

COMPENDIUM

TRAINING PROGRAMME

ON

**Gender Sensitisation for Strengthening
Women Perspective in Agriculture**

(28-30 January, 2016)



**ICAR- Central Institute for Women in Agriculture
(Indian Council of Agricultural Research)
Bhubaneswar-751 003, Odisha**

Gender Sensitisation for Strengthening Women Perspective in Agriculture

(Compendium: Training Programme on 'Gender Sensitization for Strengthening Women Perspective in Agriculture' organized at ICAR-CIWA, Bhubaneswar during 28-30 January, 2016)

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PREFACE

Women have been contributing enormously to agricultural growth and development through their involvement in crop production, horticulture, animal husbandry, fisheries, natural resource management etc. Though the proportion of women workers in agriculture has declined, yet they constitute a significant workforce in agriculture. Globally, they constitute about 42% of economically active population in agriculture. Region-wise figures show that agriculture supports a very high proportion of economically active women, particularly in Asia and Africa and in India, it is about 62%. Women's contribution varies across regions, socio-cultural and agro-production systems. On the other hand, the persisting gender gap in access to and control of resources remains an important concern which has not only kept women in a vicious circle of low productivity but also has thrown up questions about inclusive and sustainable growth of the sector. Today, how to bridge the gender gap and empower women with new knowledge and technology is a great challenge, particularly in the context of socio-economic and climate related changes. Importantly, our approach to research, extension and development have not been gender sensitive and there is a general reluctance on part of a large section of researchers, extension and developmental workers to include gender component in programmes. While at global level there has been a lot of concern and action on empowerment of women in agriculture, efforts in India has been slow on this front. The first ever Global Conference on Women in Agriculture (GCWA) held in March 2012 at NASC complex, New Delhi also recommended gender sensitization of agri-researchers, extension and development personnel to integrate gender in agricultural research and extension to generate evidences on gender based outcomes of R&D interventions. Considering the above, the Training Programme on 'Gender Sensitisation for Strengthening Women Perspective in Agriculture' was organized to develop the competency of development and extension professionals in strengthening gender component in their development & extension programmes. The training material was designed keeping in view the requirements of the participants with different backgrounds. The contents included issues related to women in agriculture in various domains of extension & Development, methodologies for strengthening gender perspective in interventions, gender and data analysis, monitoring and evaluation of gender based R&D projects. All these were compiled to develop this Compendium which, we hope, will be useful for agricultural R&D stakeholders.

The training programme was organised under the outreach project entitled "Development and testing of institutional innovations for empowering women in agriculture" at ICAR-CIWA, Bhubaneswar. We are grateful to Dr. S. K. Srivastava, Director, ICAR-CIWA for his guidance and support in organizing the programme. We are also thankful to all the resource persons, who accepted our request and shared their valuable knowledge and experience with the participants. We thank all the Scientists, Technical, Administrative, Finance and other supporting staff of ICAR-CIWA for their whole-hearted support for the programme. Special thanks are due to Mr. B. C. Behera and Mr. Subrat Kumar Das for their continued support.

TRAINING PROGRAMME TEAM

CONTENTS

Topic	Page
ICAR-CIWA: Genesis, Progress and Activities for Gender Mainstreaming in Agriculture..... <i>Dr. S. K. Srivastava</i>	1-4
Gender Concepts and Gender Stereotypes..... <i>Dr. Sabita Mishra</i>	5-8
Role of Women in Agriculture and Allied Sectors <i>Dr. Sabita Mishra & Dr. L. P. Sahoo</i>	9-13
Gender Issues in Agriculture and Strategies for Mainstreaming <i>Dr. Sabita Mishra & Ms. Gayatri Moharana</i>	14-17
Tools for Gender Analysis..... <i>Dr. Sabita Mishra</i>	18-21
Understanding Gender Perspectives in Agricultural Research and Development..... <i>Dr. H. K. Dash & Dr. Ananta Sarkar</i>	22-26
Gender Disaggregated Data - Importance in Planning and Policy Making <i>Dr. H. K. Dash & Dr. Ananta Sarkar</i>	27-30
Gender Sensitization: Role in Reforming the Society and Impact <i>Dr. H. K. Dash & Dr. Shivaji Argade</i>	31-35
Integrating Gender Dimensions into Agricultural Research and Development Projects..... <i>Dr. H. K. Dash & Dr. Ananta Sarkar</i>	36-41
Extension Issues and Gender Mainstreaming..... <i>Dr. B. N. Sadangi</i>	42-47
Designing Survey for Generation of Gender Sensitive Data..... <i>Dr. B. N. Sadangi</i>	48-52
Annexure- I	
Annexure- II	
Annexure- III	
Annexure- IV	

ICAR-CIWA: GENESIS, PROGRESS AND ACTIVITIES FOR GENDER MAINSTREAMING IN AGRICULTURE

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INTRODUCTION

In the agricultural sector, women participate in a number of agro-production systems that govern the nature and extent of their involvement. There is a significant heterogeneity across regions, states, locations and context in the role of rural women and their participation in agricultural and other economic activities. Most significant agricultural activities undertaken by women include farming, post harvest management, horticultural crop production, livestock management, fisheries and homestead resources. In paddy, women are mainly involved in transplanting, weeding, harvesting, drying harvest, winnowing and seed storage. As far as total workload is concerned, women spend 40.2 percent of their time per season, performing transplanting (39.1 hours), harvesting (29.8 hours) and weeding (19.0 hours) as the major activities (AICRP Report). In sugarcane based cropping system, women participate in activities like manure and fertilizer application at first step, preparation of sugarcane sets for sowing, placing these sets into the ridges, irrigation, weeding, harvesting, tying the bundles, carrying sugarcane bundles and loading it in to the vehicle. Again these are not women dominant or exclusive activities and are performed jointly with males. The data on role profile indicates that joint participation of rural women with men was higher than independent participation of women in all activity areas.

Agricultural development cannot take place without fullest consideration from family life, general education of women, improvement of home conditions, nutrition, housing, sanitation, personal health, clothing and cultural arts. Therefore, attention should be given to these areas and the researchers and policy makers should sensitize themselves for the development and wellbeing of farm women. In rural India, the prosperity of the household depends on the prosperity of agriculture and allied occupation in any particular point of time vis-à-vis the role of women in innumerable activities connected with farming, dairying, sericulture etc. But the women hands are invisible even to this day, so it is not surprising that the agricultural extension activities are mainly a male oriented pursuit.

Genesis and Progress of ICAR-CIWA

Realizing that the research information and the technologies developed in the ICAR Institutes and State Agricultural Universities rarely incorporated the farmwomen perspectives and considering that there is a gap in the technology available at the research stations and the technologies suitable for farmwomen, the Working Group on Agricultural Research and Education constituted by the Planning Commission for the formulation of the Eighth Five Year Plan (1992-97) recommended establishment of National Research Centre for Women in Agriculture (NRCWA) to undertake research relevant to the needs of farm women in agriculture and home management. It also focuses on research for generation of jobs involving flexibility in time, duration and place of work for women. Accordingly, the ICAR established the NRCWA in the year 1996 at Bhubaneswar, Odisha and subsequently upgraded it as Directorate of Research on Women in Agriculture (DRWA) from the year 2008. A Sub-centre of ICAR-CIWA had functioned at CIAE Campus, Bhopal up to 2010. After up-gradation to the level of Directorate, the operational and administrative control of All India Coordinated Research Project on Home Science is vested with it. This unique institution is expected to catalyze and facilitate R&D institutions to bring in farm women perspectives in their

programmes and prepare women to take a lead role in technology development and dissemination. The Directorate has been upgraded and renamed as "ICAR-Central Institute for Women in Agriculture" (ICAR-CIWA) in the year 2015 under XIIth plan EFC.

Activities for Gender Mainstreaming in Agriculture

ICAR-CIWA carries out research programmes in various dimensions related to women in agriculture. These activities are carried out through the in-house, inter-institutional, network or collaborative and coordinated modes of research. The All India Coordinated Research Project (AICRP) on Home Science is operating in 10 centres at nine Agricultural Universities such as, AAU, Jorhat (Assam); PJTSAU, Hyderabad (Andhra Pradesh); CCSHAU, Hisar (Haryana); CSK HPKV, Palampur (Himachal Pradesh); GBPUAT, Pantnagar (Uttarakhand); MAU, Parbhani (Maharashtra); MPUAT, Udaipur (Rajasthan); PAU, Ludhiana (Punjab) and UAS, Dharwad (Karnataka) and UAS Bengaluru (Karnataka). Three more new centres viz., Central Agricultural University, Tura, Tamil Nadu Agricultural University, Madurai and Sardarkrushinagar Dantewada Agricultural University, Dantewada have been included in the XII five year plan. The technical plan of the project during XI plan period focused on development of gender specific database and training modules for farm women, technology interventions for drudgery reduction in agriculture, nutritional security & health promotion of farm families, promotion of vocational skills among adolescent girls, value addition to under utilised natural fibre resources and empowerment of rural women for livelihood security.

The ICAR-CIWA activities were focused in following thrust areas:

(i) Creating a repository of gender disaggregated data and documentation

Gender disaggregated information in the field of agriculture and allied areas are scanty and scattered. Such information need to be collected, collated, synthesized and published in order to make it available to the users.

(ii) Technology assessment & evaluation

Research efforts in NARS rarely take into account the needs of women which very often differ from that of men. As a result, there is differential adoption of technologies between men and women. It ultimately affects the productivity of women and agricultural production. Therefore, ICAR-CIWA identified relevant technologies in the fields of crop production, horticulture, animal husbandry, agricultural engineering and aquaculture and tested them in women perspective, and suggest refinement to make them women friendly. Technologies were assessed through on-farm participatory research involving women.

(iii) Farming system approach

In the wake of emerging problems related to sustainability, the focus has been shifted to farming system approach to produce agricultural commodities. Moreover, as farmwomen struggle to meet their diverse needs from different sources, they eventually spend a lot of time and energy in supporting their households. Therefore research on micro-level farming/agricultural systems has become urgent to develop sustainable livelihood options for women and their households.

(iv) Drudgery assessment and reduction

Farmwomen face a lot of drudgery while performing farming operations and household activities. Even women suffer from different health problems, which adversely affect their working efficiency and family welfare. But, data on the extent to which women are affected in the working environment and the effect on their work output are limited. Hence, studies were commissioned on drudgery assessment and development of reducing tools and implements suitable drudgery.

(v) Gender sensitive extension

Access of farmwomen to extension/information is very limited due to various reasons. One reason is lack of required degree of gender sensitivity of our extension system and lack gender focused

extension approaches and models for dissemination. Extension modules on various subject matter areas like integrated farming system, post-harvest technology, integrated pest and nutrient management, poultry and fish farming, home garden and homestead farming were be prepared for rural women.

(vi) Capacity building of R & D functionaries

Scientists, both in research and extension systems, need orientation to appreciate the vital role of women in agriculture and the areas in which their efficiency of work could be enhanced either by technological intervention in agriculture and allied sectors on important problems or by improving their knowledge and skills for better job performance. In the first instance the scientists of ICAR-CIWA need to be given required training in certain identified areas so that the centre can address researchable issues on priority. Based on the research outcomes, suitable training capsules are being developed according to the need of various stakeholders like, directors, scientists, policy makers, KVK & development functionaries and women leaders.

(vii) Resource management

Resources, both natural and household, provide an important base for livelihood of women and their families. The means of livelihood that women adopt depends on resource endowment of a particular region, their households and access to such resources. The resources can be common property resources such as forest, water bodies, fallow lands etc. and household resources like cultivable lands, ponds, livestock and different assets. Lack of adequate resources at household level and poor management of existing resources have made poor in general and women in particular vulnerable to livelihood insecurity. More importantly there is need to improve the resource use efficiency on one hand, and make sustainable use of resources on the other. Hence, studies taken up related to women's role in resource conservation and management; and S&T options to harness sustainable benefits assume immense significance.

ICAR-CIWA has being working on refinement/ development of drudgery reducing tool for farmwomen under the research projects and AICRP on Home Science. These include tools and equipment for farming operations and household management. Nineteen technologies were field validated in the operational villages such as seed bag, fertilizer trolley, manual seed drill, mat nursery, vegetable plucker, vegetable bag, water bag, face protector, dung collector, fodder chopper, fodder collector, ground nut stripper, groundnut decorticator (sitting & standing), groundnut stripping frame, long handle fork, maize sheller, mango harvester, potato picker and revolving stool. It was observed that among the technologies, mat nursery, revolving stool, groundnut decorticator was found above 70 per cent adoption where as long handle fork, water bag, face protector, mango harvester, vegetable plucker, maize sheller, ground nut decorticator (sitting type) and fertilizer trolley found 50 – 70 per cent adoption and dung collector, vegetable bag, groundnut stripper, potato picker and fodder collector found the adoption of 30-50 per cent. Besides addressing drudgery issues the ICAR-CIWA also carries out of research on various disciplines in agriculture with emphasis on improving the food and nutritional security of the farm families.

Conclusion

ICAR-CIWA is the only institution under Indian Council of Agricultural Research (ICAR) to address gender concerns in agriculture for achieving good performance of agriculture by enhancing the productivity of women engaged in agriculture. To address the issues of women in agriculture for farm mechanization and to reduce their drudgery with increased output researches are carried with the aim to frame strategies for reducing drudgery of farm women to fabricate and disseminate the available drudgery reducing farm tools and equipment to stake holders. In order to demonstrate the output and utilities of gender research, strong partnerships with ICAR institutions,

KVKs, SAUs, development agencies, NGOs and international organizations would be worked out in future.

Efforts for gender mainstreaming are required to bring social, cultural and attitudinal changes which not only strive for ending the invisibility of women's contribution to agriculture, but of eliminating the drudgery that blights the lives of millions of working women in India. It is important to recognize that women's empowerment through technologies can raise their status only through a meaningful stimulation. There is therefore, needed to have the participation of women at every level in decision making, program formulation and implementation.

GENDER CONCEPTS AND GENDER STEREOTYPES

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Understanding the gender concepts and their uses in agriculture development constitute the basis of learning. Each concept has broad definition and operational part according to the field of development. Some of the concepts commonly used in gender studies are mentioned below which would help the participant to formulate gender sensitive research projects.

CONCEPTS

Sex: Biological differences between women and men, which are universal, obvious and generally permanent.

Gender: The socially constructed differences in roles and responsibilities assigned to women and men in a given culture or location and the societal structures that support them. Every society has different 'scripts' for male and female members to follow. Thus members learn to act out their feminine or masculine role, much in the same way as every society has its own language.

Gender roles: The role refers to the activities performed by men and women in different situations and in different times and within the different cultures, classes, castes, ethnic groups etc. The roles of men and women are shaped by various forces such as social, cultural, economic, environmental, religious and political. The gender roles may change depending on the socio-cultural dynamics of the society.

Triple roles: Are roles (tasks and responsibilities) men and women may have related to: production (producing money value), reproduction (the child bearing and rearing responsibilities required to guarantee the maintenance and reproduction of labour force), community management/ community politics (producing community goods and well beings).

Gender analysis: Gender analysis is a tool to better understand the realities of the women and men, whose lives are impacted by planned development. These include gender issues with respect to social relations; activities; access and control over resources, services, institutions of decision-making and networks of power and authority and needs, the distinct needs of men and women, both practical and strategic.

Access to resources: Refers to right and opportunity of men and women to use the resources as per one's need to carry out his/ her activities.

Control over resources: Refers to the rights and power of men and women to decide on the use and destination of the resources.

Practical gender needs: Practical gender needs are the needs women identify in their socially accepted roles. Practical gender needs do not challenge the gender divisions of labour or women's sub-ordination position in society, although rising out of them. These are a response to immediate perceived, identified necessity, within a specific context. They are practical in nature and often are concerned with inadequacies in living conditions such as water provisions, health care and employment.

Strategic gender interests: The needs women identify because of their subordinate position to men in their society. These vary according to particular context. They relate to gender divisions of labour, power control and may include such issues as legal rights, domestic violence, equal wages etc. Meeting strategic needs helps women to achieve greater equality. It also changes existing role and therefore challenges women's sub-ordinate position.

Gender equality: Gender equality means that women and men have equal conditions for realizing their full human rights and potential to contribute to national, political, economic, social and cultural development, and to benefit from the results. It is therefore the equal valuing by society of both the similarities and differences between women and men, and the varying roles that they play.

Gender equity: Gender equity is the process of being fair to women and men. To ensure fairness, measures must often be available to compensate for historical and social disadvantages that prevent women and men from otherwise operating on a level playing field. Equity leads to equality.

Gender blind: Gender blind is a person who does not recognize that gender is an essential determinant of life choices available to people in society.

Gender bias: Perception that both sex are not equal and do not have similar rights to resources.

Gender discrimination: Unfavorable treatment of individuals on the basis of their gender

Gender mainstreaming: It is the process of assessing the implications for women and men of any planned action, including legislation, policies and programmes, in all areas and at all levels. It is a strategy for making women's, as well as men's concerns and experiences, an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality

Women and development: It emerged from a critique of the modernization theory. The theoretical base of wad is dependency theory and focuses on relationship between women and development process and examines the nature of integration. It is concerned with women's productive role and assumes that once organizational structures become more equitable, women's position would also improve.

Gender and development: The gender and development seeks to base interventions on the analysis of men's and women's roles. It questions the basis of assigning specific gender roles.

Gender planning: Gender planning is done only on basis of gender needs, gender needs assessment is an important aspect of the whole process. Gender planning is undertaken with the objectives of achieving gender equity, equality and empowerment through practical and strategic gender needs.

GENDER STEREOTYPES

Socio-cultural explanations are more appropriate behind development of perceptions of men and women on gender development. Culture prescribes certain activities in a different way for men and women. We often call these as gender stereotypes. On the basis of gender, society expects typical behaviour patterns e.g. Women are stereotyped as being caring, soft, obedient, shy, weak, protection seeking, while men are stereotyped as being strong, aggressive and courageous. The stereotypic views on men and women's role in workplaces are important limitations to growth and development of gender. In the developing countries it is more pronounced and has brought gender inequalities in different spheres of development including agriculture. The personnel in the

agriculture research and extension systems also endorse the stereotypic views on the role of men and women in agriculture and accordingly address the needs and interest of the farm women. Gender sensitization of the scientists, extension functionaries and project managers can help in overcoming the gender stereotypes to harness the potentiality of the rural women in agriculture. In an exercise done by the participants of a workshop the following stereotypes of farm men and farm women were found which are presented in the table given below.

Gender stereotypes

Farm men	Farm women
• Dominant	• Recessive
• Tough	• Soft & tender
• Disorganized	• Considerate
• Less patience	• Patience
• Hasty	• Inside
• Outside	• Clever
• Less dynamic	• Dynamic
• Harsh	• Sensitive
• Hard working	• Responsible
• Strong	• ⅔ of a man
• Head	• Back bone of agriculture
• Emotional	• Less aggressive
• Humility	• Docile
• Do not recognize	• Sweet voice
• Materialistic	• Weaker
• Do not cry	• Multi roles
• Less emotional	• Highest talent & potentiality
• Crocodile skin	• Hard worker
• Responsible	• Adjustive
• Earning	• Co-operative
• More education	• Sub-ordinate
• Problem tackling	• Dependable
• Egoistic	• Emotional
• Adventures	• Uneducated
• Selfish	• Sympathetic
• Intelligent	• Loving & caring
• Aggressive	• Logical
• Money minded	• Social
• No sacrificing	• Sacrificing
• Practical	• Tactful
• Suspicious	• Jealousy
	• Polite
	• Shy
	• Sharing
	• Analytical

Farm men	Farm women
	<ul style="list-style-type: none">• Broad
	<ul style="list-style-type: none">• Egoistic
	<ul style="list-style-type: none">• Acceptance
	<ul style="list-style-type: none">• Burden taking
	<ul style="list-style-type: none">• Oppressed

ROLE OF WOMEN IN AGRICULTURE AND ALLIED SECTORS

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In achieving food and nutritional security through agricultural production women play a crucial role. They work as female agricultural labourers, as farmers, as co-farmers, as female family labour and (with made out-migration, widowhood, etc) as managers of farms and farm entrepreneurs. In many rural areas, migration of men and other changes in farming systems are placing even greater burdens on women, who are left behind to manage agriculture and entire household alone. Research on women's time utilization revealed that on an average women work for 15-16 hours a day out of which 7-8 hours in peak and 5-6 hours in lean season are spent in farm work. Also women are involved in labour intensive, monotonous, repetitive and drudgery prone work, which are carried out manually, leading to mental and physical exhaustion and occupational health hazards.

Depending on the region and crops, women's contributions vary but they provide pivotal labour from planting to harvesting and post-harvest operations. Traditionally, women had usufruct rights to the community land. But after the land reforms, land titles were given to men, denying women's access to land. In general, women in tribal households enjoy more decision-making power than women in many other Indian households because of their greater contribution to household income (Yadama, Pragada and Pragada, 1997).

The following table gives the gender statistics on work participation in India.

Key Gender Statistics On Work Participation In India

Sl. No.	Parameters	%
1	Overall work participation in India	39.25
2	Work participation rate amongst women	25.6
3	Work participation rate amongst men	51.9
4	Cultivators to total workers	31.7
5	Agricultural labourers to total workers	26.7
6	Women cultivators amongst total cultivators	32.36
7	Women amongst total agricultural labourers	46.62
8	(men) cultivators amongst total men workers	31.34
9	(women) cultivators amongst women workers	32.51
10	(men) agricultural labourers amongst total men workers	20.82
11	(women) agricultural labourers amongst women workers	39.43

Source: Census 2001

Although women currently provide 60-80% of the agricultural labor, they have limited access to the resources and opportunities needed to maximize and profit from their contributions. Limitations constrain farmers' ability to improve their lives and that of their families and the transformative power of agriculture to alleviate poverty and hunger.

Labor inputs in rainfed rice production (days/ ha)

Country	Villages	Total	Male	Female
Indonesia	Jakenan Central Java	161	54	46
	Sumber Central Java	178	59	41
Thailand	Ban Sai Khram,	104	45	55
	South Ban Don Paw Daeng	102	46	54
Philippine	Carosucan, Sta. Barbara	133	73	27
	Tampac, Nueva Ecija	188	68	32
Cambodia	Kandal and Takeo	167	54	46
Vietnam	He Thu District	105	45	55
Laos	Khok Nghai, Xaythani	110	24	76
	Ak-sang, Phonethong	117	38	62
India	Chandpur, faizabad	187	16	84
	Mungeshpur, faizabad	132	33	67
	Sariyawan, faizabad	211	45	55
	Khanpur, faizabad	210	24	76
Nepal	Naldung, nagarkot	269	42	58
	Mohana, rantnagar	101	50	50
	Baghmara, rantnagar	95	45	55

(Thelma r. Paris, Sept 23, 2009. Gender considerations in partnership design and management strengthening partnerships and networks ICRISAT, Patancheru, A.P. India)

Participation of women in agriculture also varies in irrigated and rainfed situation. Studies conducted in nine states in India, under AICRP on home science of DRWA (AICRP Annual Report, 2007 & 08) indicated that independent participation of women was more in homestead-based agriculture. Joint participation in crop production activity was 75% for major crops, 79% for horticulture and 51% in post harvest operations. In livestock work participation rate of women was 58% and in fisheries about 95%. Highest participation of women in agriculture was observed in Himachal Pradesh and lowest in Uttarakhand and in the latter joint participation was prevalent.

States/UTs with distinction in gender work participation

Sl. No.	Parameters	State/UT	%
1	Highest overall work participation rate	Mizoram	52.7
2	Highest men work participation rate	D & d	65.5
3	Highest women work participation rate	Mizoram	47.6
4	Highest % of cultivators amongst workers	Himachal Pradesh	65.5
5	Highest % of al amongst workers	Bihar	48.0

Sl. No.	Parameters	State/UT	%
6	Highest % of men cultivators amongst men workers	Nagaland	55.68
7	Highest % of women cultivators amongst women workers	Himachal Pradesh	86.2
8	Highest % of AG. Laborers amongst workers	Bihar	48.2
9	Highest % of women al amongst women workers	Bihar	63.2
10	Highest % of AG. Laborers amongst men workers	Bihar	42.7
11	Highest % of (C +AL) amongst workers	Bihar	77.4
12	Highest % of (C +AL) amongst men workers	Bihar	74.3
13	Highest % of (C +AL) amongst women workers	Himachal Pradesh	89.0

C = Cultivators

Al = Agricultural Labourers

Rice is widely grown in southern, eastern and northeastern states. Wheat is mainly grown in Punjab and Haryana. Jowar and bajra are important food grains in dry land areas. Assam and west Bengal are famous for tea, whereas Karnataka, Tamil Nadu and Kerala are coffee and coconut producing states. In certain areas in India women play a key role as seed selectors and in seedling production. 'feminization' of agriculture in countries like china and Nicaragua has increased women's participation in seed management. In other cases, the traditional role of women in seed management has been marginalized by the introduction of modern cash crop varieties through extension programmes that target male farmers. In villages near Cuzco, Peru. Among the women, it is the older and poorer women farmers who know most about the native varieties, they hire their labour to the wealthier farmers in their community. They harvest and select the potatoes in the fields of the richer farmers' fields (Zimmerer, 1991).

Horticulture sector

Small scale production of vegetables, fruits, flowers, mushroom, vermin, seeds, seedlings in the village farms served as a source of employment. Women are found to play a role in racing and nursing the crop and selling them in the weekly market. Horticulture as an industry is management oriented requiring immediate post harvest processing due to its perishability and women are found to participate in inter-culture and harvesting. Gender issues in horticulture involves drudgery of inter-culture operations and harvesting.

Livestock sector

In India, livestock plays a multi-faceted role in providing draught power for the farm, manure for crops, and energy for cooking and food for household consumption as well as the market. In animal husbandry women have a multiple role. With regional difference, women take care of animal production. Their activities vary widely ranging from care of animals, grazing, fodder collection, cleaning of animal sheds to processing milk and livestock products. In livestock management, indoor jobs like milking, feeding, cleaning, etc. Are done by women in 90% of families while management of male animals and fodder production are effected by men (Narayanan, 1997). Women accounted for 93% of total employment in dairy production (World Bank, 1991). Dung composting and carrying to the fields is undertaken by women. Women also prepare cooking fuel by mixing dung with twigs and crop residues. Though women play a significant role in livestock management and production, women's control over livestock and its products is negligible.

Forestry sector

The Indian population, particularly the rural, is highly dependent upon forests. Fuel wood contributes 84% of the total household energy consumption (undp, 1997). There are 66.5 million tribals in India and with few exceptions, the majority of them are forest dwellers (fao, 1997). Unfortunately, forests are deteriorating massively due to encroachment of agricultural production, mining, construction of dams, industrial and railway demand.

Gender roles in using forest resources vary widely depending upon the region as well as socioeconomic class and tribal affiliation. Rural Indian women's interface with the forests is varying - gathering, wage employment, production in farm forestry and management of afforested areas in the community plantation (Saxena, 1991). In India, women are the major gatherers and users of a much more diverse range of forest products than men. Depending upon the socio-cultural variations among different communities, primarily non-timber forest products (NTFP) are collected by women and timber by men (Sarin, 1998). In several parts of India, large proportions of the population depend on NTFP as their main source of livelihood. Apart from fodder and fuel, women collect food, medicinal plants, building materials, material for household items and farm implements. Sal and tendu leaves are primarily collected by women. As women are the ones who have traditionally been collecting forest products, they possess the knowledge of properties and potential uses of these products.

Fishery sector

In India, nature and extent of women's participation in fishery varies across the states. Fish drying/curing, marketing and hand braiding and net-mending are the main areas of women's involvement in Tamil Nadu, Andhra Pradesh and Orissa. Women are also involved in shrimp processing in these states. In addition, in Andhra Pradesh, women are engaged in Mollusc and shell collection on a seasonal basis in a few places along the coastline. However, marine fish capture is a men's domain (fao, 1980). Among the mangroves of Bhitarkanika on the Odisha coast, both women and men fish in the fresh water estuarine areas. Men cast nets while women and children catch fish with hands. But fishing by boat in the flood tides is exclusively performed by men (Kanvinde, 1997). In contrast, women's participation in small-scale fisheries is very limited in West Bengal. Even ancillary industry, which in the other Indian east coast states is a women's domain, is dominated by men, as a relatively low number of days in a year is spent on actual fishing. In the fishing villages, fish drying/curing is performed by both women or men who do not belong to the fishing community. In coastal aquaculture, women are involved in prawn and seed collection to a very limited extent (FAO, 1980).

Environmental sector

Deforestation has increased time and distance involved in grazing and collection of fuel and food. Distance to forests or other sources of fuel, type of farming system, etc. have explained increases ranging from 45 minutes to 5 hours in women's work time (World Bank, 1991). Moreover, it has also threatened income generating opportunities for women by affecting livestock rearing and collection of NTFP. Reduced or non-availability of NTFP has shifted women from self-employment to wage employment. In areas where traditionally men also collected fuel wood, deforestation resulted in decrease in men's participation, as it was no longer possible to collect fuel wood in bulk (CPSW, 1992).

Women play a key role in both land use and management. They supply inputs from the forests as fertilizer to the soil as well as fodder for the cattle, which produce fertilizer for the soil. In India there are women-headed movements for forest protection such as Chipko and Appiko. Women have also been the source of knowledge relating to conserving and maintaining the quality of water. Depleting water resources have also impacted women severely in terms of longer walk and more work, as they are principal collectors of water. In the island ecosystem of Lakshadweep, off the coast of Kerala in the Arabian sea, women are more conversant with the resources around their homes and along the reef and shore, while men who go further afield to fish and collect coconuts are more knowledgeable about land, lagoon and sea (Hoon, 1997).

Rural production sector

Women in rural India generate income in various ways. Women are highly involved in processing of the NTFP, particularly in small-scale enterprises. This includes basket, broom, rope making, tasar silk cocoon rearing, lac cultivation, oil extraction, and bamboo works, etc. Women constitute 51% of the total employed in forest-based small-scale enterprises. However, this does not mean that men do not have any role in these activities. Among the scheduled-caste weavers in Orissa, men collect grass for basket making while women cure it and make the basket (Kanvinde, 1997). In the Jeypore tract (Orissa), men and women are equally involved in collection, processing and marketing of forest products such as grass, bamboo and resin (Sharma, Tripathy and Gurung, 1997). But among some tribal in Arunachal Pradesh, all the tasks related to basket-making is considered men's work (Krishan, 1997).

Food security sector

In India, food security as a national objective was placed on the policy agenda much earlier than in other developed and developing countries. With the green revolution technology, India has achieved self-sufficiency in food grains. Women's key role in the production of major grains and minor millets illustrates their invaluable contribution to the food security. In addition, women play a crucial role in ensuring supply of food as food vendors and post-harvest processors of livestock and fishery products. As major buyers of family food and meal-makers, women ensure adequate food security. As primary providers of nutrition to the young children, women are the major decision-makers in ensuring nutrition to the next generation.

GENDER ISSUES IN AGRICULTURE AND STRATEGIES FOR MAINSTREAMING

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Women compose one-half of the world's population and perform two thirds of the world's work hours, yet are poorer in resources and poorly represented in positions of power. These inequalities are seen in all parts of the world. Without acknowledging gender inequalities, economic development and globalization cannot be understood. At present situation, gender bias is a universal phenomenon. The following are some of the issues the farm women face.

1. Lack of Extension Service: All agricultural services still have gender bias in favour of men. Women's work remains invisible to extension workers and policy makers so that the extension and research priorities- are directed to cash and export crops rather than food crops for domestic consumption. Hence much research and extension support is not available on technologies appropriate for women's multiple tasks. It is often assumed that men are the heads of households and they will pass on the extension information to women in the households. The fact is that male migration has lead to increased women headed households but enough technological support is not available to such women. Women are generally by passed in development efforts. For example, group discussion meetings are usually held in villages involving mostly men. Further, the venue and timing of such meetings are inconvenient for women and hence most needy are not able to attend, so is the case with training. While designing a training programme for women their dual rather triple burden of child rearing, farm work and household responsibilities is not given due consideration. Its venue, timing, duration, content and methodology are not very appropriate for women. Extension workers, almost exclusively male, aim their advise at men and at men's activities and crops. Extension personnel and researchers often overlook the constraints faced by women due to lack of resources, time, over burden, cultural reasons, inability to leave the children, which may prevent women from attending the demonstration and trainings. Lack of women extension workers and the gender relevant extension training material.

2. Gender issues in land ownership: Women's lack of ownership of land/ access to land continues to be major obstacle to increasing their contributions and benefits. Access to land affects their decision-making. Limitations of land access hamper the long term planning. Women headed households suffer by land constraints as their credibility to resources also get affected. Women who do not own the land they work on are less inclined to invest precious time and scarce resources in long term and improvements such as irrigation or drainage systems, terracing, tree planting and other activities that maintain soil fertility. Moreover, women who do not own land are usually denied access to agricultural support services such as credit for purchasing inputs, training in land and water development and water supplies for irrigation.

3. Over burden of work: Women suffer the brunt of triple responsibilities- agricultural production, reproduction, and nurturing. Research on women's time utilization revealed that on an average women work for 15-16 hours a day out of which 7-8 hours in peak and 5-6 hours in lean season are spent in farm work. Also women are involved in labour intensive, monotonous, repetitive and drudgery prone work, which are carried out manually, leading to mental and physical exhaustion and occupational health hazards.

4. Gender bias in development policies: Since women's work is invisible & their contribution not recognized as paid work they are treated as "consumers" rather than "producers". Hence development policies are lopsided not always favouring women.

5. Limited Access to production Resources: It is an accepted fact that farmwomen play crucial roles in production, storage and processing of food in most societies. Despite playing a pivotal role in food production women face several hardships, in case of breakdown of family due to death of husband, divorce or desertion; women are rendered landless because no assets are no women's name. Even if they have land they are constrained for money and other resources (inputs and technical knowhow) required for cultivation. Agricultural development programmes are usually planned by men and aimed at men. Mechanization, for example, alleviates the burden of tasks that are traditionally men's responsibility leaving women's burdens unrelieved or even increased.

6. Out Migration of Men: In many rural areas, migration of men and other changes in farming systems are placing even greater burdens on women, who are left behind to manage agriculture and entire household alone. The figures on male out migration from 74 developing countries indicate that the incidence is highest in Sub-Saharan Africa (22 per cent), and Caribbean (20 percent), and lowest in the Near East (16 percent) and Latin America (15 percent) (Buvinic, Youssef, 1978). In areas of high out migration males, the percentage of household heads which are de facto headed by women is much higher, reaching 63 percent in one Southern African country. Women heads of households are much more likely to work for wages in agriculture than other women due to the resource constraint. It has been observed that extension services, cooperatives and credit support are less available for women household heads than for men.

7. Socio-Economic Status: Women's share of work in agriculture is greatest among small farmers. When holdings are larger, women may withdraw from work in the field or supervise hired female labour. Women in landless households spend twice as much time working for wages in agriculture than do women in families with land.

Since rural women contribute 50 percent or more of the total family income in some cases, women's access to income they control can be vital for family welfare. This is so in many societies where men and women are expected to provide different kinds of income items for the family and where the family's daily food is largely the women's responsibility. In these cases men who earn cash from the sale of their crops tend either to reinvest it to increase productivity, or to use it for personal items and consumer goods. Improvements in their income need not therefore increase the amount or quality of food available to their families. Women farmers, on the other hand, earn comparatively little cash but are likely to spend a larger portion of it on family food. Therefore, improvement in family/child nutrition is more strongly associated with the increase in mothers' incomes than they are with the increase in aggregate income (Acharya et.al., 1981; Kumar, Shubh, K. 1977; and Quizon, et.al. 1978).

8. Shift towards Cash Crops: Introduction of cash crops changes the pattern of household labour allocation by diverting labour from subsistence crops. When women are expected to provide labour for cash crops, they have less time available for subsistence agriculture. The income from cash crop usually comes under the immediate control of men through the practice of directing inputs, credit and extension to heads of household.

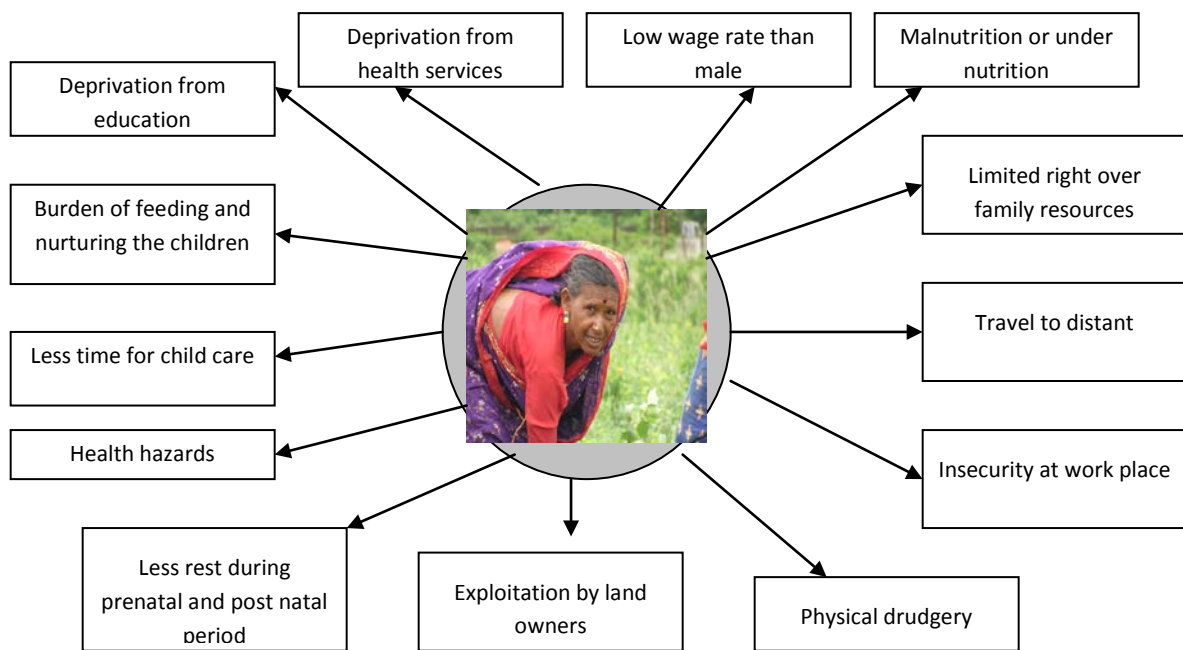
9. limited access to market: Women's efforts to expand the volume of their income generating activities are thwarted by their limited access to marketing facilities and services. Although women worldwide are active as traders, hawkers and street and market vendors, little has been done to assist them with improved transport and market facilities. Even in the countries where women

traditionally have an important role in the wholesale trading of goods, disadvantageous such as illiteracy or their limited legal capacity prevent them from being full-fledged members of formal service institutions (FAO, 1998).

10. Seasonal employment: Women bear the brunt of hardship arising out of seasonal unemployment/underemployment.

11. Lack of Education: Due to illiteracy women are forced to work as unskilled labourers. One study on agricultural productivity showed that four years of primary education increased farmers' productivity by up to 10 percent, and the benefits of education for women farmers can be even greater. A cost benefit analysis carried out by the World Bank indicated that that if women received the same amount of education as men, farm yields would rise by between 7 and 22 percent, while increasing women's primary schooling alone could increase agricultural output by 24 percent. It also enables women to earn higher wages, a recent International Labour Organization (ILO) report states that each additional year in school raised a women's earnings by about 15 percent, compared with 11 percent for a man.

12. Issues of women agricultural labourers:



STRATEGIES FOR MAINSTREAMING: Gender perspective is a theoretical and methodological approach. Gender mainstreaming is incorporating gender perspective into policies, plan, programmes and projects to ensure that these impact on women and men in an equitable way. Gender mainstreaming refers to the areas of gender concern in agriculture,

- Ergonomic data like: cost data, muscular strength data, and aerobic capacity data on farmwomen need to be gathered for different operations and equipments for designing women friendly farm equipment and to determine the suitability of the equipment to them by following participatory research approach.

- In order to adapt to the challenge posed by greater agro-ecological and socio-economic diversity, the link between extension and research need to be strengthened. This will also help to ensure that local knowledge and practices are incorporated into research design.
- At present, extension agents are predominantly male. Therefore, there is an urgent need to sensitize them about the needs and problems of women workers and other gender related issues in order to better identify women's and men's needs and constraints, priorities and opportunities, to ensure that technological packages meet their requirements. Employment of more female extension personnel would facilitate in addressing the needs of women farmers more effectively.
- Training should be made available to women in the use of technologies. The farmwomen need to develop adequate skills that increase their work efficiency. Therefore field training/extension methodologies should be participatory and gender sensitive. Training materials methods and other infrastructure required for training must be adapted to the needs of women farmers and to their level of literacy.
- Promote an equitable relationship for both men and women in terms of sharing work and family responsibilities and eliminate factors, which subordinate women.
- Sensitizing public, private agencies, policy makers, planners on the gender perspective in environmental and developmental issues.
- Gender considerations should form an integral part of research. Efforts made towards gender mainstreaming, identification of gender issues and gender sensitization will help in addressing gender concerns and increasing productivity.
- Promoting, supporting and sustaining gender mainstreaming through participatory gender policy formulation; review of existing policy and planning gender sensitization documents and workshops, development of gender checklists and guidelines; development of incentive systems for staff; forming internal gender networks and committees to support for gender mainstreaming.
- Recognition: to women's capability and their potential to actively participate in agricultural management is to be recognized by the policy makers.
- Recognizing the gender based differences in roles and responsibilities and contribution of different socio-economic groups. Recognizing the value of men's and women's knowledge, skills and practices and their right to benefit from fruits of their labour.
- Planning at the local panchayat level should be gender-sensitive and should have gender/sex-segregated information to support for local development efforts
- Agricultural education institutions and training centers should develop regular curricula to integrate a gender approach in all technical areas of agricultural sector

Conclusion

Therefore, the planning team has to be gender balanced, well trained on gender issues and show a high degree of gender awareness. Agriculture is a dynamic sector and rapid changes occur such as those in environment and climate, technologies, development priorities, impact of changes in other sectors and social changes such as family structure, migration and international policies such as globalization and liberation. While creating new opportunities these changes also pose challenges not only to the government but also to the people and demand strategies and programmes to equip them to meet the challenges. Research and extension also need to tune the strategies to the changing situation.

TOOLS FOR GENDER ANALYSIS

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What is gender analysis: As men and women perform different roles their needs and preferences also vary. The gender analysis will help to identify and prioritize the needs & preferences and develop a more suitable, holistic, broad based and sustainable livelihood strategy. The basic gender concepts provide the base for gender analysis which focuses on understanding and documenting the differences in gender roles, activities, needs and opportunities in a given context. Gender analysis is a tool to better understand the realities of the women and men, whose lives are impacted by planned development. These include gender issues with respect to social relations; access and control over resources, services, institutions of decision-making and networks of power and authority; and needs, the distinct needs of men and women, both practical and strategic.

Gender analysis focus: It focuses on three sets of questions like: (i) who does what, when and where (ii) who has access to or control over resources for production and (iii) who benefits from each enterprise.

Why do gender analysis in agriculture: The data about the gender roles would provide the basic knowledge which will indicate the problems and priorities in gender mainstreaming. The agriculture research projects, extension and training programmes must be tailored in a way to provide equal opportunity to both men and women. The analysis of the roles also helps us to draw the gender issues in the field of agriculture and allied fields. The analysis may find ways and means in terms of facilitation, integration, collaboration, and capacity building as required for men and women to overcome the constraints in different livelihood projects.

Tools for gender analysis: Now, the researchers and policy makers have realized the importance of gender equality to understand the gender issues, their roles, responsibilities, needs, etc. Each tool is different, with some advantages and disadvantages, some account for other social characteristics and factors better, while others are more participatory. Following are some examples.

Gender Analysis Frameworks

1. Harvard Analytical Framework
2. DPU¹ Frameworks
 - Moser (Triple Roles) Framework
 - Levy (web of institutionalisation) Framework
3. Gender Analysis Matrix (GAM)
4. Equality and Empowerment Framework (Longwe)
5. Capacities and Vulnerabilities Framework (CVA)
6. People Oriented Framework (POP)
7. Social Relations Framework (SRF)
8. SEAGA Approach

So, out of many available tools, **SEAGA** tool is very much appropriate for gender analysis in agriculture. Some of the **SEAGA** tools are as follows:

SEAGA tools: SEAGA is a technique for gender analysis which has been developed by FAO. It stands for Socio-Economic And Gender Analysis and helps in participatory identification of priorities of women and men to bridge the gap between them. It helps the participants to better understand the ground realities of the women and men, to identify the gender issues with respect to activities, access to and control over resources, decision making, needs and problems and also to formulate projects for gender mainstreaming in research and extension. On the other hand, it is for analysis of the current situation and planning for the future.

Broadly, all the tools are classified into three categories of gender analysis as:

- a) **Development context toolkit:** Here, the focus remains on current situation (What is) for learning economic, environment, social and institutional patterns that act as supports or constraints for development.
- b) **Livelihood analysis:** Here, the focus is on current situation (What is) for learning the flow of activities and resources for living.
- c) **Stakeholders' priorities:** Here, the focus is on future (What should be) for planning development activities based on women's and men's priorities.

A. Tools For Gender Analysis with Developmental Prospective

(i) **Village Resources Map:** Helps for learning about the environmental, economic and social resources in the community. This map focuses on available resources like roads, buildings, houses, water bodies, agriculture land, grazing land, forest area, shops, health clinics, educational institutions, religious institutions, bus stop, etc.

(ii) **Trend lines:** It is a simple graph depicting change over time. It gives a picture of what is getting better and what is getting worse over time. It helps for learning about environmental trends (deforestation, water supply); economic trends (jobs, wages, costs of living), population trends (birthrates, out-migration, in-migration), and other trends of importance to the community.

(iii) **Venn diagram of Stakeholders:** Stakeholder is anyone who has interest in and is going to be affected in any developmental work. It helps us to know who is going to be affected by the proposed development plan. Gives a picture about the insider and outsider stakeholders for each action proposed in the Preliminary Community Action Plan. The extent of interest of a stakeholders is determined by the size of their stake in it.

(iv) **Daily Activity Clocks:** It gives a total picture of activities performed by gender in a day and who does more and also who does less. Helps for learning about the division of labour and labour intensity by gender and socio-economic groups. It helps to identify the workloads and leisure time for the community people including men, women, rich, poor, young and old. The clear picture comes that who works for longest hours and who does little activities.

(v) **Seasonal Calendars:** Helps for learning about the seasonality of women's and men's labour and seasonality of food and water availability and income and expenditure patterns and other seasonal issues important for the community. The calendars can be used to know the changes in income over the time and the work opportunity for the people at different periods of time.

(vi) **Problem Analysis Chart:** It is used for bringing together the priority problems of all the different groups in the community, to explore local coping strategies and to identify opportunities to address the problems.

(i) **Best Bets Action Plans:** Facilitates for finalization of action plans for development activities meeting priority needs as identified by women and men of each socio-economic group Based on their communities, priorities and needs these tools for gender analysis can be used by the researchers with little modification.

TECHNIQUES / TOOLS FOR FIELD:

DAILY ACTIVITY CLOCK

Time	Women	Men
0 to 1 am		
1 to 2 am		
2 to 3 am		
3 to 4 am		
4 to 5 am		
5 to 6 am		
6 to 7 am		
7 to 8 am		
8 to 9 am		
9 to 10 am		
10 to 11 am		
11 to 12 noon		
12 to 1 pm		
1 to 2 pm		
2 to 3 pm		
3 to 4 pm		
4 to 5 pm		
5 to 6 pm		
6 to 7 pm		
7 to 8 pm		
8 to 9 pm		
9 to 10 pm		
10 to 11 pm		
11 to 12 pm		

PAIR WISE RANKING MATRIX

Organize two separate focus groups: one of women one of men with a mix of socio-economic groups. Ask the participants to list 6 problems important to them. Write the list of 6 problems on both the vertical & horizontal axis of the paper. Also write the problem in separate six cards, show the participants a pair of problem cards asking them the more important .One with reasons of choice. Record their choice on the prepared matrix.

Example

Problems	Cost of Inputs	Insect pest	Technical knowledge	Climate	Irrigation	Land
Cost of Inputs		Cost of Inputs	Cost of inputs	Cost inputs of	Irrigation	Cost of inputs
Insect pest			Insect pest	Climate	Irrigation	Insect pest
Technical knowledge				Climate	Irrigation	Technical knowledge
Climate					Irrigation	Climate
Irrigation						Irrigation
Land						

Problems	Number of Times Preferred	Rank
Cost of inputs	4	2
Insect Pests	2	4
Technical knowledge	1	5
Climate	3	3
Irrigation	5	1
Land	0	6

SOURCE: FAO SEAGA FIELD TOOL KIT. GENDER ANALYSIS FOR SUSTAINABLE LIVELIHOODS

UNDERSTANDING GENDER PERSPECTIVE IN AGRICULTURAL RESEARCH AND DEVELOPMENT

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Introduction

Gender has, now-a-days, become an area of immense interest in agriculture and rural development. The term 'gender' describes the characteristics of men and women which are socially determined in contrast to biological differences. Gender means the socially constructed differences in roles and responsibilities assigned to women and men in a given culture or location.

The distinction between sex and gender is made to emphasize that everything women and men do, and everything expected of them, with the exception of their sexually distinct functions (childbearing and breast feeding; impregnation) can change, and does change, over time and according to changing and varied social and cultural factors. As culture is dynamic and socio-economic conditions change over time, so also gender patterns. Thus gender is a dynamic concept (Williams, 1999).

Women Vs Gender

Many often wonder- why 'gender'? Why not 'women'? In fact shifting of focus from women to gender reflects the changed approach of world community for addressing problems of women. The term 'women in development' (WID) was coined in the early 1970s by the Women's Committee of the Washington DC, Chapter of the society for International development, a network of female development professionals. The term was adopted by the United States Agency for International Development (USAID), and gave rise to what is known as 'Women in Development (WID)' approach. The underlying rationale of WID approach is that women are an untapped resource who could contribute to economic development. Therefore, development outcomes would be better realized if women were fully incorporated into the development process. It focuses mainly on women in isolation, and advocates measures such as access to credit and employment for integrating women into development process. But WID approach by focusing on women in isolation ignored the real problem, i.e. subordination of women to men, which is manifested in unequal gender relations.

There emerged another school of thought, which, after recognizing such limitations of WID approach, drew attention to the concept of gender and propounded 'Gender and Development' (GAD) approach. This approach focuses on gender rather than women. In other words, it look not only at women as a category, but also at women in relation to men, and the way relations between men and women are socially constructed (Moser, 1999).

To explain the term 'gender' further, it is a neutral term meaning either men or women or both in a particular context. For example, in men dominated society, gender issues would mean mostly the issues concerning women as it can be fairly assumed that men in general are better off socially as compared to the women. Similarly, in women dominated system, gender issues should focus on problems faced by men. Our goal is to improve the status of disadvantaged class and get rid of socially created and approved discriminations. Therefore, while discussing gender issues in particular context focus could either be on men or women or both. Obviously, reference has to be

made to the relative gender position in the society or system or domain in question in order to assess and appreciate the situation from gender perspective.

Gender- some connotations

The word 'gender' carries different connotations. First, it is a concept that describes the socially constructed roles played by men and women. This concept has given rise to several other concepts and terminologies that are of socio-economic relevance. Importantly, these concepts are having significance for planning research, development and policy interventions.

Second, gender is an important subject of Research & Development. During past years, there has been a spurt in gender related activities in areas like research, development and documentation. This has contributed to a wealth of literature, including volumes of gender disaggregated data, tools for analysis and framework for planning and implementation of research and development activities with gender perspective. After all, as a subject it has not only found space within many other disciplines, but also has given rise to new universe of study encompassing different disciplines. For example, within disciplines like agriculture, horticulture, fishery, livestock production and management, the subject of gender is gradually taking shape and gaining importance. Similarly gender as a subject can also encompass other disciplines into its fold for a comprehensive understanding of the situation. However, till today the subject has remained largely unexplored and is still evolving.

As a subject it has the blend of sweetness and sourness. Sweetness; because it is an interesting as well as exciting subject for many, particularly those in the field of social science. But it may be somewhat sour and confusing for many particularly those are from commodity research background. At the same time, it is a challenging area especially when we are looking at gender in the context of technology generation and refinement for creating gender friendly technologies. Notwithstanding the challenges in applying the idea, it has become one of most sought-after subjects in research and development.

Third, gender is a factor in R & D process. It is a factor because men and women are primary stakeholders in development process. It is the quantity and quality of their labour and human resource that determine the outcome of development process. It is precisely in this context that researchers have tried to investigate if 'gender' (man or woman) as a factor has any influence on output or outcome. In this case we treat gender as a variable in nominal scale that takes values either 0 (say for man) or 1 (for woman) for doing the analysis. Lessons from such exercises may imply how the presence of men or women affects the outcome of interventions and what are the specific attributes that might have resulted in differential output or outcomes.

Gender and Agricultural R & D

In past many of the developments in gender related knowledge were sociological in nature. Of late, gender concepts have found increasing attention and application in applied areas such as agriculture, livestock, fishery, rural development and livelihood security etc. There are two ways that we can look at gender in the context of agriculture R & D. First, effects of R & D process on gender and second, gender role in R & D process.

A. How R & D process affects men and women?

This is an important approach to study relationship between gender and R&D processes. A very common area of research in this context is gender impact analysis of agricultural research and development. For example, how the structural, technological and institutional changes have affected men and women from different background in different situations in matters like sharing of

benefits, work burden, changes in gender role, access to resources etc. and reasons thereof. How the much talked triple role of women i.e. reproductive, productive and community roles have been affected by the developments. Such studies are quite useful as the findings can be used in revision of the programmes and policies to create wider and equitable gender impact.

B. How gender affects agricultural R & D process?

The focus here is on gender as a factor in R&D process. This approach to study the relationship between gender and R & D considers both similarities and differences between men and women. Similarities, because both men and women are important stakeholders in R&D process, and differences, because men and women have different roles to play and needs to address. At the same time they have attributes that can differentially influence R&D process. The objective is to see how men and women do participate in R & D process and influence the outcomes. How they differ in their perception about R & D processes and in managing the situation. In other words, we have to characterize the situations to explain the level and diversity of gender participation. What should we do to make men and women more effective?

In this approach we can focus on case studies, evaluation studies like performance of men and women managed systems and enterprises. Some useful theme areas could also be gender role, participation and contribution in agriculture and allied sectors, and their dynamics under varying situations to understand gender implications in research and development. Outputs from such studies would be useful to design interventions for strengthening gender role in agricultural development and develop gender based R&D models.

Gender perspective in development

In development context, there are two critical issues that a development manager should worry about; smooth implementation of programme as per plan, and attainment of envisaged objectives leading to desired outcomes. Adding gender perspective to an intervention would, therefore, mean looking at these two different aspects through gender lens. First, what is gender role in implementation of interventions? Is there any scope for strengthening gender role in carrying out the intervention? Secondly, how would the development intervention affect men and women? Would there be gender equity in sharing of benefits of intervention, or would there be differential incidence of adverse consequences on gender?

Even though the two aspects appear completely different, at certain level, one reinforces the other. For example, adding gender perspective in management of intervention may lead to better outcomes in terms of gender equity in sharing of benefits. Similarly, equitable gender impact may motivate men and women to participate in development process.

In recent years there has been a greater emphasis on people's participation in planning and implementation of development interventions. Since the impact of these interventions ultimately reflects upon the living conditions of people, following the same traditional approach of project planning and implementation without understanding gender implications thereof may exclude women from benefit sharing process. In situations, it may even make women worse off in normal course of development. Therefore, a development manager should be careful not to lose sight of gender perspective before implementation of the intervention in order to reap additional dividends in terms of enhanced output, and gender equity.

Government policies are important instruments to influence the development process. In fact policies are aimed at creating a favorable environment for accelerated development. For creating wider and equitable impact, policies should contain adequate provisions to encourage women's participation. In other words, policies should be gender sensitive.

Incorporating gender perspective in development necessitates two simultaneous activities; (a) making development institutions gender sensitive, (b) enabling development managers and planners understand and apply gender perspective in respective areas.

To make the organizations gender sensitive, there is a need for re-orientation on following lines.

- Adding gender dimension in development approach
- Making an explicit mention of gender in mandates, objectives and policy documents of departments
- Recognizing women as a stakeholder in organization's programmes
- Providing for opportunities to encourage women's participation

Besides the above, there is also an urgency to introduce reforms both in structure and functioning of the organizations to impart gender sensitivity. No doubt, we have, in India, a host of central sponsored women specific programmes being implemented by agriculture departments of state government. However, review of policy documents, thrust areas and mandates of agriculture departments of state governments suggests that very few states have made explicit mention of gender.

The second part, i.e. enabling development managers understand gender perspective, involves orientation and capacity building on gender. In other words, they should not only be gender sensitized, but also fairly educated on the subject.

Gender in the context of research

There are two points that are worth mentioning in the context of research. 1) Is there any need to incorporate gender perspective in research; If so, how? 2) Does gender as a factor influence the research output?"

Technology development

It is generally argued that the process of technological development in agriculture has largely bypassed the needs of women. As a result, many of the technologies developed so far are said to have failed the test of gender suitability as evidenced from very low level of adoption by women and gender inequity in sharing of benefits of such technologies. This suggests that technologies, in order to create desirable impact on agriculture and rural households, must also be accepted and adopted by women, who constitute a significant part of workforce in agriculture. The level of acceptability and adoption of a technology would be high if natural demand of that technology is high. When we talk of natural demand of a technology, it means the technology must have the characteristics to meet different gender needs in the said context. This is only possible if a researcher adds gender perspective into the technology development process considering relevant gender needs. Therefore, incorporating gender perspective in technology development process is an essential condition, if not a sufficient condition, to develop gender friendly technologies for meeting gender needs and preferences that would ultimately push up the adoption level.

With increasing complexities of socio-economic environment, social science research has now-a-days assumed greater significance. Moreover, poor adoption of agro-technologies among clientele and not-so-encouraging performance of technologies in the field have led us to realize the importance of socio-economic inputs not only in technology development and refinement process but also in planning and implementation of technology transfer programmes. Policy research is another area that have gained significance at a time when there is need for gender sensitive policies for mainstreaming gender concerns in agriculture and creating equitable gender impact.

Why Gender for a researcher?

There seems to be an initial reluctance on part of researchers in general to accept the concept of gender. Also, they do not find the concept comfortable to work with. It is but natural for them to ask, 'why to add gender perspective in research'?

As we know, all researchers invariably look for certain output from their research. But all may not be fully convinced as to how the output would be useful. Except in case of basic researches, outputs from all other types of researches have implications for development, and could be used for designing, planning and implementation of programmes. Outputs could be new information and knowledge, technology, methodology and even policy recommendations. Therefore, every scientist should see that the outputs from her/his research should be relevant, acceptable to, and used by the stakeholders.

The very objective of adding gender perspective in our research is 'to add value to our research output so that research output becomes contextually more relevant and appropriate, and there is enhanced scope for application and acceptability of research findings'.

As men and women are equal partners in development process and have equal stakes in the use of technology, there is a need for adding gender perspective in our research to obtain gender friendly technologies. Research with gender perspective would also generate information of value and new knowledge that can be used in planning gender based research programmes. To realize this, there has to be a change in the mindset and actions of researchers. In other words, the scientists should be gender sensitive, and responsive enough to discuss, debate, understand and incorporate gender in their own field of work.

Summing up

Understanding and applying gender perspective in agricultural R & D is very important in the present context of social, cultural, technological and economic changes that we are facing. Such a paradigm shift is needed to obtain crucial gender related information and knowledge based on which measures for mainstreaming gender concerns in agriculture can be initiated.

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GENDER DISAGGREGATED DATA - IMPORTANCE IN PLANNING AND POLICY MAKING

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Looking at the importance of gender in development, gender disaggregated data (GDD) are a prerequisite for effective gender planning. By data we mean known facts that can be recorded and that have implicit meaning. Gender disaggregated data mostly refers to data on different variables pertaining to both men and women at lower level of aggregation particularly at household level. Importance of GDD equals to importance of disaggregated data plus importance of gender. Data on gender are usually collected or generated with respect to different variables.

Functions and importance of GDD

Gender disaggregated data simultaneously perform three functions. Firstly, it recognizes the roles of women and men and makes them explicit. Secondly, it describes value of their contribution or extent of involvement. Thirdly, it sensitizes people about the gender concerns in different spheres. Lack of sufficient and reliable gender disaggregated data is a serious handicap for properly assessing and appreciating women's contribution to farm-household systems.

Basically speaking GDD is quite useful to know the structure of socio-economic phenomena involving gender, to assess the consequences of socio-cultural and techno-economic changes on gender. Ultimately GDD provides important insights and base for effective gender planning both at micro and macro level

Coming to agriculture, there is scant availability of GDD. Some of the reasons for this situation are biasness in our System of National Accounts against women's work, lack of thrust on gender by data collection agencies complexity of gender involvement in the sector, multiplicity of women's activities, lack of requisite skill and capability of the persons involved in collection of data and so on. Notwithstanding these shortcomings, today we find a greater sense of urgency being expressed by policy makers, development experts and researchers alike for GDD. Some of the crucial areas that can be considered on priority for collection of GDD are;

- o Assessment of the extent of gender involvement in different activities
- o Level of technology adoption
- o Quantifying gender contribution to households and different sectors
- o Understanding and measuring gender inequity
- o Intra-household resource allocation
- o Decision making process within household

Gender disaggregated data are the facts and figures (information) collected, analyzed and summarized for presentation and interpretation for each gender. All the data (information) collected in a particular study are referred to as the *data set* for the study. *Elements* are the entities/individuals on which data are collected. A *variable* is a characteristic of interest for the elements. In gender disaggregated data 'gender' is a mandatory variable. Measurements collected on each variable for every element in a study provide the data. The set of measurements obtained for a particular element is called an *observation*. Hence, the number of observations is always the same as the number of elements. The number of measurements obtained for each element equals

the number of variables. Variables in gender disaggregated data can be either **qualitative** or **quantitative**. The data can be cross-sectional and time series data.

Qualitative data use labels or names to identify an attribute for each element. Scale of measurement of qualitative data is either nominal or ordinal. It may be nonnumeric or numeric.

Quantitative data use numeric values that indicate how much or how many. Scale of measurement of quantitative data is either interval or ratio. Quantitative data may be discrete or continuous. Quantitative data that measure how many are discrete. Quantitative data that measure how much are continuous because no separation occurs between the possible data values.

A qualitative variable is a variable with qualitative data and a quantitative variable is a variable with quantitative data. The type of variable (qualitative or quantitative) decides the statistical analysis appropriate for a particular variable. If the variable is qualitative, it is possible to summarize the data either by counting the frequencies in each qualitative category or by obtaining the proportion of the frequencies in each qualitative category; arithmetic operations are not feasible in such cases, whereas, arithmetic operations often provide meaningful results for a quantitative variable. Therefore, statistical analysis is limited for qualitative variables than that of the quantitative variables for which more number of alternatives are available in literature.

Further, two more type of gender disaggregated data is possible: *cross sectional data* and *time series data*. This classification is based on time dimension. It is possible to obtain data for a number of variables at same point of time or at different time periods. If the data is collected at same point of time, it is known as **cross sectional data**, whereas, if the data is collected over several time periods is known as **time series data**. For cross sectional data, it is expected that all the data on different variables from different individuals/ units are independent. For time series data, as observations are taken from same set of individuals/ units over different time periods, it is expected that some relationship is present in the data. Therefore, it is important to distinguish between cross sectional data and time series data as different statistical tools are being used for analysis of these types of data.

Talking of time series data on gender, it is a great constraint. Review of secondary sources amply demonstrates this limitation. Because gender has not been considered explicitly as a factor in development, data collection agencies have not paid due attention to GDD. In absence of time series data it is difficult to trace the changes that have taken place over a period of time in different domains.

On the other hand large number studies are available based on cross section data. Even though such studies have their inherent weakness, nevertheless they have contributed significantly to the understanding of women's role in agriculture. Cross section data are quite important for explaining and analyzing a situation and bringing out differences in respect of men and women.

How to collect information?

- Observation
- Consultation
- Negotiation
- Research/studies
 - Surveys
 - Rapid appraisals
 - Participatory research
 - Case studies
 - Action research
 - Experiment

Data can be collected either from secondary sources (collected by other organizations, government offices, private sector organizations etc.) or from statistical studies. Statistical studies are of two major types: experimental studies and observational studies. In experimental studies the variables of interest are first identified. Then one or more factors are controlled so that data can be obtained about how the factors influence the variables. In observational (non-experimental) studies no attempt is made to control or influence the variables of interest. A sample survey is a good example of observational studies.

A *population* is the set of all the elements of interest in a study.

A *sample* is a subset of the population.

Different methods are used for collection of gender disaggregated data. Sometimes the whole population is of our interest and therefore, the whole population is our data set. For example, we are interested to study the variability in height of girl and boy students of a particular class in a particular school. The number of students (girl and boy) are fixed and it is limited, therefore, one can measure the height for all the students in the class, then the data set of all the students is the entire population of interest. This is feasible preferably when the number of elements (entities/individuals) is less. Instead if we have number of elements too high and it is not possible to collect data on all the elements, in such situation we need to restrict ourselves for a dataset which consist of a sample from the population. In most of the situations, we are interested/ forced to use the sample data set to draw some conclusions about the population under study, therefore, extra care is necessary and compulsory while collecting the sample from the population. Method of drawing conclusion about the population based on information from the sample is known as *statistical inference*.

Numerical characteristics of a sample, such as the sample mean and sample standard deviation, are called ***statistic***. Numerical characteristics of a population, such as the mean and standard deviation, are called ***parameters***. A statistic such as the sample mean is considered an ***estimator*** or a population ***parameter*** - the population mean. A sample mean provides an estimate of a population mean, and a sample proportion provides an estimate of a population proportion. A primary purpose of statistical inference is to develop estimates and test hypotheses about population parameters using information contained in a sample.

It is important to realize that sample results provide only *estimates* of the values of the population characteristics. The reason is simply that the sample contains only a portion of the population. With proper sampling methods, the sample results will provide 'good' estimates of the population parameters. But how good can we expect the sample results to be? Fortunately, statistical procedures are available for answering this question. Often the cost of collecting information from a sample is substantially less than from a population, especially when personal interviews must be conducted to collect the information. A list of well known sampling techniques are:

Non –probability Sampling

- ✓ Convenience sampling (purposive units)
- ✓ Judgement Sampling (own judgement)

Probability Sampling

- ✓ Simple Random Sampling
- ✓ Cluster Sampling
- ✓ Systematic Sampling
- ✓ Stratified Sampling
- ✓ Multi-Stage Sampling

Obtaining and using GDD – what are the difficulties?

- Observing gender interaction process and the outcome
- Identification of relevant variables to represent the phenomena or outcomes
- Formulating appropriate questions
- Measuring or assessing the variables
- Treating data suitably
- Interpreting
- Communicating and convincing

Gender disaggregated data are pre-requisite for understanding and incorporating gender perspectives in agricultural R & D. But what is required is quality data. For, quality of research is as good as the quality of data.

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GENDER SENSITIZATION: ROLE IN REFORMING THE SOCIETY AND IMPACT

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Despite the spread of education and awareness gender bias is still a glaring reality in our society, more particularly in rural areas, and is manifested in myriads of forms. An array of problems that we face today in realms of social and economic development can, in some way or the other, be linked to gender. It is needless to emphasize that gender issues have become subject of concern in agriculture and other sectors as well. At a time when we are aiming to put our economy on high trajectory growth path, it is important that we address the gender issues because these have implications for development. A bias-ridden society entails high cost for social and economic transactions, accessing and using information in decision making process. Therefore, creating a socio-cultural climate that is free from gender bias and that promotes rational behaviour and action on part of men and women is very significant in this context. To this end, gender sensitization can be seen as an important action point.

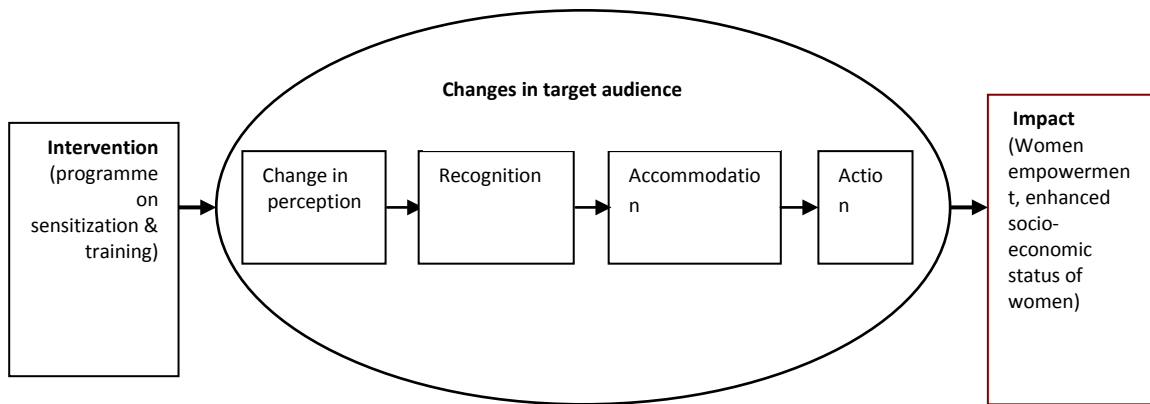
The Goal

Sensitization is by far an effective and non-confrontationist approach of reforming the society. Gender sensitization is the process of changing the stereotype mindset of men and women; a mindset that holds the view that men and women are 'unequal entities' and therefore, have to function within different socio-economic space.

Gender sensitization increases the sensitivity of people at large towards gender and related issues. It seeks to change not only the attitude of men towards women i.e. the way men think of and treat women, but also the attitude of women i.e. the way women think of men and of themselves and their behaviour in this context. In the process it creates a class of gender responsive functionaries at different level, from policy making to grass root level. The goal is essentially to create a value system in society that accords explicit and spontaneous recognition to the contribution of women in socio-economic development, and respects their wisdom; a system that makes women sensible and courageous enough to recognize their own contribution and make them feel proud of.

Gender sensitization process

The very aim of gender sensitization programmes is to bring a definite orientation in the attitude, feelings, practices and approach of individuals concerning gender. Insights from monitoring of gender sensitization programmes, extensive PRAs conducted under different gender related projects in rural areas suggests that gender sensitization process generally involves four stages; change in perception, recognition, accommodation and action. These changes take place in response to certain interventions i.e. sensitization or training.



(Fig.1: Gender sensitization process)

Change in perception

Gender sensitization initiates us to think about gender differently. In first instance, it tends to change the perception that men and women have of each other. It creates a mindset in men that no longer sees in women the stereotypical image. Rather, they are seen as responsible and equal partners in socio-economic development.

Recognition

Persons exposed to gender sensitization try to look at the positively endowed qualities of women. At this stage the male folk come around to recognize the virtues of women and their importance to the family and the society. There is spontaneous appreciation for women's involvement in multifarious activities. As a result women's contributions become more and more visible. Further, women's talents and capabilities that were going unnoticed and unexplored become subject of attention. Women too become more conscious of their capability and contribution, and take pride in the same.

Women, cutting across socio-economic boundaries, tend to see their problems in larger perspective of women development and come forward to recognize the efforts of fellow women. They even visualize the important role that men can play in their socio-economic development.

Accommodation

The barrier between men and women starts crumbling down in real sense and the society slowly gets over the perennial problem of adjustment between them. Men tend to rationalize their behaviour by burying their ego as far as gender relations are concerned. Instead of complaining or reacting to the behaviour of women, men learn to exercise patience and restraint, and take the things in a positive way. In the family, women start gaining importance as their opinions and suggestions are counted for overall development and management of family. At community and organizational level too, women are encouraged to play their role in matters of management. Women, on their part, tend to underplay the problems with their male counterpart and wish to solve their problems through dialogue.

Action

Gender sensitized persons become instruments of change as far as status of women in the society is concerned. Conscious efforts are made to create a favourable climate that allows nurturing and flourishing of women's talent and provides more flexibility and freedom to women. A number of affirmative actions are initiated to bring improvement in conditions of women. There could be gender sensitive policies and programmes to allow meaningful participation of women in development and decision making process, and foster equitable sharing of benefits. Actions could also be in the form of research and extension initiatives to reach out to the women with appropriate technologies and institutional innovations.

At household level sensitization can bring a greater degree of understanding between men and women while performing their roles. In response to emerging external forces, the normal household functions and concomitant gender roles are poised for a change. This is likely to affect the intra-household gender dynamics and the situation may warrant redefinition of gender roles to achieve new equilibrium. Gender sensitization can make the transition smooth. Ultimately a situation is created where both men and women complement each other within the family and outside and the age old socially ascribed gender roles have to give way to necessity driven gender roles in the changing context.

Gender sensitization Strategy

Gender sensitization strategy basically involves three components; selecting the target audience, deciding the content and deciding the methodology.

Target audience

Sensitization programmes should target not only the collective consciousness of men in society to create more space for women but also those women who directly or indirectly tend to act against the larger interest of women in their overzealousness to conform to the orthodox socio-cultural norms. For example, elderly women from families can be educated about ill effects of gender bias so that they develop a favourable attitude towards younger generation. Similarly, socially and economically progressive women in village or locality can be sensitized to encourage and support the underprivileged women. Separate sensitization programmes can be designed for researchers, policy makers and personnel associated with social and economic services delivery system.

Methodology

We may require gender sensitive modules containing case studies; situation analysis etc. to sensitize planners, researchers and middle level functionaries. Even gender sensitive materials could include leaflets, booklets, posters, and videos on different theme areas. Organization of sensitization camps in rural areas coupled with sustained campaign by mass media, and plays will go a long way in creating a healthy environment in rural areas as far as gender relations are concerned. Even men and women from different age groups and from same households can be involved in participatory discussion in an enabling environment so as to make them realize the adverse effects of gender bias depicting real life experiences.

Content of the programme

Content should amply communicate the intended message to the audience, and should be easily understandable by them. Contents of the programme can be decided depending on its very purpose. It could be to sensitize people about ill-effects of gender bias and discriminatory practices on women, men, family and society. Gender sensitization may focus on spreading the message

'how women play important role in family and in the society' and 'how both men and women in their mutually supportive role can contribute immensely to family welfare, growth and development of their villages'. Contents should initiate friendly debate among larger audience on the ill effects of different forms of gender bias and what can be done to remove such biases. It can focus on the conduct of men and women in a household based on case studies and even spread the message of some kind of affirmative action.

Sensitization through education

Topics relevant in the context of gender sensitization should be introduced in school curriculum to sensitize the children on the prevailing gender bias in our society and the way these are impeding the socio-economic development. This calls for somewhat higher doses of social science including gender studies in educational institutions. To make students awakened to the realities, both boys and girls can be encouraged to debate and discuss the gender issues and examples from real life experiences. Such an exposure will bring a definite change in attitude and perception of students towards gender. While boys, as they grow, can become more sensitive to and more concerned about issues affecting the girls and women; the girls and women, on the other hand, will become more vigilant against prevailing biases and awakened to the emerging opportunities. At the same time, we can expect more friendly relations between boys and girls or men and women characterized by spontaneity in adjustment and collective efforts to find solutions to gender problems. This would create a long term impact on society by reducing abuses and violence against girls and women.

Possible Impact

- Gender sensitization can contribute to women empowerment by hastening the process of both horizontal and vertical flow of ideas, knowledge, information and technology
- It can reduce the chances of gender conflict, promote gender harmony and create a congenial climate wherein both men and women can perceive and play their role in mutually complementary mode.
- Lack of sensitization at different levels, i.e. household, project and programme levels, is an important reason for poor implementation and poor outcome of development interventions. Gender sensitization, therefore, can foster meaningful participation and better integration of women into development process and can lead to better impact on women of different projects, programmes and policies.
- Gender sensitization can induce restructuring of gender roles and can help realize higher productivity of men and women in household and outside work through rational and effective use of resources including their time.

Conclusion

Gender sensitization should pervade all levels, from top to down at household level. The good thing is that the persons at top level of management and policy making are becoming more and more sensitized on the issue and this is reflected in increasing number of gender focused programmes and policies. Gender budgeting initiated by the government is a testimony to the shift in approach that has taken place in recent years. However, a large part of the system and large segment of our population are not really sensitive to gender concerns. This calls for serious efforts to launch gender sensitization programmes for organizations and agencies involved in rural development programmes and for the people at large to achieve gender equity in sharing of benefits.

As meaningful participation of women is paramount for good outcome of rural development programmes, gender sensitization should be made in-built into the broad framework of rural development process. To begin with, selected persons from different levels involved in research, extension and rural development should be given necessary orientation and training who in turn can carry on such sensitization programmes for men and women in different organizations and in villages. In this way the message of working towards gender equality can be propagated across our social and economic organizations and we can create a situation where both men and women would perceive their needs spontaneously and would act in a more cohesive way to harness their combined potential. In ultimate analysis, gender sensitization is very much required to create gender synergy at household, organizational and community level for producing more output and attaining gender equality.

INTEGRATING GENDER DIMENSIONS INTO AGRICULTURAL RESEARCH AND DEVELOPMENT PROJECTS

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Gender issues have, now-a-days, become very important in the context of higher, inclusive and sustainable growth. There are many aspects of the statement that need to be understood in order to justify the move to make gender an integral part of the projects. There has been misallocation of women's skills and talents as far as agriculture is concerned. This may be attributed to what they need and what we provide. As documented widely, there has been persisting gender gap in access to resources, services and benefits from agriculture. Though over years women's participation in labour market has increased, unequal employment opportunities have been a major concern. Importantly, women and men tend to work in very different parts of the economic space, with little change over time. Difficulty in balancing their triple roles in absence of equal opportunities and appropriate support structures undermine women's potential to contribute to agricultural growth. New challenges such as globalization and climate related changes have increased risks and uncertainties for women who constitute large proportion of small and marginal farmers. Therefore, planning and implementation of interventions with gender perspective has assumed significance .

What is a Project?

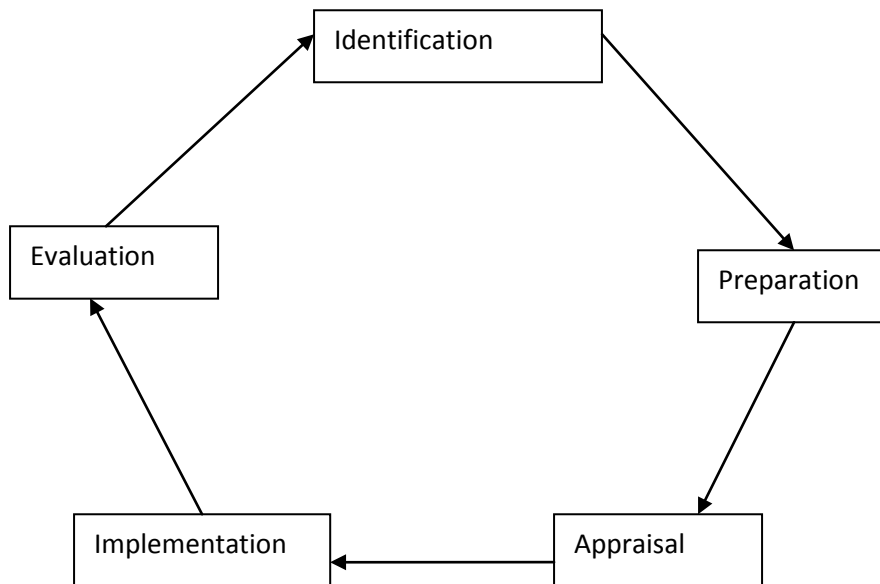
Project is a planned piece of work that is designed to find information about something, to produce something new, or to improve something. The word 'project' has multitude of interpretations. It involves the investment of scarce resources for future benefit; a project can be planned, financed, and implemented as a unit; it has a defined set of objectives and a specific start and end and it has a geographical or organizational boundary.

Although development projects vary considerably, most projects go through similar sequence of activities. The differences lie primarily in the procedures and degree of detail of the various stages and the number and role of the different agents involved. The first and most well-known model of this sequence was called the project cycle (Baum, 1970). The original version of the cycle had four components.

- The initial identification of the project (conceptualization of project ideas)
- Preparation of the project (also known as project formulation and design).
- Project appraisal and selection.
- Project implementation

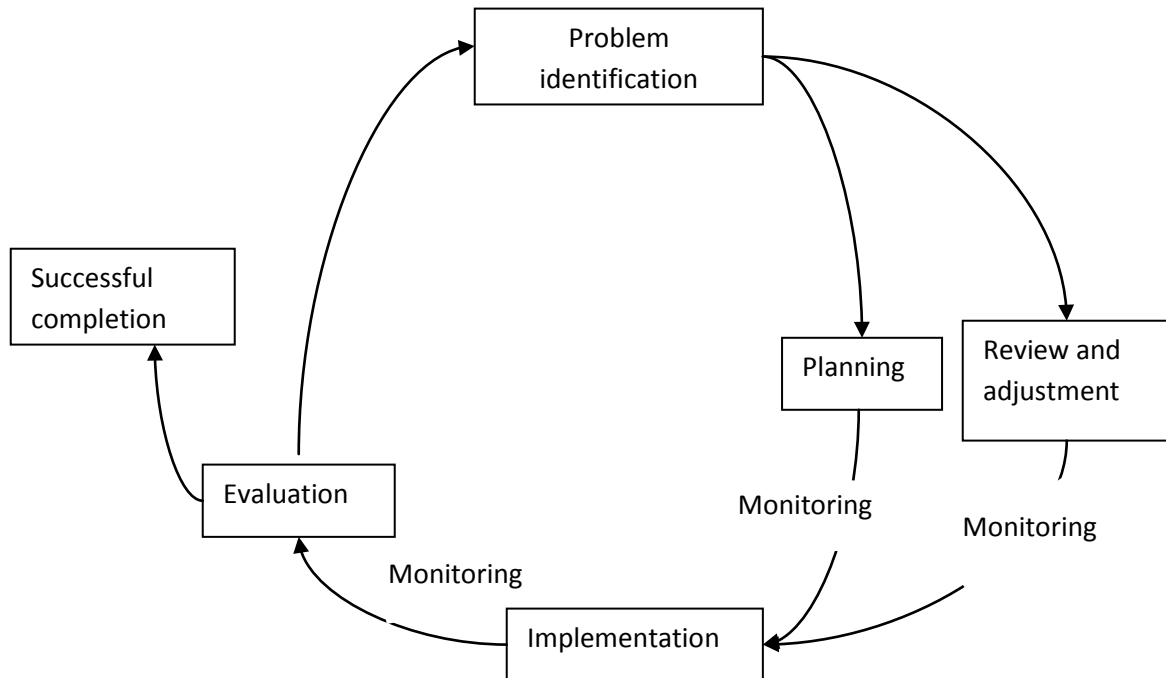
A subsequent version (Baum, 1978) included a fifth component of evaluation of the project to close the cycle. The idea was that evaluation of the project after completion would lead to the generation of ideas for new projects.

Figure: The Project Cycle given by Baum (1978)



Subsequently, various other models have been developed by subsequent authors to account for observed shortcomings and different emphases. Below is mentioned the project cycle given by FAO, that includes an important stage/activity called review and adjustment in the project.

The project cycles proposed by various authors are general in the sense that they are intended to meet certain objectives related to the sector or an area. But given the changing demands of the time, particularly for women empowerment and gender inclusive growth, it is high time that we bring gender perspective in all stages of project cycle. In the context of agriculture, we must accept the reality that women are an important human resource for agriculture and increasing women's agency leads to enhanced output better outcomes in agriculture. Thus, the agenda before us are; reduce the gender gap in agriculture, women empowerment and creating more space, improve productivity, income and wellbeing of women through Gender sensitive R&D interventions.



Are we prepared for the change?

One of the vociferous criticisms regarding many of the past and present day research, extension or development projects is that they have largely bypassed the needs of women. In fact these projects mostly suffered in two aspects. First, the projects were lacking in gender components and the second, there was not much scope to assess how the projects differentially affected gender. Despite efforts of agencies and professionals, large part of our agricultural R & D system not gender aware and responsive. There has been a general reluctance on part of agricultural researchers to accept & add gender because of a perception that adding gender component to the projects would increase the burden on them. At the same time, inadequate demonstration and documentation on effectiveness of gender based interventions, lack of strong commitment towards gender at policy level have been some of the reasons for slow diffusion of gender related concepts & knowledge and their adoption.

Engendering agricultural research and Extension –the path way

At system level, our ultimate goal is to engender agricultural research and extension. This is possible only through integration of gender into the research and extension projects. Usually, in NARS the projects are by and large discipline centric, which means scientists, based on their background formulate and implement the project with certain objectives. These objectives invariably lack gender perspective. This limits the scope of the research output to be used by women, who are an important stakeholder in agriculture. Therefore, there is a need for gradual integration and institutionalization of gender in agricultural R&E. The framework mentioned below depict what is the path way to achieve the same. Even today in various institutions under NARES, role of social science research is not been properly appreciated, though in developed countries the situation is quite different. Hence, first of all, there is a need to appreciate the role of social science and develop mechanisms for integrating social science within other research domains such

as crop, horticulture, livestock etc. Subsequently, gender can be integrated into the research activities irrespective of the disciplines or subjects. This is essentially required to create gender disaggregated data; identify gender issues and constraints, to understand how gender issues affect women and agriculture and develop solutions to address gender issues

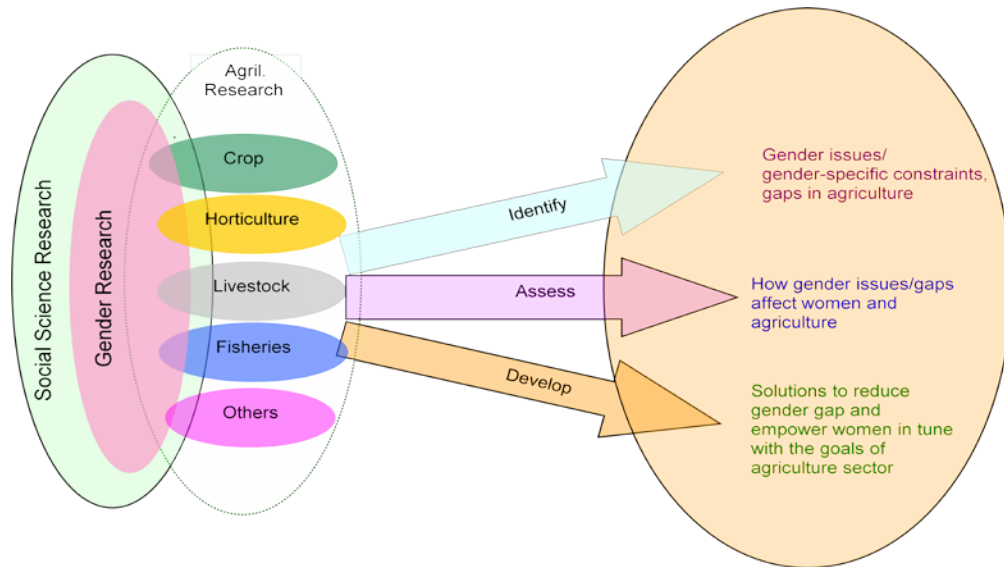
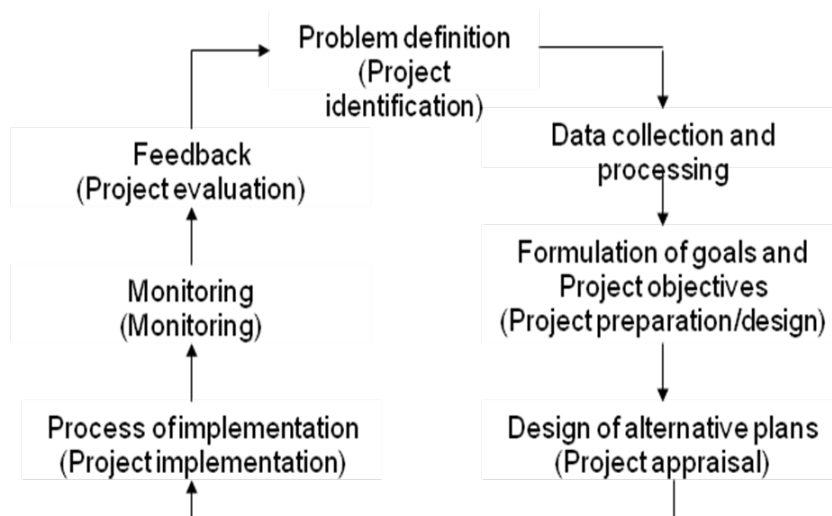


Fig. Engendering agricultural research and Extension –the path way

(Developed by H. K. Dash, ICAR-CIWA)

Planning methodology (with reference to project cycle)

Planning frameworks identify a logical sequence of stages that describe the necessary number of actions required to complete the planning project. The process is an iterative one that allows for review and adjustment of actions.



(Source: Moser, 1999)

What is important is that at all the stages we need to add gender perspective which should reflect both in process and output. Techniques like gender diagnosis, gendered objectives, gender monitoring etc. could be used. All these can be operationalized through use of check lists. The following checklists (adapted from Harvard framework of gender analysis) can be used suitably to integrate gender perspective in all stages of project/cycle planning process. A researcher should seek answer of the questions given in the check list.

CHECKLIST 1: Women's dimension in project identification

Assessing women's needs

1. What needs and opportunities exist for increasing women's productivity and/or production?
2. What needs and opportunities exist for increasing women's access to and control of resources?
3. What needs and opportunities exist for increasing women's access to and control of benefits?
4. How do these needs and opportunities relate to the country's other general and sectoral development needs and opportunities?
5. Have women been directly consulted in identifying such needs and opportunities?

Defining general project objectives

1. Are project objectives explicitly related to women's needs?
2. Do these objectives adequately reflect women's needs?
3. Have women participated in setting those objectives?
4. What are the negative effects

CHECKLIST 2: Women's dimension in project design

Project impact on women's activities

1. Which of these activities (Production, reproduction and maintenance, socio-political) does the project affect?
2. Is the planned component consistent with the current gender denomination for the activity?
3. If it is planned to change the women's performance of that activity, i.e., locus of activity, remunerative mode, technology, mode of activity) is this feasible, and what positive or negative effects would there be on women?
4. If it does not change, is this a missed opportunity for women's roles in the development process?
5. How can the project design be adjusted to increase the above-mentioned positive effects, and reduce or eliminate the negative ones?

Project impact on women's access and control

1. How will each of the project components affect women's access to and control of the resources and benefits engaged in and stemming from the production of goods and services?
2. How will each of the project components affect women's access to and control of the resources and benefits engaged in and stemming from the reproduction and maintenance of the human resources?
3. How will each of the project components affect women's access to and control of the resources and benefits engaged in and stemming from the socio-political functions?

4. How can the project design be adjusted to increase women's access to and control of resources and benefits?

CHECKLIST 3: Women's dimension in project implementation

1. Are project personnel aware of and sympathetic to women's needs?
2. Are women used to deliver the goods and services to women beneficiaries?
3. Do personnel have the necessary skills to provide any special inputs required by women?
4. What training techniques will be used to develop delivery systems?
5. Are there appropriate opportunities for women to participate in project management positions?
6. Does the organisation have the institutional capability to support and protect women during the change process?

CHECKLIST 4: Women's dimension in project evaluation

1. Does the project's monitoring and evaluation system explicitly measure the project's effects on women?
2. Does it also collect data to update the Activity Analysis and the Women's Access and Control Analysis?
3. Are women involved in designing the data requirements?
4. Are the data collected with sufficient frequency so that necessary project adjustments could be made during the project?
5. Are the data fed back to project personnel and beneficiaries in an understandable form and on a timely basis to allow project adjustments?
6. Are women involved in the collection and interpretation of data?

Depending upon requirement, all or some of the elements of the checklists can be used. If needed, additional elements could also be added. Since gender is dynamic, the checklists may also change depending on objectives of the research.

EXTENSION ISSUES AND GENDER MAINSTREAMING

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FACTS ON GENDER IN INDIA

- Inequality between men and women.
- Death rate of children in the group of age 1-5 is 50% higher for girls than boys.
- India is placed at 98th position in terms of Gender Development index amongst 140 countries of the world.
- About 40% of the women are subjected to domestic violence.
- Statistics reveals that women perform 75% of the work, earn 10% of the income and own 1% of property (UNESCO).

**The 3rd Millennium Development Goal
Promote gender equality and empower women**

The Beijing Platform for Action (1995)

- Women and poverty,
- Education and training of women,
- Women and health,
- Violence against women,
- Women and armed conflict,
- Women and the economy,
- Women in power and decision making,
- Institutional mechanisms for the advancement of women,
- Human right of women, women and media,
- Women and environment and
- The girl child
- Prior to the above declaration there were first, second and third World Conference on Women at Mexico (1975), Copenhagen (1980) and Nairobi (1985) respectively. The said global endeavors were also reviewed and appraised at 5 yearly intervals to overcome the limitation and shortfalls.

National Efforts for the cause of women/gender

Sl. No.	Year/Plan	Title	Emphasis
1	1939-40	Sub-committee to advise the National Planning Committee	Welfare of women
2	1976-77	Working group on employment of women for the planning commission	Improvement in the productivity of women in traditional occupations
3	6 th Five year plan	Planning Commission	Opportunities for independent employment and income for women
4	7 th Five year plan	Planning Commission	Training and education in general and science and technology for women farmers

5	8 th Five year plan	Planning Commission	Promoting women as special target groups for employment promotion.
6	9 th Five year plan	Planning Commission	Empowerment of women
7	10 th Five year plan	Planning Commission	Gender equality and gender budgeting
8	11 th Five year plan	Planning Commission	Engendering the indigenous women

Participation of Farmwomen in Agriculture

They work as female agricultural labourer, as farmers, co-farmers, female family labour and (with male out-migration, widowhood, etc) as managers of farms and farm entrepreneurs.

Women work extensively in :

- Production of major grains and millets
- Land preparation
- Seed selection and seedling production
- Sowing and applying manure, fertilizer and pesticide
- Fish processing
- Collection of non-timber forest produce (NTFP)
- Animal husbandry
- Fodder collection and cleaning of animals sheds
- Processing of milk and livestock products
- Keeping milch animals
- Small ruminants and backyard poultry

Participation of farm women in rice cultivation

- Transplanting (89-93%)
- Harvesting of the crop (70-89%)
- Storage of grains (70-83%)
- Threshing (37-42%)
- Transplantation of harvested crop (29-38%)
- Nursery preparation (10-20%)
- Irrigation of crops (10-15%)
- Land preparation (10-15%)
- Seed selection for sowing operations (5-15%)
- Fertilizer management (2-10%)

Source: Bargali et.al. Participation of rural women in rice-based agro ecosystems. International Rice Research Notes 2009.

Women in Agriculture, Why?

- A high percentage of rural women are not in work force. (Nearly ¾ th of female are non-workers)
- Among those who are in workforce, majority are marginal workers.
- Agriculture and allied sectors is the most potential avenues of employment, immediately available, for women.
- Women are more caring towards agriculture because of historical, cultural and biological factors.
- Growing female headship (An estimate 20 percent of rural household are de facto female headed, due to widowhood, desertion and male out-migration.
- Women can produce and generate income in farming along with their reproductive roles.
- As evidenced from the trends, women's participation in agriculture will rise in future and without agricultural growth rural development is impossible.

Extension Issues

- ✓ Invisible contribution of women to farming.
- ✓ Multiple role of Women
- ✓ Cultural Background
- ✓ Components of extension services
- ✓ Integration
- ✓ Location specific extension

Extension Management

- Extension structure.
- Heterogeneity among women.
- Type of grass root worker.
- Relevant training programmes.
- Infrastructural facilities.
- Gender sensitized system.
- Curriculum on gender.

Extension models

- Conventional Extension Model/CD model (CEM)
- Mass media Model (MM)
- Target group/area Model (TM)
- Training and Visit Model (TVM)
- Front line Extension Model (FEM)
- Integrated Extension Model (IEM)
- Training and Extension for women Model (TEM)
- Broad based Extension Model/ ATMA (BEM)
- Public-Private Extension Model/Agri-business Model (PPEM)

Comparative analysis of the Nine Models for Women Empowerment

Criteria for comparison

- Programmed content appropriate for women.
- Emphasis on women clientele.
- Development of women leadership in agriculture.
- Organization structure conducive for women participation.
- Linkage.
- Creating a socio-cultural climate for empowerment.

Comparison by programme characteristics

Model	Future Expansion	Home stead	Farming system	Eco-friendly	Integrative	Resource poor
CEM	-	-	-	X	X	X
MM	XXX	XX	-	XX	X	X
TM	-	X	-	-	-	XX
T VM	X	-	-	X	-	XX
FEM	XX	XX	X	XX	XX	X

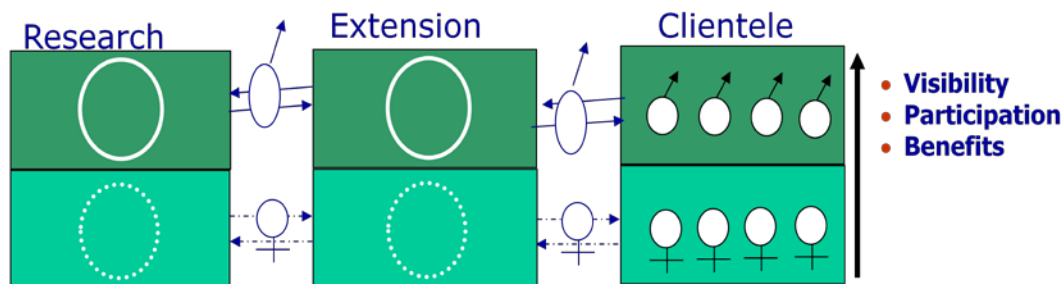
IEM	XX	-	XXX	XX	-	XX
TEM	XXX	XX	XX	XX	X	XX
BEM	XXX	X	XXX	XXX	XX	XX
PPEM	-	-	-	XX	-	-

X - Low applicable XX - Moderately applicable XXX - Highly applicable

Development of women leadership in agriculture

- Women need the support and help of a women leader who would organize them to be bold enough in facing socio-cultural restrictions, economic backwardness, the developmental agents, risks and complex technologies.
- Often they need a woman leader who can read and write and keeps the accounts of the enterprises
- The training and extension for women and ATMA model have encouraged group activities among women, train them, and leave the group to function under a women leader

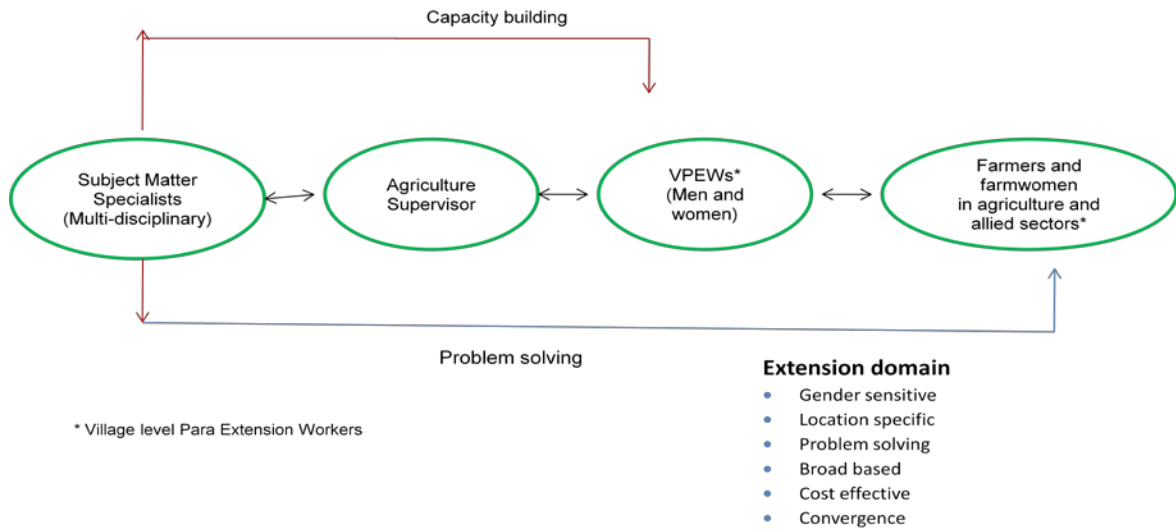
Extension paradigm affecting gender development



Areas of Extension Reform

- Poor access of women to extension
- High cost of public extension service
- Non-availability of village level extension functionaries in the Departments of Horticulture, Veterinary & Animal Husbandry and Fisheries
- Non-availability of grass-root extension workers in their area of jurisdiction
- Inadequate provision for the regional extension needs
- Lack of proper coordination for extension work
- Inadequate emphasis on educating the clientele
- Improper training
- Lack of suitable mechanism for monitoring and evaluation of programmes

Schematic Gender Sensitive Extension Model



Special gender sensitive innovations in agriculture

Enterprise/ Activities	Innovation relating to
Livestock	Feed & fodder
Aquaculture	Seeds & feed
Post- harvest	Processing, storage, transport & marketing

Gender Mainstreaming

- It is a process.
- Initiated through Government policies, programmes, measures and operations.
- It takes into account proper planning, implementation, monitoring and evaluation.
- To reduce gap and promote equality between men and women so that both genders will get equal opportunities and benefits.

Goals of Gender Mainstreaming

- Recognition and visibility
- Participation
- Decision making
- Development/ extension programmes
- Participation in research
- Access to productive resources
- Control over resources and outputs.
- Organizational participation
- Access to food and health care services.
- Benefit sharing

Methodologies

- International collaboration
- National Gender Policy
- Gender planning
- Gender sensitization for all stakeholders including general public
- Strengthening gender in the institutions

Participatory Approaches

- Appointment of women as grass root worker in different sectors would promote participation of women (Gender Sensitive Extension Approach).
- Training programmes and field activities must take into account the problems and needs of the women.
- Activity calendars of various departments should understand the women's role before deciding the date and time for various programme.
- Agricultural programmes having horticulture, livestock, honey bee, value addition, post harvest enterprises can promote participation of women.
- While addressing the practical gender needs, participatory approach should be employed to find a best solution.
- Research projects in agriculture on problems and needs of women should be plan and executed through participatory on-farm trials (Gender Sensitive Technologies).
- Drudgery reduction of farm women through various farm implements can be demonstrated by involving women.
- Programmes on bio-diversity, seed production, homestead farming and organic farming may provide better opportunities for women in terms of employment and income.

Conclusion

The concept and methodology give the learners a wide ranging thoughts for promoting growth, harmony and peace in the society. The operational parts would be more useful to the participants in initiating and directing the refers to achieve gender mainstreaming.

DESIGNING SURVEY FOR GENERATION OF GENDER SENSITIVE DATA

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Introduction

The utility of gender data in meeting development needs requires no special mention. Equally, the relationship between the generation of gender-sensitive data and Gender Analysis should be well appreciated by the social scientists.

Understanding the basic concepts - namely gender, sex, gender role, gender equity, gender differences, gender needs, strategic gender interests, gender sensitivity, gender bias etc - provides the researcher a sound footing to apply different gender analysis tools. As FAO has observed :

Gender analysis focuses on understanding and documenting the differences in gender roles, activities, needs, and opportunities in a given context. Gender analysis involves the disaggregation of quantitative data by gender. It highlights the different roles and learned behavior of men and women based on gender attributes. These vary across cultures, class, ethnicity, income, education and time; thus, gender analysis does not treat women as a homogeneous group or gender attributes as immutable.

Major sources of data for Gender Analysis include censuses, both population and agricultural, and a variety of more specialized surveys that may include agricultural surveys. These surveys vary greatly in their scope, objectives, content, means of approach to the public and design. Survey research as a method of in social science is very common as it can provide the investigator with a means of assessing the distribution of (often qualitative) social characteristics in a population; conducting a more consistent investigation about the social fabric, and; analyzing social phenomena statistically through the aid of indices.

The populations that form the focus of social research (for example, whole societies) are often large, diverse and scattered. In order to estimate population parameters, social researchers select a fraction, often a representative fraction, of the population and undertake studies. The basic assumption behind such a study (Sample survey) is that the sample contains all parameters, phenomena, relationships and processes which the larger group possesses.

The real test for researcher lies in; How to bring out the information on gender by using the survey sample method. The present article focuses on the critical steps of survey research for in gender analysis. Special attention needed at each step and examples drawn from researcher's own experience while carrying the projects on "Development and testing of extension methods for farmwomen in Eastern India" and "Approaches to Engendering Agril. Research and Extension on Net-work Mode".

Steps in Planning, Conducting and Analyzing Gender Surveys

1. Deciding the gender issue

The first step is to decide exactly the gender issue (problem) on which data gathering is required. The gender issues are many and planning the research is done depending upon the issue. Sometime to study a main gender issue, the sub-issues associated with the main issue are also incorporated. The gender issue may fall in the area of access to extension, nutrition, health, health care, education, technology, access to and control over resources, drudgery, etc.

2. Defining the objectives and hypothesis

Stating the broad areas of data collection and comparisons explicitly facilitate the survey. Hypothesis in null form is developed to institute planned comparisons between male and female and selected parameters and examine the relationships.

3.1 Sampling

Selection of both men and women as respondents of the survey is a fundamental requirement in gender analysis. Based on the objectives of the study men and women are selected from the following options –

- a. Husband and wife
- b. Any one adult man and woman of the family involved in agriculture
- c. Equal number of men and women living in a social system.
- d. Proportionately selecting men and woman from different strata.

A combination of multi-phase and stratified sampling is most common in survey for gender analysis. The sampler may select sample of district in a state; within each of these districts he/she may choose sample of development blocks and finally within each block she/he may select quota for household belonging to four socio-economic strata namely, big, small, marginal farmers and agricultural-labourers. Sometimes locale of survey is decided as per non-probability sampling techniques; for example while studying the gender issues in rice farming, the sampler takes a criterion of district and block where there is highest coverage under rice. Respondents selection to different strata may be based on proportionate random sampling for the purpose of drawing generalizations from the survey results.

3.2 Development of interview schedule/ questionnaire

The theoretical space as defined in the objectives needs to be described through concepts which are further put in operational form as variables/ parameters. The methods of taking observations of the variables together with their measurement (scoring key) should be worked out. Generally most of socio-cultural, educational, psychological variables are measured by nominal and ordinal scales. Economic variables and time series variables are quantified by interval scale. For example the researcher while making a gender analysis on “exposure, preference and benefits of extension services” identified the following variables –

A. Exposure

- i. Awareness knowledge on Extension
- ii. Intensity and form of contact
- iii. Exposure to training

iv. Exposure to extension methods

B. Preference

- i. Most ideal grass root extension agent
- ii. Most preferred contact
- iii. Most preferred time of contact
- iv. Preference for group methods
- v. Interval of contact with agent
- vi. Most suitable place for individual contact
- vii. Most preferred location for group discussion
- viii. Most preferred location of training
- ix. Most preferred boundary of tour
- x. Who should demonstrate
- xi. Most preferred way of starting an enterprise

C. Benefits

- i. Gain in knowledge
- ii. Acquisition of skills

Some other variables associated with “exposure, preferences and benefits” may also come under gender analysis. For example personal profile, occupation, farming systems, involvement in farming systems, access to and control over productive resources etc are studied to support and provide logical interpretations to the findings.

3.3 Managing communication problems in the schedule and questionnaire

Much careful attention and experimentations are needed to produce effectively worded questions. The guide lines suggested by P. V. Young (1988) in this regard together with some precautions may prove very effective.

When data are collected from men and women who do not belong to the same family, the schedule containing all the parameters may be administered on both the groups separately. Household survey (man and woman from same family) may be taken up by using single schedule wherein the responses of man and woman can be recorded simultaneously against each variable / parameter. For doing so, the researcher has to continuously improve the design of **question-cum-response table**. Even under a primary enquiry, secondary and tertiary queries can be set in the table for easy and accurate recording of response. Responses exclusively for man and woman must be kept in separate sections.

3.4 Pre-testing the schedule

Before the schedule is administered, much efforts should be made to examine the reliability and validity of the schedule. The instruments must be consistent (must accurately measure the content as expected). Pre-testing the data collection instruments before they are used in the study, ensures against difficulties of comprehension, ambiguities and sterility of questions. Asking questions about discrimination, bias, inequality, violence, decision-making, control over and access to productive resources, work participation, social sanctions and criticisms etc and recording observations through rating scales should be checked to overcome the errors in measurement. The researcher may use the test-retest method and content analysis of the

measuring instruments for assessing the reliability and validity of the schedule. Necessary modifications may be incorporated to make the questions capable of eliciting one answer.

3.5 The pilot study

Research on gender for development has become so important that national govt. and state govt.'s decide to bring more facts and trends into consideration. Mega projects basing on the findings of the pilot study are aimed at. The pilot study provides answer to – “ How does the researcher formulate items in areas where the literature is inadequate”?. In order to make the survey on gender more effective, the instruments and results of the pilot study can provide new directions in gender research. In the recent past Indian Council of Agricultural Research (ICAR) has sanctioned a pilot study entitled “Approaches to Engendering Agricultural Research and Extension on Net-work Mode” this study should provide inputs for subsequent studies on gender.

3.6 Interviewing

The communication skills of the interviewer are pivotal for eliciting responses particularly from women. It is found that female investigator can understand very well the gestures (verbal and non verbal) of the women respondents and can enjoy the credibility of the women respondent. Women also tell freely their feedings, experiences and living conditions to another women.

It is always advisable to have focused and in-depth interviews with the subject of gender studies. The following precautions may be taken while interviewing.

- I. In the present social climate, getting readiness of the women for interview is difficult owing to feeling of inferiority among women respondents, and work pressure at home and fear of getting reprimand from elderly women and men. Good rapport building, compromising and confidence building steps would pay to overcome this problem.
- II. Men's interventions while interviewing the women check the thinking, speaking and acting of women. It is advisable to get rid of such interventions and develop a climate conducive for free interaction between interviewer and women respondent.
- III. It is also seen in some cases that women feel nervous and unsafe in giving responses in presence of her husband or male member. This is due to the fact that woman does not pull well in the prevailing family situation. In such cases women should be interviewed alone through tactful management.

4. Analysis and interpretation of data

The process of analysis starts from coding the responses i.e. placing each item in the appropriate category, tabulation of data and performing statistical computations. All the above steps are also similar for the gender analysis. As the type of distribution in the sample is often not known and most of the measurements are in nominal and ordinal scale, the use of non-parametric statistical tools may help to bring valid and accurate conclusions. Some of the tests which need special mention are chi-square test, median test, Wilcoxon-Mann-Whitney test, Kruskal-wallis test, critical ratio test and 't' test.

Conclusion

Survey research has great potentiality of providing generalizations about the gender on my critical issues concerning the productivity of gender. Its success depends to great extent on identification of variables, their operationization and measurement, structuring of questions/ items and responses, sampling frame and methods of interviewing.

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