hostels. The class room can then be used

for more interactive learning between students and teachers. Through such interactive learning, information can be converted into knowledge. The information and knowledge revolution will then release at least one year of a 3-year course for living and working with farm families in villages. Such real life experience helps to convert knowledge into wisdom. It enables the student to develop a holistic understanding of agricultural operations. It helps to understand why risk avoidance rather than production increase is the primary goal of resource poor farming families. Such a reorganisation of the education system will help to integrate considerations of ecology, economics and gender and social equity in all our agricultural research, extension and development programmes.

The opportunities for launching a **Learning Revolution** in agriculture are great. The starting point for such a revolution is the integration of gender realities in the syllabus of Agricultural Universities and Krishi Vigyan Kendras. This is why I consider this workshop a landmark in our agricultural evolution.

---

● Dr M S Swaminathan is Chairman, M S Swaminathan Research Foundation, Chennai

**Table 1****India's Share in World Production & Area for Major Crops, 1995-97**

Crops	India's Share		India's Rank	
	Production	Area	Production	Area
Wheat	11.4%	11.2%	2	2
Rice	21.4%	28.5%	2	1
Pulses	26.0%	36.6%	1	1
Groundnut	28.6%	35.2%	1	1
Sugarcane	22.6%	20.0%	2	2
Tea	28.3%	18.5%	1	2
Jute	52.5%	51.5%	1	1
Cotton (lint)	14.0%	20.7%	3	1

Source: FAO, 1997

Note : Production figures for India are 1998-99 estimates taken from the Economic Survey; for the rest of the world production figures correspond to the year 1996

**Table 2****India's Current Position in Crop Productivity**

Crop	Productivity (kg/ha)	
	India*	Highest Rank
Wheat	2493 (32)	Ireland 8997
Rice	2811 (51)	Ukraine 7444
Maize	1408 (105)	UAE 18636
Sorghum	897 (51)	France 6182
Potato	16478 (51)	Ukraine 43966
Pulses	608 (118)	France 4769
Cotton	922 (57)	Israel 4527
Sugarcane	65892 (34)	Peru 121361

Note: Figures pertaining to productivity and area correspond to the year 1996.

\*Figures in parentheses indicate rank

# **CONCEPT PAPERS**



# Foundations and Building Blocks for Integrating Gender into the Agricultural Curriculum

*Lisa Leimar Price*

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## Setting the example for gendering the agricultural curriculum

**W**hile integrating the new scholarship on women and gender into the curriculum at large has taken place at numerous institutions, it has never systematically and comprehensively been done for university education in agriculture. During a University of Wageningen restructuring last year, it was decided to expand gender studies throughout the curriculum. We have just begun to develop our mainstreaming plan. The objective of this new model is to not only mainstream gender studies but also to ensure better integration of the social and biophysical sciences in undergraduate agricultural education. This initiative has the advantage of faculty continuity with specialised expertise in gender to help this transition to fuller integration. The implication is that in addition to the specialists in gender at the university, other faculty will now be responsible for integration of gender into their courses. Certainly, student interest is present in integrating gender. While I already cosupervise students in plant breeding, entomology, agrarian law, rural development sociology, forestry, and household studies, I believe that further integration of gender studies into the curriculum will greatly strengthen the expertise of students in their specializations. Retention of gender specialists, hiring of two additional associate professors, and a new educational partnership with a center for women's studies at Nijmegen University, ensures that students can continue to specialize in gender studies as well.

What I share with you on content during this workshop is based on my own knowledge, experience, and insights - from my role as a teacher of gender studies in agriculture as well as a researcher in agriculture. It is also my hope that the results of our brainstorming over these next two days will yield valuable insights that I can take back with me to Wageningen to further our own efforts in the Netherlands. I am pleased to be a part of this process at home and here with my colleagues in India. What we do will set important examples for agricultural universities in other countries to follow.

## Background to women's/gender studies

Transformations to develop a new scholarship on gender began as early as the 1960's with the growing awareness that women were almost absent from traditional disciplines. And where they were present, women were included from a perspective that kept men central to the interpretation of the human experience. Conceptual and analytical frameworks were limited by male experiences and perspectives which formed the unconscious grounding point for both the human condition and the interpretation of that condition.

Academics within specific disciplines began to closely examine the underlying assumptions and supporting data for theories, and this process frequently highlighted where new data needed to be collected or where the inclusion of women and children could provide greater

explanatory power. These developments were most pronounced in the social sciences but also included the humanities. At this time, the interdisciplinary field of women's studies was born. This new scholarship continues as a corrective to established disciplines but has also become a discipline in its own right in the area of theorizing the position of women and gender relations across the disciplines.

Women's/gender studies is feminist in orientation. Most basic in understanding this is that feminism stands as a rational challenge to the historic predominance of masculism (the mistaking of male perspectives, values, and standards for those of all humanity) which has the effect of marginalizing women and making women invisible or de viant in relation to men. Women's gender studies emphasizes the importance of grounding research' in the reality of women's lives and that women should be understood as actors rather than as objects of study. While women are clearly visible in women's/gender studies scholarship, women's/gender studies has stressed gender relations - it has never been simply the study of women divorced from the social context. This contextualization enriches our understanding of the interplay of male and female in their various roles as they are interfaced with other social hierarchies (such as class, caste, wealth and ethnicity) and with social and political institutions.

## **The new scholarship in gender and agriculture and rural development**

The new scholarship on gender in agriculture and rural development has its foundations in the orientation and trajectory discussed in the previous section. Over the last 10 years, this

scholarship has become increasingly sophisticated. Contributing both to basic knowledge and applied work in agriculture and development. This scholarship has played an increasingly important role in the visibility of women's issues and gender issues in the rural sector within the United Nations and among national policy makers and the setting of international standards with regard to women, gender, agriculture, education, and the environment (see appendix, from Price and Brouns 1999).

This scholarship has also provided a foundation for the development of gender analysis tools for use by professionals working in agricultural development (see for example Feldstein and Jiggins 1994; Fong and Bhushan 1996). Most of these tools also include participatory approaches, an emphasis mirrored in feminist methodology for research being grounded in peoples lives (grounded research and an inductive rather than a deductive approach to theory building). There is a vast amount of literature available. It is, however, important to distinguish tool kits on gender analysis from scholarship. While both ultimately serve the agricultural professional, tool kits alone are not sufficient. to build an understanding of patterns and trends, nor for predicting social impacts of change. Tool kits help sensitize and help in the identification of variables, but rarely do they help in interpreting and applying the information.

## **Teaching resources on gender in agriculture**

There is a significant amount of literature available for use to genderize the agricultural curriculum. The material, in the form of journal articles and chapters in edited books, can best be characterized as dispersed and heterogeneous. The draw back to this is that

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- <sup>1</sup> *Women's Studies is increasingly also called Gender Studies or Feminist Studies. For example of the impact of this new scholarship on the disciplines of anthropology, sociology, home economics and economics as well as other disciplines ; see Kramarae and Spender 1992.*

there are, currently no introductory level textbooks where chapters could easily be used to provide key concepts and a topical focus (such as in forestry, for example). The advantage is that numerous topics important to agriculture are well covered. The literature covers gender and farm/household relations and livelihoods, rural economic and technological transformation, and environment and natural resource management, including issues such as commoditisation, new configurations in male and female labor processes, changing patterns of household formation and access to resources, kinship, political power, organisation and social mobilisation, and the inter-relationships between social practices and regulations, policies and interventions.

A strong focus is the combination of gender relations with the study of the process of change in the rural sector. There is an interface between gender and the biophysical and technical aspects of agricultural production and the rural environment. Of increasing importance are issues of household food security and the impacts of male out-migration (resulting in the feminization of agriculture). Teaching resource material available on gender and the use and management of natural resources and biodiversity, including crops, wild plant foods, and plant medicines in both field and forest environments, has grown tremendously in the last 10 years. The impact of the commercialization of agriculture on women's labor and subsidiary impacts to social status has continued interest and the impacts to health and nutritional status as related to women's time and labor allocation is well documented.

Theoretically, the concerns in gender in agriculture are mirrored in the social sciences in general and are related to the emergence of new social and environmental problems and politics. It is important at this juncture to note

that gender studies in agriculture and rural development scholarship, like social science scholarship in general, does not have a seamless theoretical orientation.

By and large, there are numerous resources available on gender appropriate to the agricultural curriculum, but there are some contemporary constraints. First, as mentioned above, there is a lack of introductory and basic undergraduate level textbooks. second, university lecturers with capacities in both agriculture and gender are only one or two in a given institution and thus there is an overall lack of comprehensive curriculum both for those who desire to specialise in this field and for mainstreaming. Lastly, the models we have for integrating women's gender studies into the curriculum are focused on the traditional arts and social sciences disciplines and prove more helpful in the logistics of project development rather than details of content specific to agricultural education — including such topics as choosing an administrative location and project leaders, eliciting faculty participation, using consultants effectively, designing faculty development seminars, and phases of curricular change.<sup>2</sup>

## **Educational foundations**

One of the difficulties that needs to be addressed in genderising the curriculum is the need for a basic foundation which should be in place in order for students to make sense of very specific and detailed course components (which I later address as "building block"). A course "home" for these foundations should be found in a compulsory course required by undergraduate students. At least one class period should be devoted to each foundation, of which there are four. I have listed a number of references that I have assigned to students

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- <sup>2</sup> See for example the National Center for Curriculum Transformation Resources on Women for resources for creating a more inclusive curriculum in higher and secondary education at web site <http://www.towson.edu/ccrtw/curintro.htm>

to read on the foundation topics, but these topics are heavily supported by the lecture. Time is always made for open discussions with the students as well. I teach each foundation in a 1.5 hour class session.

## **Foundation 1: The concept of gender and of masculism and male bias**

In this foundation, students should learn what gender is, that it is in fact a social construct rather than biological. The gender based division of labor within households is one of the most recognised aspects of how a household pursues its livelihood strategies. What men versus women do is in part reflective of their culture, that is, male and female roles are constricted by what is deemed fitting male and female behavior. What is deemed socially appropriate is learned behavior, despite the fact that gender roles are associated with ones biological sex, these roles are not innately based on (caused by) biological sex.

Another essential aspect to be included as a foundation is the central challenge to masculism. Students (as well as instructors) must be able to understand this concept. Malebiased materials on gender should not be included in the course materials. While it is difficult to screen all course material for masculism and male bias, this foundation provides insights so that students can better recognise this bias. This foundation is important in any attempt to accurately capture and portray both the female and male experience and perspectives. But it is absolutely critical to capturing the realities of women whose lives, perspectives, needs and roles become invisible and distorted due to masculism and male bias. Men cannot be taken to represent the human condition - and

this must be very strictly controlled for in course materials. This is not always easy to do since masculism frequently hides in the guise of neutrality:

"Male bias in theoretical reasoning may often not be so immediately apparent because the reasoning is presented in terms which appear to be gender neutral. Rather than talking about women and men, and sons and daughters, use is made of abstract concepts like the economy, the formal sector, and informal sector, the labor force, the household. Or the argument is conducted in terms of socioeconomic categories which, on the face of it, include both women and men, such as 'farmer', and 'worker'. It is only on closer analysis that it becomes apparent that these supposedly neutral terms are in fact imbued with male bias, presenting a view of the world that obscures and legitimates ill-founded gender asymmetry, in which to be male is normal, but to be female is deviant". Elison (1991:8-9)

## **Foundation 2: Theories on the status of women**

The second foundation is for students to understand that there are patterns to gender relations and explanatory theories. Students should be exposed to these theories and be able to understand that in the history of theory building, the search for an explanation on the social position of women has had a series of developments ranging from a search for an explanation to the universal subordination of women (locating women's subordination in dichotomies such as the domestic/public or nature/culture) to material explanations of women's social position which is focused on the gender-based control of resources and contribution to production.<sup>3</sup>

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● <sup>3</sup> I use a chapter in More (1988) "Gender and Status : Explaining the Position of Women" in my introduction to Gender Issues in Agriculture class and complement the reading with a lecture on selected theoretical positions I believe still provide some explanatory power.

### **Foundation 3 : Voice, agency and farming resources**

The second foundation is concerned with voice, agency, and farming resources.

This foundation focuses on what social, cultural, and economic features influence agency, i.e. who can act and under what circumstances. What are women's strategies for resistance and gaining enhanced abilities to act? In the course 1 teach, this foundation uses an article by Bina Agarwal (1994)<sup>4</sup> where individual-covert and group-overt gender action by women is examined along with their power to enhance women's position in the rural/agricultural sector.

While men and women engage together in enterprises, the control over human, material and environmental resources is commonly different for men and women within their households. Although men and women ideally cooperate to attain a secure livelihood system, their interests can come into conflict. In most poor rural households both men and women are engaged in survival strategies but decision making strategies are along the lines of each gender's domain of responsibilities and the resources he or she can command. This includes areas where livelihood activities can or cannot be expanded, who decides, who does the work with what resources, who controls the product/income, and who decides how to allocate the product/income. Assets within the household are often accompanied by sex/gender specific customary and or legal entitlements. These rights are important to have resources available for the enhancement of livelihood activities but they are critical in times of duress.

Additional theory is provided, particularly on issues of male and female negotiation strategies and positions in relation to their material fall back positions which influence bargaining power within households. Critical to this foundation is the perspective that what happens to a woman is not necessarily the result of her circumstances as an individual but is a product of larger social forces and institutions, and that when women can form groups, there is a greater potential for social change as well as economic enhancement for women's lives. In this way, the personal is also political. This notion of "larger social forces and institutions" impacting women's lives also brings to the understanding of students the concepts of multiple social hierarchies that interface with gender.

### **Foundation 4 : Visibility, counting and valuation of women's work**

This foundation is focused on how women's work is enumerated. There are several aspects to this foundation. The first is an examination of how census data is collected and how gender can be made more visible. I use a publication produced by the Statistical Development Service, Women in Agricultural Production and Rural Development Service, Economic and Social Policy Department of the FAO (FAO 1992) called Improving Gender Disaggregated Data on Human Resources through Agricultural Censuses. This is useful in highlighting the areas for students where women may be invisible in agriculture and how adjustments can be made in order to capture gendered labor and resources. It further highlights some problem areas like the categories of "economically active" and "unpaid family worker!?" which have the effect of making

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- <sup>4</sup> In addition, other materials highlight the interface of culture and changes to the agricultural production system. I use Manjari Mehta (1996) and Jan Salick (1997). I also use a film by FAO called - "Women of Rangabellia" that highlights the power of women working together as a group in making economic changes to enhance community welfare as well as the subsidiary changes in gender relations towards enhanced social consciousness surrounding justice and equity for women and the poor.



women's contribution less visible. Concepts like "household head" and adequate data on access to productive resources including credit and extension services are also examined. This document was chosen as the central reading because it covered many variables, identifies problem areas and definitions, discusses tabulation and classification criteria and contains information on planning and conducting an agricultural census, providing very comprehensive coverage in 43 pages. It is thought that this resource will be useful to students to not only explore issues in capturing the agricultural sector and human resources but that it will also serve as a resource for them in the future, whether they ultimately work at the farm level or the policy level. More up-dated documents, however, may soon be available since it is now time for the census 2000.

This foundation also covers the gender division of labour, focusing on students understanding the "double day" of women, where women carry the burden of unpaid domestic work which may hinder women's abilities to respond to opportunities that could ultimately enhance household livelihood, resource sustainability, child welfare, and women's own self development; occupational sex segregation, not only where there are jobs that are "men's jobs" and "women's jobs" but also including the recognition that "women's jobs" are given less value and pay; and sexual asymmetry, where judgements of value and worth are solely based on the basis of sex.

## **Educational building blocks**

With the foundations of the gender curriculum in place, other courses provide topically focused material for students that is highly related to their specific line of study (e.g. forestry, dairy science, horticulture, home science). In these courses, every effort should be made to ensure that materials are reviewed for gender bias. It is not sufficient to follow the approach of "just

add women and stir". Women's realities should be included from women's perspectives rather than from male perspectives (or a gender biased perspective).

Selected instructors may find it easier to incorporate gender into their course than others. Courses in rural sociology will be easier because of the vast amount of material and case studies available. Economics may be more difficult, primarily because neo-classical theory and the free market paradigm (the foundation of the discipline), should also make space for feminist economics in the analytical frameworks of instructors: "Feminist economics is not so much concerned with analysing women (with the traditional tools), but is dealing with the heart of economic analysis: its methodology, models and ways of empirical testing... Feminist economics is better economics and it is so, because it makes the age-old inter-linkages between gender and economics visible" (van Staveren, 1996). I have no doubt that courses in home science already have women as very visible agents, the question is how a specific course can best enhance student understanding of gender relations (and their impact) on topics such as nutrition and family finance, and within socio-cultural institutions such as marriage.

Achieving good building blocks is related to two factors. The first factor is the fit of gender-focused course materials with other materials. The second is the insight of the course instructors in recognizing linkages and making these apparent to the students. In this respect, all instructors should have a grasp of the foundations (concepts and materials) that the students have been exposed to on gender. It is important to consider providing faculty with development seminars and a selection of materials available. Likewise, providing faculty with the incentives to spend time on modifying their courses and reading new material is an important element to achieving success in genderizing the curriculum (Schmitz, 1985).

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## **Appendix**

### **Twenty years of recommendations: women, the environment, education, technology and agriculture**

This appendix consists of a selection of previous recommendations made by major global conferences in the area of gender related to science, technology, the environment and agriculture. The illustrative selection included here was gathered from the comprehensive review of policy advances of the last two decades compiled by the Gender Working Group Secretariat of the Gender Working Group, United Nations Commission on Science and Technology for Development (UNIFEM, 1995).

## **Women and the environment**

### **The Nairobi forward-looking strategies for the advancement of women, UN 1985**

Para. 226 : Enhance awareness by women of environmental issues, and the capacity of women and men to manage their environment and sustain productive resources. Disseminate information on environmental sustainability, and recognize women as "active and equal participants" in ecosystem management and the control of environmental degradation.

Para 227 : Assess "the environmental impact of policies, programmes and projects on women's health and activities... and [eliminate] negative effects."

### **Agenda 21, UN 1992**

13.17 (b): Take full account of women's role in data on alternative livelihoods (tree crops, livestock, etc.)

24.3 (d): Promote (government) environmentally sound technology designed and developed consulting women.

24.8 (c): Develop research and policy analysis on impact of environmental degradation on women, i.e., drought, toxic chemicals, etc.

### **Draft platform for action, Beijing 1995**

Art. 29: Improve women's access to and control over land and other means of production.

Art. 51: Recognize daily reality of women's management of natural resources, obtaining fuel and water, managing household consumption.

Art. 53 : Include women in decision-making re: environment.

Art 54 : Include women and their perspectives in environmental policies; recognize effects of environmental degradation on women.

Art. 55 : Involve women in environmental management, protection, and conservation programs.

## **Women and education**

### **The Nairobi forward-looking strategies for the advancement of women, UN 1985**

Para 163-173 : Make technology more meaningful to women by linking it to their everyday experience.

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increase participation of women in S&T, especially R&D; increase their participation in S&T education. remove barriers to higher education; provide role models, scientific institutions and conference centers to provide day care and flexible working hours.

### **World women's congress for a healthy planet, WEDO 1991**

p22. : We call for more education and training of women and girls in sciences and technology worldwide and emphasize the need for training women in the developing countries at college and university levels.

### **Agenda 21, UN 1992**

24.2 (e): "Implement curricula and other educational material to promote the dissemination to both men and women of gender-relevant knowledge and valuation of women's roles through formal and non-formal education ... [and] training institutions".

36.5 (m): "Toster opportunities for women in non-traditional fields and eliminate gender stereotyping in curricula."

### **Report of participation of women in science and technology committee, Canada 1988**

Rec. 1.4.3 : Reorganize curricula to create and sustain interest among female students; facilitate access to S&T occupations for women; raise societal awareness of the need for greater sharing of family responsibilities; day care; work schedules compatible with family responsibilities; equal opportunity programs in government labs and crown corporations.

### **More than just numbers, Canada 1992**

Rec. 3 : Education curricula should include components on gender issues and concerns,

Rec. 7 : Innovative extracurricular programs should be geared toward developing selfconfidence in girls and young women in the areas of mathematics, engineering, and S&T.

Rec. 8-17 : Universities should be committed to recruiting and retaining women faculty and students.

### **Winning with women in trades, technology, and science and engineering, Canada 1993**

Rec. 3, 5, 7 : Include gender issues in teacher training; provide career information and guidance free of gender bias; develop extracurricular activities to encourage girls in S&T and math.

Rec. 4, 5, 7, 16 : Revise curricula to include women's perspectives.

### **Why may women science undergraduates and graduates not be seeking to take up careers as scientists? United Kingdom 1994**

B. 5: Universities to "gender audit" courses

B. 6: Universities to review their approaches to teaching techniques, course design, and content to ensure equal opportunity

## **Women, Technology, Agriculture**

### **The Vienna programme of action on science and technology and technology for development, UN 1979**

Para. 23 (g): Ensure full participation of women in S&T development process.

Rec. 54-59: Encourage the active involvement of women in decisions and discussion related to the design, development, selection, introduction and use of technologies in their communities.

### **World survey on the role of women in development, UN 1989**

p. 84: Need for "comprehensive, reliable and unbiased statistics on the nature and role of women's contribution to food and agricultural production."

p. 278: Technological modernization should be appropriate to women's needs.

### **The Nairobi forward-looking strategies for the advancement of women, UN 1985**

Para 62: Agrarian reforms to "guarantee women's constitutional and legal rights in terms of access to land and other means of production."

### **World survey on the role of women in development, UN 1986**

p. 19: Access for women to official support services (extension services, credit, inputs, fertilizers, and new technologies).

p. 47: To prevent negative consequences for food production, agricultural modernization efforts should not exclude women.

### **Agenda 21, UN 1992**

14: 27(a): Develop integrated farm management technologies (i.e., crop rotation, organic manuring, etc, to famiing households) noting women's role.

14: 81(b): Train women and extension workers in crop health and alternative nonchemical pest control.

### **Draft platform for action, Beijing 1995**

Art. 29-32: Inequality in women's access to and control over land, capital, technology and other means of production- women the primary producers of food; women infrequently part of decision-making processes.

- 1 Women's Studies is increasingly also called Gender Studies or Feminist Studies. For examples of the impact of this new scholarship on the disciplines of anthropology, sociology, home economics and economics as well as other disciplines see Kramarae and Spender 1992

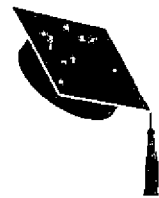
## *Foundations and Building Blocks for Integrating Gender into the Agricultural Curriculum*

2. See for example the National Center for Curriculum Transformation Resources on Women for resources for creating a more inclusive curriculum in higher and secondary education at web site <http://www.towson.edu/ncctw/curintro.htm>
3. I use a chapter in More (1988) "Gender and Status: Explaining the Position of Women" in my introduction to Gender Issues in Agriculture class and compliment the reading with a lecture on selected theoretical positions I believe still provide some explanatory power.
4. In addition, other materials highlight the interface of culture and changes to the agricultural production system. I use Manjari Mchta (1996) and Jan Salick (1997). I also use a film by FAO called "Women of Ragabelia" that highlights the power of women working together as a group in making economic changes to enhance community welfare as well as the subsidiary changes in gender relations toward enhanced social consciousness surrounding justice and equity for women and the poor.

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● Source: Price and Brouns (1999 : I-33 to I-37)

# Trends in Development and their Gender Impact



S Uma Devi

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**T**he term development, has conventionally meant an increase in the Gross National Product. But just looking at this increase without really attending to the issue of justice and equitable distribution is inadequate. The concern has been with the rate of growth viz rate of growth that is brought about through increase in capital, technology and education. Conventional development had also been biased towards urbanisation, industrialisation and modernisation, in agriculture particularly there has been an emphasis on commercialisation.

As a result, agricultural development as such was neglected, because the bias was towards urbanisation and industrialisation and food security was endangered. Food crop production, particularly in developing countries, has been declining and the developed countries are not only developed in terms of more industrialisation or industrial output but also in having more access to food as well as supply of food. World Trade Organisation (WTO) provides enough indications of the emphasis on agricultural subsidies on which these countries are very particular. Not only that, development conventionally has neglected certain groups, particularly women, and this is where gender studies gains importance. The trend has also marginalised and depressed certain classes, particularly in our country, the lower classes, and in some countries there is a racial question involved. Environment too has been neglected. This explains the rise of new social movements, of which feminism is one as well as the ecological movements which have found development as it is, dangerous to the very survival of the human race and this has fused into what is referred to as "ecofeminism".

## Consequences of development

The consequences of this kind of 'Development' for Third world countries have been as follows:

### ● Indebtness

There is ample evidence to show that most of the Third World countries, especially some, are in the debt trap which means external debt forms a very high percentage of the export earnings of those countries. As a result, many have had to borrow from the International Monetary institutions like the International Monetary Fund (IMF) and the World Bank and have to meet certain conditionalities. This created complications in their economy, particularly with regard to the structure and position of different classes in society.

### ● Militarisation

Feminists have been among the first to become conscious of the growing militarisation of the world and raise their voices against violence in general and the whole question of increased expenditure on defence. Many countries have defence expenditure going up to 40% of public expenditure, some 30%, in India it is about 13-14% of the national budget which eats into the funds available for productive purposes and for civilian needs .

### ● Poverty

A large number of people are below the poverty line meaning they do not have the means to meet basic needs in terms of even mere human survival, while the majority of the poor in the

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world are women, a trend referred to as 'feminisation' of poverty. The largest number of poor are in South Asia and South-east Asia. Many do not have adequate food and in terms of calories they do not have enough calories to survive. From the gender perspective, the 'feminisation' of poverty is a very important concern.

### **Recent trends**

Today there are people who are searching for development alternatives i.e for an alternative strategy of development which will try to address itself to these neglected areas. But others, still more radical, are raising a debate about the very concept of development itself and talking about alternatives to development. This debate has to be noted if we have to understand the impact of development on gender issues. The search for alternatives to development forms the core of some of the new social movements which are searching for a new vision of society where those who have been left out from the development process can be genuinely brought in, where their rights are protected and they have the right to their own way of living.

### **Developments in agriculture**

The commercialisation of agriculture and allied activities is important to study particularly in a curriculum for gender in agriculture, because when market comes in, in a big way, its effect on the different gender roles is noticeable. In a state like Kerala where plantation agriculture has taken precedence, which is something like industrial agriculture, it is leading to different roles for the two sexes. Plantation has also indirectly affected, and adversely, food production in Kerala. Thus, women who were having jobs in paddy cultivation are the first ones to be marginalised by plantations and not only that, access to food also becomes a big question.

Development in agriculture has led to a shift from the subsistence production to production for distant markets, and studies particularly from Latin America, Africa and South Asia show that there have been adverse effects particularly on women.

When power driven technology comes into existence, the roles which were performed by women are taken over by men and now one can see the rights of women in these circumstances are not protected.

### **Unintended outcomes**

The next major issue is the unintended outcomes of the Green Revolution. One example is that of a village where a new Mexican wheat variety was introduced. The grains were bigger so the earlier mills could no more be used, the taste was different, the consistency of dough was different and the millstone used by women needed to be replaced. Not only that, the stalks were smaller. While earlier food as well as the fodder was produced from the same piece of land, women were also involved in animal husbandry, this now became difficult. Other examples are the effects of introduction of pesticides and fertilizers. The question arises : were the women involved in any technology which is newly introduced?

Again in the White Revolution, when milk production gets more commercial and with newer breeds of animals, it becomes more centralised. Earlier with one cow a woman grazing it on common property could survive but as this common property resource gets dwindled, her access to such resources becomes less and one source of livelihood is imposed on.

In a similar manner, in the Blue Revolution, in the fisheries sector also, the earlier roles of women have changed.

It is also worth looking at the impact of the Bio-Technological Revolution and the use of genetic



engineering and the changes in agricultural processing sector. The impact of WTO, globalisation, liberalisation and Structural Adjustment Policies on agriculture needs special attention.

It is known that Trade Related Intellectual Property Rights (TRIPS) are affecting now, agriculture seriously at least in countries like India. Earlier the seeds and medicinal plants were not being patented, but once this gets introduced under WTO following the round the General Agreement on Trade and Tariffs (GATT) talks, the implications of control over seeds need to be considered. So far farmers had control over the seeds, but now with plant breeding firms coming into existence, the questions how will it impact on agriculture in general and on women in particular? with agri-business and trans-national corporations the whole process of land reform is becoming completely reversed. Now large tracts of land as private property, and once more women are neglected. There are studies which show that even when land reform came, the way the farmer was defined was not gender-neutral. In most parts of India, the plough is still not used by the woman so if the farmer is defined as the one who uses the plough, women are left out. This is where terminology becomes very important.

The control over seeds was a prerogative of women, who used to preserve it and there are numerous indigenous methods of preserving seeds, which now go by default, for example, with the seedless variety of grapes. One has no longer control over the seeds, and each time one has to buy it from the plant breeders.

The impact of these changes on women must be seen at several levels.

### **1. Women's participation in the labour force**

Strangely even in a state like Kerala, the female work participation rate, despite the high level of literacy, is among the lower ones in the country.

When development takes place one must look into what happens to the female work participation rate. One reason for the low participation rate is because of the way work is defined. Unpaid work is not recognised. In Kerala more than 50 lakh women are involved in activities in and around the house like tending to cattle, making compost etc. but these are not considered 'work' by such definitions.

### **2. Gender roles**

Changes in the traditional sexual division of labour must also be seen as a result of development, as well as the changing demand for female labour force.

### **3. Agrarian structure**

The traditional agrarian structure is also affected. We need to look at what is happening to the caste and class structure in the village economy.

### **4. Migration**

It is well known that there is migration of Bihar labourers to Punjab, and similarly regional migration across the sea to other countries.

Wages and earnings, women in peasant households, access of women to basic resources, intra- household differences in food and health care, control of women over seeds, indigenous knowledge of women versus 'scientific knowledge', and women's struggles are some of the other areas where we could assess the impact of developments in agriculture on women.

## **Policies**

Finally we need to study policies at different levels.

1. Policies based on alternative development strategies, where the impact on women particularly on gender roles, is taken into account and alternative strategies and

### *Trends in Development and their Gender Impact*

- technologies are worked out keeping women in mind.
2. Policies based on alternatives to development itself, or way to work for a new structure of society
  3. Government policies could have both the above dimensions though in the second case, voluntary movements and voluntary organisations have a more important role to play.

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# Women and Agriculture in the B.Sc (Agri.) Curriculum : A Note



V B Athreya

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**A**griculture continues to account for nearly two-thirds of rural workforce deployment, and women constitute a significant part of this workforce. It is important that students of agricultural sciences are sensitized to the role women play in agricultural production, and in circulation and consumption of agricultural produce.

A majority of the women in the agricultural workforce are agricultural labourers, and a smaller proportion are classified by the Census / NSS as cultivators. A special focus in the curriculum should therefore be on women as agricultural labourers.

## Women in agriculture – a course outline

In this context, the following topics may be covered in a one semester course broadly entitled 'Women in Agriculture'

- **Women in Indian / Tamilnadu agrarian economy in historical perspective, with a focus on the 20th century**

The course should start with a historical perspective on the Tamil Nadu – India agrarian economy, particularly the impact of colonial rule, what made people withdraw from the labour force, particularly women and in what way they started emerging in various ways in the labour force. Data on these aspects would have to be assembled.

- **Wages and labour**

Trends in the agricultural workforce, by gender and occupational sub categories (cultivator, agricultural labourer), across censuses since 1951, and as revealed by various NSS rounds and micro-studies. Systematic data on these trends are available.

- **Trends**

Trends in employment, wage rates and earnings of agricultural labourers, by gender, as seen from the ALE, the various RLEs and micro studies, including several village surveys.

The tendency in literature has been to look at wage rates and miss out on the employment aspect. It is important to show that the wage rates and days of employment have not necessarily moved in tandem. There is enough evidence from the original agriculture labour enquiries of the early 50s through the various rural labour enquiries by now to be able to document for each state what is happening as far as the trends and wage rates is concerned. There is also material available based on student researches from the various agriculture and other universities. Information on trends in wages and employment should now be documented in electronic data format, so that it becomes available to teachers in different universities. It can become a useful resource for addressing these issues even at the undergraduate level. Micro village surveys with data going back to World War I are available to provide 'snapshot' pictures of the changing agrarian economy over time.

## ● **Caste**

Equally important is the caste composition of female agricultural labourers and regional variations thereof, in comparison with male agricultural labourers, using both Census / NSS data and micro studies. The question of dalits, non-dalits, MBCs and OBCs should be addressed because we are not talking about women in isolation, but the gendering of the labour force and its occupational characteristics.

## **Qualitative aspects of wage employment for women in agriculture**

This would include such issues as the degree of freedom / bondage, and the type of work (crop, operation, etc.), and the gender division of labour. Specific operations in paddy, for example, which are women's occupations and others are men's. So one should look by crop and operation at a fairly detailed level, on the types of work men and women do, in order to sensitise the student.

## **Seasonality**

Seasonality and how it impacts differentially on men and women, should be studied, an aspect which is not often highlighted, because seasonality has different implications for men and women and kinds of work they do.

## **Forms of gender discrimination**

The first issue is to look at whether there is discrimination in wages, or in the segmentation of the occupations or hours of work, or working conditions even in operations like harvesting where one may suppose that men and women get the same wage. With the rise of the 'gang' labour system, women above a certain age are excluded from the gang because they are not perceived to be sufficiently productive, while men may get a little extra because they take

the harvested crop to the threshing floor. There are subtle ways of differentiating the work of men and women in these kinds of apparently common work

What work location and timings means for women may not be a major issue for men, but may be a major issue for women in terms of the multiple burdens they carry in the household.

The consequences of migration especially on the education of girl child, because even more so than in the permanent homestead, during migration the girl child is taken out of school and made to take care of younger siblings. Hence, the arrangements for child /infant care, if any, also need to be studied.

## **Women as cultivators**

Trends, nature of work, powers of decision making in production, control over marketing of produce and income generated are the concerns here, because with this group the issues are different from those related to labouring women.

The multiple burdens of working women in both cultivator/agricultural labour households – household chores, child and infant care, work related to procurement of fodder and fuel, animal husbandry etc can be understood with the help of time disposition studies.

## **Health and education : status and issues pertaining to working women in agriculture**

Little data may be available but, for example, data on maternal mortality among dalit women in districts like Thirvarur or Nagapatnum in Tamil Nadu may show that women who work in the fields have a higher mortality rate than the non-working upper caste women. Indices like maternal mortality or other indicators of health including morbidity, should be disaggregated by class and gender. Health is usually not covered in Economics courses and it is important to show

how the quality of life is an important feature determined by the rules of the economic game.

## **Impact of macro agricultural and economic policies and technological change on women in agriculture**

It can not be generally stated that practically every technological change has disempowered women. There are situations where new technology has contributed to the intensification of employment possibilities and women have been able to get more employment, but the quality of that employment, the kinds of wages provided and the kind of empowerment at work it leads to are some of the issues to be studied. Obviously, there is a bias against women in a patriarchal society, but it would be incorrect to read into every technological change the hypothesis of feminisation of poverty and disempowerment of women.

### **Some issues of special relevance to women in agriculture**

#### ● **Food Security**

Food security at the macro-level has several dimensions, such as WTO and the pressure to export agricultural produce. At the micro level, one has to consider individual food security at the household level-what does the girl child get, what does the mother get, who eats last and who eats what.

#### ● **Rural energy needs & systems**

These in themselves have a very important impact on food needs. If women have to incur a great expenditure of energy in acquiring fodder

and fuel, then they need to be fed that much more. The issue of why policy, for example, has not so far addressed rural energy from a gender-friendly standpoint of the women who have the major task of getting fuel and fodder needs for the household, should be studied. While we have much investment in modern means of power, we have by and large neglected research and development and investment in non-conventional energy which could lessen the women's burden.

#### ● **Caste and gender oppression and discrimination**

In districts of Tamil Nadu, for example, which claims to be an advanced state and casteless society, there have been specific instances of oppression of dalits, and of dalit women in particular.

#### ● **Land rights.**

The issue of land rights, pattas, joint pattas and the struggle around land rights with women playing a major role is a gender issue for which students need to be sensitised.

The course will not seek to give comprehensive set of information on the above issues, but aim to sensitise students, to bounce a number of issues at them, give them reading material, and a pedagogy that could very well include rural field work. It can be accommodated into the existing agri-curriculum without a great deal of disturbance of the existing curriculum or setting off alarms among those pedagogues in the agriculture universities who do not want to compromise on the amount of agriculture science they teach. A core compulsory course on women in agriculture, which is broadly grounded in the political economy of agriculture would add considerably to students' understanding of development.

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# Fieldwork : A Pedagogic Tool For Learning

Ila Patel

**W**omen play a significant role in agriculture and management of natural resources. They are involved in all major agricultural operations from sowing to harvest and post harvest operations. However, women's role in agriculture has remained invisible to a large extent in agriculture and agricultural extension work. Most students in agricultural universities are exposed to rural life as part of their education. However, their understanding of gender issues in agriculture is very limited. Fieldwork can be used as an important pedagogic tool for engendering the agricultural curriculum. In this short note, an attempt is made to highlight key issues involved in how fieldwork can be planned and directed so that it contributes to mainstreaming gender concerns in the agricultural curriculum.

## Objectives of fieldwork

- To expose students to the gendered reality of agrarian society in order to deepen their understanding about gender issues in agriculture;
- To sensitise them towards the problems and concerns of rural women and
- To enable them to blend classroom learning with field experience.

## Key issues in planning for the fieldwork

Integrating fieldwork as a component in the curriculum requires considerable planning and coordination. The following are salient issues that need to be addressed:

1. At what stage of the curriculum should fieldwork be introduced? Should it come in the beginning or at the later stage?
2. What kind of academic orientation (courses) is required by students for undertaking fieldwork?
  - Theoretical Knowledge (Analytical Frameworks)
  - Methodology (Tools for data collection and analysis)
3. What kind of organisational and administrative work is involved in planning the fieldwork?
  - Overall coordination of the fieldwork
  - Selection of the field sites by the faculty
  - Monitoring and supervision of students during fieldwork
  - Orientation of students for undertaking fieldwork
4. What is the expected outcome of fieldwork?
  - Village Fieldwork Report
  - Theme paper on a specific issue
  - Rural Action Component (if planned)

## Fieldwork as a tool for experiential learning

During fieldwork, students are expected to stay with a family (preferably a farmer's family) and remain within the village during the entire duration of fieldwork. The village stay will give them excellent opportunity to observe closely

socio-economic conditions of rural women and examine the gender division of labour. It would also enable them to interact with people from different socio-economic backgrounds and understand how gender relations are shaped by the existing village reality. Staying with a farmer's family for a short duration itself is an educative experience. It would also provide them excellent opportunity for understanding the gender division of labour within the household in agriculture.

This experiential learning can be systematically planned through two tasks:

### **A. Diary of field experiences**

To document one's observations and insights, it is essential to maintain a field diary. This diary can record two kinds of information. First, it can keep a daily record of tasks and activities undertaken, people met, village institutions visited, etc. Second, it can document descriptive and qualitative information about gender relations, gender division of labour, women's participation in agriculture, women's access and control over resources, etc. The field diary would form the basis for the village report of students.

### **B. The Village Report**

The village report is an important document, based on fieldwork undertaken by the students. It could highlight general as well as specific and unique aspects of gender relations in agriculture in a given setting. The village report could be organised into two parts:

- a. **The Village Context:** Village economy, natural resources, social structure, institutions, infrastructure, etc.
- b. **Rural Women in Agriculture:** Women's participation in agriculture, gender division of labour in different types of households, access and control over resources, women's participation in local institutions, etc.

The village report could help students to understand gradual changes taking place in the

status and conditions of rural women within the broader context of agrarian society. It will also give them an opportunity to collect and analyse quantitative and qualitative information through an eclectic methodological approach.

The report can also highlight any other aspect of the life of rural women in agriculture that students are curious to know.

### **Fieldwork as a tool for guided learning**

Fieldwork also gives excellent opportunities to undertake an in-depth understanding and analysis of a specific gender issue, related to the student's area of specialisation. A faculty member guides the theme paper so that students can explore the field reality with some analytical tools and frameworks.

For a theme paper, a student (or a group of students) is expected to choose any aspect of rural women's life and provide detailed insights into it. Topics of the theme paper should be broadly chosen and locally adapted. The theme should be analysed on the basis of empirical information collected during fieldwork. A common theme could also be taken up for study by students placed in different locations. In such a case, synthesis of insights from different locations has to be attempted within a common framework of analysis.

Presentation of village reports and theme papers is essential to consolidate lessons learned from fieldwork. Sharing of fieldwork experiences will also help students in understanding commonality and diversity across different field sites.

In summary, fieldwork has the potential to become an important pedagogic tool for learning by providing students the first hand exposure to the life of rural women in agrarian society, and enabling them to probe specific themes related to their areas of studies. Fieldwork could be, however, effective only if it planned as an integral component of the agricultural curriculum.

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## Understanding gender division of labour

### *Exercise 1: My Daily Work<sup>1</sup>*

#### **Objectives**

1. To identify the daily tasks of rural men and women from different households and
2. To increase awareness about the unequal workload of rural men and women

#### **Method**

1. Ask the participants to form small groups according to areas in which they have undertaken fieldwork. Ask each group to select one social group on which they have personal knowledge (for example, landless labourers, marginal farmers, large farmers, etc.)
2. Ask each group to describe a day in the life of a husband and a wife from a specific social group in a particular season. While using the 24-hour-a-day chart, each group should list the tasks performed by men and women in a rural household over 24 hours on a flipchart paper.
3. Put the flipcharts on the wall and ask participants to review each of them.
4. In a plenary discussion, help participants to draw out common points that emerge from the depiction of daily tasks of rural men and women in different households.

#### **Materials**

Flipcharts, pens, 24-hour a day chart

#### **A note for the instructor**

1. Households selected for this exercise should be distinct from each other and provide contrasts.
2. Encourage the groups to include all activities, even those that might not be thought of as "work" (for example, breast-feeding, knitting, etc.)
3. Despite differences in social class and daily routine of different groups, several common points would be visible:
  - Women and men do different things during the day
  - Women usually work longer hours
  - Women have more varied tasks, sometimes doing more than one thing at once
  - Work for the family is generally done by women
  - Men have more leisure time
  - Women have less time for sleep
  - Men are more involved in decision-making

In some communities, you may find that traditional roles of men and women are more balanced in terms of workload, but changes have decreased men's traditional activities and increased women's work.

4. This exercise can be used to initiate discussion on imbalances in the workload of men and women in different households.
5. This exercise can also begin a discussion on gender roles.

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● This exercise is based on "Gender Roles and Needs — Activity 20", **The Oxfam Gender Training Manual**. Oxford: Oxfam (UK and Ireland), 1994, pp. 179-81.



## Understanding gender division of labour

### *Exercise 1: My Daily Work*

Social Group : \_\_\_\_\_

Geographical Location : \_\_\_\_\_

#### **Women**

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#### **Men**

01 a.m.

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# The How of Engendering the Veterinary Curriculum . . . . Some Reflections

Sagari R Ramdas

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**W**e were two women in a class of 80 students in the Veterinary College, Hisar, Haryana. In all there were some ten women in the entire veterinary college and merely two women professors. We were “outsiders” in this traditional all-male preserve. Veterinary science after all was considered a very “male profession”. What were women doing here? So each day for the next five years we were greeted by catcalls and whistles as we entered class. We survived and learnt to negotiate spaces for ourselves . . . .

## Attitudes

Both teachers and students alike firmly believed that women should be in “Home Science” and men in “Veterinary / Agriculture”. Women were considered “weak” - how could we handle an animal? How could we carry out a pregnancy diagnosis? How could we stomach a surgery or clean a maggoty wound without fainting? We had to work doubly hard to in some way “prove” ourselves. So when we topped the class in examinations it was attributed to the “mugging up skills” of girls-or sheer fluke-or worse-that we had gained favours from the teachers with our ‘feminine’ charms. When we did well in practicals – certain male teachers did their utmost to ensure that we were harshly assessed and that this pulled down our “grade point average”. Somehow doing well irked many of our men colleagues and professors.

## Language

A seemingly innocuous every-day occurrence like the professors greeting the class with a

“Good morning, gentlemen” irked us. We felt excluded – and ignored. Farmers were always referred to as “he” and so the image in our minds was only of male persons dealing with animals. There were other professors whose language itself was full of sexual innuendos and prejudices. “The female anopheles mosquito, like all females of every species – is extremely vicious and a blood sucker” “When the female of every species comes on heat – she wants the male – just like in humans too”. All this of course elicited raucous laughter from the men in class – while we felt utterly humiliated and angered.

## Career and professional growth

As women we were actively discouraged in pursuing a field – based career. “You cannot survive in a rural area-it is very dangerous, demanding. Farmers do not like women veterinarians”. We were advised to do “laboratory-based research work and of course teaching in a veterinary college” – “microbiology, virology, pathology”. The animal production and management side of things, surgery, was not considered to be “for women”. “Choose a specialization that will allow you to pursue your career as also your home-life”. (A euphemism that your home, house, family, marriage, children come first and your career should be structured around this pivot). *All these acted as negative and de-motivating forces for women. . . .*

## The “missing millions” in rural livestock production

Women never brought their animals to the veterinary clinic / hospitals. And I have no

recollection of meeting/interacting with women on issues regarding livestock production, when we made the perfunctory visits to the villages as part of “The Extension Course”. We were trained to believe that it was men and only men who were concerned / responsible for the management, production and care of livestock in rural India. I learnt the truth once I became a veterinarian in rural AP. In rural India it is women across all castes, classes, agro-ecological regions who do 60-70% of all work related to the feeding, management and production of livestock. The activities performed by women are laborious and backbreaking and are “in – addition – to” the other daily household tasks both within and outside the home. While they may appear to involve very low skill levels, they are however most critical to the survival, health and production of the livestock – without which the entire enterprise itself would collapse.

Yet ironically, all extension programmes primarily target men. As veterinarians, we were never taught how to talk to women, listen to them, understand their problems and needs. We ignore the vast reservoir of their knowledge and skills. We believe they are incapable of dealing with issues related to healing of animals (hence even today many programmes that aim at training “animal health workers”, firmly believe that only men can successfully learn about the nitty-gritty’s of prevention and first aid!). Yet in rural India, apart from taking the animal to the hospital – women routinely are amongst the first in the home to identify a sick animal, collect, prepare and administer home-remedies and nurse the animal.

## **Gender constructs**

*It was only much later that I realized that all that we had experienced, were taught (or not taught) was essentially a consequence of gender relations / constructs based on dominance and inequality within society, like the following*

- Deeply entrenched gender biases prejudices that are internalized in both men and women, as a result of many years of socialisation.
- The dominant ideology that as women are concerned only with aspects related to the “household and family” (private domain) and men with all decision-making in the public sphere (production activities such as livestock being one of them), as veterinarians our “clients” should be men.

It is precisely these gender biases, prejudices, stereotypes, discriminations and inequalities that need to be challenged and changed in every school / college environment and curriculum – if women and men are truly able to realise their full potential as also enable the profession to meaningfully address the concerns of millions of poor rural agriculture families in India. These attitudes and ideologies are carried forth into our later professional life, are visible and operate at all levels.

## **Possibility for change**

*But as gender relations are a social construct . . . They can be transformed and changed . . .* We at **Anthra** (an organisation of women veterinarians) have in a small way been trying to challenge these in our ongoing work on livestock production with rural communities. I will briefly share key elements of the approach we have used, which could potentially be incorporated into existing agriculture / veterinary curriculum to address gender concerns. We realised it was essential to build gender awareness, as also provide opportunities for individuals to become sensitive to gender issues within the livestock sector, so that one is able to address these concerns through ones work.

There are numerous experiences of building gender awareness. A learning point for us, has been that this process must start with ones personal experiences and then move to a

broader understanding of how gender operates at different levels : within the family, work, society, politics, religion etc. Rather than lecture techniques, this process must be interactive, involving self-exploration-games, activities, analysis and discussion.

Coming to the second issue of becoming sensitive to gender issues within livestock production and development . . . . . The first step is to discover for oneself and find out about the real roles / responsibilities, problems and needs, access / control, knowledge and practices of men and women (across all castes and classes) in context of livestock production as a livelihood activity in rural areas. Existing programs, plans, policies (at the micro and macro level) need to be analysed in context of the former. How effectively do they address the

concerns of women? How effectively do they enable women to play a greater role in the public spaces? Then moving towards developing plans, programs / interventions with both women and men, that responds to their needs and concerns. In order to do this effectively; participants are equipped with a range of skills such as communications, PRA (participatory research techniques), awareness on local knowledge and practices, planning, documentation.

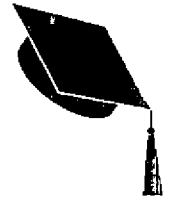
The above approach has helped us to evolve plans that are more "gender sensitive". We have also witnessed gradual transformations in the attitudes of men and women we work with.

I am convinced that these are some of the pathways to change.

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● Dr. Sagari R Ramdas, Director, ANTHRA, Secunderabad

# Gender in the Undergraduate Agricultural Curriculum : an Alternative Pedagogy



Mina Swaminathan

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## Why an alternative pedagogy

Since Gender Studies is a relatively new area of study, there are hardly any curricular or teaching materials available and few signposts on what to do. Finding a new pathway is necessary and the required curricular materials will have to be collected, created and built up.

Since Gender Studies is highly interdisciplinary, it calls for new and unconventional approaches to teaching, which can draw on the strengths of several disciplines working together.

Since Gender Studies aims to touch attitudes and skills, as well as broadening knowledge and understanding, it needs to use strategies that deal with the affective dimension and not merely the cognitive dimension.

## Some basic principles

Such an alternative - pedagogy must rest on certain basic principles.

### 1. Objectives

Objectives must include skills and attitudes as well as knowledge. Skills here refer to both psycho-motor and academic skills. Since teaching-learning of skills and attitudes require different time periods, as well as different techniques, the courses will have to be structured accordingly, with variations in content, process and duration.

### 2. Experiential learning

Experiential learning that is, learning based on actual experiences — should form the base. Experience-based learning is also *inductive* in that experience *precedes* teaching of theory and does not *follow* it. At the same time it is *learner-centered*, *task oriented* and *participatory* in nature. This approach has a double advantage, since it will help those who will later on go on to become extension workers or teachers, to use similar methods themselves.

### 3. Structuring

Structuring is essential to get the best out of experiential learning, with careful planning and sequencing of steps, however diverse the experiences. For example, some of the steps in the structure would be :

- assignments preceded by a set of questions or issues to think about
- monitoring and tutorial discussions with the students, individually and / or in group discussions
- back-up up by selected reading materials, and
- expression through presentations in various forms.

Without this careful structuring, experience by itself may become bewildering rather than fruitful.

## **Sources for strategies**

Useful resource materials for developing the tools to implement these pedagogic principles are :

Strategies of experiential learning that have been found useful with people of different *levels of education* and in *different contexts*, such as adult education, non-formal education, literacy, participatory training, etc.

Strategies like play-way and joyful learning that have been found useful with people of *different ages*, such as young children, and school-age children.

Strategies that *reverse conventional classroom procedures* e.g. cooperation instead of competition, group projects instead of individual projects, team teaching instead of individual teaching, etc.

## **Some examples of pedagogic strategies**

### **1. Oral history**

Students may be asked to interview people in family or community on specific themes, with the aid of guidelines, and collect oral histories. Data gathered by a group of students can be analysed and discussed jointly. This method is particularly useful to study historical trends – topics like food, clothes, seasons, customs can be taken to throw light on changing gender relations and roles in society.

### **2. Visuals**

All kinds of visuals like videos, video clippings, posters, pictures, photographs, etc. can provide material for analysis and discussion. For example, a collection of photos of women

working in agriculture can be used to study gender roles in agriculture ; a video clipping on housework can help to study the invisibility of housework and to understand issues like unpaid labour, multiple roles, varying content of housework, multiple roles of women, etc\*. Longer films on various issues are also available on video, but these should be used not for general viewing, like a feature film, but purposively, and followed by directed discussion during and after viewing and repeat viewing where needed.

### **3. Survey**

Surveys can range from simple ones like collecting data from people in the family, the street or the neighborhood, to larger surveys and can be a group or pair exercise. Besides helping to understand issues, this can also give practice in skills like compiling and presenting statistics and use of computer software.

### **4. Drama / theatre**

From simple improvised skits which reflect students' real experiences and can become a starting point for discussion, to teacher-guided role plays which help explore issues, and lead to dramatic problem-solving, there are a range of available methods. Dramatic performance can also help students take part in village cultural life.

A small skit presented by some former agriculture students of different agriculture universities in the context of RAWE offers a worm's eye view of students' experience in the field.

### **5. Games**

At the simplest level are board and card games (using the format of well-known games like Snakes and Ladders and various kinds of

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\* *Short video used for the discussion was Yenna Pannikkittirundhe? (What were you doing?), M S Swaminathan Research Foundation, 3 min & 8 sec, 1998*

Races) but altering the content to include relevant agricultural practices. Some of these have been successfully used with farming families by Extension Departments of ICAR in the past. At the next level are video games, simulations and computer modeling which can be used to help students come to grips with the complex problems of farming communities, farming systems others and multiple systems. In these games, the player learns about the variables affecting choices and that the choices made at each point have implications of different types and affect future choices in different ways. Several such games are available and only need to be adapted to local conditions

### 6. Qualitative methods

In addition to surveys, students should be introduced to qualitative methods, such as PRA,

interviews, case studies, and Focus Group Discussions and helped to use these methods in their simplest forms. Observation is an important tool of study, and observations guided by questions can be another tool.

### RAWE as a pedagogic tool

RAWE is probably the single most powerful pedagogic tool available and can be used to enhance student learning in several ways. However, some changes in emphasis and focus may have to be made, not only from the point of view of gender studies, but with a view to making it more holistic and suited to the needs of the future. This implies gradually moving from a narrower to a wider focus, as indicated below:

### Changing Emphasis of RAWE

FROM	→	TO
From the individual, the "host" farmer or farm family	→	To the group, the "host" village and the many men, women and children in the community.
From the "farm" as an autonomous entity	→	To farming systems, livelihoods, subsistence and farming as way of life.
From the agronomic, technical and physical aspects of agriculture	→	To the human, social and economic aspects, including gender, class caste, age, and agrarian systems
From the static picture of agriculture at a point in time	→	To a dynamic view of changing systems, trends and movements
From quantitative methods	→	To qualitative methods

RAWE could then become the crucial experimental kitchen in which the student learns to "cook" the assembled ingredients and prepare the meal for his / her consumption.

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# A New Approach to RAWE

*K N N S Nair*

**T**he agriculture graduate should be visualised as a key functionary in bringing about rural development and agriculture, rather than as a cog in the wheel in a production machine. Yet even in this more limited capacity, the graduate today still remains at the technology level rather than the professional level. This is partly due to the evolution of agricultural education itself in our country. In the early stages the approach was to seek the components needed for such an education and what each discipline could contribute to it and quite often, no synthesis was brought about. But what I have always felt was really providing the scientific knowledge needed for the farm and the farmer.

It is not easy to bring about any change in the agriculture curriculum except by using RAWE as an entry point to design a new curriculum.

## The goals

Let me begin with Kerala. In the context of Kerala, we have gone a long way in the decentralization of development. 40% of the total developmental expenditure is being designed and implemented by the grass root level Panchayati Raj institutions, with a group of villages coming into a Panchayat, and then a few Panchayats coming into a Block and a few Blocks coming into a District. There is a very basic purpose in decentralization. Planning is a development process based on the resources available and how they are developed. All along in this country, and in many other countries, development planning has been largely based on certain set of commodities. You start by

producing so many million tons of rice and so many million tons of wheat and so many million tons of milk or meat. Starting from there you ask what are the kind of policies, institutions, infrastructure, programme needed for development. The approach has not been used- this particular area has a certain set of resources. How do we develop those resources?

We are all talking about the country becoming self-sufficient in food, but out of 350 odd districts only 70 districts contribute to the food surplus. Why? If we think of development on the basis of certain commodities for example, wheat or rice, the programmes and policies and support systems are developed for those areas where those commodities can be produced. So states like Punjab, Haryana, Western U.P. and the deltaic regions of this country all participate while the rest of the people have been onlookers or bystanders to development. Decentralized planning gives us an opportunity to develop the resource base in a given area, optimize it in a sustainable manner and lead to balanced development. In the Kerala context we have an opportunity to attempt this through decentralized planning.

## The requirements

The question which occurs then is : are the graduates we produce capable for this job? Even today an agriculture extension officer can be a very successful officer without knowing the resource base within which he is operating, because what is asked of him is to distribute so much of fertilizer, so much of seeds, so much



of insecticides and so on. And if he achieves all the targets he can become a very successful agriculture extension officer. The same is the case with veterinary graduates. Instead of that the question he faces in a village or panchayat should be: I have got decent resources - how do I develop a programme for optimally utilizing those resources on a sustainable basis which constitute the basis of livelihood security of the farming community? For this, one has to have a very different approach. It is in this context that we were trying to restructure and reorient the opportunity given to us through the RAWE programme.

We decided that three levels of resource management needed to be undertaken. First at the whole Panchayat level. Not only because of the resources but because the Panchayat is also an institutional framework in which support institutions are organized and an infrastructure is developed. So the Panchayat level unit can be taken up both, as a unit, both for planning and supporting structures. But in Kerala we have got a relatively unrelenting topography. In fact although we are considered as a coastal State, only about 20% of the land is really on the coast. The rest is all hilly terrain. Within the Panchayat itself there are resource entities which can be called watersheds, so resource base planning has to be attempted on a watershed basis. Then comes what we call the farm or farm household taken as a unit. In this hierarchy if we go from the lowest level, a group of farm households constitute a watershed, which is controlled by the biophysical resources. Then come the several watersheds that constitute a Panchayat where institutional infrastructural and organisational support is provided. So, exposure is required at these three levels.

### **Understanding the household**

It was decided to take the farm household at the lowest level, because the average farm household in Kerala would be dealing with not

less than ten crops. They have also got livestock and tree crops integrated. There are paddy fields and dry lands. At the same time there are slopy lands. So a farm means, a heterogeneous resource base with multiple opportunities for development. To have first an idea of holistic view of the farm, an agriculture graduate must go to the field, and should not look for the rice or coconut or any other crop. Instead he should look at the entire farm, not only the entire farm but the entire farm family, because there the human resources are developed by and on the farm and managerial skill available is within the farm family. Human resources and the biophysical resources are integrated in the productive level at the farm household level.

We wanted to have a total understanding about the farm household level, its production process, consumption and all other aspects. We decided that at the lowest level, the undergraduate would undertake a detailed study at the farm household level. One male graduate and one female graduate together would go to this area as a team so that a total study could be undertaken, and three or four teams together would look into a watershed, to understand a biophysical resource area. Similarly, these three or four watershed groups will constitute a Panchayat level. These are the building blocks. But if they first go to the Panchayat they would have an overall view of the total situation in that area, biophysical and human resources, the institutions and the infrastructure. Then they may go to the village and study these in depth. At that stage, they should also have a thorough understanding of the basic traditional cultural practices and social values. The information can also be filled in a printed schedule through a checklist for a village survey containing all the aspects, such as the different types of land, the management practices for each crop and here incidentally the gender dimension is also incorporated. Because as each practice for each crop is to be identified, who performs each one, male or female, what exactly is the role of each in each enterprise will also become clear.

## **A new role**

An agriculture graduate today has to or prefers to get employment in an advisory capacity, either in the Government or in the banks or in the private sector. On the other hand, they should ideally be, as Prof. Swaminathan says, *job providers* rather than *job seekers*. This means we have to develop in them both self-confidence and skill. To do that we attach them to one of the farm enterprises, may be a nursery, a mushroom cultivation or a flower production unit and here entrepreneurship training is given. Another thing needed is an experience with the research station management. At every Panchayat level we have a Krishi Bhavan. But our Panchayats are much bigger than most Panchayats in the rest of India, with a population somewhere between 25000 and 30000 population and roughly an area of about 40 Sq km. Probably our Panchayats include something like three or four villages. So at this panchayat level there is a Krishi Bhavan, and a veterinary office there. So the students will be posted there, to learn about the plans, programmes, etc.

In addition to that, through the process of the people's campaign for planning, every Panchayat has today a development document with them, a written document of about 100 – 150 pages. Keeping this as base, we have to prepare an alternate programme for agriculture development in that area.

## **Monitoring and evaluation**

We wanted to monitor progress and evaluate at every stage and not at the end. A monitoring committee has been set up, with the VC as chair, in which the Head of every Department is a participant, otherwise unfortunately the RAWE programme becomes a burden for the Agriculture Extension department. We also have periodical monitoring at every stage of their work. If there is a Panchayat visit, they have to bring the report and do a review. The emphasis in grading of students is being placed on the kind of report, the presentation and the extent of documentation. In the case of documentation, there is a field diary with focus on basic observations of a sociological, economic and resources type. In fact, that will be a major part of evaluation, because the student's perception and his ability to observe are critical. These are the ways in which we design the programme.

This approach is still being tested in the field, and we don't yet know what exactly the results are. But this is how I wanted to approach what we call the transformation of an agricultural graduate from a technician into a professional. If this kind of a grounding is given, I am sure that he/she will have a better chance today to become a professional, and also to be a job provider rather than depending entirely on lending his services.

# Curriculum Development of Awareness Generation Programme through Distance Education



*Prabha Chawla*

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## Introduction

**W**omen constitute half of the human resources engaged in agriculture in our country. And yet there are few development programmes which actively involve women in their design and implementation keeping in mind their productive role on the farm. By and large, the training strategies used by the Home Scientists at the Krishi Vigyan Kendras (KVKs) and the Extension Departments of the Agricultural Universities are focussed on their traditional role as home makers.

This is not to suggest that the reproductive and home-maker role of rural women is of any less significance. In fact, the welfare and well-being of the whole family and society at large is closely linked with the awakening of women as good home-makers.

Nevertheless, women contribute substantially to farm operations and raising of animals. At times, their input may be more than that of the men folk. But there is a general lack of recognition of their productive existence and potential as intelligent decision makers. Women are mostly relegated to the background to remain as 'invisible hands'. As a result of subjugation for years, they suffer low status not only in society, but also in their own estimation.

In the post-Independence era, legislation has aimed at raising the status of women. Industrialisation, Urbanisation, economic growth and expansion of formal educational

opportunities have also been powerfluences on the growth and development of women.

However, it is only direct intervention by education and empowerment that can bring about positive and significant changes. The National Policy of Education (NPE) 1986 rightly highlights that women must be empowered through collective reflection and decision-making. The parameters of empowerment, as pointed by the NPE, are

- Building a positive self-image and self confidence
- Developing ability to think critically
- Building up group cohesion and fostering decision-making and action
- Ensuring equal participation in the process of bringing about social change

## Need for the course

In this context, it might be useful to take a fresh look at the training content and methodology used by the KVKs and the Departments of Extension Education in training farm women, the rationale being, that if farm women are to be fully empowered, their training input must transcend emphasis on their traditional role as home makers, and must also focus attention on the following :

- Raising their consciousness about the low status they have as farm workers and

enabling them to value their productive role in agriculture and animal husbandry.

- Imparting information and clarifying concepts and scientific principles of improved farm operations, including animal husbandry and other practices.
- Imparting knowledge and skills for using implements to reduce their drudgery of labour
- Giving scientific information about post-harvest technologies to enable them to reduce losses, and to maintain quality of the produce.

The idea of the training should be empowering farm women through imparting scientific knowledge and skills in a collective and sharing situation so that they can begin to think critically, participate intelligently in taking decisions and also take decisions themselves.

### **First phase of the project**

The Department of Extension Education of the Haryana Agricultural University, Hissar has completed a study on the nature and the extent of productive role of women of Haryana in agriculture.

Similar studies have been conducted elsewhere also. The centre for Extension Education, IGNOU, New Delhi will prepare a review of the various relevant studies on the subject.

In collaboration with the Department, of Extension Education, HAU, Hissar, the centre will organise a workshop with a select number of KVKs, Department of Extension Education of Agricultural Universities, and other institutes engaged in training rural women to facilitate a process of critical reflection about the existing courses, contents & methodologies of training programmes currently organised for rural women. The review of studies would be placed before the workshop to guide the discussion and deliberations.

### **Second phase**

Based on the experience of the workshop, an attempt will be made to formulate a content for training farm women in technologies related to their productive role in agriculture, and to develop a multi-media package comprising self-instructional materials, audio and video programmes, activities, group discussions and the like to transact the content.

### **Third phase**

In the third phase of the project, a group of functionaries and trainers of KVKs would be trained in the new content and methodology for training farm women. The materials would be revised in the light of the feedback obtained.

On the basis of work undertaken in the three phases, a distance education training programme for training farm women would be developed. It is hoped that such a course would help build capacities among the trainers for the development of the vast human resources, in agriculture that lie largely untapped.

### **Distance education**

The approach of distance education can also be utilised. IGNOU has developed several courses on women's empowerment and gender sensitisation (Appendix).

If a course similar to Course I is to be developed in the domain of agriculture, something like A Foundation Course, for example, it could be very meaningful at the undergraduate level, because at this level they may be overburdened with other subjects and may not be in a position to understand the sociological perspective of society. It is important that at the time of entry to a professional college the basic definition of gender be understood. At IGNOU, techniques like sending out videos or audios to students and teleconferencing with regional centres and

study centres are the distance education strategies used to help students. Many of the Agricultural Universities located in remote places, could also make use of the IGNOU's facilities and develop some kind of linkages.

Orientation programme for the teachers on gender sensitisation can be jointly taken up. There is great scope for use of distance education mode in agriculture.

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## Appendix

### **COURSE I : WOMEN'S EMPOWERMENT – PERSPECTIVE**

#### **Block I : Towards Development of a Gender Perspective**

Unit 1: Introduction

Unit 2: Gender- What does it stands for. Most of the people are not clear on what gender stands for and hence one full unit has been devoted for that.

Unit 3: Patriarchy

Learners should be aware of patriarchy and its implications because our society is a male dominated society but at the same time we should make them understand why this concept has come, why it has stayed on and what needs to be done. Small questions are built in this unit trying to give the learner thought on what further actions need to be taken.

Unit 4: Feminism

This concept is often being used, misused and abused. People don't understand what is feminism? It is not all that negative but a very positive concept which needs to be understood in the right perspective.

#### **Block II : Status of Women in India**

Unit 1: Present Status of Women

Unit 2: Legal Rights Framework

Women should understand their legal rights. Constitution talks of so many things and in this process what happens is that women are lost in the constitutional rights and forget their rights.

Unit 3: Environment for Advancement of the Status of Women at the Global Level

Students should not only concentrate on the Indian situation, they should know something

happening around the world also, because they should know whether similar situation is existing around the world or are we exceptions and if we are why so. So a kind of comparison, a brain teaser for them to understand and know more about it. A good reading list is given in the course so that they could go to the library and do more reading.

#### **Block III : Dynamics of Women's Empowerment**

Unit 1: What is Empowerment? What are the different parameters of empowerment like building a positive self image and self confidence, developing ability to think critically, building up group cohesion and fostering decision making and action and ensuring equal participation in the process of bringing about social change. So we have tried to see that everything is discussed.

Unit 2: Who Empowers?

Unit 3: Empowering Processes

Unit 4: Expressions for Empowerment

#### **Block IV : Intervention for Women's Empowerment by Government and NGOs**

Unit 1: Interventions by Government

Unit 2: Interventions by NGOs

### **COURSE II SELF-HELP GROUPS (SHG)**

#### **Block I : Nature of a Group**

Unit 1: What is a group?

Unit 2: Types of groups

Unit 3: Group objectives

Unit 4: Group practices

**Block II : Process of forming SHG**

Unit 1: Concept of SHG .

Unit 2: Objectives

Unit 3: Stages in group formation

Unit 4: Attributes of an effective group

**Block III : SHG Operation and Functions**

Unit 1: Framing rules and procedures

Unit 2: Operation and management

Unit 3: Thrift, credit income-generation activity

Unit 4: Records and book-keeping

Unit 5: Convergence and networking

**Block IV : Other Areas for Women's Group Action**

Unit 1: Literacy and Education

Unit 2: Health and Nutrition

Unit 3: Women's right and social action

Unit 4: Environment, drinking water, sanitation

**COURSE III : DEVELOPMENT THROUGH SELF HELP GROUPS**

**Block I : Understanding Micro-Enterprises & Micro Credit**

Unit 1: What is micro enterprises?

Unit 2: Application of micro enterprises

Unit 3: What is micro credit?

Unit 4: Application of micro credit

**Block II : Organizing for Micro Enterprises**

Unit 1: Identifying potential entrepreneurs

Unit 2: Selecting business option

Unit 3: Capacity building

Unit 4: Financial & marketing management

**Block III : Micro Credit Plus**

Unit 1: Savings Groups as change agents

Unit 2: Managing natural resources

Unit 3: Managing community assets

Unit 4: Accessing services and schemes

**Block IV : Group Sustenance**

Unit 1: Need for sustenance

Unit 2: Working towards sustenance

Unit 3: Role of networking

Unit 4: Agencies for network

**COURSE IV : TRAINING SKILLS**

**Block I : Training – Facilitative Process**

Unit 1: What is training?

Unit 2: Target groups

Unit 3: Training needs

Unit 4: Human resource development

**Block II : Training Objectives**

Unit 1: Learner's objectives

Unit 2: Benchmarking

Unit 3: Monitoring for achievement of objectives

Unit 4: Assessment & evaluation

**Block III : Planning a Training Programme**

Unit 1: Prioritising training objectives

Unit 2: Preparing training plan and budget

Unit 3: Planning course contents

Unit 4: Selecting training methods & techniques

**Block IV : Implementation**

Unit 1: Techniques for making training sessions interactive

Unit 2: Making communication effective

Unit 3: Preparation and use of teaching aids

Unit 4: Acting for follow up



# Engendering the Agricultural Curriculum : Students' Views

Sunita Rabindranathan

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## Awareness of gender in rural agricultural work experience (RAWE)

**A**n area where the curriculum could be more gender sensitised is the Rural Agricultural Work Experience (RAWE) wherein the students are exposed to real field situations. The study of RAWE should not be only on the standpoint of agriculture. At present, emphasis of RAWE is getting students to go and live with an individual farm family. It would be helpful if the concept is moved from the individual host farmer to the group, to the host village and the men, women and children in that village and look at the social unit as a whole and to the many different things which are happening within that unit.

The RAWE manuals, which are prepared for the students, emphasise on the quantitative survey methods and these survey data are not even utilised. More emphasis should be given to qualitative methods. A feedback from the students on their views about gender in the present agriculture curriculum was taken for a more accurate incorporation of the issues.

A questionnaire comprising of six questions related to gender in RAWE was sent to six Agriculture Universities (G B Pant University of Agriculture and Technology, Pantnagar, Acharya N G Ranga Agricultural University, Hyderabad, University of Agricultural Sciences, Dharwad, Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu Veterinary and Animal Science University, Chennai, Kerala Agricultural

University, Thrissur) to be filled in by the final year B.Sc. Agri students. G B Pant University of Agriculture and Technology, Pantnagar, University of Agricultural Sciences, Dharwad, Tamil Nadu Agricultural University, Coimbatore, Acharya N G Ranga Agricultural University, Hyderabad and Tamil Nadu Veterinary and Animal Sciences University, Chennai sent back the feedback of the students and an analysis of the same has been done.

## Findings\*

1. Except eight, all the students felt they were not exposed to questions related to gender.
2. Except six, all the female students felt that they were exposed to the multiple roles performed by women both in their course and during RAWE at the field level.

Fifteen male students felt that they had exposure in either situation while thirteen felt they were not exposed to these situations.

3. Except four, all female students felt such issues can be discussed in the RAWE programme, or included in the curriculum as separate courses, or in the existing course – Rural Sociology.

Ten male students were not clear where these issues could be incorporated, but felt that they need to be given emphasis while eighteen felt that these issues could be incorporated in RAWE programme and NSS activities. A legal course on women could be introduced.

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\* See Appendices I, II, III, IV & V



4. a. Except three, all the female students felt they had opportunity to talk to men and women separately.

Twelve of the male students said they had none and sixteen felt they had exposure to these facts.

- b. Except for six all female students would ask questions related to farm, family, land holdings, source of income, wages and number of working hours per day, number of cattle and income from the sale of milk.

Only fourteen male students had an opinion on this and said they could ask formal questions related to cropping pattern, income, plant protection, agronomy and farm.

- c. Except four most of the female students find the farmers hesitant to talk to them initially but after sometime they are quite frank. One of the students feels that it is easier to communicate with women than men. There are instances where the farmers have scolded them.

Except two most of the male students felt that it takes time to establish rapport while some feel there is less gap between them and the farmers.

- d. Except five all the female students feel that by talking to the farmers in their local dialect, by greeting them and asking questions of their interest one can build rapport. Also dressing in a simple manner and making them feel that students are not strangers make it easy. One of the students had a good experience of being introduced to the male member of the family by first talking to the women.

Except two all the male students feel that it is easy to talk to the farmers by tackling their problems and talking to

them in a very simple way. Discussion about their family and children makes them close to them. One of the students says that he never tries to build rapport with women as they are instructed not to do so. Informal talk is the best tool to build rapport with the farmers.

- e. Seven of the female students feel that they didn't get any information on these issues before they went to the field. However, they could get more information through the Block or the Gram Pradhan of the village through some special classes. Three students feel that they get this information before going to the field in Extension Education but could be provided more during RAWE and by meetings and group discussions.

Twelve of the male students felt they do not have exposure to these issues in the form of printed material, while thirteen feel they don't get any information about these issues before they go to the village but do not have any idea how they could be provided with it. Two feel they do not get any information and feel these can be incorporated in the curriculum by introducing a course on village administration.

5. Except two, all the female students felt that their field exposure during the RAWE gave them a better understanding of the gender roles in agriculture as they could see the amount of labour being put in by women who were still not being treated on par with men. The exposure could be improved by taking students to different cooperative milk units.

Nineteen male students felt that their exposure to the field did give them understanding of the gender roles in agriculture, six did not feel benefited while two did not have any opinion.

## *Engendering the Agricultural Curriculum: students' views*

6. Except three all the female students feel that better understanding of the gender issues would be helpful in their professional work like research, launching of development programmes etc. but one feels that she will not be benefited professionally.

Seventeen feel they would be benefited professionally while six feel they will not be benefited at all.

Based on the above feedback from the present agriculture students some suggestions were made by the former students of agriculture.

### **Some strategies**

To act as strategic partners, students must first understand and then interpret the farming family before diagnosing the appropriate communications to reach the target audience. RAWE should not become a nuisance to farmers, instead they should look forward to it every year.

- A student could spend the first few weeks of the RAWE semester in gathering information about the village as a whole before going on to study a family in depth. The gap which exists between the rural and urban sector can be minimised when the students actively take part in their household activities like birth of child; singing of folk songs in the evening; girl students could help the women during weeding and chat with them; boys could sit with the old women of the house and listen to stories of the past like how the village was when they were young, what has come new in agriculture, how was agriculture then and what is their opinion about the changing trends, what do they feel about the roles of women in agriculture etc. and sharing information about oneself with the villagers.
- The students could have an interaction among themselves when they go back to the research station and an exercise could

be included wherein the students could also prepare an abstract about the household of the farm family.

- If emphasis is given to the social perspective of a village, especially the gender roles as to who does what, students are in a better position to understand the importance of women's activities in the field. The survey schedule should not only focus on the crop requirements, but also on the social dimensions.
- After the students come back from RAWE to their Universities, structured discussion groups could enable them to discuss what they observed in their respective villages and draw some insights about rural life and rural development.
- The instrument of Participatory Rural Appraisal (PRA) is essential and can help the farming family in analysing and evaluating their own situation and in planning what to do about it. What distinguishes this PRA from conventional socio-economic household surveys is that it foregoes unnecessary precision in gathering data, carrying out only as much research as is needed to identify and ascertain their needs.

### **Broadening the schedule**

Additional questions for observation and reflection during the field stay could be:

- What do men and women each do in the village? In the home? In the fields?
- Number of working hours of both men and women in various activities.
- Are women from richer households/certain caste groups more privileged?
- What were the difficulties encountered in talking to people?

- Are women more receptive to new interventions?
  - How much work and what work do children do?
  - Share of men and women's earnings directed towards benefiting family and children.
  - Existence of development aid projects that enable women to succeed financially.
  - Most successful income-generating activities for women in that area (e.g. rearing of calves, vegetable gardening, food processing etc)
  - Activities (both farm and household) in which men and women are most involved
  - Health of the farm family
1. Perception which students get about RAWE – it being very easy and scoring and not taken seriously.
  2. Attitudes of urban students about the village.
  3. Interaction between student and farmer. When the student went to the farmer's house, he expected to see a man and was taken àback when he saw a woman-he had no orientation about how to talk to the woman, nor could appreciate the language in which she answered.
  4. Sharing the experience among students-girl students not getting any exposure to the field due to several reasons like bad roads, hot sun etc. again refers to gender discrimination among the course.
  5. Interaction between student and farmer highlighted the secondary role that the student is expected to play i.e. give technical advice to the farmers.
  6. Lack of clarity about what is going to be the outcome and the purpose, how they are supposed to utilise and reflect upon this experience and make the most out of this.

The above suggestions are some simple ways to make RAWE more collaborative, thought-provoking and involving for students. A constant interaction between the students and supervisor both individually and in groups, would help the students to share their experiences and also learn from each other.

## **RAWE in action**

A small skit was also performed by the former agriculture students to demonstrate their experience in the field during RAWE.

The skit focussed on the following themes :

These aspects though they may look very simple and obvious, are often overlooked when students are in the field. Proper guidance from teachers before the students go for their field stay would be helpful in addressing some of the above issues.

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**Appendix I : Responses of 10 students to the questionnaire  
G B Pant University of Agriculture and Technology, Pantnagar**

Questions	Male students	Female students
<p>1. In your curriculum, did you have any exposure to questions relating to gender in any course? If so, give details.</p>	<p>1. No 2. No 3. No 4. No 5. No</p>	<p>1. No 2. No 3. No 4. No 5. No, but during RAWE programmes I was exposed to such situation when farmer was not interested to take me to his field along with him as his field was far away from his house and the path was also bad</p>
<p>2. Were the multiple roles of women in farming and other operations discussed in any program? Did you have any opportunity in understanding them at the field level?</p>	<p>1. Yes, they were equally good at work 2. No  3. No 4. No  5. Yes, women can do a better job than men in any field</p>	<p>1. Yes, Yes 2. Yes, during the village attachment we have enough opportunity to understand them at the field level 3. Yes, village attachment under RAWE 4. Yes, last month during our visit to Ranichauri we saw that all farming in hills is women based and we actually saw it in the fields 5. Yes, I had got such an opportunity at Ranichauri during our RAWE programme where I came to know that in hills most of the field work as well as household work is done by women</p>
<p>3. In your opinion, should there be any special emphasis on the role of women in various farm activities,</p>	<p>1. Only a few cases like the removal of the social problems</p>	<p>1. Yes, such issues can be discussed in the RAWE programme as there we observe that most of the farm activities</p>

<p>land ownership issues, social issues like alcoholism, disparity in wages between men and women, etc.? Where do you think such issues can be discussed in your curriculum?</p> <p>4. When you visit villages for field work or other learning experiences, do you have?</p> <p>a. An opportunity to discuss with men and women separately</p>	<p>2. Yes, need not to be incorporated in our degree programme.</p> <p>3. Such issues should be discussed because in my opinion there is much variation in wages and women's social status in the villages.</p> <p>4. Yes, such issues can be incorporated in courses related to Rural Sociology (Agril. Administration and rural social problems)</p> <p>5. In our curriculum, the role of women should be discussed in land ownership issues and social issues like alcoholism.</p> <p>a. 1. No 2. No 3. No 4. No 5. No</p> <p>b 1. -</p>	<p>are done by the women and no attention is paid to their health and well being</p> <p>2. In my opinion emphasis should be given to such type of activities for the development of women. During the degree programme some special classes should be there to discuss such issues</p> <p>3. Yes, such issues can be discussed in almost all courses as a part of discussion or a separate course entitled 'Role of women in farming may be introduced'</p> <p>4. Yes, these issues can be discussed in the courses of sociology &amp; administration</p> <p>5. According to me emphasis on the equality between men and women may be for land ownership issues or social issues like disparity in wages between men and women etc. should be given. These issues could be discussed in our curriculum in one of our courses that we studied- 'Agriculture Rural Sociology'</p> <p>a 1. Yes; 2. Yes 3. Yes 4. Yes 5. Yes</p> <p>b 1. Questions regarding their education, field work, no. of hours devoted to agriculture, family status.</p>
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<p>b. In such situations, what are some of the questions you raise?</p> <p>c. Do you find them easily forthcoming with answers, and you find them comfortable do talking to you?</p> <p>d. How do you quickly build rapport with the farmers, specially the women? Give examples where possible.</p> <p>e. Did you get any assistance / information about these issues before you event to the village?</p> <p>If it was inadequate, in what way can this information be provided to you?</p>	<p>2. about the cropping pattern income and resource</p> <p>3. about their income and farming</p> <p>4. we raise questions related to only plant protection and agronomy</p> <p>5. —</p> <p>c. 1. It takes time to convince them for talking.</p> <p>2. Sometime and sometime not</p> <p>3. No</p> <p>4. Yes</p> <p>5. Well as far as frankness is concerned, illiteracy is common in our villages.</p> <p>d. 1. —</p> <p>2. By talking to them in a simple and reasonable language and manner.</p>	<p>2. Questions related to their farming life pattern and income</p> <p>3. Their major problems; sources of income; contribution in running of family etc.</p> <p>4. We ask them about their farming activities and family problems</p> <p>5. Questions regarding the crop, varieties they are taking, any drawback of any variety, disease infestation they are facing in their field</p> <p>c. 1. At times they do feel comfortable but mostly they are reluctant</p> <p>2. No, they come hesitatingly</p> <p>3. Initially hesitant but later frank</p> <p>4. Women are easy to talk to and men are mostly reluctant to give much information</p> <p>5. Yes, but sometimes they hesitate to give information</p> <p>d. 1. Yes, rapport can be built with the farmers if we make them feel that we are not strangers and just their friends</p>
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	<ol style="list-style-type: none"> <li>3. We can build rapport with farmer by solving their problems in an easy way.</li> <li>4. We never try to make rapport with women. Even we are instructed not to do so.</li> <li>5. —</li> </ol> <p>e.</p> <ol style="list-style-type: none"> <li>1. —</li> <li>2. No</li> <li>3. No</li> <li>4. No</li> <li>5. —</li> </ol>	<ol style="list-style-type: none"> <li>2. By asking questions according to their interest, about her family and lifestyle and problems</li> <li>3. Dressing up in a simple manner and conversing in local dialect</li> <li>4. Sometimes being a girl student, I find women more informative than men</li> <li>5. Generally, I quickly build rapport with the farmers specially the women. One of the examples is my experience at Ranichauri during RAWE programme where I first interacted with the female member of the family and afterwards through that interaction I was able to build rapport among the male member of the same family.</li> </ol> <p>e.</p> <ol style="list-style-type: none"> <li>1. No, the information can be provided to us by the block but it is better if we collect it ourselves because then only we can realise the actual situation of the people.</li> <li>2. By meetings and group discussions</li> <li>3. Yes, during orientation in RAWE</li> <li>4. No, the information can be provided from the block office or if possible from the Gram Pradhan</li> <li>5. Yes, we get sufficient information about these issues</li> </ol>
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<p>5. Did your exposure in the villages improve in any way, your understanding of the role of gender issues in Agriculture? In what ways, would you like to see this exposure improved to give you better insights?</p>	<ol style="list-style-type: none"> <li>1. No, we can just advise them for better agril practices.</li> <li>2. No, —</li> <li>3. No, —</li> <li>4. No, —</li> <li>5. —</li> </ol>	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. Gender issues in agriculture is useless because we saw in hills that farming is done by only women. They do their work efficiently.</li> <li>3. Yes, the major rôle played by women in indoor as well as outdoor activities came to light but another fact that was revealed was that they got little appreciation for the contribution that they made</li> <li>4. Definitely; during our village attachment (RAWE) we could see the amount of labour put in by women, in their homes and fields, and still they are never treated at par with men.</li> <li>5. Yes, my few experiences in the villages proved that gender plays an important role in agriculture- sometimes farmers don't want field work to be done by us as we are sensitive to do such task.</li> </ol>
<p>6 Do you think that a better understanding of the gender issues, specially an appreciation of women's sensitivities, would be helpful in your professional work? In what areas? Be specific.</p>	<ol style="list-style-type: none"> <li>1. Absolutely yes. Women may co-operate in many post harvest activities and also in intercultural operations. Also, as they are very sensitive, so they may play a generous role in establishing food security.</li> </ol>	<ol style="list-style-type: none"> <li>1. Being a girl I do appreciate women's sensitiveness but in no way can it be helpful in the professional work because in a world where women claim to be equivalent to men they should in no way be treated as sensitive and should be given chance to work in fields in which men do</li> </ol>



	<p>2. No</p> <p>3. No</p> <p>4. No</p> <p>5. Well as far as our profession is concerned women have more capability in physical labour sense i.e. in sowing, intercultural operations. But in research men and women have equal stamina. Women are so sensitive as all know. They can better perform their responsibilities rather than men. e.g. in the care of child only women can perform. Men are still a source of income earning in our society.</p>	<p>2. Yes, It would help in professional work. Areas like – research work, extension field work, forestry, fisheries, veterinary. In my view every field.</p> <p>3. Yes, In field operations and in launching development programmes for the area.</p> <p>4. Yes, As prosperity generates from homes so it is necessary that the basic unit of society i.e. family should be happy, educated and prosperous. Since the women are considered to be the home makers, so much attention should be paid on their needs and behaviour. In one way or other this will definitely improve the living standards of people.</p> <p>5. In spite of her sensitiveness women have to be strong for this field. She should be capable of doing every type of field work that a man could do. Like other professions, she should be given equality in agriculture profession too.</p>
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## Appendix II : Responses of 10 students to the questionnaire University of Agricultural Sciences, Dharwad

Questions	Male students	Female students
<p>1. In your curriculum, did you have any exposure to questions relating to gender in any course? If so, give details.</p>	<p>1. Yes, in many courses we were about gender differences in Agril. Extension, Veterinary, Agronomy etc.</p> <p>2. No, we don't have any exposure to questions relating to gender.</p> <p>3. No, I have not found any exposure to gender.</p> <p>4. Yes, Extension Education and rural development- Voluntary organisations</p> <p>5. No</p>	<p>1. No</p> <p>2. No</p> <p>3. No</p> <p>4. No</p> <p>5. No</p>
<p>2. Were the multiple roles of women in farming and other operations discussed in any program? Did you have any opportunity in understanding them at the field level?</p>	<p>1. No</p> <p>2. No opportunity in understanding them at field level. Multiple roles of women in farming and other operations discussed in Agronomy.</p> <p>3. Yes, but I have not got any opportunity at field level.</p> <p>4. No, found no opportunity to discuss them at the field level.</p> <p>5. No</p>	<p>1. No</p> <p>2. No</p> <p>3. No</p> <p>4. No</p> <p>5. 10. No</p>

<p>3. In your opinion, should there be any special emphasis on the role of women in various farm activities, land ownership issues, social issues like alcoholism, disparity in wages between men and women, etc.? Where do you think such issues can be discussed in your curriculum?</p> <p>4. When you visit villages for field work or other learning experiences, do you have?</p> <p>a. An opportunity to discuss with men and women separately</p> <p>b. In such situations, what are some of the questions you raise?</p> <p>c. Do you find them easily forthcoming with answers, and do you find them comfortable talking to you?</p>	<p>1. Yes, women should be given equal status with that of men and the issue mentioned can be discussed in seminars, visits etc.</p> <p>2. Yes, emphasis on the role of women in various farm activities, land ownership, social issues etc. should be discussed before going to the village camp.</p> <p>3. Yes, such issues would be discussed in NSS.</p> <p>4. Yes, there should be emphasis on role of women in land ownership issues, social issues- these should be discussed in a RAWA programme and also in NSS activities.</p> <p>5. Yes, social sciences.</p> <p>a. 1. No. 2. Yes 3. Yes 4. Yes 5. Yes</p> <p>b. 1. We raise this question relating to these occupations especially about the land holdings etc. 2. Formal questions 3. Are you involved in farming activities? 4. Formal 5. Bio-data</p> <p>c. 1. Yes</p>	<p>1. Yes, in social science.</p> <p>2. Yes, in social science.</p> <p>3. Yes</p> <p>4. Yes, such issues can be discussed in social science subjects.</p> <p>5. Yes, discussed in social science.</p> <p>a. 1. No. 2. No 3. No 4. No 5. No</p> <p>b. 1. _____ 2. _____ 3. How they are? About their land holdings etc. 4. _____ 5. No</p> <p>c. 1. No 2. No 3. No, they hesitate to talk and</p>
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<p>improved to give you better insights?</p> <p>6. Do you think that a better understanding of the gender issues, specially an appreciation of women's sensitivities, would be helpful in your professional work? In what areas? Be specific.</p>	<p>2. Yes 3. Yes, by frequent visits 4. Improved a lot 5. No</p> <p>1. Yes, we would be able to differentiate work effectively, assign the job according to it so that the job can be done effectively.</p> <p>2. Extension education, voluntary organisations, rural development</p> <p>3. Yes, it is helpful in transferring technology, any training programme etc.</p> <p>4. It includes professionalism especially extension education, rural development, voluntary organisation.</p> <p>5. No.</p>	<p>3. Yes, woman is very much needed for every assistance for men in agriculture.</p> <p>4. Yes, it should be included under curriculum.</p> <p>5. Yes</p> <p>1. Yes, In all the areas where it is possible like Agriculture, Self employment etc.</p> <p>2. Yes, allied activities</p> <p>3. Yes, women are much more sensitive than men</p> <p>4. Yes, in areas like agriculture and administration and education field.</p> <p>5. Yes, in all possible areas like agriculture, home science etc.</p>
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## Appendix III : Responses of 10 students to the questionnaire Tamil Nadu Veterinary and Animal Sciences University, Chennai

Questions	Male students	Female students
1. In your curriculum, did you have any exposure to questions relating to gender in any course? If so, give details.	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> <li>3. —</li> <li>4. No</li> <li>5. No</li> </ol>	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. Yes</li> <li>3. No</li> <li>4. No</li> <li>5. No</li> </ol>
2. Were the multiple roles of women in farming and other operations discussed in any program? Did you have any opportunity in understanding them at the field level?	<ol style="list-style-type: none"> <li>1. No</li> <li>2. No the multiple roles of men and women is not discussed in our curriculum, we do not have any programme like 'village stay' as the agriculture students have in their curriculum</li> <li>3. No</li> <li>4. No</li> <li>5. No</li> </ol>	<ol style="list-style-type: none"> <li>1. No, No</li> <li>2. No, No</li> <li>3. —</li> <li>4. —</li> <li>5. No we did not get an opportunity to understand at the field level</li> </ol>
3. In your opinion, should there be any special emphasis on the role of women in various farm activities, land ownership issues, social issues like alcoholism, disparity in wages between men and women, etc.? Where do you think such issues can be discussed in your curriculum?	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. Yes, through village stay programmes, mass contact programmes etc.</li> <li>3. Yes, such issues could be discussed in extension education courses.</li> <li>4. Yes, such issues should be</li> </ol>	<ol style="list-style-type: none"> <li>1. —</li> <li>2. —</li> <li>3. —</li> <li>4. —</li> <li>5. Yes, in the extension course.</li> </ol>

<p>4. When you visit villages for field work or other learning experiences, do you have?</p> <p>a. An opportunity to discuss with men and women separately</p> <p>b. In such situations, what are some of the questions you raise?</p> <p>c. Do you find them easily forthcoming with answers, and do you find them comfortable talking to you</p> <p>d. How do you quickly build rapport with the farmers, specially the women? Give examples where possible.</p> <p>e. Did you get any assistance / information about these issues before you went to the village? If it was inadequate, in what way can this information be provided to you?</p>	<p>discussed in extension education courses.</p> <p>5. Yes, Yes, such issues should be discussed in extension education courses.</p> <p>a. 1. No 2. No 3. No 4. No 5. No</p> <p>b 1. _____  2. _____  3. About the opinion of women folk 4. _____ 5. _____</p> <p>c. 1. Normally women are comfortable unless interrupted 2. No, it is difficult to talk to them seperately</p>	<p>a. 1. No 2. No 3. Yes 4. Yes 5. Yes</p> <p>b 1. _____  2. _____  3. Questions like number of cattle, who does milking, quantity of milk per day, income they get after selling etc.  4. Questions like number of cattle, who does milking, quantity of milk per day, income they get after selling etc.  5. About their family, education, sources of income and rearing of animals etc.</p> <p>c. 1. _____  2. _____</p>
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	<p>3. No</p> <p>4. No</p> <p>5. _____</p> <p>d. 1. By talking about their family</p> <p>2. Informal talk is the best tool to build rapport with farmers</p> <p>3. Discussing some issue of common interest</p> <p>4. We should give prime importance to the farmers problems</p> <p>5. We should give prime importance to the farmers problems</p> <p>e. 1. Inadequate information only prevail.</p> <p>2. Yes</p> <p>3. No</p> <p>4. No</p> <p>5. No</p>	<p>3. It is tough talking and making them talk initially. There are instances where we got scoldings from them</p> <p>4. It is tough talking and making them talk initially. There are instances where we got scoldings from them.</p> <p>5. Yes</p> <p>d. 1. _____</p> <p>2. _____</p> <p>3. It takes some time to build rapport with the men and women. In case of women if you talk to one woman, the others open up easily</p> <p>4. It takes some time to build rapport with the men and women. In case of women if you talk to one woman, the others open up easily</p> <p>5. By encouraging them</p> <p>e. 1. _____</p> <p>2. _____</p>
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<p>5. Did your exposure in the villages improve in any way, your understanding of the role of gender issues in Agriculture? In what ways, would you like to see this exposure improved to give you better insights?</p> <p>6. Do you think that a better understanding of the gender issues, specially an appreciation of women's sensitivities, would be</p>	<p>1. No</p> <p>2. Yes</p> <p>3. Women have no role in decision making. In every village meeting a female social worker should voice the demands of the women folk.</p> <p>4. Yes</p> <p>5. Yes</p> <p>1. Yes</p> <p>2. Yes, understanding women's sensitivities is more necessary</p>	<p>3. No, this information can be learnt by experience</p> <p>4. No, this information can be learnt by experience</p> <p>5. Yes, from our Professor</p> <p>1. No, I didn't have any exposure in the villages.</p> <p>2. No, I didn't have any exposure in the villages.</p> <p>3. Yes, my exposure in the villages did improve my understanding. This can further be improved by taking us to various cooperative milk units where women folks do the milking, agricultural farm lands, panchayats etc.</p> <p>4. Yes, my exposure in the villages did improve my understanding. This can further be improved by taking us to various cooperative milk units where women folks do the milking, agricultural farm lands, panchayats etc.</p> <p>5. Yes, it improved. By making women economical, self sufficient, giving ideas to rear cows and to establish backyard poultry.</p> <p>1. Yes, of course appreciation of women's sensitivities will certainly be helpful in professional work.</p>
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<p>helpful in your professional work? In what areas? Be specific.</p>	<p>since women and agriculture (including animal husbandry) are inseparable in developing nations.</p> <ol style="list-style-type: none"><li>3. Yes, a better understanding of the gender would be of great help in human resource management especially in knowing about the case history of animals due to their close association with them.</li><li>4. Sometimes if women are alone in house they hesitate to talk about their animal's health. Without woman there is no agriculture.</li><li>5. Sometimes if women are alone in house they hesitate to talk about their animal's health. Without woman there is no agriculture.</li></ol>	<ol style="list-style-type: none"><li>2. Yes, of course appreciation of women's sensitivities will certainly be helpful in professional work.</li><li>3. Yes in areas like dairying, milking, breeding of pets-dogs, cats, poultry, rearing of sheep, goat and rabbits etc.</li><li>4. Yes in areas like dairying, milking, breeding of pets-dogs, cats, poultry, rearing of sheep, goat and rabbits etc</li><li>5. Yes, there should be special appreciation of women's sensitivities.</li></ol>
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## Appendix IV : Responses of 10 students to the questionnaire Acharya N G Ranga Agricultural University, Hyderabad

Questions	Male students	Female students
<p>1. In your curriculum, did you have any exposure to questions relating to gender in any course? If so, give details.</p> <p>2. Were the multiple roles of women in farming and other operations discussed in any program? Did you have any opportunity in understanding them at the field level?</p> <p>3. In your opinion, should there be any special emphasis on the role of women in various farm activities, land ownership issues, social issues like alcoholism, disparity in wages between men and women, etc.? Where do you think such issues can be discussed in your curriculum?</p>	<p>1. No 2. No 3. No 4. No 5. No</p> <p>1. No, we got an opportunity in understanding them at field level especially the transplanting and weeding in paddy fields. 2. Yes 3. Yes 4. Yes 5. Yes</p> <p>1. Yes, there should certainly more emphasis given to women problems and their right to property etc. and these issues can be discussed in NSS camps and group discussions. 2. Yes, group discussions 3. Yes, such issues could be discussed in voluntary activities like literary programmes, women welfare programmes etc.</p>	<p>1. No 2. No 3. No 4. Yes 5. No</p> <p>1. Yes 2. Yes 3. Yes, Rural Agricultural Work Experience 4. There should be special emphasis on the roles of women and these issues can be incorporated in RAWE programme 5. No we did not get any exposure in the course but during RAWE we could see it at the field level</p> <p>1. Yes 2. Yes, in Rural Agricultural Work Experience and Group Discussions 3. Yes in Economics course 4. Yes 5. Yes, by organising certain discussions and debates and can be discussed with the people in our</p>

<p>4. When you visit villages for field work or other learning experiences, do you have?</p> <p>a. An opportunity to discuss with men and women separately</p> <p>b. In such situations, what are some of the questions you raise?</p> <p>c. Do you find them easily forthcoming with answers, and do you find them comfortable talking to you?</p> <p>d. How do you quickly build rapport with the farmers, specially the women? Give examples where possible.</p> <p>e. Did you get any assistance / information about these issues before you went to the village? If it was inadequate, in what way</p>	<p>4. Yes, there should be emphasis on role of women in land ownership issues, social issues- these should be discussed in RAWE programme and in economics.</p> <p>5. Yes, especially in wage disparity and ownership acts. A short legal course should be introduced.</p> <p>a. 1. Yes, we do get opportunity to deal with men and women separately 2. Yes 3. Yes 4. No 5. No</p> <p>b. 1. We raise this question relating to land, different crops they grow and difficulties in growing them 2. ____ 3. Operational Problems 4. ____ 5. ____</p> <p>c. 1. Initial hesitation but later comfortable 2. Yes 3. Yes, sometimes hesitating 4. ____ 5. ____</p> <p>d. 1. We try to discuss about their family and children and become</p>	<p>RAWE programme.</p> <p>a. 1. Yes, we do get opportunity to deal with men and women separately 2. Yes 3. Yes 4. No 5. Yes</p> <p>b. 1. Regarding wages 2. Wages and health problems 3. ____ 4. Regarding wages and number of working hours in a day 5. About family budget and their problems</p> <p>c. 1. No 2. Yes 3. Yes 4. Yes, they are forthcoming with answers easily 5. No, some of them do not feel comfortable talking to us</p> <p>d. 1. ____</p>
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<p>can this information be provided to you?</p> <p>5. Did your exposure in the villages improve in any way, your understanding of the role of gender issues in Agriculture? In what ways, would you like to see this exposure improved to give you better insights?</p>	<p>close to them</p> <p>2. Yes.</p> <p>3. Informal way, regular visits to make them feel comfortable</p> <p>4. _____</p> <p>5. _____</p> <p>e. 1. Yes, some assistance was given through our teachers as well as seniors but these were insufficient.</p> <p>2. Yes</p> <p>3 No</p> <p>4. No, by introducing village administration topic in the regular curriculum</p> <p>5. No, by introducing a course curriculum on village administration</p> <p>1. Yes exposure to issues like alcoholism, adult education and primary health are some of the areas.</p> <p>2. No</p> <p>3. Yes, men play a major role in most of the important operations</p> <p>4. Yes, by conducting field visits, exhibitions, surveys etc.</p> <p>5. Yes, by conducting visits, surveys, exhibitions etc.</p>	<p>2. _____</p> <p>3. by informal approach</p> <p>4. _____</p> <p>5. We can communicate with them easily by talking to them in the local accent and frequent visits etc.</p> <p>e. 1. No, by explaining in special classes</p> <p>2. Through some classes</p> <p>3. No, this information can be provided by giving this exposure through NSS camps and economics practicals.</p> <p>4. _____</p> <p>5. Yes, some information is given by our professors and seniors. But mostly the position of the local area, their environment was given to us by our AES in the DATT centre.</p> <p>1. Yes, by discussing with experts in this field of extension</p> <p>2. Yes, with village visits or conducting village programmes once in a semester.</p> <p>3. Yes</p> <p>4. _____</p> <p>5. The exposure to the villages and issues of women can be dealt with and also educating them</p>
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<p>6. Do you think that a better understanding of the gender issues, specially an appreciation of women's sensitivities, would be helpful in your professional work? In what areas? Be specific.</p>	<ol style="list-style-type: none"><li>1. Yes, definitely exposure to problems on gender issues would help in understanding women's problems in the agricultural field.</li><li>2. No</li><li>3. Yes, development can be achieved only when both the gender are involved. But certain sensitive issues pertaining to women must be preferably dealt with by women.</li><li>4. _____</li><li>5. Yes, in areas where they can show their skill, mental ability and any other area</li></ol>	<ol style="list-style-type: none"><li>1. Yes, specially in job oppurtunities.</li><li>2. _____</li><li>3. Yes, regarding property rights, wage issues, giving them required education, attitude towrds women.</li><li>4. Yes, in transplanting, weeding operations in the field and regarding our protection in village</li><li>5. _____</li></ol>
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## Appendix V: Responses of 8 students to the questionnaire Tamil Nadu Agricultural University, Coimbatore\*

Questions	Male students
<p>1. In your curriculum, did you have any exposure to</p> <p>1. In your curriculum, did you have any exposure to questions relating to gender in any course? If so, give details.</p>	<p>1. No</p> <p>1. No</p> <p>2. No</p> <p>3. No</p> <p>4. No</p> <p>5. No</p> <p>6. Yes, Rural Sociology and Education Psychology in Extension Education.</p> <p>7. No</p> <p>8. No</p>
<p>2. Were the multiple roles of women in farming and other operations discussed in any program? Did you have any opportunity in understanding them at the field level?</p>	<p>1. Yes, Agronomy, seed technology, Microbiology.</p> <p>2. Yes</p> <p>3. Yes, Agronomy, seed technology, Microbiology.</p> <p>4. Yes</p> <p>5. Women – in all farm operations like sowing, weeding etc.</p> <p>6. No.</p> <p>7. Women – in all farm operations from sowing to market.</p> <p>8. Yes</p>
<p>3. In your opinion, should there be any special emphasis on the role of women in various farm activities, land ownership issues, social issues like alcoholism, disparity in wages between men and women, etc.? Where do you think such issues can be discussed in your curriculum?</p>	<p>1. Yes, there should be special emphasis.</p> <p>2. Agricultural Extension</p> <p>3. Yes, such issues would be discussed in NSS.</p> <p>4. Yes, there should be emphasis.</p> <p>5. Yes, Role of women in influencing men in all aspects.</p> <p>6. Social issues - extension</p> <p>7. Yes, extension</p> <p>8. Extension</p>

\* Received only eight responses all from male students.

4. When you visit villages for field work or other learning experiences, do you have?
  - a. An opportunity to discuss with men and women separately
  - b. In such situations, what are some of the questions you raise?
  - c. Do you find them easily forthcoming with answers, and do you find them comfortable talking to you?
  - d. How do you quickly build rapport with the farmers, specially the women? Give examples where possible.
  - e. Did you get any assistance / information about these issues before you event to the village? If it inadequate, in what way can this information be provided to you?



- a. 1. Yes.  
2. Yes  
3. Yes  
4. Yes  
5. Yes  
6. Yes  
7. Yes  
8. Yes
- b. 1. What do you feel about agriculture in general. Do you need any change in agriculture?  
2. Formal questions  
3. Regarding their involvement in farming.  
4. \_\_\_\_\_  
5. Bio-Data  
6. Both personal and general  
7. Bio-Data  
8. Need for them in farming
- c. 1. Only to some extent, there exists a gap.  
2. Yes  
3. Only to some extent there exists a gap.  
4. Extremely comfortable  
5. Mixed response  
6. Mixed response  
7. Mixed response  
8. Yes
- d. 1. Self-help groups, DWCRA – Details are given at my village stay programme, NSS.  
2. Giving smile and making pleasant talk.  
3. By informing them about self help groups in NSS.  
4. Motherly or sisterly approach and friendly manner.  
5. Self introduction and allow farmers to do most of the talking.  
6. Being friendly and allowing the farmers to do the talking

5. Did your exposure in the villages improve in any way, your understanding of the role of gender issues in Agriculture? In what ways, would you like to see this exposure improved to give you better insights?

6. Do you think that a better understanding of the gender issues, specially an appreciation of women's sensitivities, would be helpful in your professional work? In what areas? Be specific.

● 1 Received only & responses from all male students.

7. Allow farmers to do most of the talking
8. Involving as a family member
- e.
  1. Through orientation programme. It is adequately provide in the form of printed material.
  2. \_\_\_\_\_
  3. Through orientation programme, printed material can be given for keeping it in remembrance and for future reference.
  4. You don't need assistance. It should come along within oneself.
  5. Yes
  6. Yes
  7. Yes
  8. Yes, through / in my village also be provided by meeting TANWA.
    1. Yes, sure
    2. \_\_\_\_\_
    3. Yes, sure
    4. \_\_\_\_\_
    5. Yes, separate study on both genders.
    6. Not much study on the issues.
    7. Yes
    8. Yes, I really understand the importance and it can be improved by giving ownership rights.
      1. \_\_\_\_\_
      2. \_\_\_\_\_
      3. \_\_\_\_\_
      4. Yes, to get rid of them influencing us by their emotions, cries and the love that could also be provided by any man.
      5. Extension method and transfer of technology.
      6. Yes, in transferring technology and making way for adoption.
      7. Extension methods
      8. Yes, adoption of new technologies

# **RECOMMENDATIONS**



# Recommendations

**A**fter the discussions in the two technical sessions on the WHAT (Content) and the HOW (Process) of the curriculum, it was decided to form two groups, with focus on the following issues.

1. Engendering the theoretical component and
2. Revitalising the fieldwork component

It was decided by the groups that the discussion would be guided by the five questions posed by the organisers although at no point should the members be constrained from expressing their point of view or experience.

## Group 1 : Engendering the theoretical component

The group considered the following questions:

1. Do we need a basic course in gender for all students (introductory or foundational)

Or

Is it sufficient to "mainstream" gender in all courses / disciplines / subject areas?

2. What guidelines are needed for selection of content, and what pedagogic processes can be suggested for each content area?
3. What materials and teaching – learning source materials are needed?
4. What kinds of training and orientation are needed for teachers at each level?
5. What procedure should be followed next for engendering the curriculum?

### 1. Gender perspective

- The process of engendering the curriculum cannot be disassociated from the goal of introducing the human dimension into

agricultural education in response to the emerging needs of agriculture, and the role of an agricultural graduate in furthering national goals in the current context of poverty. What the country needs is not mere technocrats geared to production – oriented agriculture; or students pursuing higher echelons of research, but humans with the capability to address technology to further sustainable and equitable development. Engendering would therefore have to be in the context of humanising agriculture, which would legitimise the need for gender awareness.

- The goals of agricultural development in India should move from a commodity – based approach to a resource centered approach. Therefore engendering is also to be considered in the context of natural resource management, sustainable development and livelihood opportunities.
- In this context the group unanimously supported the inclusion of a fundamental course on gender at the undergraduate level.
- To fulfill its purpose, the foundation course has to be (a). a three credit course in the first semester and (b) the orientation

provided by the course should be continued and utilised to mainstream gender in all disciplines of study.

## **2. Content**

- It was agreed that developing the course content was beyond the scope of the current workshop; and a national level content development workshop under the guidance of an expert committee specially constituted for the purpose was felt appropriate.
- Apart from the course content the Committee should also develop an instruction manual for the faculty. This manual could touch upon the tools and topics to be taught in the course.
- It was unanimously felt that the content of the course so developed should be contextual, experiential and exploratory, with about 20% of the course being devoted to theoretical content.

## **3. Process, training and materials**

- On the issue of orienting the teachers to the process of engendering, it was felt that a National level Faculty Development Seminar drawing representatives from all the agricultural universities be organised.
- It was also proposed that this could be the joint effort of NAARM, MSSRF and NRCWA of the ICAR, which should jointly form a working group set by ICAR for the purpose.
- The NLFD seminar could identify a core group, which in turn could conduct orientation, training and capacity building programmes at the level of each university. These programmes would not only address members of several of disciplines, but also take into consideration local issues.
- To enable the effective functioning of the NLFD seminar and the subsequent

orientation programmes, it was felt necessary to form a National - level Resource Group of experts in Gender and Development.

- Institutions focussing on gender studies, Gender Studies Departments in general National Universities and NGOs with reputed fieldwork could be involved as resource persons to strengthen the resource group.
- The resource group could help in orientation of faculty, development of curriculum, resource materials, manuals etc. Regional level resource groups could also be set up if needed.
- The initiative for engendering the curriculum could be supported by the AHRD programme of World Bank / ICAR.

## **4. Procedure**

- There should be meetings twice a year of the various groups to discuss the progress of the curriculum enhancement.
- A data-base of experts could be of immense help in the programme of engendering the curriculum.
- Faculty development should precede the curriculum development.
- ICAR in its Annual report and its report for the Beijing plus five to the National Government should make a mention of this effort.
- The report should be circulated to all Agricultural Universities and State Colleges to encourage all to participate in the process.

## **Group 2 – Revitalising the field work component**

The group considered the following questions:

1. When should RAWE field work be introduced?

## *Recommendations*

2. What orientation is needed?
3. What issues should be selected?
4. How should field work / RAWE be organised?
5. What should students look for? and How should it be recorded?
6. How should the field work and classroom components be integrated?

In considering changes in the undergraduate curriculum, reference was made to the Report on Agricultural Education (1997), which laid down broad guidelines for change. There is scope for modification of the curriculum to sensitize students to gender concerns and integrate them into the programme.

### **1. Rural agricultural work experience (RAWE)**

- is compulsory in all agricultural universities for all degree programmes
- offers 13-18 credits (one semester)
- village stay programme is included
- there is considerable variation of approach across universities and across disciplines
- timing is varied, from second to fourth year

With this background, the following recommendations were made.

The objectives of RAW should be to sensitise students about the problems and concerns of rural men and women and to understand key gender issues in the farming systems.

### **2. Orientation**

It was felt that Faculty and Extension scientists as well as students should be oriented. Keeping in mind the present lack of in-house capability, regional

workshops for orientation of the faculty was suggested

### **3. Selection of issues**

The following items were suggested. The list is not comprehensive

- Key gender issues
- Invisibility of women in rural economy
- Gender division of labour
- Gender relations (gender, caste and class)
- Access and control over resources (land rights, income etc.)
- Women's participation in local institutions and constraints on women's participation
- Gender and technology and impact of development programme
- Employment patterns, wage structures
- Strengthening methodological orientation
- Review of RAWE manual and revising / incorporating gender in the questions to be asked
- Move from quantitative to more qualitative methods
- PRA exercises to be used
- Case Studies can be developed by groups of students and later used for teaching
- Work within existing courses, not only extension

The curriculum will bring about dynamic changes in the classroom since it should be interactive. The voice of the youth should be heard and the teachers will learn from a new perspective. Since social and environmental parameters are changing so rapidly, such a system of teaching is good for both students and teachers.

#### **4. Organising fieldwork**

- It was felt that the duration of the RAWE programme and whether it should be incorporated in the second or fourth year should be left to the individual universities.

#### **5. Observation and recording**

- Existing situation – weekly reports, consolidated report, daily diaries and journals to be used. Guidance should be given in making observations.
- Visual documentation can be used - photo albums, charts, maps, etc for use in exhibitions
- Live programmes, like songs, skits, drama, poems (which can be audio-recorded, if needed) can also be acceptable forms of documentation
- Generating wider debate on salient issues - debates, group discussions, seminars could be used. One strategy is to identify an important issue each year and get students to focus on that in the field
- RAWE is not a programme for proforma filling. Its learning should be linked with other components of the curriculum
- The Krishi Vigyan Kendras should help in supervising students during field work and to carry out their work in a gender sensitive manner.

#### **6. Integrating fieldwork and class room components**

- RAWE should not be viewed in isolation but as a part of the whole curriculum. Other curriculum components should input into RAWE as well as making use of learnings from RAWE.
- Case studies are both outputs and inputs and can hence be tools for learning and integration.
- All disciplines should have inputs into RAWE, and it should not be seen as only concerning extension
- Students should be attached to some NGO working in the area and involved in interventions.
- After field work there should be some time for reflection, and different strategies for reflection, with the help of NGO facilitators, Faculty and gender resource persons.

#### **7. Support**

- Funding agencies (ICAR) should support regional and national training programmes for orientation of the faculty
- Each university should have the support of moving groups of resource persons for development and implementation of engendering of the agricultural curriculum.
- Women students should be encouraged to go to the field without fear of discrimination.

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# **ENGENDERING UNDERGRADUATE AGRICULTURAL EDUCATION**



## **PART II RESOURCE MATERIALS**

# Part II : Resource Materials

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1.	<b>Ahmed, S</b> : Changing Gender Roles in Irrigation Management, Sadguru's Lift Irrigation Co-operatives, <i>Economic and Political Weekly</i> , Vol XXXIV No 51, December 18-24, 1999.	1
2.	<b>Duvvury, Nata</b> : Women and Agriculture in the New Economic Regime <i>Gender, Population &amp; Development</i> (1998); edited by Maithreyi Krishnaraj, Ratna M. Sudarshan and Abusaleh Shariff; Oxford University Press.	25
3.	<b>FAO Focus: Women and Food Security</b> ; Women: Users, Preservers and Managers of Agro – Biodiversity; <i>Food and Agricultural Organization of the United Nations</i> ; <a href="http://www.fao.org/FOCUS/E/Women/Biodiv-e.htm">http://www.fao.org/FOCUS/E/Women/Biodiv-e.htm</a> .	40
5.	<b>Isely, Barbara J</b> : Attitudes about Women's Participation in Agriculture: A Gap in Research and Extension, <i>Indian Farming</i> 38 (8) : 55-59, 1988.	44
6.	<b>Price, Lisa and Brouns, Margo</b> : Meeting the Needs of Farming Women in the Twenty- First Century: The Feminization of Agriculture in Developing Countries, extract from <i>Science by and for Women in Developing Countries</i> , paper presented at UNESCO Network on Women, Science and Technology, The Netherlands, June,1999.	54
7.	<b>Wichtench, Christa</b> : Progress in India but not for Women, <i>source: not found</i>	60
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## **SOME USEFUL ARTICLES**



# Changing Gender Roles in Irrigation Management

## Sadguru's Lift Irrigation Co-operatives

S. Ahmed

**B**ased on fieldwork around three lift-irrigation schemes in Sadguru's project area and their parallel institutional management structure, the lift-irrigation co-operative, this paper examines the role of women on the executive committees of the co-operatives. It tries to assess the extent to which Sadguru's efforts in policy advocacy (enabling women's representation on executive committees) and gender sensitisation (training on gender relations in development for all staff and community workers) have enhanced women's participation in decision-making on the management of community irrigation systems. In addition, the paper examines how agrarian transformation has changed, albeit in limited ways, gender roles and responsibilities in a tribal society, namely, the Bhils of Panchmahals district, Gujarat.

Although development practitioners are increasingly realising that community irrigation planning and management approaches need to take into account gender concerns, women water users' needs and interests are often not clearly understood. Since in most parts of South Asia women do not own land, their participation in water user associations is minimal as membership is contingent upon landownership. However, women are often managing the land in the absence of their menfolk who have migrated, and are making agriculturally related decisions, for example, when to irrigate. But women are rarely officially recognised as 'farmers' and have little access to technical training or institutional support.

The first part of this paper provides a conceptual

overview of the impact of irrigation on gender roles in agriculture and outlines critical issues concerning women's participation in community irrigation management. The second part of the paper looks at the experience of the N M Sadguru Water and Development Foundation, a non-governmental organisation (NGO) in Gujarat, in addressing gender roles and responsibilities in the design and management of lift-irrigation co-operatives in two villages.

### I. Gender roles and irrigation

'Normal' professionalism in irrigation, that is the thinking and practice of irrigation development by 'experts' (technocrats) has largely focused on men as farmers, heads of households, owners of land and major decision-makers regarding irrigation needs. The rural household has traditionally been perceived as a unit of congruent interests, where resources and benefits are shared equitably with little conflict between members. Women in this model of altruism are seen to benefit indirectly as co-farmers through their husbands' rights and access to water. However, there is a growing body of empirical evidence on intra-household relations of co-operation and conflict which looks at the role of bargaining between individuals with different degrees of power [Sen 1990: Kabeer 1991].

There are perhaps three critical reasons for the gender blindness of irrigation policies and approaches. The first concerns the nature of irrigation systems themselves. Since the 1950s

several countries, including India, have made considerable investments to control the available flow of water through the creation of irrigation infrastructure (especially large dams) to primarily meet growing demands for food as well as secondary demands such as energy. Equity in the context of these irrigation systems refers to the spatial distribution of water across the system, i.e., ensuring that all irrigators, particularly end-users, receive the same amount of water in relation to their landholdings.

This conceptualisation does not account for social and economic differences between users – irrigation managers simply supply water as efficiently as they can, irrespective of the wealth status of users or their gender differentiated needs. For example, some farmers may be growing more water-intensive cash crops (sugarcane, paddy) and have access to other inputs (fertilisers, credit) to increase their crop yields. Or women may require water for subsistence crops – typically a few vegetables grown near the homestead – while men may be more concerned that all the water goes to the fields (cash crops).

The second reason concerns the analytical separation between irrigation and agricultural systems which is reflected in the creation of separate ministries and departments dealing with agriculture and irrigation development as well as different knowledge and extension systems. Planning and financial allocations for agriculture, irrigation and rural development are all handled by separate ministries at the centre and state level with little co-ordination or information sharing between them. Not only are most of these bureaucracies male dominated, the concept of farmers' participation, let alone women's participation, is alien to them despite the rhetoric of populist policies. However, there are some positive changes, for example, the participatory irrigation management initiative in Gujarat, though even between advocates of PIM there are mixed opinions as to whether women need to be involved in irrigation management.

Such a narrow focus implicitly underestimates the roles and contributions of women which in most developing societies are more visible (partly because they have been better documented) in agriculture. Yet irrigation contributes to the development of agriculture and has significant impact on the gender division of labour in agriculture. According to Small and Svendsen (1990), the irrigation system is a nested sub-system of larger interlocking systems which include the agricultural system, the rural production system and the political-economy system [in Zwartveen 1994].

The third reason lies in the false, but predominant, division between water for domestic use (drinking, bathing, cooking, washing) and water for productive use (irrigation, industrial), with the former being seen, almost exclusively, as women's responsibility and the latter as men's. This division is reflected in the literature on water resources management with a large body of material addressing the role of women in the design and management of water supply and sanitation infrastructure, their participation in public health and hygiene education and the impact on the quality of their lives and those of their families (see 'Women, Water, Sanitation', *Annual Abstract Journals*, prepared by IRC International Water and Sanitation Centre, the Hague). Correspondingly, the literature on irrigation management and on farmers' participation in water user associations has, with a few exceptions, been essentially gender blind.

Works such as Ostrom (1992) rarely consider gender and equity issues in building sustainable participatory irrigation institutions. Maloney and Raju's (1994) work on irrigation practice and policy in India has a token reference to women towards the end of the book saying that their involvement in water management associations is crucial, but doesn't explain why. However, there is an emerging body of literature, mostly from women in the field of rural development and natural resource management which explicitly looks at gender and equity concerns

## *Changing Gender Roles in Irrigation Management*

in the impact of irrigation and the management of community institutions.

The division between domestic and productive water use is a false one since 'domestic' water may also be used for a variety of income generating activities (both for cash and kind) commonly undertaken by women near their homes: the keeping of small livestock, brewing beer for sale (in several parts of southern Africa), moulding bricks, growing vegetables on homestead plots and so on [Cleaver and Elson 1995:7]. Admittedly, the economic benefits of 'domestic' water use are less easily quantified. Moreover, water for productive use (irrigation) is simultaneously used for a number of domestic purposes such as watering cattle or washing clothes and utensils. Thus, "the most important source of gender differences with respect to water lies not so much in the gender specificity of water uses, but in gender differences with respect to access to and control of water" [Zwarteveen 1997: 1335].

### **Impact of irrigation on gender roles**

To understand the differential impact of irrigation on men and women we need to look at the agricultural production system, which includes an analysis of the gender division of labour in agriculture (who does what work, for how long and on which crops) as well as an analysis of men's and women's access to and control over resources (land, labour, capital) and benefits (how much of the output should be consumed, stored, exchanged or sold, who decides this and who controls income). In addition, we need to look at men's and women's involvement in the construction and maintenance of irrigation systems and their participation in water user organisations, especially in decision-making.

Where women are co-farmers with men they may share similar irrigation related needs – an adequate supply of water for growing one or more crops a year. However, there may be differences of opinion regarding the timing and timeliness of water deliveries. Women often

have to balance other household tasks along with irrigation, and usually find it difficult to irrigate at night because of social norms and security concerns. This is particularly critical in the case of female-headed households who either have to hire agricultural labour or depend on intra-household relations (commonly, sons) and social networks for help during the peak irrigation periods. Moreover, female farmers who grow the same crops as men, and who are thus in principle entitled to receive an equal amount of water, often find it difficult to claim and receive the amount of water they are entitled to, especially when water is scarce [Zwarteveen 1995: 8].

In general, irrigation leads to more agricultural work for women and men (depending on their tasks), but women have to contribute their labour to both cash crops as well as subsistence crops since they are largely responsible for household subsistence needs. Women tend to have less control over the income from cash crops and if most of the land under irrigation goes towards cash crops, then they have to meet subsistence needs through the market which in turn can affect consumption patterns, particularly for women and girls.

A gender assessment study of a Dutch funded lift-irrigation scheme in Andhra Pradesh [Groeveman and Walsum 1994] found that there was more food insecurity for beneficiary households because of the shift to paddy from the traditional coarse grains that had been the staple diet for years and which increasingly had to be purchased. In marginal and landless households, although women were earning more from working for others who had irrigation, they were doing this at the cost of the health for their small children and the schooling of their daughters who were having to shoulder more domestic responsibilities.

A similar impact on the intra-household distribution of income and nutrition was noted in the case of the Mahaweli Ganga irrigation scheme in Sri Lanka initiated in the 1960s



[Schrijvers 1986]. Traditionally, rainfed millet, which women were responsible for cultivating, formed the staple diet. However, land in the settlement area had been allocated to paddy, a cash crop, with men controlling all the income. Women no longer had access to land for rainfed cultivation and had to depend on the paddy crop for feeding their families. Over the years, the area acquired the distinction of having the highest rate of chronic undernutrition in Sri Lanka.

In many instances indirect and quite often positive effects of irrigation on women have been reported. Irrigation can meet women's practical gender needs. Practical gender needs are related to the everyday, immediate conditions of women and men, for example, their need for potable water, shelter, food and income. Projects designed to meet such needs are usually short-term and involve the introduction of inputs – handpumps, smokeless stoves, credit programmes – which can ameliorate their standard of living. Strategic gender interests are related to women's position in society vis-à-vis men and are determined by structures of power.

Irrigation water which is used for other domestic purposes considerably reduces the time women spend in collecting water. Canal irrigation can contribute to the growth of fodder, which is particularly beneficial for women who have cows

or buffaloes and can earn some individually controlled income from the sale of milk (or milk products). In addition, irrigation interventions can have an impact on distress migration since they provide households with opportunities to grow two or three crops a year rather than just depend<sup>6</sup> on one rainfed crop as has been documented in the case study which follows.

### Women's participation in irrigation management

The non-involvement of women, or prioritising of their needs and interests, in irrigation management has become a self-fulfilling prophecy: "Because irrigation is commonly conceived as a male activity, and because women are not seen as direct stakeholders in irrigation systems, they have become excluded from efforts to organise water users. Since women's specific concerns thus remain outside formalised decision-making processes, they are often not recognised as 'real' concerns and remain marginal" [Zwarteveen 1995: 9].

Membership in user groups or associations created to operate and manage irrigation systems is often confined to one member from each beneficiary household, either the official landholder, or the head of the household. Both criteria apply more to men than to women, except in the case of widows or single women with no adult male living in the household.

**Table 1**  
Profiles of Main Villages

Particulars	Bambela	Ranyar (Kanbi)
Total area (ha)	350	855.45
Forest area (ha)	36.06	110.52
Wasteland (ha)	150.51 (including gaucher land)	16.32
Gaucher land (ha)	-	83.67
Total population	1578	2926
Males	778	1499
Females	800	1127
No of households	213	491
Water sources	Handpump, tank and wells	Tanks and handpumps
Market distance	10 kms	5 kms

## *Changing Gender Roles in Irrigation Management*

Even when women do participate in user organisations they face several problems related to their lack of confidence and experience in dealing with irrigation matters in public since most information and training has traditionally been targeted at men. Women find it difficult to bring their needs and opinions forward in an overwhelmingly male-dominated environment, where they feel they may not be listened to or where their voices are over-shadowed by their male counterparts, or where they simply may not be allowed to speak in front of men (especially male elders) for socio-cultural reasons.

Often the costs of participation have to be weighed against the time available to women in their already overburdened work schedules. Women may feel it is not worth the effort to attend meetings, especially if it includes travelling, or if there is a common perception that most important decisions are made by men in informal gatherings. (i.e. outside the official meetings)

This is not to narrate the benefits of women's participation. A study from the Philippines maintains that where both women and men are members of user associations it allows flexibility – either can attend meetings. In addition, women were found to control the cash-flow within households and unless they participated in policy formulation, determination of irrigation fees and collection schedules, associations often faced problems in collecting fees (Illi 1988).

A study of a farmer-managed irrigation system in Nepal (the 'Chhattis Mauja' scheme) noted that the absence of women from water user organisations had a negative effect on management performance because they were

basically free-riders. *De facto* female household heads were using more water than their official entitlement, while at the same time contributing less labour to the maintenance of the irrigation system. However, since they were non-members it was difficult for the organisation to impose their rules on them which, in turn, was affecting the long-term sustainability of the system (Zwarteveen and Neupane 1996).

In sum, there is little doubt that women's participation in community irrigation management institutions is critical to both effective functioning of the organisation as well as the sustainability of the irrigation system. However, there is plenty of scope to enhance the quality of women's participation which may require conscious efforts at a number of different levels. These include adopting different strategies with men and women users, for example, organising women in separate groups or facilitating their participation in technical trainings by making them more accessible and providing child-care if necessary. At another level, there is a need for legitimate space for women's representation on user association despite the fact that they are not legal landholders or heads of households.

The N.M. Sadguru Water and Development Foundation (Sadguru for short) in Panchmahals district, Gujarat, is one NGO which has been experimenting with both approaches in its efforts to enhance women's participation in irrigation management. The rest of this paper briefly describes the organisational context to Sadguru from a gender perspective and then moves on to analyse the impact of lift-irrigation co-operatives on gender roles and responsibilities in two villages where the NGO has been working since the early 1990s.

**Table 2**  
**Profiles of Sub-Village Units**

Particulars	Bambela 2	Chanasar 2	Ranyar (Kanbi)
Total population	850	1500	2300
Males	248	600	1200
Females	239	900	1100
No. of households	88	90	185
No. of faliyas	3	3	1
Caste groups			
Bhils			80
Bhagats	15	30	(including bhagats
Jagat	73	60	and jagats)
Patels	-	-	50
Kolis	-	-	20
Prajapats	-	-	15
Land and water resources			
Total cultivable land (acres)	350	350	252
Land under irrigation	96	70	88
Average size of landholding (acres)	2.5	3	3
Water resources	Tank, handpump and a community well	Tank, handpump and a community well	Tank, handpump and a community well
Village groups	3 mahila mandals	2 mahila mandals 1 mahila mandal,	1 dudh mandal 1 dudh mandal
No. of respondents	20	20	10
Male	10	10	5
Female	10	10	5

*Note: (1) women's self-help groups in these villages are known as 'mahila mandals'. (2) 'Dudh mandal' is the local name for the village level milk co-operative society which, in Gujarat's milk co-operative structure, constitutes the primary milk co-operative society.*

## II. Sadguru organisation

Sadguru was initiated in the mid 1970s in the tribal, rainfed district of Panchmahals in eastern Gujarat through a trust supported by the Mafatlal group of companies (for a more detailed

description of the history of the organisation see Singh and Gupta 1997). Today the organisation has expanded its outreach to the neighbouring districts of southern Rajasthan and western Madhya Pradesh. In all these districts, Sadguru works towards improving water and

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land management practices in tribal communities so as to ensure a more sustainable natural resource base and a better quality of life for the local population through the reduction of high levels of distress migration predominant in this area. The main objectives of Sadguru are as follows (Singh and Gupta 1997 :4) :

1. To improve the living conditions of rural and tribal people and to eradicate their poverty mainly by implementing environment – friendly land and water resources development programmes.
2. To improve the environment through various programmes which in turn improve the natural resources of the area.
3. To reduce the migration of people from rural to urban areas.
4. To improve the health of tribal rural people and to strive for their overall development.

Sadguru's project area has been classified as drought – prone, tribal and agriculturally and economically backward. Until the early 1900s, the area was rich in forest resources, on which the bhils (the tribal people of this area) were largely dependent for their livelihood. However, top-down, profit-motivated colonial and post-colonial forest management policies and practices have led to the depletion of the area's forest resources (Pathak and Ahmed 1996). The consequent degradation of the natural resource base on which people's livelihood depends, coupled with increasing land fragmentation, has caused them to migrate on a seasonal basis to neighbouring cities or more productive agricultural areas in Gujarat (Shylendra and Thomas 1996).

Using water as its main entry point, Sadguru has introduced a range of essentially small-scale technologies to harness the water resources of the region (for example, lift-irrigation and check dams) so that communities can make more productive use of agricultural land by growing two to three crops a year, including cash crops,

instead of the traditional one rainfed, subsistence crop. This, in turn, provides employment and income for the beneficiary population and has an impact on lowering distress migration, especially amongst women. Some beneficiary families continue to migrate if they have an immediate need for cash, but only if they have surplus labour.

In addition to technical inputs, Sadguru has facilitated the creation of a large number of people's institution both to manage community infrastructure (for example, lift-irrigation co-operatives) and to provide services to the local population (e.g. credit societies, women's groups and youth groups). Women have been encouraged to participate in these institutions, particularly in a decision-making capacity and concurrent training and extension activities on technical issues, social awareness and gender relations have gone a considerable way in empowering people to manage and control their own livelihoods.

It is now no longer tenable to see development interventions "as existing in 'the field', divorced from the guiding principles which have formed the organisation's purpose and structure, and determined the choice of staff. Working on gender issues obliges organisations to set their own houses in order, and change aspects of the organisational culture which discriminate against women staff, and women beneficiaries" (Sweetman 1997:2).

At the organisational level, Sadguru is committed to gender sensitisation of its staff, extension workers and community volunteers. Although the impact of gender sensitisation training on the above has not been documented (and was not the purpose of this study), 33 per cent of Sadguru's staff members are female and 50 per cent of its department heads as well as one of its co-directors are women (Vishwanathan and Giri 1997 :12). Apart from maternity benefits and priority housing, female staff have access to office vehicles for field work which does contribute towards their personal

security as they can return late from the field if necessary.

In terms of its various programmes Sadguru has been consciously trying to involve women and men at all stages from inception (site selection, design and construction) to operation and management of community assets. Of the total of 342 honorary village workers, 143 (40 percent are female). All of the 14 agricultural extension workers are women, the nursery raisers are all female and a few women have even become masons (bio-gas construction) and site supervisors. As part of its policy initiative to give women decision-making power, Sadguru now insists that at least 50 per cent of the seats on the executive committees of village forest level institutions are held by women. More recently, along with other NGOs in Gujarat, Sadguru was instrumental in advocating changes to the Gujarat state co-operative laws which recognises only landholders (male heads of households) as members of lift-irrigation co-operatives (LICs). In 1996 the law was amended

to make it mandatory for there to be three women members (one-third representation) on the executive committees of the LICs.

The next section reviews gender relations among the bhil community, the main inhabitants of the project area, looking specifically at women's economic and socio-political roles as these are the ones which have been affected by development interventions such as lift-irrigation.

### III. Gender roles among bhils

#### Economic aspects

Not only is the literature on gender relations among the bhil community of western India rather limited, but more work has been done on the bhils of Rajasthan compared to Gujarat or Madhya Pradesh (Baden 1993). However, a few general observations hold for all three states by and large.

**Table 3**

**Details on Lift Irrigation Co-operative in Sub-Village Units**

Particulars	Bambela 2	Chanasar 2	Ranyar (Kanbi)
Scheme commissioned	1994-95	1992	1993
Beneficiary households	88	90	105
LIC formed	1992	1992	1992
LIC shareholders	99	247	105
Executive members	12	12	12
Women on executive committee	2	2	2
Water price (Rs)	20/hour	200/acre	200/acre
Balance as on December 1997 (Rs)	30,000	50,000	1,00,000
Maintenance expenditure (Rs/year)	15-20,000	21,000	20,000

**Table 4**  
**Women's Reproductive Activity Profile**

<b>Household Activity</b>	<b>Time (approx)</b>	<b>Remarks</b>
<b>Morning</b>		
Heating water	1 hour	Helped by men in most cases
Milk/fetching milk	15 minutes	-do-
Preparing tea	30 minutes	-
House cleaning	30 minutes	-
Fetching water	1 hour	-
Cooking	1 hour	-
Feeding cattle; guarding/ grazing the herd by elder women/men or children	2 hours	Mostly by women; otherwise by elder women/men or children
Feeding children and other family members	1 hour	
<b>Evening</b>		
Milking/fetching milk	15 minutes	
Preparing tea	15 minutes	
House cleaning	30 minutes	Otherwise by children
Cooking	1 hour	Helped by men
Feeding children/other members	1 hour	
Bedding preparation	15 minutes	
<b>Total</b>	<b>10.5 hours</b>	

*Note: There is no household work specified as such for men. This is exclusively seen as women's work, but in villages where there have been development interventions men are increasingly helping women (see the annexure for additional illustration of this point).*

Originally shifting cultivators living in forest areas, the bhils are the third largest tribal group in India. Over a period of several centuries, their subjugation by, and interaction with, invading forces (especially the rajputs, marathas and the British) diluted their political, economic and socio-cultural identity. The British in particular were responsible for large-scale population movements among the bhils, literally pushing them towards settled agriculture through the mechanism of bhil agencies and concurrently, destroying their forest

environments (using the bhils as wage labourers) to meet the timber needs of the colonial state.

Social reform movements aimed at tribals in the 19th and 20th centuries, particularly the Bhagat movement, led to large-scale conversion amongst the bhils and the adoption of orthodox, rigid Hindu customs and practices. Bhagat bhils generally consider themselves superior to jagats (another sub-caste in the area) as they do not smoke, drink alcohol or eat meat.

Bhil villages are divided into 'faliyas' or hamlets which usually correspond to lineage territory, with four or five hamlets forming a village. Houses are generally built in clusters of two to three, close to agricultural fields, with married son(s) living near the father so that they can share labour and agricultural tools such as the plough.

Most bhils are involved in agriculture either as owner-cultivators or labourers, though occupational diversification is increasing (Shylendra and Thomas 1996). Subsistence farming is practised under rainfed conditions with low crop yields highly dependent on the seasonal availability and timeliness of the annual rainfall. Low output agriculture is also related to the poor quality of the soils and low technical inputs (Hiremath and Patel 1996). Earlier landholdings were quite large, but with high population growth and the division of land amongst sons, landholdings have become smaller in size and fragmented. Nearly all bhils own some land though this can range from one to five acres (and in rare cases, more). However, all land titles are in the name of men, even though women do a greater share of the agricultural work in addition to shouldering almost all the household work on their own. In several cases women are the *de facto* managers of the land, particularly in villages where there is no irrigation infrastructure and male migration is still high (female migration rates have always been lower than male).

Most of the literature on the gender division of labour among the bhils is based on Rajasthan and suggests that women carry a heavier work burden than men (Mann 1978; Srivastava and Mathur 1988). Economic decision-making, although difficult to study methodologically, appears to be relatively democratic, that is, the head of the household consults with other family members before making a decision (this tends to include women if the family is living in an independent unit).

Women do move around the village for small

purchases or getting flour ground and occasionally go to the weekly markets (haats) with their husbands. The practice of 'purdah' (covering the head with the sari or 'dupatta') still continues in many areas, especially in front of elder males and male strangers.

Inheritance patterns among the bhils are patrilineal, with land and other property being divided among the sons (usually a son is allocated land at the time of marriage when he may set up his own independent household unit, but, formal land ownership rests with the father until his death). Where there are no sons, property goes to the daughter(s) and maternal property is passed on to married daughters (Baden 1993 : 6).

Marriage is based on bride price and is exogamous (outside the clan). The level of bride price appears to have risen sharply over the years, causing problems of indebtedness for poorer bhils – though some Bhagat families have stopped this practice. Bhils generally tend to marry at an older age and pre-marital relations and polygamy are not uncommon.

### Socio-political aspects

Bhil villages are usually composed of several clans with the 'jati panchayat' (clan or tribe council) deciding upon and enforcing community norms. Women do not participate in the membership (or the meetings) of these traditional organisations even when women's cases are being discussed (for example, on marriage, or in the past, witchcraft). The prime leadership among the bhils is the 'headman' (titles vary with the region – 'patel', 'mukhi', 'tadvi'). This is a hereditary office usually passed on from the father to the eldest son of the principal clan, although other male relatives may be chosen if the eldest son is not considered suitable. However, these traditional forms of leadership and decision-making are not as influential as before partly because of the revitalisation of decentralised institutions of

governance such as the panchayati raj system and the introduction of education as well as the impact of other sources of information (media, migration).

Constitutional amendments in the early 1990s made provisions for one-third of the elected seats in the panchayat to be reserved for women, but the impact of this on women's leadership potential (ability of women to exercise power) is rather mixed. In cases where NGOs have been working with local communities, training women as leaders and creating space to reflect with men about their attitudes to women's participation in the public domain, there are positive examples of women emerging as community leaders.

#### **IV. Study area**

This preliminary study is based on three lift-irrigation schemes, built with the help of Sadguru on request from the villagers of Bambela and Ranyar (kanbi). These two revenue villages have been 'subdivided' by Sadguru for administrative reasons, around the lift-irrigation schemes (LIS) constructed by them. Hence, Bambela has two schemes called Bambela 1 and Bambela 2; and Ranyar (kanbi) has four schemes similarly called, Chanasar 1, Chanasar 2, Chanasar 3 and Ranyar (Kanbi). We have looked at the schemes in Bambela 2, Chanasar 2 and Ranyar (kanbi) which for all practical purposes, and certainly in the perceptions of the villagers now living there are 'independent' villages. Table 1 provides a profile of the two main villages, Bambela and Ranyar (kanbi) while Table 2 profiles the sub-village units (henceforth referred to as villages) selected for the study. Table 3 provides details on the lift-irrigation scheme and LIC formed in each sub-unit (village).

Essentially, Bambela 2 and Chanasar 2 have a predominantly bhil population while in Ranyar (kanbi) although there are numerically more bhil families, the patels are the dominant group and

play a prominent role in village level institutions. The initial phase of the study was based on in-depth interviews with women and men as well as focus group discussions on the impact of agricultural change on gender relations. This has thrown up a number of issues which require further investigation and therefore this paper represents work in progress.

Most of the household work (reproductive labour) in the study area is undertaken by women as Table 4 clearly shows. Reproductive labour or work involves the care and maintenance of the household and its members including bearing and caring for children, food preparation, water and fuel collection and attending to health problems. Although this work is time-consuming and labour-intensive, it is usually undervalued or unpaid and almost always seen as the domain of women and girls. Productive work on the other hand, involves the production of goods and services for consumption and trade, i.e., it generates some income, though women's productive work is less visible and less valued than men's.

An adult woman's day starts at about 4 or 5 a.m and ends between 9 and 10 p.m. Although she is mainly responsible for all the tasks outlined in the table, she is helped in routine course by her children, particularly her daughters, and sometimes by her husband. For example, men may make tea in the morning and often look after the children when their wives are busy cooking.; They also chop the larger pieces of fuelwood and occasionally go to collect water. If women are attending meetings or training programmes, men (or in-laws) cook meals, look after the children and attend to other household tasks.

Agriculture is the main source of livelihood in the study area and Table 5 details the gender distribution of agricultural tasks and responsibilities. The number of hours that men and women spend in agriculture varies according to the size of their landholdings, the crop grown and whether or not they are able to



hire labour. Generally, in the patel households women play a far smaller role in agriculture than in the bhil households where families depend more on their own labour resources. In addition, higher male migration amongst the bhil community has meant that women have a significant role in agriculture and are involved in agricultural decision-making.

Water in the study area is available from a number of different sources including handpumps, tanks and wells, both community and private, and the river through the lift-irrigation schemes and diesel pumpsets

subsidised by Sadguru for those households having land near the river. Both men and women respondents were asked to list the most important water use for them in their order of priority and their responses are shown in Table 6. These are distinct gender differences in the priority given to different water uses, as the table illustrates, which seem to be related to access to the various water sources by men and women (including time spent in collecting water and availability of water).

From the table it can be seen that for women the most important use of water is for cooking

**Table 5**

**Classification of Agricultural Activities Between Men and Women in a Crop Season in Study Area**

<b>Agricultural Activity</b>	<b>MS/FS/Com</b>	<b>Remarks</b>
Seed preparation	Combined	Mostly by women
Land levelling	Combined	
Ploughing	MS Women help	
Sowing	Combined	Mostly by women
Bunding	Combined	Mostly by men
Irrigating	Combined	Mostly by men
Fertiliser spreading	Combined	Mostly by women with children's help
Pesticide spraying	MS	Use of pesticides is limited
Weeding	FS	Helped by men/children
Harvesting	Combined	Helped by other villagers
Threshing	Combined	Mostly by women
Winnowing	FS	
Land clearing (before and after threshing and winnowing)	FS	Men help
Storing grain	FS	Helped by others/children/men
Marketing**	MS	Occasionally combined and also by women alone
Pesticide and fertiliser purchase	MS	-do-
Total	MSA: 4 FSA: 4 COA: 8	

*Note: \*\* Although marketing is a male specific activity, on a few occasions women in small groups go to sell the grains and do shopping for themselves.*

*MS: Male specific; FS: Female specific; MSA: No. of male-specific activities; FSA: No. of female-specific activities; and COA: Total combined activities.*

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purposes since they are chiefly responsible for this task and water collection can involve one or two trips a day (depending on the size of the household), each trip lasting between one and two hours depending on the distance of the household from the water source. While for men,

the most important use of water is for agriculture (irrigation) since they have a more dominant role, here, and it is the most significant source of income for the household (with most men feeling that they are the principal economic providers for their families).

**Table 6**

**Priority Ranking by Male and Female Respondents for Water Use**

Priority Rank	1		2		3		4		5		6	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Drink- ing	32	4	36	20	24	32	8	24	-	16	-	4
Bath- ing	4	12	20	20	24	40	32	12	4	16	16	-
Wash- ing	-	16	4	16	8	24	40	24	32	12	16	8
Cook- ing	-	68	12	20	4	12	8	-	40	-	36	-
For cattle	-	-	8	-	20	-	20	8	40	32	12	60
Agri- culture	64	20	16	24	20	16	-	20	-	12	-	8

*Note: The 50 respondents in the three studied villages were asked to list some of the important uses of water for them. Their spontaneous response was noted in the order of priority, ranked for each water use listed. Figures in percentage are as a per cent of male/female respondents interviewed.*

### Organisation of irrigation

Several studies on Sadguru's approach to the construction of lift-irrigation schemes and the formation of lift-irrigation societies have briefly referred to the scope of people's participation and in a more limited manner, women's participation at all stages (Barik 1991; Whitby 1994; Sihna and Sinha 1996). We have not been able to determine the extent of women's

participation in site selection and construction of the lift-irrigation schemes in the three sites studies, but most of the women interviewed were involved in the construction phase since this is an important source of additional, albeit temporary income. Sadguru does insist on equal pay for equal tasks done by women and men.

Water is lifted from the River Macchan for all three sites to the main distribution chamber

situated at a high location in the command area from where water flows to secondary and tertiary distribution 'kundis' (outlets) through gravity flow. Each LIC has a chairperson (all male in the villages studied) and four to five paid staff, including a secretary, operator, distributor and watchman (these again are all male figures) drawn from the community. The secretary is in charge of overall scheme supervision, financial management and record keeping (minutes of meetings, payments due, electricity bills) while the operator is responsible for the motor and pump operations in the main distribution chamber. The distributor(s)

is responsible for opening the valves at the outlets and supervising the distribution of water according to the pre-determined (by the committee in consultation with users) schedule. The watchman aids in these tasks and ensures that no one is taking water out of turn. All these positions require training and follow-up support from Sadguru staff. The intensity of work, technical and financial skills required and physical distances that need to be covered mean that women often do not have the time for these tasks and they are not yet considered socially appropriate for them.

**Table 7**

**Crops Grown Before and After the Creation of Irrigation Facilities in Study Area**

Season	Before LIS	After LIS
Rainy	Maize, wheat, rice, very few vegetables like beans	Maize, rice, tuvar, urad, jowar, til and a variety of vegetables
Winter	Chana and wheat only by those who have access to tank irrigation or diesel pump	Maize, wheat, chana, barley, grams, several vegetables and fodder crops
Summer		Groundnut, green gram

The water distribution system in these three villages is based on a rotational method which is decided at the beginning of each cropping season. All members wanting irrigation are required to pay an advance ranging from Rs 100 to 300 depending on the size of their landholdings (1-3 acres). The sequencing pattern is decided in the order according to which members pay their advance, thus those who pay first, get water first. However, the system is flexible and can be adjusted according to members' needs. Currently, water prices are Rs 200 per acre per cropping season though Bambela 3 has begun charging on a time basis (Rs 20 per hour) as it leads to less wastage of water.

All the three LICs have devised rules and penalties regarding water distribution, tampering with the outlet valves, maintenance of water channels and so on. Generally, the rules have been formed in response to specific incidents which occurred once the scheme was commissioned (for example, if someone had opened the outlet out of turn or breached his neighbour's channel, or if the distributor was found drunk on duty, etc). The most common problems faced by all the three LICs is the irregular power supply from the Gujarat State Electricity Board. As a result most water is supplied at night and it is difficult to maintain a precise schedule.

### **Irrigation practice and impact**

Irrigation is commonly done by both men and women together, and often by women alone when men have gone on short-term migration. Since most of the irrigation is done at night, because of the unreliable power supply (at the time of the study the villagers were getting about 10 hours of irrigation during the day), women stay in the fields and guard them. Meanwhile, men go along the channels (trenches) to see that they are not blocked (for example, with small stones) digging or cleaning them if necessary, and ensuring that the water is flowing according to schedule. Female-headed households (widows) receive water in the day-time as night watering is difficult for women on their own or without recourse to male labour.

With the advent of irrigation most households are able to grow three crops a year, as Table 7 shows, which not only has implications for their diet but also for their livelihood strategies. Distress migration has reduced from almost 60-70 percent of the households to just a handful of households who have surplus labour and an immediate need for additional income (at the time of marriage or for additional agricultural inputs or to pay for irrigation).

There is little difference between men and women on the subject of crop preferences, both subsistence (pre-LIS) and cash crops (post – LIS) as Table 8 shows. For both men and women, the highest ranked subsistence crop is maize followed by wheat. Rice seems to be of slightly more importance to men than women (ranked three in preferential order) while more women ranked vegetables as their third crop preference choice. In the category of post-irrigation crops with commercial value, wheat is the primary choice for all men and most women (80 per cent). A small percentage of women (20 per cent) also ranked pigeon-pea as their first preference for a cash crop. Both groundnut and gram received equal preference rating from men and women respondents.

In addition to irrigation, water from the kundis is used for watering cattle and washing utensils in two of the villages only, Bambela 2 and Chanasar 2, and the women interviewed here consider this to be an added advantage.

In terms of their nutrition intake all families claimed that their diets had improved considerably (both quantity and quality) and that they were now eating a range of vegetables including brinjal, okhra, pumpkin and beans and had money to buy vegetables they did not grow, for example, onions and potatoes. Women reported that they were eating 1-2 'rotlas' (leavened bread) at each mealtime instead of just half or one earlier. In addition, they felt that morbidity rates had come down – people were not necessarily dying of diseases like typhoid and malaria. There was definitely a perceived increase in health awareness and hygiene. While these are important indicators of socio-economic change according to people's perception, they are difficult to quantify, not least because of the lack of baseline data. Moreover, we did not find much change in eating habits – men were still eating first and usually more than women. Some women maintained that they would eat more frequently (perhaps three meals compared to men having only two meals) as they would eat at mid-day with the children when they returned from school.

Although irrigation has increased women's agricultural workload, there are a few important things to note here. The first is that this is work they would rather be doing than migrating – all the women emphatically stated this – as this is work on their own land, over the output of which they have some control. Secondly, they do have more help from men than earlier since men are migrating only occasionally. However, the degree to which children, particularly girls, could be withdrawn from schools to help women cope with the additional agricultural workload (by sharing the domestic tasks) needs to be further explored. (The literature on structural adjustment indicates that where there have been extensive cuts in public social expenditure, particularly

on health care and education, it is women and girls who have been primarily affected).

## V. Gender roles in irrigation management

All the three lift-irrigation co-operatives studied have two women, out of a total of 12 members on their executive committees as per Sadguru's rules. What follows is based on our discussions, both individually and in groups (pairs) with five of the women committee members, on their perception of their roles and responsibilities and how, in turn these are perceived by their families and the community. In this context, discussions were also held with men, including members of the three LIC committees and other women in the villages. Let us briefly introduce the protagonists.

Valibehn ('behn' is vocative for sister in Gujarat and is used to address both family and non-family members), a member of the Chanasar 2 LIC committee, is in her mid - 30s with three children. She lives with her in-laws as her husband is working with the railways in Ahmedabad, and shares in the agricultural work with her father-in-law. Kasnibehn, in her 40s and a grandmother, is a member of the Bambela 2 LIC committee as well as an 'anganwadi' (day care centre) worker and more recently, was elected vice-chairperson of the newly formed LIC Federation for Jhalod, behn, in her late 30s is also a member of the same committee. And finally we have the two committee members on the Ranyar (kanbi) LIC committee, Protimabehn and Sarlabehn, both in their late 30s and from patel families. Except for Lalitabehn who was nominated to the Bambela 2 committee only two months ago, the other executive members have been on the committee since they were formed in the early / mid 1990s. All have been educated till at least the eighth standard and have attended Sadguru's training on LIC rules and role of women in irrigation.

These women were nominated by representatives of their faliyas and selected almost unanimously, partly because of their level of education compared to other women in the village, and partly due to their known interest and participation in village affairs. However, Sarlabehn and Protimabehn felt that in Ranyar (kanbi) no one else was interested to take on this responsibility because of their domestic workload – "most of the other women saw this as extra work which they felt they could not manage", explained Protimabehn. And do they find it difficult to attend committee meetings? "No, here the meetings are held at 8 p.m., so we have finished our daily housework by then and the chairman's house close by", pointed out Protimabehn. For the other two committees, meetings are generally held in the daytime (early afternoon) so the women have finished some of their housework before attending. It is important to note that these women have some support systems, in-laws or husbands, to look after the children and perhaps cook a meal in their absence (though the degree of support they receive does vary from case to case).

### Perception of women's roles

"Of course, we have a role to play on the committees", replied Valibehn confidently. "Other women, particularly widows and those who are on their own when their husbands have migrated, they can approach us more easily if they have any irrigation-related problems". She reflected for a while and then went on, "What if the household is very poor and the man, because of his low status is not able to speak at the society meetings about his need for water and his inability to pay in advance, then in such cases his wife would find it easier to approach a woman on the committee and explain their critical need".

"Sometimes women may need water when it is not their turn and so they come to us for help", added Kasnibehn. She continued, "Although there is a schedule for water delivery the

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committee is flexible about it, according to people's needs – for example, someone's crop may be ready for water (its brown or burning) and it may not be their turn, so we adjust if we feel it is appropriate and the other farmers don't mind".

Parsingbhai ('bhai' is vocative for brother in Gujarat and is used to address both family and non-family members), the hardworking and committed chairman of the recently formed Jhalod Life Irrigation Federation (LIF) also agreed with the women: "Not only are widows able to approach women members more easily, but sometimes women are on their own when the irrigation season starts and if they are bothered by other farmers – for example, those diverting water to their fields out of turn– then women feel more comfortable to go directly to the women committee members with their problems. If women are on their own, then we tend to give them water during the daytime because night time watering would be difficult for them".

Lalitabehn explained that the reverse is also true : women committee members have access to women farmers, which their male counterparts do not necessarily have.

Hence, they can explain the co-operative rules to them since women have been known to breach these rules, largely because they were unaware of their existence. Or they can share information with the women from the trainings they have attended and find out what kind of problems they have encountered in the delivery and management of irrigation water.

Sevsingbhai and Deera Joka Salod (committee members of Bambela 2 LIC) both felt that reservation for women on the committee was important that the two women members were participating to the best of their ability – regularly

attending meetings and taking part in discussions. "Kasniehn is educated and has learnt many things from Sadguru – she does a lot of development work for the village, so we respect her", said Deerabhai.

"Initially we used to think what was the need for women members on the committee – what good could they do"? explained Kuliabhai, another committee member. "But we soon realised that women could be approached by other women farmers, particularly widows and because their participation was being encouraged by Sadguru we did not have many apprehensions".

In Ranyar (kanbi) the story is somewhat different – Sarlabehn, who was initially interviewed in her own house in the presence of her husband, hardly attends the committee meetings. According to the villagers, mostly men who had gathered around, it is her husband who attends the meetings in her place. He proudly asserted this, "I put forward her name as according to the rules, the committee needed one more woman member. But I mostly attend the meetings in her place". When asked if he shared the proceedings of the meetings with Sarlabehn, he promptly replied, "What is there to share with her – she won't understand anything and besides what will she do with the information!". While the other men laughingly agreed with him, Sarlabehn quietly retreated to the kitchen. (We spoke to her later in Protimabehn's house where she was a lot more forthcoming).

Even Mahendrabhai, the chairman of the LIC committee in Ranyar (kanbi) felt that the women really did not have any role, other than attend the meetings (if at all) because the secretary and he himself were there to solve any problems. "Women are too preoccupied with their household work to have the time to participate actively".

Table 8

## Crop Preferences for Men and Women

Preferential Order	(A) Subsistence and Major Pre-irrigation Crops										(B) Major Post-irrigation Crops with Commercial Value					
	Maize		Wheat		Rice		Vegetables		Wheat		Pigeon-pea		Groundnut		Gram	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1	60	60	40	40	-	-	-	-	100	80	-	20	-	-	-	-
2	40	40	60	60	-	-	-	-	-	20	100	80	-	-	-	-
3	-	-	-	-	60	40	40	60	-	-	-	-	40	40	60	60
4	-	-	-	-	40	60	60	40	-	-	-	-	60	60	40	40

### Conflicts and gender roles in resolution

It takes a while to build a community institution such as an LIC, explained the women, and so in the early years there were several small conflicts because people were generally not aware of the rules. Now we ask people to try and resolve the conflict between themselves or at least at the faliya level, before they approach the committee. We have also devised a system of penalties – fees for different rule violations – so far we have not imposed any fines, though we have threatened a few farmers with fines.

Perhaps the most common conflict occurs when farmers take water out of turn, simply by redirecting the channel to their fields. "This was happening quite frequently", said Valibehn, "so we decided to close the outlet for an hour or so and no one would get any water till they resolved the issue. If necessary the secretary or one of the committee members helps the farmers sort out their differences. I myself have never been directly involved in resolving any of these conflicts and in my opinion most of the wives don't interfere when their husbands are engaged in a dispute. The men realise that they are losing

valuable irrigation time and so when the outlet is reopened they refrain from breaching the channel".

"In our village, Ranyar (kanbi) most of the kundis (six out of 11) have been covered with a wire mesh and locked. The committee decided to do this since people used to tamper with the outlet valves and increase the pressure of water flow to their fields so as to reduce the irrigation time. However, this used to affect the water flow for downstream users", said Protimabehn. People do not use irrigation water for any other purposes here since there are two tanks close by and six handpumps which can be easily accessed by all.

Kasnibehn described an incident that had occurred a couple of years back in Bambela 2 : "Once a farmer was taking water to his field and the channel broke causing water to flood his neighbour's fields. This resulted in the loss of 60 kg of wheat for the neighbour. When the issue came up to the committee we discussed it, but it was not possible for us to provide compensation to the farmer. However, we passed a resolution making it the responsibility of the farmer who is taking water to safeguard

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the channels and ensure the smooth passage of water to his field only”.

Another incident in Bambela 2 illustrates women's increasing role in conflict resolution in the village : last year someone had stolen plates from the pump-house and the women embers of the self-help groups (known locally as, 'mahila mandals', 'or women's organisations) were asked to find a way of 'catching' the culprit. The women decided that no irrigation water should be distributed till the plates were returned and sure enough, shortly thereafter the plates were returned.

While we were talking to Kasnibehn and Lalitabehn a rather agitated farmer turned up with a complaint – it seems it was his turn for water, but another farmer was getting water. How could that be, he demanded. Lalitabehn explained : "You were not there when your turn was meant to start so we decided to give him water as the power supply was working (and everything is contingent on electricity as you very well know). But don't worry, we assure you that as soon as his turn is over we will start with you". And Kasnibehn also supported her, both confidently handling this little incident.

Now that Bambela 2 has shifted to a time-based pricing system for irrigation (see next section) committee members feel that water wastage has reduced considerably – farmers guard the water flowing to their fields and make optimum use of water during the stipulated time.

### **Are women heard in meetings?**

As mentioned earlier, membership in LICs is contingent on land ownership and except for a few women members ( about 3-5 in each scheme area, mostly widows) all the members are male heads of households. However, Kasnibehn explained that women were not excluded from LIC meetings simply because they were not officially members. In both Bambela 2 and Chanasar 2, about 25 to 50

percent of those who attend meetings are women, sometimes because their menfolk have migrated and otherwise, because they are interested and want to know what is going on. Women are considered unofficial or informal members because they do have a major role to play in agriculture, a fact which is acknowledged by both men and women. In Ranyar (kanbi), since women's role in agriculture is only secondary, they do not attend LIC meetings and are not expected to either.

Part of the reason for women's reportedly high attendance at these meetings can be attributed to the parallel efforts by Sadguru in facilitating women's self-help groups in their project area. In addition to regular savings activities, these groups have been discussing and organising around a number of issues which concern women in the study area, for example, alcoholism, polygamy and violence against women. Many women have also begun taking loans for the purchase of fertilisers, pesticides and other inputs to enhance their agricultural production. The mahila mandal meetings also provide a forum for the women to hear from the female representatives on the LIC committees about irrigation related issues.

However, attendance at meetings is only one indicator of women's informal participation in irrigation management – although it does not tell us anything about the quality of their participation, it is an important beginning because women are at least getting access to some information from attending these meetings. It is difficult to judge the extent to which women do speak or even if their voices are heard in these meetings without actually observing them (which has not been possible during this fieldwork). But Kasnibehn described how at a recent meeting she got up and told the mebers present that the LIC should change their water pricing system from a per acreage basis to per hour.

“There was too much of water wastage going on under the acreage system to after attending



a meeting at Sadguru, I returned and told the members that we should start charging water on a per hour basis. All the members heard me and agreed with what I had to say, so today we are charging for water at the rate of Rs. 20 per hour”.

However, Kasnibehn’s voice was not so easily heard at the monthly meeting of the LIC (December 30, 1997) at Sadguru’s offices in Jhalod. Out of the 30 members present (representing various clusters of LICs), only four were women (including Kasnibehn). It was observed that whenever she tried to put forward her views (she is the vice-chariperson) on the issue being discussed (for example, problems in electricity supply), she was interrupted by two higher caste men whose voices were the loudest at the meeting. It seemed that some members from the bhil community were also not being heard, but when they later broke up into small group discussions and then presented their views to the general body, their opinions were heard. Although the women’s view points, at least in this meeting, were not given the same space, this is gradually changing.

Kasnibehn asked that a minimum of one women from each member village must attend LIF meetings so that their physical presence increases and she does not find that she is on her own.

Kasnibehn feels that occasionally the practice of purdah (known locally as gunghat) which is not uncommon in these areas can be an obstacle to women’s effective participation in meetings because it is difficult for women to have eye contact with others when stressing a point. Women also find it an impediment in their day-to-day activities – holding the sari over their head with one hand and trying to work with the other in front of men.

## **VI. Changing gender roles?**

There is no doubt that interventions such as lift irrigation have dramatically transformed the lives

of beneficiaries. Where once people had been migrating and supplementing their diet, whenever possible, with the purchase of essential food items, they are now meeting most of their dietary needs and have some agricultural surplus to sell. In most beneficiary households, women have stopped migrating, but male migration is still considered a supplementary source of income, at times of critical needs, for those families which have surplus labour.

For the women we met, life is far more content and peaceful now. Their memories of migration were painful ones – hard, cold pavements, barely a roof over their heads, having to cope with strenuous physical work as well as looking after their children and preparing meals in strange environments where they could be subject to physical harassment. They did not ‘miss’ the big lights of the city or entertainment such as the cinema – “we never had money or time for these things” they laughed.

“Now we can send our children to school regularly, we are able to buy clothes, make our houses pucca and save money to put back into agriculture (buy new seeds, fertilisers, pesticides). More importantly, we are able to feed ourselves throughout the year”.

These qualitative changes in people’s livelihoods, combined with Sadguru’s efforts in organising and sensitising women and men, have gradually led to the restructuring of gender relations for some, but definitely not all households. In fact, changes in gender roles are more apparent amongst the bhil community of Bambela 2 and Chanasar 2, than the patels of Ranyar (kanbi). Kasnibehn and Lalitabehn described what they felt:

“There have been several subtle, but noticeable changes in the last five years, mostly related to the fact that people’s sources of livelihood have become more secure. Earlier there used to be a lot of fights between men and women – a man would simply order his wife to go and make tea or cook the vegetables. If they didn’t do this

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properly the men would beat them. But now many women go with their husbands or in groups of their own and there are far fewer restrictions on their mobility”.

On a more personal note, Kasnibehn added : “Since my childhood I have had this urge to do something for the community. They believe me because I believe in them and try to help them solve their problems. My most important priority is to provide education for the girls in the village”.

The Chanasar 2 LIC secretary, Harsinghbhai, felt that the difference in women's status now and what it was in the past is so immense, it is as different (or as wide as the distance between) as the earth and the sky (‘zamin aur asman ka farakh ahi’) : “Earlier our women would never talk to strangers, they would withdraw inside the house, perhaps go to make tea. But now they are curious – they come out to see who is visiting and why. Their participation on the committees has made them stronger and given them greater self-confidence. Their menfolk also feel good about it – they feel that they get social recognition through their wives now”.

Although Harsinghbhai's views are shared by the women and men of Bambela 2 and Chanasar 2, in Ranyar (kanbi) there has been little change in the socio-political status (decision-making roles) of Protimabehn and Sarlabehn. Their husbands are quite indifferent to their participation in the LIC committees and do not share in any of the domestic work, or as in the case of Sarlabehn, encourage them to attend meetings. Because of their marginal role in agriculture these women themselves were found to be less interested in actively participating in irrigation management, though they appeared to be aware of the general rules and conflict related issues.

In sum, this exploratory study indicates that for women who are primarily involved in agriculture, representation on community irrigation institutions is critical as they often have to

manage irrigation on their own because they are either *de jure* or *de facto* heads of households. Since membership in LICs is contingent on landownership and restricted to one person from each beneficiary household, women have little chance to become formal members of LICs unless state co-operative laws are further amended. Sadguru itself is not in a position to do this, but it can certainly network with NGOs which are engaged in policy advocacy and hope that forthcoming political changes have a bearing on the quagmire of co-operative laws.

Meanwhile, women's participation in meetings, even if they are not members should be facilitated as it contributes to their awareness about rules and their rights and responsibilities. In our preliminary analysis there seems to be little support at the community level for joint membership of the LICs – the reason being that someone has to stay home to look after the children or do the housework (which is usually seen as women's role) and that in any case women who want to can attend the meetings. But membership does give women a decision-making role and this is important in a context where irrigation has significantly changed people's livelihoods.

For the women who are members of the executive committees, Sadguru needs to work more towards strengthening the quality of their participation which may necessitate further and parallel gender sensitisation efforts with men in the community. The fact that at a policy level Sadguru is planning to increase women's representation on the LIC committees to 50 per cent is important as is the need for more women, like Kasnibehn, to take up office-bearing positions which bring them more visibility. Women may not have the time or financial and technical skills to be secretaries, pump operators or water distributors but they can certainly be trained in these areas so that they can at least check that the concerned persons are undertaking their tasks responsibly. On the other hand, women could be encouraged to

stand for the post of LIC chairperson which is not so time consuming and has considerable 'power' (symbolic) or status associated with it. The neighbouring hamlet of Chanasar 3 recently elected its first – and first in the history of Sadguru's efforts – woman as chairperson through voting (the other candidate for the post was a man). Such women leaders need to be nurtured as they can act as role models for other women in a context where there are very few women grass roots leaders who can be emulated.

In conclusion, using irrigation as a critical entry point, Sadguru has been effectively able to meet women's practical gender needs for water, an assured supply of food, fodder and fuel (crop residues) and income. Although women's participation in irrigation management varies depending on the extent to which they are

involved in agriculture, the bhil women of the Bambela 2 and Chanasar 2 LIC committees have shown that gender differences play a part in mediating people's access and control of water resources. Their keen participation in irrigation management and other community issues have given them a new confidence and enhanced their self image. However, the extent to which economic empowerment can be translated into social and political empowerment (greater control over productive resources and decision-making) remains to be seen. Addressing strategic gender interests is not only a longer process, but also requires working at multiple levels including households, communities and institutions at the micro level as well as with the policy planning and implementation apparatus both at the level of the state (national) and increasingly, in the global arena.

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## ANNEXURE

Sadguru conducted two-day training on gender awareness in October 1997, for 23 men and 16 women from the villages of Bambela, Chanasar, Sampoi, Tandi and Gheswa. During the workshop an attempt was made to capture the impressions of the participants of the impact of development intervention on gender roles in household work, agriculture work and social and community activities. As can be seen in the following illustration the number of days spent by men and women on each of these activities in a year were counted. A significant increase in the number of days spent by men at domestic work after the intervention can be seen. At the same time, women's time in agriculture and community activities has increased indicating the impact of irrigation and their changing status in the family and society after the interventions.

Although the table shows an increase in women's household work, this has to be seen in a context where migration is minimal. When migrating, women would not have had to do much household work as the house would have been a temporary structure, a very basic shelter. But, with irrigation the quality and quantity of food has improved requiring more time for preparation. Moreover, some families have gone in for dairying and installation of biogas units both for cooking purposes and production of slurry. These development interventions can also have an impact on the workload.

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**Annexure Table : Number of days in a year spent by men and women in different types of work**

Type of Work	Before Intervention		After Intervention	
	Men	Women	Men	Women
Household work	50	127	150	214
Agriculture work	77	68	168	160
Social and community work	118	58	168	144

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# Women and Agriculture in the New Economic Regime

Nata Duvvury

In our paper, we shall attempt to draw out the implications of the structural adjustment programme for women, with a special focus on the likely changes in agriculture, as a significant proportion of Indian women still primarily depend on agriculture for their survival. A detailed assessment of the impact of the new policies is made difficult by the fact that many policy changes with regard to the agrarian sector specifically are still unfolding. In addition, there is a time lag of two to three years in availability of data. Further, at present there is very little disaggregated data available, gender wise, from the national statistical agencies. Yet with existing data and available trends we can speculate on the likely direction of change.

It is commonly known that changes in agricultural growth and prices have a direct relation to poverty. Ninan (1994) has shown the strong relation between the incidence of poverty on the one hand, and agricultural output, prices, and the public distribution system (PDS) on the other. His analysis also showed that there had been a sharp decline in the per cent of the poor as a result of the sharp increase in agricultural output between 1981-2 and 1991-2. But this trend now seems to be arrested as evident from Table 10.1.

The rise in the poor has been the sharpest in the rural areas. There has been some discussion in the literature as to what extent responsibility can be fixed on the new economic policies for this upsurge in rural poverty. It is argued that the new policy initiatives, largely limited to the urban organized sector, have little or no impact on the agricultural sector or on rural non-agricultural activities (Bhagwati and Srinivasan, 1995). However, the spurt in prices, especially the sharp increase in food prices, cannot be attributed solely to a downturn in agricultural production. In fact, in the last two years the increase in procurement prices has been well above the costs of production. Secondly, the cutback in PDS is one measure of the new economic policy. The cutbacks on the PDS has had two effects: a) the differential between the open market price and the PDS rate has virtually disappeared, and b) there has been a severe reduction in the quantity disbursed. In Andhra Pradesh the family quota was cut from 25 kg to 16 kg and the issue price was increased from Rs 2.00 to Rs 5.37 in one year (1991-92). Undoubtedly there has been a cutback in the food subsidy to the consumer and in combination with rising foodgrain prices, this has had a direct impact on the rural sector

**Table 10.1**

**Incidence of poverty, 1989 - 90 to 1994-95**

	89-90	90-91	91-92	92-93	93-94	94-95
Rural	33.7	35.0	40.0	41.7	39.7	40.7
Urban	36.0	37.0	37.6	37.8	37.8	36.6
Combined	34.3	35.6	39.4	40.7	39.2	39.6

*Note: Figures for 1989 -90 and 1990-91 are based on NSS data. For other years estimated by Expert Committee, Planning Commission.*

*Source : Yechuri (1995)*

as reflected in the increase in the incidence of poor households.

Women, it is widely acknowledged, constitute a significant section of the poor. Estimates for 1987-88 indicate that nearly 42 per cent of women in rural areas were income poor (Tendulkar and Jain, 1995). Two-thirds of female agricultural labourers are below the poverty line according to the NSS. Female-headed households constitute about 35 per cent of poor households. It would not be unlikely that women constitute a majority of this increased poor in the last five years.

The high rate of inflation would have adversely affected women as they shoulder the burden of provisioning for the family and as they also often cutback on their own consumption to manage dwindling resources. Daily household work also increases as there is a tendency to curtail expenditure on items which could be produced by one's own labour. Pickling, servicing, repairing, etc., become increasingly important time consuming activities substituting for commodities available in the market. As remarked earlier the tightening of the PDS has meant a reduction in food availability in rural areas. This is especially very serious in the context of declining per capita monthly consumption of cereals that has been established for the period between 1963-64 and 1989-90 (Geeta and Suryanarayana, 1993). The nutritional impact of such a situation for women is too well-known to elaborate.

Stabilization policies have also effected a contraction in expenditures on special programmes that provide income support to the poor. Evidence indicates that there has been a reduction in government outlays, in real terms, on poverty-alleviation programmes. According to Swaminathan and Ramachandran (1993), the percentage reduction on poverty alleviation programmes was higher than that of overall development expenditure in the first year of stabilization. There has been real reduction in expenditure, despite increase in allocation in

nominal terms, on both the Integrated Rural Development Programme (IRDP) and Jawahar Rozgar Yojna (JRY) Programme between 1991 and 1995. In fact, the number of families assisted annually under IRDP has declined from 3.35 million to 2 million between 1989 and 1994. Similarly, in the case of JRY, the number of person-days of employment generated has declined from 864 million days to 778 between 1989-90 and 1992-93. Though there was an increase in 1993-94, to 1023 million person-days (may be due to election pressure); in the next year, however, only 470.6 million person-days have been generated up to November, 1994 (Gupta 1995). While this quantum of employment translates into 10 to 15 days a year per person, this additional off-season employment is very critical to the survival of poor households.

For the poor, daily living has been made equally hard by the reduction in social services as part of stabilization and adjustment policies. Overall allocation on rural development and social sectors (education, health, family planning, etc.) as a proportion of central plan outlay declined from an average of 16.1 per cent between 1987-88 to 1990-91 to 15.7 per cent and 14.1 per cent in the next two consecutive years (Nayyar, 1993). Expenditure on rural development and medical and health services declined in real terms. Even the increase in the allocation for social sectors in the 1994-95 and 1995-96 budgets (10.8 and 10.2 per cent respectively over the previous year) is eroded by inflation.

As a large part of expenditure on education and health comes from state budgets, state-level expenditures also have to be taken into account. From the mid-seventies to 1992, there had been an increase in real per capita expenditure by states on social sectors. It increased on an average from Rs 281 to Rs 578 in the case of 17 major states. However, the rate of increase decelerated between 1985-86 to 1991-92 (Seetha Prabhu and Chatterjee 1993). Further, there has been a reduction in the share of social sectors in total development

expenditure of the states over the last three years which is likely to further decline with decreasing transfer of resources from the centre to the states (Seetha Prabhu 1994).

The overall cut in social services will severely affect the poor, who depend on such services, as it will reduce inevitably, not only the availability and quality of such services, but also increase their cost. Further, it will imply a greater burden on women who are responsible for provisioning of the family-whether it be water or childcare or health care. The stabilization and adjustment policies so far have, in effect, placed the burden of macro-economic balance more on the shoulders of women. It is of course argued that this is a temporary cost to bear until the economy sets off on a higher growth trajectory once the structural adjustment policies come into full play.

### **Reforms package for agriculture**

The structural adjustment package attempts a fundamental restructuring of the economy, so as to make it responsive to international market signals. The resultant inflows of foreign investment funds and increase in productivity and efficiency are expected to result in higher labour productivity and efficiency and thereby push the economy on to a higher trajectory of growth. To implement the SAP, the government has initiated a series of policy reforms in the agriculture, industry, trade, and financial sectors, to alter the basic dynamics of the domestic economy. The various policies in the different sectors of the economy are still unfolding and the specific impacts are difficult to assess as yet. We shall here focus primarily on the changes in agriculture as it is the most critical sector for a large section of the population.

In agriculture the set of reforms being envisioned are (1) removal of input subsidies on fertilizers, irrigation, electricity and credit over time; (2) realigning domestic prices with international prices by removing all trade restrictions; (3)

unification of prices so that dual markets in foodgrains and other agricultural commodities are eliminated; (4) removal of restrictions on production and marketing choices and (5) incentives for the expansion of agri-business. The basic thrust of these measures is to push larger sections of the agrarian population into the logic of the market. It is expected that with appropriate trade exchange rate reforms, the set of tradeable goods will increase.

The critical block to agricultural growth is the level of investment in agriculture.

### **Capital formation in agriculture**

During the 1960s and 1970s, the annual rate of growth in capital formation was between 5 and 6 per cent. This investment not only developed infrastructure, but was of use also in public research and extension, which have greatly contributed to the productivity increases reflected in the eighties (Hanumantha Rao and Gulati 1994). The step-up of growth in agricultural production in the eighties can be seen as a return to this fairly high and steady rate of capital formation. However, a worrying feature is that in the 80s, capital formation sharply decelerated to -0.9 per cent annually. This was largely due to sharp reductions in capital formation on government account. Real capital formation on government account declined at 3.3 per cent in the eighties (Gulati and Sharma, 1994). Public investment in infrastructure, especially irrigation, has stagnated in the eighties. With more than two-thirds of agricultural production still rain-fed, it is hard to imagine how agricultural output will rapidly expand. Further, it has been widely noted in the Indian context that public investment crowds-in rather than crowds-out private investment. Given this complementary relationship, it is not surprising that private investment decelerated in the 1980s.

Despite the fact that private investment in agriculture depends critically on the supply of



credit, the government has been eager to implement financial reforms as part of the overall reforms package. An integral element of financial reforms to increase the efficiency and profitability of the banking sector is the disinvolvement of the commercial banking sector in rural credit. A justification for this policy change is that only a small percentage of farmers avail of bank credit and that two thirds of the credit goes to large farmers. In other words the small and marginal farmers do not need subsidized credit as they already borrow from other sources on harsh terms (Narayana 1993). This is particularly twisted logic given the wide consensus that it is the small and marginal farmers who are more productive and policies need to improve their viability. And Krishnaswamy (1994) points out that overdues in rural banks are neither unduly high nor inevitable. To develop infrastructure and disseminate modern methods of production on a wider basis, what is actually needed is a greater supply of credit on subsidized interest rates. It is too early to comment on the extent to which the rural banking structure under NABARD will be effective in giving a fillip to rural infrastructure. A suggestion by Guban (1995) to integrate and co-ordinate all programmes for area development, including JRY, under the NABARD fund for rural infrastructure is a sensible option that should be considered.

### **Input subsidies**

Apart from credit, private investment also depends critically on the supply of other inputs such as electricity and water. Overall input subsidies for electricity, water, fertilizers and credit have risen between 1982-83 and 1992-93. Gulati and Sharma (1995) have estimated that the increase was 1.24 per cent of GDP to 2.18 in the period under one estimation procedure, and 2.13 to 2.73 under an alternative procedure in the same period. Water and electricity accounted for roughly about 60 per cent of the subsidies in 1992-93. Under the

new reforms package, given the emphasis on market logic, it is being strongly argued that these subsidies for electricity and water have to be drastically reduced. The most common measure suggested is that the rates charged for water and electricity have to be significantly revised upwards.

The debate on appropriate water charges has been a long-standing one in Indian agriculture. It has been recognized that recovery rates should cover not only working expenses but also part of the capital costs. The Vaidyanathan Committee has recommended the raising of the average water rate from the existing Rs.50 per hectare to Rs.310 per hectare. It also recommended that there should be volumetric pricing of canal waters. This is essential as there is sufficient empirical evidence to suggest that the existing policies on water have led to (a) gross misuse of this scarce resource with the distortion in the cropping pattern favouring water-intensive crops, (b) exacerbated regional inequality with the headreach areas cornering the major share of water, and (c) intensified environmental degradation with increased waterlogging, salinity and depletion of the ground water table. To counter these effects, revision of the water charges will in itself be completely effective. An appropriate institutional framework emphasizing the farmers management of irrigation systems has been recommended by the Vaidyanathan Committee both to ensure more efficient utilization, as well as, better maintenance of the irrigation system. The potential for sustained agricultural growth will critically depend on the extent to which this mixture of price and institutional reforms are implemented.

A similar set of problems is associated with the subsidy on electricity. Distortion in pricing of this input has led to depletion of public funds and the emergence of environmental problems. Cheap electricity has encouraged the excessive depiction by pumping of groundwater leading to serious environmental problems. In this case also, a revision of rates is commonly accepted

but this should be in an institutional context of ensuring supply in a reliable and adequate manner. The decision to allow private producers and distributors in the supply of electricity is a contentious issue and there is concern that the agricultural sector will be at a disadvantage in such a situation.

It is finally the issue of fertilizer subsidy that has been the most hotly debated among the structural adjustments. A feature of agricultural growth in the eighties is the increasing contribution of productivity to growth of agricultural output (Sewant and Achuthan 1995). Input subsidies on water, electricity and fertilizers did encourage the spread of HYV technology. More importantly fertilizer consumption has been quite widespread on 85 per cent of irrigated land and 50 per cent of dry land narrowing the irrigated-rainfed differential in fertilizer use (Hanumantha Rao and Gulati 1994). The eighties was characterized by the rampant use of fertilizers-with intensity of fertilizer use increasing from 3 kg per hectare in the 1960s, to 16 kg in the 1970s, to 34 kg in the 1980s, to 70 kg in the early 1990s [ibid.: A-165]. It has also been argued that there has been a skewed consumption in the different components of fertilizers leading to serious environmental consequences. Given these environmental effects and the fact that the effectiveness of fertilizer use in improving yields has reached a plateau, it is argued that the removal of the fertilizer subsidy will increase the use of bio-fertilizers and biotechnology. However, it should be noted that there are still regions and crops where the marginal utility of fertilizer use is still significant. The fertilizer pricing policy has to take into consideration this differential impact of fertilizer use.

While there is little disagreement that input subsidies have to be reduced, there is still no clear understanding as to what extent market forces will correct the current 'misallocation of resources'. If price relatives favour water-intense crops or chemical fertilizers there will be little impact on misutilization in a broader social/

environmental framework. Interventions by the state may be still necessary to correct deviations from equity and environmental norms. Gulati and Sharma (1995) have shown that agriculture in India is net taxed rather than subsidized or, on the whole, terms of trade have been against agriculture.

## **Globalization and agriculture**

Changes in the trade policy are formulated to increase the export orientation of the economy. Over the past three decades, the main objectives of policies concerning agriculture were to promote food security, maintain domestic prices at levels commensurate with average income levels and impart stability to domestic prices. Today, there is a distinct shift to policies which would open up the economy,—including the agricultural sector. It is argued that if domestic prices are brought in line with international prices, the terms of trade would move in favour of agriculture and the comparative advantage of India in selected crops can boost up exports.

Recent changes have included the decanalization of trade in almost all commodities except for cereals, oilseeds, edible oils and onions. Quantitative restrictions on agricultural trade flows have also been dismantled. However, this has not been universal for all agricultural exports—for some such as paddy, copra, oil cakes, etc. licensing is still operative and for others such as sugar and cotton, quantity restrictions are operative. Groundnuts, guar gum and tobacco are subject to minimum export prices. These changes are only initial steps and it is expected that given the signing of GATT, other measures such as tariff reduction and further removal of quantitative and licensing restrictions will follow shortly.

To what extent can these changes increase agricultural exports? It is commonly argued that India has a distinct comparative advantage as the prices of many of its agricultural products

that are tradeables, are well-below international prices. Nayar and Sen (1994) however argue that the situation is not so simplistic. As India is a large producer of, and consumer of, many of these commodities, therefore its entry into world trade may significantly affect international prices. They further argue that India's domestic price relatives have been increasingly divergent from world price relatives, so that India's entry into world agricultural trade would have repercussions on both world and Indian price relatives. In fact, it is likely that the terms of trade would worsen, with prices of exports such as rice and cotton falling and prices of imports such as sugar and groundnut hardening on account of rising Indian demand. Devaluation may become necessary to maintain a comparative advantage as world prices fall. Internationally, the experience of the past decade has been that the terms of trade have moved against agriculture, with more countries competing in the world agricultural trade to increase export earnings. And with the implementation of the Uruguay round there may be a significant alteration in the world price structure which should be considered.

Thus the extent to which there will be a sustained upsurge of Indian agricultural exports is difficult to predict. Agricultural exports did sharply pick up from a level of about Rs.3900 crores in 1991-92 and 1992-93 to about Rs.5527 crores in 1993-94 (CMIE 1995). In the following year however there has been a slight dip to Rs.5339 crores. Given the depreciation in the rupee value in dollar terms, the growth may have been even slower. Another perceivable trend is that there is an increasing diversification of the agricultural export commodities basket in the recent years. In 1989-90 other exports, apart from rice, cotton and tea, accounted for about one-third of total agricultural exports. This figure has steadily increased upto to 55 percent in 1994-95. An NCAER study has shown that India has a comparative advantage in major cereals, fruits, vegetables, and their processed products. It has also concluded that fish and fish

preparations will also be a leading export item (Gulati and Sharma 1994).

## **Cropping pattern**

As part of the reforms to encourage agri-business many states have begun to dismantle their land legislations. Maharashtra has exempted horticulture projects from land ceiling legislation. Madhya Pradesh is offering land on long-term leases of at least 40 years to private industry. Karnataka has also proposed to reform its land legislation to exempt agri-business. In Andhra Pradesh and Tamil Nadu private corporations are allowed to acquire over 300 acres for prawn cultivation. In other words, plantation type of agriculture is being extended to the heartland of Indian agriculture. Consolidation of landholdings is certainly required to a certain extent, given the high fragmentation of lands at present. With even government wastelands being offered to agri-business, the long standing demand of the women's movement for land distribution and joint holdings in women's names becomes more difficult to achieve. But to what extent will the concentration in agriculture improve the lives of the rural poor is yet to unfold. An example of the pitfalls of transition has become evident in Andhra Pradesh. Here prawn lands, which have been leased out by small farmers are now completely useless for any other cultivation. During the last year a major disease affected prawns in Nellore. Exporters who had leased this land were unable to withstand the crisis and cut their losses. This left the small farmers with lands that were once green rice fields and are now gaping holes. Most of them do not have the required capital to reinvest in their lands. Thus the inherent callousness of the market has to be taken into consideration, when agricultural fields are turned over to business interests.

Changes in the cropping pattern are discernible reflecting the changing profitability profile of crops. In the last decade the beginning of a

shift from foodgrain to non-foodgrain crops was evident at the all India level. This was particularly sharp in the southern states of Andhra Pradesh, Tamil Nadu, Karnataka and Kerala. There has been a shift in these states to oilseeds such as sunflower, coconuts, horticulture, orchards, flowers, shrimp, eucalyptus, etc. By contrast, the area under rice has been declining in all the four southern states. The shift to non-foodgrains in the other states is still negligible. The pull of the market is certainly beginning to make an impact on the agrarian sector.

### **Changing contours of women's work in agriculture**

The precise impact of the ongoing changes in agriculture for the livelihood of rural women, will depend on how the profile of female agricultural work changes. Their employment opportunities are not only dependent on demand for labour consequent to cropping changes, but also depend on the forms of labour recruitment, as well as, the extent of substitution between male and female labour. We examine some of these aspects below.

### **Women as cultivators**

As pointed out earlier, women are primarily dependent on agriculture for sustenance. Data from the 1991 Census indicates a sharp increase in the number of women reporting as cultivators. An examination of the growth of female cultivators at a district level reveals some interesting trends. The districts of the North-west spreading over Rajasthan, Punjab, Haryana and western Uttar Pradesh experienced the highest growth in female cultivators in the range of 54.66 per cent to above 109.43 percent in the decade. Even parts of Bihar and West Bengal have had a growth higher than 109 per cent. It must be remembered, however, that the very districts which have had the highest growth in the

number of female cultivators, are also the same district, with the lowest participation rates. It is not unlikely, therefore that the sharp increase between 1981 and 1991 in the number of cultivators is to a large extent statistical, i.e. the Census authorities have enumerated better the family labour deployed in cultivation. In South India, Madhya Pradesh and Maharashtra, where the participation rate of women is already fairly high, the increase in cultivators is more moderate, primarily in the range of 27 to 54 per cent. Even in these areas, part of the increase may be partly attributed to the better enumeration methods of the 1991 Census. Of course with increasing male migration as is reflected in the decline of the proportion of men dependent on agriculture, it is also probable that women are forced to take a more active role in cultivation. However, from the increase in female cultivators we cannot adduce that there has been empowerment, given that women have little land rights, and have very little say in cultivation decisions. Available field studies indicate that it is primarily in areas where male migration is significant that women take cultivation decisions. But in the regions of the North-west it is very rare that a woman is able to take independent decisions about the farm enterprise.

The relative importance of female cultivators can be discerned from an examination of their share in total cultivators. The maximum share of women cultivators in the North-west is in some of the districts of Rajasthan and Himachal Pradesh. The spread of the districts, with proportion of women cultivators greater than 30 per cent, is mainly concentrated in the districts of the Deccan Plateau, the eastern districts of Maharashtra, a few isolated districts in Tamil Nadu and the North-east. While all these are areas where the female participation rate is fairly high, there are certain distinctions to be drawn. While in the districts of the North-east, women are traditional cultivators, in Himachal the active participation of women in cultivation is due to the high level of male migration. This is similar

in the case of the eastern districts of Maharashtra, where Bombay is a major magnet for male labour. But in the other districts of the Deccan Plateau and Tamil Nadu, the high share of women cultivators cannot be reduced mainly to male migration or poverty. While all these are dry districts, these are also areas where in the recent period dynamic changes have been taking place in agriculture with the coming of irrigation. It is probable that small and marginal cultivators are able to utilize some of the emerging opportunities. All existing literature on the Green Revolution has shown that these cultivators tended to increasingly exploit unpaid family labour to maintain their competitive edge in a commercialized agrarian setting. Therefore, it is probable that the high share of female cultivators in these districts can be attributed to an expansion of the activities of small and marginal cultivators. It is therefore not unlikely, that in the new context of export agriculture women will be drawn more onto family farms to maintain their profitability in a scenario where costs of inputs will be rising with reduced subsidies.

### **Women agricultural labourers**

A majority of female workers in agriculture are however agricultural labourers, though there has been a decline in their proportion between 1981 and 1991. An important characteristic of the female agricultural workforce is that they form a significant portion of the agricultural labourers' workforce throughout most of India with the exception of the North-west and the eastern belt of the North-east, Bihar, Bengal and Orissa. There is an increasing spread of districts where the number of female agricultural labourers in fact outnumber male agricultural labourers. This is a trend evident from 1961 itself. However, even this pattern can not be reduced to any single factor as the districts range from parts of Rajasthan to the traditional rice areas of Tamil Nadu. The major concentration of districts with a high proportion of female agricultural labourers is however the Deccan Plateau, which we had

already earlier noted as an area of high incidence of agricultural labourers.

Explanations for this large number of women employed as agricultural labourers have frequently focused on the proportion of Dalits in the population and the degree of poverty. While the historical association between caste and agricultural labour has tended to be obscured by various factors in the recent period, it is still likely that caste would be an important explanatory variable given the gender specificities of caste restrictions on outdoor work. Analysis of the 1981 Census data does, in fact, reveal that the proportion of scheduled caste and tribe population in the total population was closely correlated to the incidence of female agricultural labourers. Yet it must be also remembered that the agricultural labourer workforce is increasingly becoming heterogenous with non-SC/ST labourers forming upto 50 per cent of the female agricultural labourers. Poverty is seen as a push-factor as it breaks down the caste hierarchies and the traditional aversion to manual labour. Measuring poverty is a complex problem and various proxies such as extent of land inequality, agricultural productivity, rate of agricultural growth, or proportion of cropped area under inferior cereals have been used. However, these exercises have proved unsatisfactory as the only significant variable found has been land inequality. The agricultural growth rate and output per hectare in fact exhibit a negative relationship with the incidence of agricultural labourers. The area under inferior cereals also does not adequately explain the variations and the sign was opposite of the expected direction. In fact, it has been found that the area under commercial crops such as cotton, tobacco, etc. has a strong positive association with the incidence of female agricultural labourers (Duvvury 1989).

Women are, therefore, integrally involved in the production of crops which are likely to be the leading export crops. It is highly likely therefore, that the employment opportunities for women

will increase. With respect to plantation crops, however, the picture is not so clear. Except for tea, women's involvement as wage labour is virtually absent. In Kerala, the shift to crops such as rubber and coconut has severely limited the employment opportunities of women in agriculture. It should also be noted that a shift to prawn cultivation and fruit orchards usually has meant less employment possibilities for women. Similarly, the conversion of paddy fields to floriculture has drastically reduced the work available for women and men as cropping intensity has declined (Swaminathan and Karat 1995). In this context it must also be remembered that recent trends in agricultural growth suggest that elasticity of employment with respect to output is declining rapidly. Micro level studies are necessary to assess to what extent new export commodities such as horticulture, floriculture, aquaculture have expanded employment opportunities for men and women and the extent to which substitution between the two sexes is taking place.

### **Contract payment**

An important change observed in recent years is the shift from daily payment to the contract form of payment which has brought in new forms of labour recruitment. Under this system, operations are paid on a per acre/hectare basis to a gang of agricultural labourers. The cultivator no longer has an individual contract with the labourer and only deals with the gang supervisor. It is not a new form of hiring or payment but earlier, this had been restricted to certain very labour-intensive operations for particular crops. Today, however, the contract form is becoming predominant for most operations of almost all crops. In areas where this system has become prevalent, the impact has been that able-bodied women, the old and the very young are losing employment days to men, especially in the harvesting operations. In Nellore district, the shift to the contract system and the consequent loss of employment of women, leading to a decline in household

income has been considered as one of the causative factors for the wildfire spread of the anti-arrack agitation. Another complexity in the labour market is the increasing reliance on migrant labour. For example, the area under sugarcane has expanded rapidly in Nellore between 1987-88 and 1991-92. Since it was a new crop and efficient harvesting required skilled labour, migrant labour was brought in from Tamil Nadu and local labour lost precious person-days of employment. The case of tobacco is similar in Andhra, where labour from Guntur, which was a traditional area of tobacco, migrate to districts all over the state in the tobacco harvesting and curing season. These two examples point to a possible skewed distribution of employment opportunities, which may lead to increasing conflict between local and migrant labour. In conclusion, we may state that there is a possibility that agricultural wage employment may increase. The exact quantum and the gender distribution would depend upon the gender division of labour as well as the relative labour intensity of each crop. It is also important to note that with the extension of cash crop cultivation, the practice of wage payment in grain will decline such as in Tamil Nadu, where rice is already a cash crop. Such a shift in the form of wage payment has meant that there has been a decline in real household income.

The implications for women in small peasant households would be more complex as women are primarily involved in cash crop cultivation as unpaid family labour. Increases in cash crop prices will put pressure on women to increase their labour contribution but need not necessarily result in any greater control of income, resulting in a negative human resource impact. Increase in the commercialization of agriculture can result in a greater pauperization of marginal farmers. An equally possible impact will be that with increasing input cost as subsidies are removed, the gap between output price and input price may narrow resulting in poor peasant households withdrawing from cultivation. This is a process that has already occurred in the

process of the Green Revolution and may get accentuated.

However, as women are critically involved in cash cultivation it may be possible to involve them more directly through a group approach. With proper provision of required inputs such as land and credit, women may be able to take advantage of the shift to more labour intensive export crops. This raises the fundamentally important question of access to productive resources such as land and credit. We have earlier pointed out that existing trends in land rights may jeopardize the long existing demand of women for land. There has also been very slow progress on inheritance rights of women (Agarwal 1994). With respect to credit, the contraction of rural credit as a consequence of the ongoing financial reforms dims the prospects for women even further. A variety of schemes exist to promote thrift and credit groups under DW CRA, etc. but these have tended to focus on a narrow range of activities requiring only nominal amounts of credit. To ensure that women are active participants in the development process and benefit directly, it is essential to continue state intervention to some degree and correct to an extent, market based inequalities that will inevitably arise.

Non-agricultural rural employment is particularly important as most agricultural workers get only six months of employment. A section of agricultural workers find off-season employment in rural agro-processing industries such as handloom, coir, cashew, tobacco, etc. Most of these traditional rural industries which employ women are steeped in crisis today. The SAP package affects these industries in two ways. In some such as coir, competition from substitute products will force the industry to mechanize to realize lower costs and higher labour productivity. It is primary female labour which will be retrenched. Estimates suggest that three-fourths women will lose their jobs if full mechanization is implemented (Thomas Isaac, van Stuijvenberg and K. N. Nair 1992).

In other agro-processing industries such as tobacco and cotton spinning, the higher agricultural prices consequent upon removal of subsidies may force the units in these industries to either shift to household enterprises or mechanize. In tobacco the limits to informalization have already been reached and mechanisation is the only alternative.

With respect to handloom, in keeping with the overall deregulation, all reservations and quotas in the production system are sought to be removed. This has placed the industry in a precarious position. Even before the decontrol, the handloom sector had been facing serious problems due to yarn scarcity, firstly because the mill sector failed to produce the required yarn as stipulated by the government and secondly due to increasing competition from the powerloom sector. Further, with the emphasis on the export promotion of both cotton and cotton yarn, yarn prices have shot up to unprecedented levels. With decreasing availability and high prices of yarn, the handloom sector has been forced to pass on the burden to the weavers. In December 1991, with the implementation of the stabilization policies and the reorientation of the economy to export promotion, the process of yarn price increases further intensified. The consequent lowered wages combined with rampant inflation created a failure of entitlement for the weavers of Andhra Pradesh leading to starvation deaths and suicides. The majority of deaths were those of men, leaving many women without any means of economic support, or any means of livelihood. What happened in Andhra Pradesh is only the tip of the iceberg as the powerloom sector increasingly undermines the handloom sector and yarn prices spiral upward with increasing exports. These processes have been reflected in the downturn in non-agricultural employment evident from NSS data between 1989-90 and 1992. Self-employment in the secondary sector experienced the sharpest decline of 6.4 percent in the period (Mahendra Dev 1995).

Given that there may be continued insecurity of employment and income for large sections of the rural population, food security is a central question. Many have warned that the opening up of the agricultural sector will be detrimental to maintaining food security. The question of food security is not merely an economic question, but one of social justice and national integrity. To the proposition that adequate buffer stocks exist it is important to add that there is a large section whose food needs are not adequately met because of their entitlement failure.

With the removal of subsidies and trade liberalization it is highly likely that output prices will increase. Already the government price of foodgrains has been increased recently to compensate for the hike in input prices. Consequently, the open market price of foodgrains have increased and are close to the international price level. The impact of such increases will be highly skewed as the majority of small farmers and agricultural labourers are net buyers of food. Moreover, many of the small farmers are unable to hold onto their marketed surplus until the government agents enter the market and are therefore forced to make distress sales, below even the procurement price. If the export of foodgrains is actively encouraged by the government, this will push up the output price further. While the terms of trade may move in favour of agriculture, there may in effect be decline in household income for a large section of the agrarian community, even the close interlinkages between the incidence of poverty and prices of foodgrains. With the curtailment of the public distribution system in a context of rising foodgrains price, subsistence for many poor households will become a near impossibility. Female-headed households who constitute a significant section of the poor would be particularly hard hit.

To sum up the discussion, the new economic regime in agriculture would increase employment opportunities. However the extent to which women will directly benefit will be

modified by the skill requirement of the specific crops introduced, form of labour recruitment and the extent of the gender differential in wages. Given the crisis of the traditional agro-based industries, the growth of non-agricultural employment has to be very dramatic, for which the present trends do not reveal any scope for optimism. While market signals are important to spur growth, new institutional forms are also required to ensure that the benefits of growth are distributed more evenly and that growth is sustainable.

### **Policy recommendations**

We have argued in the preceding section that while some of the changes in agriculture as a consequence of the SAP are required, we are not confident whether these will result in increased employment and a sustained income for large sections of the rural population. Exports may go up (the extent would depend upon the changes in agricultural policies of industrialized countries as GATT is implemented) and this would result in an increase of work-participation for women in economic activities. However, as the international market is volatile, it is not unlikely that employment and incomes will be widely fluctuating. Our discussion has also highlighted that prices of wage goods (foodgrains, edible oils and textiles) will rise as a consequence of agricultural liberalization. Inflation, we have shown, has a definite gender bias with the burden of adjustment of declining incomes and decreased consumption, falling mainly on women. As the report of the Commonwealth Expert Group on women and structural adjustment pointed out, women's welfare has suffered disproportionately from structural adjustment programmes, given the multiplicity of women's roles and the intensification of the conflict over allocation of time.

The social support network, including health and nutrition programmes, the public distribution system, water and sanitation services, etc., is



cut back as part of the 'fiscal discipline' of adjustment. Women are therefore caught in a scissors effect: they are forced to increase the time on income-earning activity and yet not reduce the time on domestic and sustaining activities, which is made more difficult by the reduction in the availability and quality of the social support network.

From the discussion so far we may, however, cull out policy recommendations that would ease some of the negative consequences and enable women to garner some of the gains that are possible in the new policy regime.

1. In the agrarian sector, prospects of expansion in export crop cultivation is probable. This may increase employment opportunities for women agricultural labourers. However agricultural growth is critically dependent on proper infrastructure and sustainable utilization of resources. Given the tendency for public investment in agriculture to decline, it becomes imperative that local bodies exert a greater pressure in developing infrastructural facilities. Moreover, the shift to cash crops will also mean that the tendency to monoculture will increase, implying a severe drain on the sustainability of the ecosystem. It is now generally acknowledged that integrated land and water management is essential for sustainable agricultural development. This can only effectively be implemented within a framework of decentralised local level planning. It is imperative therefore that the panchayat raj be properly implemented giving adequate financial and executive powers to the panchayats and that elections be held at the earliest. Women may have a crucial role to play in local level planning as they are the most knowledgeable about the extent of local resources and the immediate areas of crisis.
2. Of special concern is the issue of employment opportunities for women. We have already pointed out that in some sectors, the effect of the new economic policies will be most likely to increase employment opportunities for women. It is also likely however, that women will be confined to unskilled or low skilled jobs. In this context, the question of skill up gradation assumes importance.
3. We have pointed out that many of the traditional industries may retrench women workers due to mechanization. For these women also the question of retraining and skill upgradation is critical. Government policy of (a) reservation of employment for those women being displaced by new technology, and (b) provision of training of women in the jobs that open up has to be enunciated. The National Renewal Fund seems to be only for the organized sector workers. But as highlighted above, the situation will be more precarious in the traditional and unorganized sectors. It is imperative that a portion of the National Renewal Fund is allocated to the traditional and unorganized sectors, or a similar fund should be established specifically for these sectors.
4. In the informal sector, delicensing and removal of barriers on ancillarization may increase employment opportunities in the small scale sector. To take advantage of these opportunities women need to be trained in modern skills-technical, financial and managerial. Existing entrepreneurial training programmes are totally inadequate for the needs that will arise. Government has to increase expenditure for training programmes and extend training institutes at the district level.
5. With delicensing, new forms of production organizations such as producers' cooperatives should be encouraged. Cooperative laws should be overhauled so that group efforts of women in agricultural and industrial production can be promoted.

We have pointed out that there is every possibility that in the new policy regime with its greater emphasis on flexible labour, there will be an increase in sweatshops and household-based units. There is every danger that in such units, women's burden will increase with low returns, thereby placing greater pressure on women's already limited time. Moreover, young girls will be given a greater share of household responsibility. In this connection the experience of Laos and Vietnam in promoting producer cooperatives may be useful. The National Credit Fund, already established by the Government, should have greater resources allocated to it and should give priority to lending to such cooperatives. In addition producer cooperatives should be allowed to keep a proportion of their export earnings in foreign exchange to finance necessary imports.

6. Reforms in the financial sector may imply accentuation of the problem of collateral security and credit availability. Right to property and inheritance has to be safeguarded and extended to those communities in which women are still denied these. Implementation of inheritance laws has to be properly monitored. The National Commission for Women should set up a special cell which assists women in inheritance and land disputes. An assessment should be made as to what extent wasteland has been distributed to women.
7. Deregulation of labour laws is another feature of the new economic strategy. For women, however, it is essential that certain minimum rights such as maternity leave are protected. The reproductive functions are usually seen as a disadvantage by employers. For the protection of women workers it is important to evolve a national fund based on a contribution from all employers regardless of whether they employ women or not, for bearing the costs

of maternity leave and providing childcare facilities. Such a national fund would then ensure that maternity benefits are extended to women in informal sectors, including agriculture.

8. The new economic policies also involve a cut in social expenditure. We have outlined the consequences of a decreasing social support network for women. It is important to work out a comprehensive social security programme for female-headed households. It is these households which will be affected most adversely by unemployment, inflation and contraction in social services.
9. We have highlighted the importance of the public distribution system in maintaining living standards of the poor. The PDS should be expanded and regular supply of high quality grains should be ensured. The ration shops should be managed by women who are the critical users. Already some state governments have agreed that an increasing proportion of ration shops will be managed by women. This is a welcome move which should be strengthened and extended.
10. Wage differentials remain persistent in many developing countries despite various minimum wage legislations. This is due to the fact that wage differentials are based on notions of gender productivity differences. Even under the new policy regime, it is expected that gender differentials will persist. It is important to examine the question of productivity differentials more deeply. There is little scientific work establishing the conditions under which there is minimum gender productivity differential and under which the maximum difference occurs. A scientific basis has to evolve to establish productivity differences by gender.
11. As the implications of the new policies are still unfolding, research and monitoring are

imperative. Studies should be commissioned to examine the impact of SAP in different sectors and regions. A framework for monitoring the changes taking place should be worked out with various NGO groups, the women's cells in various ministries, the Department of Women and Child Welfare, and the National Commission for Women. Only through such efforts can women have adequate information to actively intervene in the decision-making process.

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# Women: Users, Preservers and Managers of Agro - Biodiversity



*FAO Focus : Women and Food Security*

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**O**n the eve of the 21st century, rural women in developing countries hold the key to the future of the Earth's agricultural systems and to food and livelihood security through their roles in the selection of seed, the management of small livestock and the conservation and sustainable use of plant and animal diversity.

Rural women's key role as food providers and food producers links them directly to the management of genetic resources for food and agriculture and has given them unique knowledge of local species, ecosystems and their use acquired from centuries of practical experience.

The poorest farming communities are those that live in marginal and heterogeneous environments that have benefited least from modern high-yielding plant varieties. Up to 90 percent of the planting material of such farmers may be derived from the seeds and germplasm that they produce, select and save themselves.

Such subsistence farmer cannot afford external inputs such as fertilizers and pesticides, veterinary products, high quality feeds and fuel for cooking and heating. They rely on maintaining a wide diversity of crops and wild plants and animal breeds and strains that are adapted to the local environment in order to protect against crop failure and animal disease or death, to provide a continuous and varied food supply and to ward against hunger and malnutrition. In many areas, the majority of smallholder farmers are women.

## **Gender responsive policies, agreements and support**

Important international policies and legal agreements acknowledge the key role that women play, especially in the developing world, in the management and use of biological resources. Despite this increased recognition at international levels, little has yet been done to clarify the nature of the relationship between agro-biological diversity and the activities, responsibilities and rights of men and women. In fact, women's key roles, responsibilities and management practices for the conservation and improvement of animal and plant genetic resources and their intimate knowledge of plants and animals remain "invisible" to the agricultural, forestry and environmental technicians as well as the planners and policy-makers.

The lack of recognition at technical and institutional levels means that their interests and demands are given inadequate attention. Moreover, women's involvement in formalized efforts to conserve biodiversity remain low because of women's poor representation at policy- and decision-making levels.

Modern research and development and centralized plant breeding have ignored and undermined the capacities of local farming communities in innovating and improving plant varieties. In those areas where women have traditionally held control, because of modern technologies and perceptions, women have lost substantial influence and control over production and access to resources to men who benefit from extension services and have the ability to

buy seeds, fertilizers and the required technologies. In this way women also lose their status and self-determination and are not compensated in any way.

## **100 years of agricultural change:**

### **Some trends and figures relating to agro-biodiversity**

- Some 75% of plant genetic diversity has been lost since the 1900s as farmers worldwide have left their multiple local varieties and "landraces" for genetically uniform, high-yielding varieties.
- 30% of livestock breeds are at risk of extinction; six breeds are lost each month.
- Today, 75% of the world's food is generated from just 12 plants and five animal species.
- Of the 4% of the 250 000 to 300 000 known plant species that are edible, only 150 to 200 are used by humans and only three – rice, maize and wheat – contribute nearly 60% of calories and proteins obtained by humans from plants.
- Animals provide some 30% of human requirements for food and agriculture and 12% of the population live almost entirely on products from ruminants.

### **Women as users, preservers of agro-biodiversity**

As farmers, rural women are responsible for growing and collecting food and for the integrated management and use of diverse natural resources to fulfil daily household needs (crops and wild plants, tree products, wild and domesticated animals). An understanding of gender issues in plant and animal biodiversity requires a look at the different roles and relations of men and women as part of their overall livelihood systems, that comprise farms and

gardens, common property resources, such as pastures and forested lands, as well as protected areas.

In addition to staple food production in the fields, home gardens often provide a wide variety of vegetables, relishes and condiments. These home' gardens are also experimental plots where women try out and adapt diverse wild plants and indigenous species. Research on 60 home gardens in Thailand revealed 230 different species, many of which had been rescued from a neighbouring forest before it was cleared.

The different livelihood strategies and interests, land tenure arrangements and organizational structures of different user groups (by gender, age, class, ethnicity and occupation) as well as uneven power relations in access to, use and control over land, animal and plant resources directly influence their capacities and incentives to conserve agro-biodiversity.

### **Differentiated knowledge of men and women**

Through their different activities and resources management practices, men and women have developed different expertise and knowledge regarding the local environment, plant and animal species and their products and uses. These gender-differentiated local knowledge systems play a decisive role in the in-situ (in their natural habitat/ecosystem) conservation, management and improvement of genetic resources for food and agriculture, because the decision of what to conserve depends on the know-how and perception of what is most useful to the household and local community.

The local knowledge is highly sophisticated and is traditionally shared and handed down between generations. Through experience, innovation and experimentation, sustainable practices are developed to protect soil, water and natural vegetation, including biological diversity.

Women's specialized knowledge of the value and diverse use of domesticated crop species and varieties extends to wild plants that are used as food in times of need (leaves, fruits, berries, nuts, seeds, edible roots and tubers) or as medicines and sources of income. This has important implications for the conservation of plant genetic resources.

### **Women as “scientists” and decision-makers in the selection and improvement of biodiversity**

In smallholder agriculture, women farmers have been largely responsible for the selection, improvement and adaptation of plant varieties. The selection of certain varieties is a complex, multivariate process that depends on choosing certain desirable characteristics (for instance, resistance to pests and diseases; soil and agro-climatic adaptability; nutritional, taste and cooking qualities; food processing and storage properties).

In many regions, women are also responsible for the management, including reproduction, of small livestock. As for plants, the choice of preferred traits in the breeding of animals includes adaptations to the local conditions such as available feeds and resistance to disease.

The fact that plants and animals are often produced for a number of purposes adds further complexity to the selection process as multiple traits are sought. For example, sorghum may be grown for the grain and the stalk, sweet potatoes for the leaves as well as the root, and sheep may provide milk, wool and meat. Moreover, to create a favourable micro-environment and Colombia better manage space and time, several plant species that complement each other are frequently intercropped and mixed farming is often practiced (crop, livestock and agro-forestry).

Recognition of this sophisticated decision-making process is gradually leading breeders

and researchers to realise that the adoption and selection by a community of improved and new seeds of food crops and animal breeds depends on their being tested and approved by both men and women farmers.

### **Women's responsibilities and rights and the concept of farmers' rights**

Through their daily activities, experience and knowledge, women have a major stake in protecting biological diversity. However, at national and local levels rural women today are still hampered by restricted rights to the resources they rely on to meet their needs. In general, their rights of access and control over local resources and national policies do not match their increasing responsibilities for food production and management of natural resources.

Growing awareness of genetic erosion and the pressing need to develop mechanisms to encourage farming communities to nurture and conserve and to utilize and improve plant genetic resources has led the international community to recognize the concept of Farmers' Rights. As stated in resolution 5/89, adopted by the 25th Session of the FAO Conference, these are the “rights arising from the past, present and future contribution of farmers in conserving, improving and making available plant genetic resources, particularly those in the centres of origin/diversity”. The purpose of these rights is stated to be “ensuring full benefits to farmers and supporting the continuation of their contributions”. Key questions remain on how to implement Farmers' Rights in a way that respects the contributions of the various actors.

### **How to address gender and agro-biodiversity?**

The promotion of a long-term strategy of conservation, utilization, improvement and

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management of genetic resources diversity for food and agriculture requires:

- Recognition and consideration of the gender-differentiated roles, responsibilities and contributions of different socio-economic groups.
- Recognition and valuing of men and women farmers' knowledge, skills and practices and Farmers' Rights.
- Sound and equitable agricultural policies to provide incentives for the sustainable use of genetic resources, especially through "in-situ" conservation and improved linkages with "ex-situ" conservation.
- Appropriate national legislation to protect "threatened" genetic resources for food and agriculture, guarantee their continued use and management by local communities, indigenous peoples, men and women, and ensure the fair and equitable sharing of benefits from their use.
- Enhanced access of women farmers to land and water resources, to education,

extension, training, credit and appropriate technology.

- The active participation by women, as partners, decision-makers and beneficiaries.

Adherence to the above points will facilitate the provision of appropriate support to the different actors, protect local men and women's interests, enhance food security and enable the development and implementation of sustainable, effective and equitable agro-biodiversity programmes.

The challenge for the next generation is the safeguarding of agro-biodiversity by paying greater attention to diverse and integrated agricultural systems, especially those managed by women, that provide food and livelihood security. The maintenance of plant and animal diversity will protect the ability of men and women farmers to respond to changing conditions, to alleviate risk and to maintain and enhance crop and livestock production, productivity and sustainable agriculture.

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- *FAO Focus : Women and Food Security Women : Users, Preservers and Managers of Agro-Biodiversity, Food and Agricultural Organisation of the United Nations; <http://www.fao.org/FOCUS/E/Women/Biodiv-e.htm>.*



# Attitudes About Women's Participation in Agriculture: A Gap in Research and Extension



*Barbara J Isely*

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## Introduction

**T**here is a strong tendency for all persons to perceive what they expect to see and hear. Psychology teaches us that all human beings operate with mental sets. A mental set is an expectation which leads a person to perceive, see, hear, remember only what is congruent with the expectation. Mental sets are based on a person's experiences, culture, social class, values, and training.

We cannot function in life without some mental sets. However, mental sets become a problem for research and development programmes when they prevent the accurate perception of social realities. In any society, every planner, researcher, and development worker whether an administrator, laboratory worker, field investigator, analyst, or extension worker must make conscious efforts to be objective.

The mental sets of all persons including administrators, researchers, extension personnel, and the people they work with are social products. Many mental sets include preconceptions about people's attitudes and behaviours. Therefore, problems of socially-rooted bias are especially great in disciplines which study or work with people, because the content of a mental set often overlaps with the area of research or interaction with the public. All scientists must strive to be objective, but scientists in areas which interact with people must work harder. This applies to social scientists as well as to agricultural scientists and other persons who are trying to stimulate

social change. Sometimes bias in people's perceptions are startlingly apparent. More often, serious biases remain unrecognized precisely because they are rooted in the social setting and are shared by many people. The solution is not to deny that biases exist. Rather, possible sources of bias need to be recognized, and efforts made to ensure that data, analyses, policy, and action are minimally affected by such biases.

Much of the following discussion is in the form of a case study based on the author's experience working with and observing agricultural development agencies and projects in India, Bangladesh, Nepal, Thailand, Jordan, and the United States. While usually not a result of systematic research, these experiences illustrate some repeated patterns of thought and action in the different countries. These experiences reveal some gaps in understanding and research in relation to women's participation in agriculture. In particular, little research has been done on the existence and accuracy of beliefs, attitudes, and perceptions among persons who are involved in research, extension, or policy creation about women and agriculture. The beliefs and attitudes simply have been assumed to be correct.

The intent in this paper is to draw attention to the nature and possible sources of mental sets about women's participation in agriculture. Effects of bias on specific stages of research and on development projects will be discussed. Finally, ways to avoid such bias will be discussed and areas of needed research proposed.

## **Sources and nature of bias**

### **Personal experience**

In India, Great Britain, and many other countries, when people see a piece of wood somewhat shorter than a meter, about 100 mm. wide and 15 mm thick with a narrow handle, they say they see a cricket bat. However, in the United States, where cricket is rarely played, such an object will be described by many people as a paddle, used variously for punishment or for rowing a boat. The experiences of people determine what they perceive.

### **Culture**

The culture of people, in addition to directing the experiences of people, determines their perception of events, especially social events. Culture defines what happens; an identical action may be interpreted as positive in one culture and as an insult in another. For example, a clenched fist with the thumb extended upward is an obscene gesture in some countries, but is a sign of approval in the United States. Not only is the action defined differently, people's different responses set into motion entirely different sequences of events. Sociologists call this the social construction of reality.

In the United States there is a tendency to define small-scale diversified food production for family consumption as unimportant gardening and mono-cropping for consumption or sale as important farming. Gardening is defined as women's work, and farming as men's. These definitions are widespread despite the extensive involvement of men in gardening and women in agriculture.

In Jordan, next to all village homes, and often next to houses in town, are very large gardens. Women are primarily responsible for large gardens in which they grow vegetables, fruits, olives, and wheat and barley. Animals are also kept in the gardens. Most food produced in the garden is eaten by the family. In Jordan, land is

divided among the children, but the house and garden goes to one child. With nearly the highest fertility in the world, Jordan has a serious problem of land fragmentation. Often the supposedly agricultural land owned by a family is considerably smaller and less productive than the garden.

On a team on which the author worked in Jordan, was a man who is associate director of his state's extension service in the United States on his ninth trip to Jordan. He carried with him, from his United States culture, a culturally created mental set about the relative importance of gardens and farms. Only on his ninth visit when the gardens were pointed out to him did he see the gardens. He admitted his preconceptions had prevented his seeing the gardens before. Similar mental sets among urban Jordanian officials prevent consideration of the gardens' potential for contributing to Jordan's food self-sufficiency. Women's agricultural work is virtually ignored in agricultural planning and by their agricultural extension personnel.

These examples illustrate cultural influences on mental sets. The culture, which determines perceptions, may be a national culture, a regional culture, a caste culture, a class culture, a rural or an urban culture.

### **Class**

In Bangladesh, as in many societies, the dominant culture which strongly influences the national culture is a middle and upper-class culture, arising from high status Bangla culture. In Bangladesh, the dominant culture states that women do not and should not work in agricultural fields. The result is that women who do work in the fields simply are not perceived by many people in Bangladesh. When people pass fields where women are working, many literally do not see the women working. When women are seen working in the fields, the cultural bias leads to this behaviour being explained away. These women are always said to be the exceptions.

Nevertheless, social science research shows that in some villages, as many as half the women, both Muslim and Hindu, do work in the fields (Ahsan, Hussain, and Wallace, 1986). This behaviour is not rare in Bangladesh, it is not an exception. However, the vast majority of middle class people fail to see the women who are working in the fields in Bangladesh. Western advisors, with their own biased assumptions about what happens in a predominantly Muslim culture, are similar in their own inability to see the women in the fields of Bangladesh.

Awareness of class or caste differences in beliefs and ideology about proper roles of women is especially important for persons working in agriculture. In some places there are dominant groups which restrict women's activities outside the home, and the ideology of such groups may be mouthed by many others. However, the vast majority of people who participate in agriculture behave in one of the following ways: (1) They cannot afford to and, therefore, do not act in accordance with the dominant ideology, even if they say they believe it or follow it. (2) They do not even claim to follow the ideology. It is important to be alert to the actual behaviour of such groups, because they often being lower-status groups, are easily overlooked.

### **Values**

A person's values similarly influence perceptions. An example of the effect of values on perceptions and actions could be seen in an unsuccessful poultry extension project. In another Western Asian country, poultry professors from a United States university designed the project to develop large-scale commercial production of chickens and eggs. The project failed because there were not enough persons in the country with the training needed to run such an operation. At the same time, they refused to consider doing anything to provide village women with information and services which would improve the productivity of their small flocks at the house. Such small flocks could easily be made more productive at

a much lower cost than the commercial operation. These university professors perceived such potential increases in productivity as unimportant. They value only commercial agricultural production, as do many agricultural scientists in the United States. This value often results in exclusion of women's activities from development projects, because women, more than men, are likely to be agriculturally productive outside the cash economy. Here we see a value which influences perceptions of women's work, not because the value specifically relates to women, but because the economic structure is such that women and men are differently involved.

### **Training**

In Thailand, it is widely recognized that women often do field work, are frequently the primary managers of agricultural activity on family lands, and do much of the marketing of agricultural products. The author was once involved in a discussion with a Thai researcher trained in the United States who was using a mathematical model to estimate returns on agricultural investments. As he had been taught in the United States, he included in the model the value on the wage market of the unpaid family labour of men, but not of women. When asked why he omitted women's unpaid family labour, he observed that he would always get a negative figure if he included it. His desire to follow his training prevented his seeing that his model, while complex mathematically, had little relation to the social reality where women often are more agriculturally active than men.

### **Effects of mental sets on stages of research**

#### **Choice of topic**

If researchers are convinced that they know what is happening in a certain situation, they

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may not choose certain topics for research. Simply the belief that women are not important in agriculture has resulted, in the past, in their participation being ignored as a potential research topic. Many researchers fail to choose topics for research because, before any research is done they already know what the results will be.

### **Definitions**

Definitions are critically important in determining research results. For example, it is possible to define decision-making so narrowly that women's participation in decisions is excluded. One way this has been done in the past is to define decisions only as those which involve expenditure of money. Therefore, if a man purchases seed, he is defined as making a decision about seeds independent of what discussions led to his action. However, seed is often saved from a previous crop, sorted, stored, and prepared for planting at home, usually by a woman. The women who do these tasks often are not considered to have any role in decisions about seeds, because no cash is spent. Yet, they make minute, skilled, informed decisions which are crucial to the success of a crop.

### **Choice of methods**

The example of the Thai researcher given above, also illustrates the potential bias in choice and use of research methodologies. It is possible to become so tied to specific research models and methods which are familiar and comfortable that research becomes totally separated from reality. Continuing to be tied to certain methods, irrespective of the ability of the methods to measure reality, is not scientific.

### **Response bias**

From the ideas presented so far, it can be seen that the problem of mental sets can affect

researchers. In addition, the problem affects how people respond. Where a particular behaviour is not highly valued or where its existence within a culture is denied, respondents in social science research are likely to answer questions with the approved values, not with accurate reports of actual behaviour. As indicated above, different class ideologies can result in people saying they do one thing, but doing another.

In our research in Tamil Nadu, a woman reported that her husband is the head of the household. In fact, he is away from the village for months on end, and she does most of the work, managing the land, the teenage sons' and the household. However, it is not acceptable for the husband to neglect his family; therefore, since he does periodically come home, she reports him as head of the household.

The actions of people who are being studied or worked with may also prevent accurate perceptions. In some areas of Bangladesh where women's work in fields is not approved by the high-status people, women work in their family fields in the dark, so they will not be seen (Hartmann and Boyee, 1983). In most societies, there is an attempt to hide behaviour, which is defined, as undesirable by high-status people. As in this example, devious behaviour is more likely to be forced on low-status people. Therefore, accurate observations are least likely to be made of low-status people. This problem can especially occur in work with agricultural populations, because urban life is often falsely glamorized and has higher status than rural life. Also, unfortunately, agricultural occupations rarely elicit a very high degree of respect. Agricultural development based on experiences with or research on high-status populations, whether rural or urban, will be less effective than that based on accurate research on the majority of lower-status people who are actually involved in agriculture. Effects of such biases on development activities is now discussed in more detail.

## **Effects of mental sets on development activities**

### **Stereotypes about appropriate activities for women**

In both Jordan and Bangladesh, development efforts to help women often focus on handicrafts. Embroidery is particularly popular in development projects for women in both countries. Handicrafts can be done at home and fit well into a culture, which may value the seclusion of women. In neither Jordan or Bangladesh is there strict seclusion of women like that found in some other Muslim societies, but the belief persists that women must stay home. Many development projects are built on this belief, and women's handicrafts flood the market. Even with good marketing support, which is rare, handicrafts do not provide a good income.

In Jordan, the author found that women could earn much more in agricultural wage labour than with embroidery. Similarly, the Bangladesh Rural Advancement Committee found that agricultural projects provide women with better incomes than handicrafts. Agricultural products, which can be consumed locally also, do not require a support system of national and international marketing which handicrafts usually require. In addition, agricultural production, in contrast to handicrafts, contributes something greatly needed in the local and national economies of these countries.

### **Failure to plan for women in agricultural development**

An extension agronomist at a United States university claims that women traditionally did no agricultural work in the United States, despite the fact that his own mother worked as an agricultural wage labourer. However, she did not work on the family lands. Such class-based biases, which give attention only to middle-class

people working on their own land, influenced the entire design of the extension service in the United States, which historically ignored woman's participation in agriculture. Agricultural extension agents traditionally have been men, and female extension agents have focussed on household issues. This design has been copied in numerous countries, to their detriment.

In Jordan, Western advisors and urban government officials assume that male extension personnel would not be permitted to talk to women. Therefore, no plans are made to improve the productivity of women's agricultural work. In fact, when village women were asked, they said, of course, they could talk to male agricultural extension personnel so long as they were outside the house. Ignoring of women's agricultural work continues, even though some officials in the Ministry of Agriculture recognize that village women are less restricted than urban women.

One of the clearest examples of the influence of bias on perceptions and subsequently on an agricultural development programme occurred at a private agency in India. This organization is engaged in some very creative rural development work including major efforts in agriculture. One of their projects is training in dairy management. When asked how many women could join the course, the dairy development officer replied, "None; women cannot milk cows". During the many evenings he had spent in nearby villages, he simply had not seen the women who were, indeed, milking cows.

### **Minimizing bias**

Although getting rid of bias is often difficult, it is possible to decrease the amount of bias in thinking about women's participation in agriculture. Some ways to decrease bias are now discussed.

### **Recognize bias**

First, it is necessary to recognize that bias exists. Bias cannot be avoided if it is denied. Planners, researchers, and development workers have a responsibility to be alert to their own mental sets, those of others working with them, and of the people themselves. As indicated above, there are class and caste differences in the ideal role of women, and these differences affect both perceptions and the involvement of women in agriculture. Because planners, researchers, and extension personnel are often of a different social class than agriculturists, they need to be aware of their class values and those of the various groups of agriculturists. Care should be taken not to apply the values and beliefs of one group to all groups. In addition, they should avoid imposing their own class values on agricultural populations.

### **Objective data**

Second, collect data which are difficult to bias. Observation of actual behaviour is often needed to ensure that the respondent's mental sets do not bias the data. One good example is a study of women's use of time in rural Bangladesh (Ashan, Hussain, and Wallace, 1986). It was recognized that a few women might on occasion go to the fields to work very briefly. Therefore, when this behaviour was observed, it was recorded. The data collectors themselves may not have realized how much the behaviour was occurring to challenge cultural and class expectations. However, when the results were analysed, the behaviour contrary to cultural values was clearly documented among half of the women studied.

### **Specific questions and probing**

Third, ask questions which do not stimulate set responses or which do not automatically call forth the cultural ideal as answers. Asking straightforward questions typical of much large-scale survey research may not reveal

the realities of the social situation. For example, do not ask, "Who makes this agricultural decision?" Be more specific. Probe for more information. Ask how a specific agricultural decision was made. Who contributes which information during the discussion of a particular decision? When a person is named as THE decision-maker, ask who assists in making the decision and in what way. Search for who initiated the discussion, which led to the decision.

### **Diversity on teams**

Fourth, have teams working on research and in agricultural development consisting of persons from more than one culture, with at least one member from a different culture than the people being worked with. Information from a person who knows a culture from the inside is essential to provide accurate interpretations. However, an outsider is more likely to notice culturally created mental sets in the target population. The insiders and outsiders will also be more aware of the culturally created biases of each other. Different cultures represented on the team can be from different classes, different linguistic groups, different ethnic groups, different disciplines, or different societies. The value of having insights provided by persons from another society is seen in the work of the Swedish economist, Gunnar Myrdal, who did some of the most significant research ever done on the United States (Myrdal, 1944).

It is also necessary to be alert to the possibility that one kind of diversity may not bring as much objectivity as needed. For example, a team consisting of persons from different ethnic groups can have more similarities than differences in their mental sets if they are all urban, middle-class professionals from the same society.

### **Openness to questions**

Fifth, encourage all persons on a team to raise questions. On diverse teams there must be

great respect for different approaches, even while being open to questions. When questions are raised, when beliefs are challenged, treat the belief, the question, and the questioner with respect no matter how outrageous the question or belief may seem at first. Ask how each belief, whether correct or not, might lead to inaccurate results. Ask what, the negative can be collected to determine if a belief is correct or not. Ask how the research can be changed to avoid the bias.

### **Filling the gaps**

Two areas of needed research and the need for integration of research with action are discussed below. First, there is a need to know what beliefs about women's participation in agriculture shape current agricultural programmes. Second, examine of the accuracy of common beliefs about women and agriculture is needed. Finally, technical agricultural research and extension can be made more effective in promoting increased production by building on social research.

### **Research on agricultural scientists and extension personnel**

The kinds of beliefs and mental sets described above interfere with agricultural development. There is almost no information about the nature and extent of such beliefs among planners, agricultural scientists, and extension personnel. Beliefs about women's participation in agriculture affect the design of agricultural development programmes. Beliefs also affect the development of agricultural technologies and the persons that extension personnel contact. Beliefs keep important agricultural information away from women who are involved in agriculture in a variety of ways. The lack of access to information by women results in low productivity of women in agriculture and can also lower men's productivity. There is a need to know what beliefs provide the basis for

agricultural research and extension so topics can be chosen for research, such as suggested below. Then solid data can be available to be used as a sound basis for agricultural research and extension.

### **Research on women's actual involvement in agriculture**

A large gap in research on women's participation in agriculture is study of commonly held beliefs to see if the social reality fits the beliefs. Research is needed to examine directly such common beliefs (including those held by planners, agricultural scientists, extension personnel, and persons living in agricultural communities), rather than unthinkingly accepting such beliefs as accurate. All societies have social myths, and such myths can interfere with desired changes in a society. For example, beliefs or myths about participation of women in agriculture can prevent changes which could lead to increased production.

There are several culturally created, class-based beliefs and values which can influence planners, researchers, respondents, and extension personnel. The following is a list of beliefs we have been told at some time about women's participation in agriculture in Tamil Nadu. Our research, while in its initial stages, has already revealed that each of these efforts is a myth; each is not correct.

- Women do not milk cows.
- Women do not make agricultural decisions.
- Women do not know anything about agriculture. This belief is applied both to women wage labourers and to those who have managerial responsibilities in agriculture.
- Women do not drive draught animals as they do agricultural work.
- Women do not carry large bundles of rice seedlings.

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- Women do not pull rice seedlings.
- Women do not cut rice at harvest.

Research can be done to provide evidence on these and other beliefs. Not only is current empirical research needed, but some exploration of the historical roots of such attitudes would be useful. Did the beliefs that women are inactive in agricultural work and decision-making originate in the developing country of interest or did they come from Western societies? Are the origins so class based that the beliefs are irrelevant to the vast majority of women who are active in agriculture?

Awareness of class difference, and the disparity between ideology and practice can alert us to several topics, which need to be studied. Particularly, among groups, which do keep women out of visible agricultural work, women may be involved in agriculture in several important ways. Each of the following has been observed in some culture where women do little or no agricultural fieldwork. Usually little attention is given to such unseen involvement of women by agricultural researchers or extension personnel.

- Women are often involved in storage, selection, and preparation of seeds. Their knowledge about seeds is crucial to the success of the crop, even if they never set foot outside the house.
- Women often do critical post-harvest work. For example, proper storage can greatly increase the return of agricultural investments to a family by minimizing post harvest loss. Indeed, in terms of food security, proper post-harvest handling may be as important as use of high-yielding varieties.
- Women may be intensely involved in decisions about agriculture, even if they do no fieldwork. In Jordan, women say that neither they nor men can, by themselves, make adequate decisions about how much

land to plant to wheat. Women, with accurate understanding of the productivity of family lands and different varieties of wheat, give information about the amount of land, which should be sown, to wheat in order to meet family consumption needs.

- In several cultures where women are publicly excluded from agriculture, they have strong veto powers. On occasions it has happened that men (the persons taught about new agricultural technologies) fail to adopt new technologies which they had said that they would adopt. Deeper investigation of situations often reveals that women vetoed the use of the technology. Women, when not adequately informed about a new technology, may effectively oppose its use. The author feels women's unobtrusive participation in agricultural decisions is a major area, which has been understudied and inadequately studied. The comments in earlier sections concerning decisions are relevant to adequate research on decision-making.

### **Combining social research with action**

Extension personnel must know a great amount of information on a wide variety of topics. Often they are trained primarily as technical agricultural scientists. In most countries, they have an extension system of technical agricultural research to serve as a foundation for their work. It is unreasonable to expect them to know, without assistance, complete and accurate information about the social setting of agriculture, especially since in some countries most persons trained in agriculture grew up in cities. Yet this is exactly what often happens. Systems to provide them with social information, comparable to the technical agricultural information, are often underdeveloped, underfunded, and given little credence. Linkages between social scientists and agricultural scientists and extension personnel need to be developed and strengthened in most countries.



In several countries, including India, research is being done on women's participation in agriculture. Some of these research reports are not readily accessible, and lack of accessibility is not related to the quality of the research. Therefore, agricultural scientists and extension personnel often do not see the results of such research. This situation illustrates the importance of openness and communication among persons in different disciplines.

Thai researchers have noted the need for a national clearinghouse of information about on going as well as published research on women in agriculture in Thailand. If this is true for one country, it is even more the case internationally. In particular, there needs to be a source, either national for each nation or international, where agricultural scientists know they can quickly and repeatedly learn of the most recent research results, and social researchers know persons interested in their results will turn for information.

In such a center, efforts especially need to be made to collect reports of research that are usually inaccessible, such as theses, dissertations, government reports, and papers from conferences and workshops. The United Nations International Research and Training Institute for the Advancement of Women (INSTRAW) located in the Dominican Republic does some work similar to a clearing house, but it does not focus entirely on women and agriculture, and it is not primarily in contact with agricultural networks. However, INSTRAW is one logical location of an international clearinghouse of research on women's participation in agriculture. Another possibility is to adapt the model of the International Agricultural Centres, such as the International Rice Research Institute. This center would have women's activities in agriculture as its focus, rather than a crop, or perhaps more broadly the whole social setting of agriculture.

Once agricultural scientists and extension personnel are included in local, national, and international networks, established for the flow

of information based on research on women's participation in agriculture, they will, as objective scientists working with good data about the social reality, be able to be more effective in increasing agricultural production. In particular, innovative extension programmes also can be developed which consider women's involvement in agriculture and target women for agricultural training and receipt of information about agricultural innovations. Programmes such as those found in several parts of India which do target women for receiving agricultural information and portray women as active in agriculture are examples of effective action based on a sound understanding of the social reality.

## Summary

All persons perceive what they expect to see. There is a need for research on the attitudes and perceptions of persons who work in areas which affect women's participation in agriculture. Further, there is a need to explore the accuracy of such attitudes and perceptions. What is the actual participation of women in agriculture? Particular care is needed so that research itself is not influenced by biases. Only when agricultural development programmes are based on clear understanding of the realities of the social setting will they effectively promote increased agricultural production in all areas.

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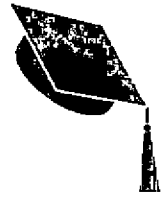
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# Meeting the Needs of Farming Women in the Twenty-First Century : The Feminization of Agriculture in Developing Countries



*Lisa Price and Margo Brouns*

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**T**he growing trend in the feminization of agriculture is directly linked to rural development and environmental issues. One reason for this feminization is that women increasingly stay on-farm while men migrate for wages. As monetization increases, so does the need for cash by farming households. In both well-to-do as well as marginal households, subsisting on what is grown as well as what is earned from farming activities may not be sufficient to meet family needs. While marginal households are more vulnerable to events such as droughts and other catastrophic events that cause crop failure, all attempt to minimise the impact of fluctuations by obtaining buffering incomes. The strategy of women staying on farm while men migrate for work is in part linked to gender-based discrimination in the labour market; women who perform wage labour make less than men, even if performing the same tasks in the rural sector. For those who migrate to urban areas, both opportunities and wages favour rural men.

The "feminization of agriculture" was first recognized by Boserup (1970). While this feminization has been linked to the expansion of wage employment that accompanies development it also occurs for other reasons, including outright abandonment of women, divorce, and male death due to war or civil strife. Feminization also occurs when men become fully involved in local industry, removing themselves from agricultural production and the farming enterprise is take over in its entirety by the female head, even though she and her

husband may still reside together. There is evidence that the feminization of agriculture has occurred, and continues to increase, in a multitude of agricultural production environments around the world, in low and high input systems and in both tribal and non-tribal areas. (Ashby 1985; Chant, 1997, Ghezai, 1999; Meenakanit, Escalada and Heong, 1997; Mehta, 1996; Mencher and Okongwu 1993; Salik, 1997, Song,1998).

Headship of households by females can be exceedingly high : 90 percent has been recorded in selected areas of China in both marginal and favorable agricultural environments due to male out-migration to distant cities for wage work or work in locally based industries (Song 1998); 80 percent in village households in Cambodia are headed by widows due to male war death and civil strife (Chant, 1997). Likewise, a village study in Eritria reported 60 percent of households as female headed due to male war death (Ghezai, 1999). High mortality of both men and women due to AIDS has also placed grandmothers in positions of being household heads in Africa (Chant, 1997). Thus, there are a multitude of reasons why a household becomes female headed and the variations are accompanied by a complex of cultural, economic, and demographic considerations that interface with women's needs and livelihoods in the rural sector. These needs are intimately linked to their agricultural production systems, their coping strategies, and their need for support from both the natural and social science community in both research and policy.

While there is still very limited information on the needs of women farmers who are sole heads of households, or sole farmers in jointly male / female headed households, we can draw some understanding of the constraints and opportunities facing women farmers as we attempt to understand their coping strategies.

## **Land use and agro-biodiversity changes**

A study conducted by Jan Salick (1997) makes a unique contribution to understanding the farming strategies of female-headed households among indigenous peoples. The study was conducted among the Amuesha, an indigenous group of about 5000 people living in the tropical rainforests of East-central Peru. Despite the fact that women participate in all subsistence activities, subsistence farming, fishing, gathering and some hunting, the strategies used by female headed households are unique.

Due to the lack of male labor, women tend to use lowland fields cut from young secondary growth rather than heavily forested areas. They abandon their fields less frequently and thus continuously crop much longer than normal, two to seven years rather than one to three years. The fields of these single female farmers also have lower crop diversity within and among fields while crop density and crop cover are higher in their fields. This also results in the women spending more time weeding.

The lack of male labor means that women avoid heavy labor crops. Crops that women avoid include banana, plantain, and palm (requiring digging up of suckers cut from parent plants and their transport). Single women farmers also avoid upland rice (which is extensive and requires the clearing of mature forest) and traditionally male crops including coffee, cacao and coca (Salick, 1997: 147).

The home garden gains increased significance and attention for the female-headed household

and contains greater diversity than non-female headed household gardens. This garden diversity of female-headed households is critical to the family diet (Salick and Lundberg, 1990, cited in Salick, 1997: 147).

There are also important social changes in the behavior of single women; it is usually culturally expected that the residence be moved after a death or illness in the family and conflicts with neighbors. But moving is also accompanied by opening new fields and the abandonment of the home garden. Thus, the social and agricultural are joined.

Many widows break with tradition and stay in the same house that they shared with their husbands. Also, within the community single women avoid controversies and display subservient behavior, appealing to neighbors' sympathies to resolve conflict; thus, they avoid moving their house for this reason as well. One of the agricultural results of this stationary behavior is a diverse and densely planted home garden, with great variety of fruits, herbs, flowers, medicines, minor crops, and - unique to single women - major crops. Single women depend on home gardens for much more than the average family, both supplementing and supplying a significant portion of their family's diet..... (Salick, 1997: 147).

Time and labor constraints are paramount for these female heads of household. These constraints can be eased through the use of the time and labor of their children. A heavy dependence on children may result in the neglect of the children's education.

Female-headed households of the Amuesha are in need of support from both the biophysical and social sciences. Impacts and support to soil fertility are extremely important, and support in the area of labor are needed. Reducing their labor need in the area of weeding, for example, may impact whether or not a woman can spare the labor of a child who could be in school. The increased socially subservient behavior of

women who are the sole heads of families may be addressed with a combination of natural and social science since this behavior is directly linked to their agricultural constraints.

## **Soil degradation**

A study on household response to soil degradation in Honduras among poor farmers working small parcels on ecologically fragile lands shows that farmers respond to soil degradation through male out-migration for wage labor (Casey and Paolisso, 1996). Women remain on the farm and use their labor to compensate, in part, for male labor in maize (their staple). The degradation itself is a product of intensive maize subsistence farming, an overall land shortage, and continuous use of fields for many years. The authors also note that the reliance on chemical fertilizers to maintain yields on depleted sods does not provide for a long-term solution for sod improvement. The authors assert that their findings suggest that increases in soil quality will probably be accompanied by a reduction in men's off-farm wage work. The proportion of labor allocated to corn is dependent upon the age of her children, as school age children may provide a substitute for their mother's labor.

The above example illustrates how solving a natural resource problem can have tremendous social impacts, such as keeping families together, reducing the labor burden of women in agriculture, and reducing the labor demands of farm children. Enhancing soil quality and management in a sustainable manner, in partnership with women farmers and their families, also means greater food security.

## **Pest management**

A study conducted on women and pest management in Central Thailand illustrates the

significant contribution of women in rice agriculture and the impact of male out-migration on the increasing burden placed upon women, including in pest management (Meenakanit, Escalada and Heong, 1997). Not only are male farmers out-migrating to secure wage labor, but there is a shortage of farm labor to hire in Central Thailand. Their study looked at two provinces, one growing only high yielding varieties and one growing both high yielding and traditional varieties. With a sample of 221 women farmers, their data indicate that women out-perform their husbands and brothers in their contribution to farming tasks at 40.7%, with husbands and brothers contributions comprising 38.4% and hired labor contributing 18.5%. Heavy labor tasks taken over by women in the absence of male labor included both land preparation and pesticide applications using a knapsack sprayer. More than a third of the women sold or reused pesticide containers or left them in the fields. Very few women wore protective clothing or masks while spraying pesticides.

More than half the women reported experiencing health effects from pesticide poisoning. The study found that women had inadequate knowledge and basic skills in "pest and disease diagnosis, pesticides, application methods, and concepts of natural biological control. Although they were aware of the acute toxicity of pesticides they had little knowledge of chronic effect" (Meenakanit, et al., 1997: 210).

The above illustrates that the dynamic nature of gender roles must be taken into account when targeting interventions. Pest management was a man's job in these communities but, with increased male absence, women have taken over this work. Central Thailand is the "Rice Bowl" of the nation, the rice it produces is critical to feeding the urban poor and supplying grain for export. It is exceedingly important that women are fully incorporated as partners in sustaining the natural resource base and pest management in high productivity regions such as this and that the exclusion of women

witnessed in the Green Revolution is not recreated. Technology must fit women's bodies, knowledge must fit their minds, and time tables for programs like the Integrated Pest Management Farmer Field Schools must fit their schedules, which include domestic responsibilities and child care. Ignoring women in pest management can mean debilitation and death from pesticide poisoning for them as well as reduced productivity and environmental contamination.

## **Plant breeding**

Yiching Song (1998) conducted a study of the impact of collaborative program on maize breeding in South-western China. Her study was conducted in two counties, Duan county and Wuming county, in Guangxi province.

Duan county is an area of limestone mountains with steep slopes and the poor and thin soils. The county is economically underdeveloped and inhabited exclusively by ethnic minorities. Female-headed households make up 90% of all households. Men migrate to cities and, while their remittances are deemed important in moving families out of poverty, they are not depended upon for food security: "..... household food security can neither fully rely on government's promises nor on husband's remittances ; both are considered as unsure and unstable by women.... Women, as a vulnerable and at risk group, especially those in the poor areas rely more on their efforts for household food security than their husbands" (Song, 1998 : 148). Women, the elderly, and the children that remain with them in the village consume maize three times a day as the staple.

Wuming county, on the other hand, is a favourable agricultural environment. It is relatively flat and irrigated with rice and vegetables grown on the lowlands and maize and fruit trees grown on the surrounding hillsides. The area has good infrastructure and access to markets and extension. Men in this

area have moved out of farming and work in local industry — they leave farming but not necessarily their communities. Farming is now totally under the female domain in 90 percent of the households. Thus, while these do not constitute female headed households, they do represent the feminization of agriculture in these households. The women farmers in this area are interested in diversifying their farms; maize is used for animal feed and for the market rather than home consumption.

In both of the counties above, women are most interested in reducing labor and stress resistant seed varieties. Both have an interest in open pollinated varieties (OPV) rather than hybrids. The government, on the other hand, is making great efforts to extend high yielding hybrids:

.... farmers increasingly are shifting from hybrids to OPVs and making efforts to maintain, improve and disseminate appropriate OPVS, like Tuxpeno 1 (an original CIMMYT improved population developed from a landrace originating in Mexico introduced to South-west China in 1978), and landraces, through their own informal networking.... the negative impact on women as maize growers is mainly related to the nature and characteristics of hybrids and the Government's hybrid bias and gender bias in research and extension. The typical example is the government-recommended package "hybrid + plastic mulching" which is a time and labor consuming technology and which has increased the labour burden on the already overloaded women farmers. (Song 1998: 166 - 167)

Plant breeders, however, are not necessarily unaware of the needs of female farmers but are faced with their own constraints, as indicated in an interview Song (1998) conducted with leading plant breeders:

'Mainly because of the government's hybrid bias policies. Our research project has to be approved by the government and it directly connects to the research funds, promotion and other rewards for us. Increasingly government effort has been put into the extension of hybrids

in the last 5 years due to the national need to increase food production. Bureaucratic intervention, such as quotas, rewards, subsidies, etc. are used for hybrid extension. However, most farmers are refusing the recommended hybrids and make their own choice. So actually the hybrid area has been decreasing rather than increasing in the last decade in our province'. (Another breeder adds) 'Our financial problem is another reason for our increasing effort in single-cross hybrid breeding. We have to make profit from hybrids for the survival of our institution although we know farmers in mountainous areas need improved OPVs' (Song, 1998: 94).

This case study indicates the need to combine social indicators of farming trends with the orientation of plant breeders. It stresses the importance of this coupling for governments to make sound policies for the rural sector. The labor trend and the feminization of agriculture are observable from government statistical yearbooks. Meeting the needs of women farmers means also meeting the needs for food security in unfavorable environments and greater security of the national food supply from the favorable market-oriented production environments. This case study also interestingly points to the role of International Agricultural Research Centres like CIMMYT which follow "an indirect strategy by supporting NARS with the supply of improved germ plasm depending on NARS's own interest and requirements. The option (hybrids or OPVS) is left to the NARS". (Song 1998: 90). Tuxpeno 1 was a direct CIMMYT release that increased yield by 2000 kg per ha (35%) and currently comprises about 90% of total maize growing area in Duan country. Because of its superiority not only in yield but also in resistance to drought and lodging, it has gradually replaced 32 of the 35 landraces previously grown. The few that remain are only grown in small areas for special use (1 0% of the maize land) (Song, 1998: 142). In Wuming, hybrid maize is grown on 80% of the land and the rest is in Tuxpeno 1 and other

OPV'S, including several local varieties. Farmers have increased the maize area in the last five years between 10 and 20 percent and are reducing hybrids and increasing Tuxpeno 1. (Song, 1998 : 156 - 157). Tuxpeno 1, however, is in great need of renewal; degeneration since its introduction in 1980 has meant that the higher yields could not be maintained (Song, 1998: 140 and 142).

These case studies illustrate that there are environmental issues critical to women farmers, but these issues are intimately united with women as it is their responsibility for the care and nurture of children and the elderly. Women are the gatekeepers of the environment, of productivity, food security, and household nutrition.

## Conclusions

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Scientists, both male and female, will benefit from curriculum changes where gender issues relevant to their fields of study are mainstreamed into their courses, including, but not limited to, the examples used in this paper of soil and nutrient management, land use, pest management, and plant breeding. The inclusion of social sciences in the curriculum particularly the history of science, and an introduction to women's / gender studies course is also recommended.

These curricula reforms can benefit both male and female students. Women's / gender studies partners in the development of new curricula are important because of the interdisciplinary nature of women's / gender studies and the approaches held that place women at the centre as subjects and active agents. This is a perspective that goes beyond the simple sexual division of labour and provides a broader understanding of the multiple social forces in various cultural contexts that come to bear on

women as they make choices to act in their environment.

The approach emphasizes that research be grounded in the realities of women's lives and that the perspectives and voices of women must

be included in meeting women's needs at the interface of the environmental and social spheres. The interdisciplinary implied in these changes may foster a new angle of vision for both scientists and science in the twenty-first century

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# Progress in India but not for Women



*Christa Wichtench*

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India is swept by a wave of revolutions. The "Green Revolution", which has increased rice and wheat yields since the early sixties through agro-technical modernization, was followed by a "White Revolution", which turned traditional milk production upside down, and a "Blue" one, which modernized fish production. These revolutions of different colours have the same goals and employ the same methods. They were introduced with the claim that they would increase productivity, secure the supply of staple foods, and improve the nutrition and income situation of the poorest segments of the population. They hope to achieve this goal by completely changing traditional production methods, using modern technology, and investing large amounts of capital which is made available to subsistence producers in the form of credits. A radical change of production techniques in farming, milk and fish production of course has an impact on all working in these sectors, men as well as women, on the division of labour and thereby on the relationship between the sexes.

In Northern India's Punjab, where wheat production has been raised to a higher level of agricultural technology, capital investment, and marketing with the introduction of higher-yield seeds, artificial fertilizers, tractors, water pumps, and harvesters, women from landless households traditionally had been working as day labourers in agriculture. They performed a variety of jobs, from preparing the fields to storing the harvest and, in regions where the men had migrated, even ploughing, which is otherwise taboo for women.

The use of technology and machinery, however, required new qualifications and employment

structures. Men were familiarized with the handling of the equipment and the secrets of the new wheat varieties, chemical fertilizers, and pesticides. Thus qualified, they are employed full-time and are responsible for the maintenance and use of the machinery, while day labourers perform the labour-intensive, non-mechanized planting and harvesting jobs. Women are now hired for this most poorly paid seasonal work. Traditionally "female" jobs in different production phases are being turned over to men with the new technology. Where women used to distribute cow manure, men now spread chemical fertilizers; where women used to dig ditches for irrigation, men now lay hoses through which a generator pumps water into the fields. Mowers, threshers, and peelers are already replacing women in many fields during the harvesting season.

They are thus pushed to the lower end of the new employment, qualifications, and income hierarchy which the "Green" revolution created.

Families with small landholdings naturally wanted to share in the prosperity which the promoters of the "Green" revolution promised and went deep into debt to be competitive in the capitalized agricultural economy. In order to meet stifling interest payments, small farmers' wives hired out as field workers on neighbouring large farms. With the additional income from dependent work – a heretoforth unknown social humiliation – the women are financing the "Green" revolution which their husbands implemented on their own fields.

While there is a shortage of labour in Punjab due to the expansion of agriculture, which means that all women looking for work can find

employment as day labourers, there is an oversupply of workers in Southern India's Tamil Nadu. Here the "Green" revolution modernized rice production and made it more profitable. Because of the much smaller farms, the end result was that the smallest farmers could not finance the new technology for very long. As a result, they lost their land because of their debts, and flooded the labour market. This proletarianization process is most evident with women. In 1951, 47.5% of women working in agriculture still owned their own farms, while only 14.7% did so in 1971. Due to the oversupply of labour, not all impoverished rural women can find work in the fields.

### **Effects of the "white" revolution**

The switch from subsistence producer to wage earner in the money economy also reduces the food supply, with women bearing the brunt, due to the traditional under-valuation of the female sex in Indian families.

The process of women workers becoming ever more marginal is even more evident in the case of the "White" revolution. This revolution was started to stimulate India's stagnating milk production and to let the milk flow from country to city. This was made possible by donations from the EC from its surplus of skim milk powder and butter oil which was reconstituted in India and started the flow. Conventional animal husbandry and milk production, which had been a classical domain of women, was revolutionized by crossbreeding with imported high-yield cattle and the establishment of a technological infrastructure, including dairies, cold storage depots, and automatic milk dispensers in the cities.

However, the key position of women was also revolutionized in the process. Before, they had to take care of an undemanding, robust cow which fed on hay and harvest wastes, whose milk they either sold themselves or processed for their own consumption as butterfat or

cheese. Today they have to feed, milk, and care for several high-yield cows which is more time-consuming because these highbred animals are more sensitive. Then they deliver the milk to the collection point of the dairy cooperative and are excluded from the processing and marketing of their own product. Their workload has increased, but their scope of activities has been reduced. Women's activities are now restricted to the domestic sphere. The "White" revolution has pushed women from the centre of the milk production process to the invisible edge, from the public domain to the private sphere. This process is a typical example of the worldwide trend to force women from the production process back to the domestic stove. The exclusion of women from modernized, mechanized work processes and the new sex-specific division of labour is exemplified in the research and processing centre of the largest dairy cooperative in the West Indian State of Gujarat. Of the approximately 2000 employees, only one is a female veterinarian, and only a few women are telephone operators. This exclusion is also becoming the rule at the institutional level, in the rural cooperatives: in 1979, there were 482 cooperatives in Gujarat and 85%, in some cases even 98%, of the members were men. Women are thus excluded from decision-making, management, and the control of the fruits of their labour. This systematic discrimination against women at the policy level was pre-programmed because the credits for breeding cows and bulls were extended not to the women who had the lion's share of the work, but to their husbands as heads of household.

There is also no compensation within the family for the women's additional workload. The high mortality rate among young women is an indication for their insufficient nutrition and overwork.

Even if family income rises because of increased milk production, this does not mean that the women's situation improves automatically. Everywhere in India one can

observe the phenomenon that men will use additional income for their own personal pleasure and spend it on alcohol and prestige items, such as transistor radios. The women who have earned this additional income with their extra work, in the end stand there empty-handed.

The "White" revolution has thus led to an overall loss of importance and prestige of women working in the dairy industry : men control technological progress just as they control the political sphere and public domain. They are also the beneficiaries of higher incomes.

Because men control the purse, they are the first to enter the world of western consumer goods and accordingly also progress at the cultural level, i.e. they are turning away from their own traditional culture. The watches on their wrists, the pants which they wear instead of the dhoti, visits to the movie theatre, or lately video films in the villages, which portray a dream world, widen the gap between men and women who still adhere to tradition and are still wrapped in their saris. As a result of increasing alcohol consumption and Hindi films, which still do not show kissing but instead quite regularly sexist force, such as rape, the aggressiveness of men towards women is increasing.

### **"Blue" revolution in fisheries damages role of women**

The "Blue" revolution has also destroyed the basis of the traditional division of labour between men and women. In the traditional fishing industry there was job equality : men rowed their catamarans along the coast and brought their catch to the beach where women placed the fishes into baskets, carried them on their own heads to the nearest market, and sold them there. For their own consumption, sometimes also for sale, they also conserved fishes by drying or salting, and they knotted nets. This traditional job division was destroyed when medium-sized motorboats came into use in

coastal waters and large trawlers in deep-sea waters. Since the fifties, fishing has become more and more the business of private, sometimes also foreign enterprises, of wholesalers, freezer and refrigeration equipment manufacturers.

The motorboats with their mechanized fishing gear over-fished during the last decade and their large, deep-drawing nets destroyed spawning grounds and fry. Small fishermen are the ones who suffer because of the seaworthiness and technological superiority of the modern fishing fleet and the ruthless exploitation of the maritime ecosystem. Because their boats are suitable only for coastal waters, few fishes are still wriggling in their nets, there is very little for their women to take to market, and in their own pots animal protein is becoming increasingly scarce.

The catch which is brought ashore by the motorboats is purchased by wholesalers who transport it to the markets by truck, where the women then buy a marketable quantity to sell in the streets. This not only reduced their profit margin considerably, but the women also lost control over the trade itself and are subject to a new dependency outside the family and fishing community.

The loss of traditional earnings possibilities in the fishing industry is not compensated by alternative opportunities in the revolutionized production process. The catch is processed by canning or deep-freezing on the trawlers or in modern factories where relatively few women find new employment, for instance, the low-paying peeling of shrimp. The majority of women have become unemployed because of the "Blue" revolution in the fishery sector.

Those women whose husbands have become labourers on the motorboats of private entrepreneurs complain that their men are at sea for days on end and that they are now solely responsible for the old and the young in the family. The loss in economic importance

## *Progress in India but not for Women*

and functions in public life is compounded by an increase in domestic chores, i.e. of unpaid work.

In Kerala in Southern India, women have lost their fight against the nylon nets imported from Japan. In neighbouring Tamil Nadu, fisherwomen fought successfully against further government licenses for the manufacture of mass produced nets – an attempt to throw sand into the gears of the revolution instead of being crushed by it.

Otherwise, the revolutions are rolling on, the green, and white, and blue ones. Independently from each other, and yet as a harmonious trinity, they cause women to lose their traditional central position in the subsistence and rural economy and push them to the sidelines of the new production technology. They have to work hard, but make very little money.

This threefold revolution also leads to price increases due to heavy capital investment in

production : many families can no longer afford the products of their own labour such as wheat, rice, milk, and meat. With the revolutionary transition from subsistence to market economy, women are assigned to the lower end of the new hierarchy and are locked into traditional activities because they are not allowed to become familiar with the new technology. Progress belongs to men and provides them with yet another justification for their patriarchal superiority. At the cultural identity level, cracks are appearing and new dynamics, which pull men and women towards opposite cultural poles.

This new polarization of the sexes by the development process – progressive men on the one side and traditional women on the other – represents a loss of status and power of women in society and in the family : economically and socially, they are becoming more marginal and they do not keep step with cultural development either – they are backward. They are, in fact, all-round losers of the revolutions.

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● Wichtench, Christa. Source: not known.

# **CURRICULUM MODULES**



# Preparation of Instructional Modules : Considerations

A. Gopalam

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It is a generalized practice for the preparation of instructional modules through a systematic process in which the important and pertinent aspects of learner friendliness and facilitative learning criteria is taken into consideration. The instructional modules differs, of course, depending on who is carrying it out, for what purposes. For example, where an individual programmer who is also a subject matter specialist develops an instructional module the process may well differ substantially from that used when a team of people is involved. The stepwise description for writing the instructional modules is given as follows.

## Step 1 Learning needs assessment

- Performance deficiencies – identify actual anticipated performance deficiencies or problems requiring some form of remedy or solution.
- Skill / knowledge deficits – identify those performance deficiencies involving skills / knowledge deficits for which some form of instruction / job aids are appropriate remedies or solutions.
- These are described are typically done concurrently in connection with an overall effort to ensure that is cost-effective, learning relevant and skill relevant and job-relevant.

## Step 2 Task analysis

- Mastery specification – analyses and specifies the on-the-job (or other) tasks

involved establishing the desired or mastery performance as the basis for :

- Designing the content and format for learning
- Deriving end-of-course or terminal objectives

## Step 3 Target audience analysis

- Target audience characteristics – identify their entry skills / knowledge and other characteristics sufficiently to permit informed decisions about :
- Prerequisites and the need to provide within – program branching (based on criterion pretests, prerequisite tests), formal remedial instruction, and minimum entry requirements.
- Media requirements associated with special characteristics (e.g. audio inputs where reading skills are a problem, etc.)
- Selection of representative learners for developmental tryouts and validation tests.

## Step 4 End-of-course objectives and criterion tests

- Objectives – derive from the preceding analyses the end-of-course (terminal) objectives, taking into account.
- Adequate behavioral specification (i.e. "behavioral objectives" that make clear the input stimuli, response mechanisms, feedback criteria)

- Analysis of critical learning problems (e.g. discriminations and generalizations, response chains or sequences, psychomotor deficiencies, proficiencies, rote associations), which effect media / simulation, decisions.
- The optimum degree of approximation or simulation of on-the-job tasks that is feasible in terms of cost and other practical considerations (media / simulation decisions)
- Recall requirements (short and long-term), that affect decisions about isolated / integrated practice.
- Criterion tests – specify the criterion tests needed to measure the attainment of the end-of-course objectives.

### **Step 5 Instructional design**

- Overall design – establish the general, overall design of the course, including such aspects as :
- Media appropriate to the objectives, target audience characteristics, and resources available
- Methods (application / practice exercises appropriate to the objectives-hands-on demonstrations, in-basket and other case problems, role-playing, etc.)
- Pretesting
- Criterion pretest for the course itself and for by-passing or skipping units within the program
- Prerequisite tests for either preventing unqualified learners from taking the instruction or providing within-course branching into remedial instruction.
- Sequence (the “main path” in which the objectives will be taught and options for

variations – “topical” outline or table of contents or what some call a course “map” or “profile”)

- Supplemental materials (separate illustrative / reference materials, which may include learning and instructional aids
- “Teacher” involvement (intended role of an instructor, which may require a separate administration manual)
- Time requirements (maximum / minimum time constraints, if any; handling of individual differences in learning times, etc.)
- Format / layout (distribution of frames on pages, response mechanisms, feedback location and types, etc.)
- Physical packages (such as total number of pages, media requirements, etc.)
- Special features (within-program directions for the earner, progress plotter, supplemental activities, glossary, index, etc.)
- General strategies – decide the general organization or structure of the frame sequences (exercises, lessons)
- Specific strategies – determine as feasible at this stage how each objective (or set of related objectives to be taught concurrently) will be taught; that is, specific strategies.

### **Step 6 Produce prototypes for testing**

- Editing : has an experienced instructional programmer “edit” the material prior to testing. This can be invaluable for identifying likely problems that may warrant revisions of the instruction prior to administration.
- Editing – technical! – it is equally important to have the material reviewed by a qualified

## *Preparation of Instructional Modules : Considerations*

subject matter expert / specialist to ensure that the content is technically accurate prior to testing.

- Editing – learner – certain kinds of “errors” in the material (e.g. incorrect feedback) can often only be spotted by an individual who goes through the material as a “learner”. Thus, to minimize feedback and other typographical errors likely to interfere with learning, it is best to have at least one person go through the material as a “learner” prior to testing.

### **Step 7 Developmental tryouts**

- Attitudes – in explaining the developmental tryout to the learners, emphasis should be placed on the purpose; that is, to test the material rather than to test the learner, to identify problems in the material so that revisions can be made to improve it.
- Learners – initial developmental tryout learners should be “better” rather than “poorer” learners, since problems they encounter will most likely also be problems for others. Subsequent tryouts can then use “average” and “poorer” learners.
- Method – developmental tryouts work best

with one or a small group of learners and key things to include are :

- Encourage writing of comments right in the materials (circling or underlining problem words, phrases, etc.)
- Encourage asking questions as they are put by the users.

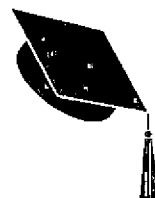
### **Step 8 Validation testing**

- Acceptance – some type of learner feedback form should be administered at the end of the test to determine the learners' reactions to the material and should be anonymous. For long courses it may be desirable to obtain such learner feedback at appropriate points within the program.
- Attitudes – in explaining the validation test to the learners (as well as in arranging for their participation), it is important that they be “motivated” to do their best and they understand fully the nature and purpose of the validation testing.
- Learners – deciding the number of learners to include and their characteristics is a pertinent problem. They must, of course, be genuinely representative of the target audience, since otherwise the validation results will have questionable validity.

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- Dr. A. Gopalam is Principal Scientist (Educational Psychology), National Academy of Agricultural Research Management, Hyderabad; *Paper prepared for : the Brainstorming Workshop on Engendering the Agricultural Curriculum*; December, 1999.



# Courses for Integration of Gender Dimensions



V Vasanthi Devi

**O**n the request of the Deans of various Agricultural Universities, a list was prepared of the different courses in the existing agricultural curriculum where gender dimension could be easily integrated. Forty-seven such courses were found.

## I B.Sc Agriculture

S.No	Course	Semester	No. of credits
1.	Rural Sociology and Educational Psychology	I	1+1=2
2.	Fundamentals of Extension Education and Rural Development	II	2+1=3
3.	Environmental Science and Agro Ecology	III	2+1=3
4.	Livestock Production and Management (including poultry)	V	2+1=3
5.	Farm Management and Natural Resource Economics	V	3+1=4
6.	Post Harvest Management of Fruits and Vegetables	V	1+2=3
7.	Communication and Diffusion of Agriculture Innovation	VI	2+1=3
8.	Farming Systems and Sustainable Agriculture	VI	2+0=2
9.	Rural Agricultural Work Experience	VII	0+18=18

## II B.Tech (Agricultural Engineering)

S.No	Course	Semester	No. of credits
1.	Agricultural Economics and Farm Management	III	3+0=3
2.	Extension Education	VIII	2+0=2

## III B.Sc (Dairy Science/Technology)

S.No	Course	Semester	No. of credits
1.	Milk Production Management	I	2+1=3
2.	Economic Analysis	II	2+0=2

### *Courses for Integration of Gender Dimensions*

3.	Dairy Extension Education	II	2+1=3
4.	Human Resource and Entrepreneurship Development	VII	2+0=2

### **IV B.Sc (Fisheries Science)**

S.No	Course	Semester	No. of credits
1.	Fisheries Economics	V	2+1=3
2.	Rural Sociology, Extension Education and Communication	VI	2+1=3
3.	Business Administration and Fisheries Legislation	VI	2+0=3
4.	Fisheries Work Experience	VIII	20

### **V B.Sc (Forestry)**

S.No	Course	Semester	No. of credits
1.	Introductory Economics	I	2+0=2
2.	Forest Ecology and Biodiversity	II	2+1=3
3.	Forest Tribology and Anthropology	IV	2+0=2
4.	Ethnobotany	V	2+1=3
5.	Forest Protection	V	2+1=3
6.	Social and Agroforestry	VI	2+1= 3
7.	Forest Management Policy and Legislation	VI	2+1=3
8.	World Forestry System	VI	2+0=2
9.	Extension Education and Communication Method	VII	2+1=3
10.	Environmental Science	VII	2+0=2
11.	Forest Work Experience	VIII	20

### **VI B.Sc (Horticulture)**

S.No	Course	Semester	No. of credits
1.	Introductory Economics	I	2+0=2
2.	Fundamentals of Extension Education	II	2+1=3
3.	Environmental Ecology	II	1+1=2
4.	Farming Systems	VII	1+1=2

5.	Horti-Silvi Pastoral Systems	VII	2+1=3
6.	Horticulture Work Experience	VIII	20

### VII B.Sc (Home Science)

S.No	Course	Semester	No. of credits
1.	Rural Sociology and Human Psychology	I	4+0=4
2.	Fundamentals of Clothing Construction	I	2+1=3
3.	Principles of Family Resource Management	I	2+1=3
4.	Infant and Prenatal Care	II	1+1=2
5.	Introduction to textiles and their care	II	2+1=3
6.	Introductory Home Science and Extension Education	II	2+0= 2
7.	Human Nutrition	III	3+0=3
8.	Early childhood development and education	III	2+2=4
9.	Housing and Space Management	III	1+1=2
10.	Late Childhood and Adolescence	IV	2+1=3
11.	Dyeing and Printing	V	1+2=3
12.	Dynamics of Marriage and Family	V	2+1=3
13.	Extension Training Management	V	2+2=4
14.	Children with Special Needs	V	1+1=2
15.	Population Education and Family Welfare	VI	2+1=3
16.	Programme Development for Rural Families	VI	2+2=4
17.	Community Nutrition	VI	1+1=2
18.	Institutional Food Management	VI	1+2=3
19.	Family finance and Consumer Education	VI	2+1=3
11.	Marketing and sales management	VI	1+2=3

Source: Indian Council of Agricultural Research, Education Division, Accreditation for Quality Assurance in Agricultural Education; New Delhi, 1998.

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# Journals



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## 1. INTERNATIONAL GENDER, SCIENCE AND TECHNOLOGY DIGEST

Website at <http://www.ifias.ca/gsd/gsdinfo.html>

## 2. GENDER, TECHNOLOGY AND DEVELOPMENT

Gender, Technology and Development is an international, referred journal which provides a forum for exploring and examining the linkages between changing gender relation and technological development. The diverse perspectives of the Asian region will provide the focus for discussion, but dialogues along East-West and North-South lines will also be an important aspect of the journal. The objective is to facilitate the recognition, promotion and co-ordination of opinions concerning the extended and shifting boundaries of meaning in gender, feminism, equality, technology and science for non-western societies and cultures. The Editors are supported by an international advisory board of experts and practitioners working in the field of gender and technology.

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## 3. WOMEN, INK

Women, Ink Publishers of the UN Development Fund for Women and the Intermediate Technology Development Group also have several titles on women, science and technology for development. For more information, contact Women Ink, 777 UN Plaza, New York, NY 10017, USA. Tel 1 (212) 687-8633, Fax 1 (212) 661-2704, email: [IWTC@igc.apc.org](mailto:IWTC@igc.apc.org).





## 1. GENDER STUDIES IN AGRICULTURE AND RURAL DEVELOPMENT

- **Gender Studies in Agriculture Group**

E-mail: [Gender.Studies@alg.vsl.wau.nl](mailto:Gender.Studies@alg.vsl.wau.nl)

Website : <http://www.bib.wau.nl/agralin/f2pubs.html>

- **Wageningen Agricultural University Database**

The Gender Database contains descriptions of journal articles and book chapters on gender, agriculture and rural development. Most concern the Netherlands, Western European countries, or Third World countries. Literature which is important for analyzing the position of women is also included, e.g., articles on feminist theory and methodology. Articles are selected from 240 agricultural and social science journals, and a number of book chapters are also included. At this moment the database contains approximately 6000 entries. The database is searchable online, and the articles and book chapters can be ordered through the Worldwide Web.

Website : <http://www.bib.wau.nl/agralin/f2pubs.html>

## 2. WOMEN AND GENDER STUDIES VIDEOTAPES

Website : [www.library.wisc.edu/libraries/WomensStudies/othsubj.htm](http://www.library.wisc.edu/libraries/WomensStudies/othsubj.htm)

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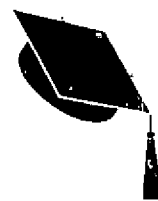
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Language English  
Director P.V. Satheesh, Hyderabad, India  
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Producer / Creator : Conceived by Michel P. Pimbert
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52 mins. 1987  
Language English  
Director Saba Dewan, Rahul Roy  
Producer ICAR  
Keywords  
Invisible work-women agriculture
3. **A Right Denied**  
45 mins. 1993  
Language English  
Director Abha Dayal  
Technical Support Call for Communication  
Producer CWDS  
Keywords Childcare – women – rights – law
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40 mins. 1995  
Language Marwari (English sub-titles)  
Director Sehjo Singh  
Producer Sehjo Singh and Anwar Jamal  
Keywords  
Women – Indira Gandhi Canal – land right
5. **Seeds of Hope**  
22 mins. 1996  
Language English  
Director V.Vijayakumar  
Technical Support Vijay Associates  
Producer MSSRF  
Keywords - Women-tribal-seed-conservation-agrobiodiversity
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84 mins. 1996  
Language Telugu and English  
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Director Shabnam Virmani  
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Keywords - Anti-liquor struggle – village women - Nellore
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11 mins. 1997  
Language English  
Director Maria Gemma Tibayan  
Producer MSSRF  
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27 mins. 1995  
Language English  
Director Chandita Mukherjee  
Producer N.A.  
Keywords - Minor Forest Produce – Tendu – Community Groups – Economic Development – Women – Tribals Environment – Forest Conservation – Forest Based Industry – Rajasthan – India
9. **Poverty in a Paradise – A Paradox**  
19 min 1999  
Language English  
Director Jnani Shankaran  
Producer MSSRF  
Keywords - Jeypore tract – Orissa – Biodiversity – Tribal People - IPR
10. **Yenna Pannikkittirundhe?**  
What were you doing?  
3 min 1999  
Language English, Tamil, Hindi  
Director Jnani Shankaran  
Producer MSSRF  
Keywords - Rural women - Multiple roles – invisible work

\* Available at: M S Swaminathan Research Foundation, Chennai



## Videos (B) \*

1. **State of India's Environment Part 8 – Valli's Story**  
Director Sanjiv Shah  
Keywords  
Bonded Labour – Landless – Women - Kerala - Andhra Pradesh - India
2. **State of India's Environment Part 6 – Equality & Dignity**  
Director Shubha Gupta  
Keywords  
Women- workers – Fishworkers – Kerala - Maharashtra - India
3. **Participatory Research With Women Farmers**  
Director P. V. Satheesh  
Keywords  
Agricultural Research – Women - Food Crops – Legumes – ICRISAT – Andhra Pradesh – India
4. **Jhilmil**  
Director K Bikram Singh and Madan S Rajan  
Keywords  
Anti Poverty Programmes – Sericulture – NGO – Women – Bankura – West Bengal – India
5. **Amrit Beeja : Eternal Seed**  
Director Meera Dewan  
Keywords - Traditional knowledge – Seeds – Women – Agriculture – Agricultural Systems – India
6. **Science for Survival**  
Director Ani King Underwood  
Keywords  
Traditional knowledge – Seeds – Women – Science – Scientific Development – India
7. **Sanabi**  
Director Aribam Singh Sharma  
Keywords  
Animal Care – Women – Manipur – India
8. **Patent Pending**  
Director Meera Dewan  
Keywords  
Agriculture – Seeds – IPR – Patents – Gatt – WTO – Food Security – Women – Karnataka – India
9. **Land & Ritual Among The Angami Naga**  
Director Kesang Tseten Lama  
Keywords  
Traditional Knowledge – Tribals – Women – Development – Agricultural Systems – Nagaland – India
10. **South Asian Women: Facing Disasters, Securing Life**  
Director N. A  
Keywords  
Women – Natural Disasters – Disaster Management – Disaster Preparedness – Cyclones – Health – Refugees – Conflicts – Bangladesh – Nepal – Sri Lanka – Pakistan
11. **On the Fence : Chipko Movement Revisited**  
Director Pramod & Neelima Mathur  
Keywords  
Chipko Movement – Popular Movement – Women – Forests – Uttar Pradesh – India
12. **Daughters of the Forest**  
Director Juha Rekola  
Keywords  
Firewood – Women – Forest – Environment – Development - Nepal

\* Available at Centre for Science and Environment, New Delhi; website : [www.cseindia.org](http://www.cseindia.org)