

REVIEW OF LITERATURE

II REVIEW OF LITERATURE

The literature pertaining to the present study entitled “**Developing a Model on Public Private Partnership for Gender Mainstreaming in Agriculture**” is reviewed under the following heads:

- A. Women Empowerment and Gender Planning
- B. Gender Analysis in Agriculture
- C. Public Private Partnership in Agriculture
- D. Studies Related to Research

A. Women Empowerment and Gender Planning

The status of women in India has been subject to many great changes over the past few millennia. From equal status with men in ancient times through the low points of the medieval period, to the promotion of equal rights by many reformers, the history of women in India has been eventful. In modern India, women have adorned high offices in India including that of the President, Prime minister, Speaker of the Lok Sabha, Leader of Opposition, etc. (<http://en.wikipedia.org>).

Women are the foundation of every society. Yet for many women in the world's poorest regions, life is extraordinarily difficult. Through innovative health, agricultural, business and education programs, Mercy Corps builds on the courage and resourcefulness of women to help them realize their potential and improve their families and communities (Singh and Kumari, 2007).

The number of sexual abuse and domestic violence cases against women clearly throws light on the fact that women in India do not enjoy even basic rights; their health, education and empowerment, unfortunately take a back seat under such a scenario (Utpal and Bholra, 2004).

Empowerment is a process of awareness and conscientization, of capacity building leading to greater participation, effective decision-making power and control leading to transformative action (Sarla, 2005).

Empowerment refers to increasing the spiritual, political, social or economic strength of individuals and communities. Development agencies

have increasingly regarded 'empowerment' as an essential objective to improve the well-being of marginalized women in India (Sangeeta, 2007).

Empowerment of women means equipping women to be economically independent and personally self-reliant, with a positive self esteem to enable them to face any difficult situation. Moreover they should be able to contribute to the developmental activities of the country. The empowered women should be able to participate in the process of decision making. Again, it is a growth process that involves intellectual enlightenment, economic enrichment and social emancipation on the part of women (Antony, 2006).

Empowerment of women, also called gender empowerment, has become a significant topic of discussion in regards to development and economics. Empowerment is one of the main procedural concerns when addressing human rights and development. The Human Development and Capabilities Approach, The Millennium Development Goals, and other credible approaches/goals point to empowerment and participation as a necessary step if a country is to overcome the obstacles associated with poverty and development (Sundar, 2008).

Women empowerment has five components: women's sense of self-worth; their right to have and to determine choices; their right to have access to opportunities and resources; their right to have the power to control their own lives, both within and outside the home; and their ability to influence the direction of social change to create a more just social and economic order, nationally and internationally. Gender equality is women and men have same status, equal rights, responsibilities, and opportunities for realizing human potential (Ghosh, *et al.*, 2008).

Gender empowerment is conceived as a process by which women can overcome many of the hurdles that they face such as education, work status, employment opportunities, health care, social security, position in decision making by virtue of their gender, thus gender empowerment veritably implies empowerment of women to do away with "subordination" or "discrimination" and "injustices" done to them in male dominated society (Kumari, 2003).

Mainstreaming gender perspective is the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences as 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 (Usha, 2004).

Mainstreaming includes gender-specific activities and affirmative action, whenever women or men are in a particularly disadvantageous position. Gender-specific interventions can target women exclusively, men and women together, or only men, to enable them to participate in and benefit equally from development efforts. These are necessary temporary measures designed to combat the direct and indirect consequences of past discrimination (Purushothaman and Sangeetha, 2008).

Gender mainstreaming was established as a global strategy for the promotion of gender equality in the Platform for Action adopted at the Fourth World Conference on Women. Gender Mainstreaming focuses on gender roles and relationships rather than on women only; it is designed to ensure that women and men have access to project resources and services, in relation to their actual responsibilities. Mainstreaming can reveal a need for changes in goals, strategies and actions to ensure that both women and men can influence, participate in and benefit from development processes. Gender mainstreaming is the integration of the gender perspective into every step of policy processes - design, implementation, monitoring and evaluation -with a view to promoting equality between women and men (Yadav, 2006).

The women face obstacles in making their voices heard even in democratic systems and in increasing accountability and governance reforms in many areas. Recent studies stress that women's representation and gender integration into national plans and agricultural sector strategies remain a challenge (World Bank 2004).

Women Empowerment – myth or reality

Gender equality is an issue of primary importance to the welfare and progress of all nations. It is fundamental to achieving people-centered development what humanity needs is a world that is free, fair and equal; a world where opportunity and prosperity are shared by all so, why is violence against women and discrimination begins in the minds of people, where gender – bias becomes a habit in thought and action. These have over centuries developed deep – rooted cultural traditions which regard women as subservient, the girl child as a liability, and discrimination as normal. The root of all prejudice is ignorance-education, greater awareness; public policy and the media can play an important role in eradicating such prejudices. Recent work has brought out very clearly, those women's literacy and educated participation of women in decisions within and outside family strongly influence the relative respect and regard for women's well-being (Desai and Maithreyi, 2007).

As pointed out in one of the UN publications "In every country, whether it is new or long established, whether it is under developed or highly developed, any programme of economic or fiscal development, of improvement in education, health, labour and social conditions and of reform and reconstruction in any of the women services can only succeed" (UNDP, 2006).

The intension of policy-makers and planners to promote women development and empowerment is to be ensured by organizations entrusted with this work. This requires an ideal structure, material and personnel so that the intentions of policy-makers are translated into action. There is also a need of constant organizational analysis based on method study, word measurement and manpower planning (Aruna, *et al.*, 2009).

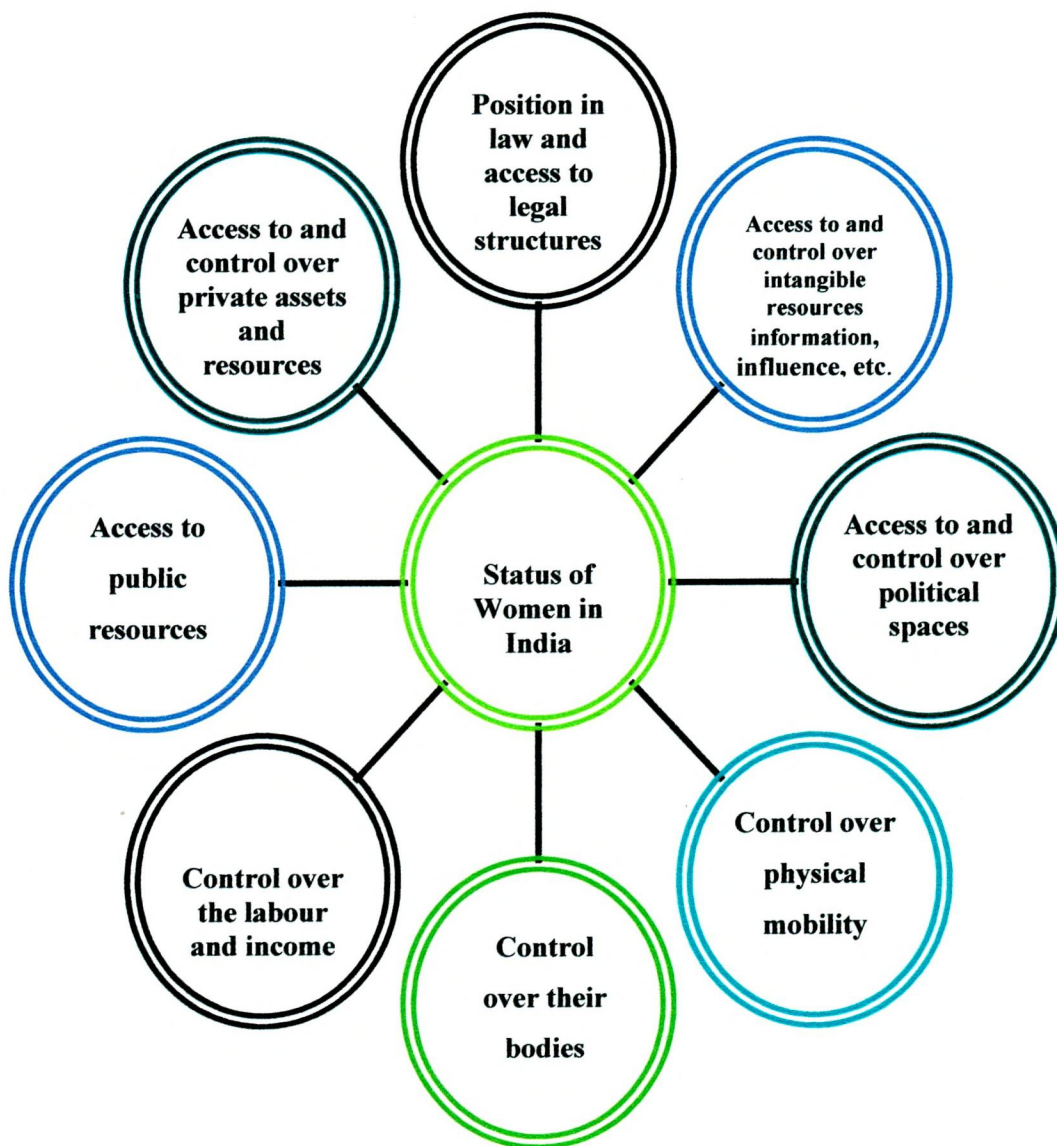
Emancipation of women is not an act of charity, the liberation of women is a fundamental necessity. In order to ameliorate the status of women, it is imperative that specially designed research, training, extension and economic programmes are organised at various level using various approaches on systematic and scientific lines heading to an improved standard of living and quality of life, catering to the special needs and roles of women both within and outside the home (Rath, 2007).

Every country has made progress in developing women's capabilities, but inequalities continue to exist between women and men. The low status of women is the outcome of a variety of causes in which patriarchal values reinforced by tradition, media and other socio-political institutions play a major role. Thus, the institutional base of women's oppression have to be sensitized to accept the gender equality and more over, women's perception of themselves would also need to be changed (Singh and Kumari, 2007).

An analysis of the status of women depends on an understanding of gender relations in a specific context. Examining gender relations as power relations makes clear that these are sustained by the institutions within which gender relations occur. For women, absence of power results in the lack of access to and control over resources, a coercive gender division of labour, devaluation of their work, and lack of control over their own labour, mobility as well as sexuality and fertility. Gender equality thus demands substantive transformation, a set of policies and condition created by the state that facilitate the relocation of resources, thereby increasing women's control over resources that confer power at individual, household, and societal levels (Agarwal, 2005).

Transformation for gender equality envisages the empowerment of women, requiring conditions that enable of women to exercise their autonomy; it also envisages a process of self-empowerment, in which women begin to re-examine their lives critically and collectively. While the former involves the facilitation of women's access to and control over resources, the later emphasizes women's agency in seeking greater access and control (Steffanie, 2003).

Measures of gender equality therefore requite an assessment of the degree to which resources have been redistributed; whether state policy has facilitated women's autonomy and the extent to which unequal gender relations have been transformed. As such, they reflect changes in both ideology and the institutions that mediate access and control. Women's status includes the aspects as given in Figure 1.



STATUS OF WOMEN IN INDIA

Figure 1

Formal and customary laws tend to limit their right to inheritance- an important means of acquiring private assets. Women's access to public resources which include the services and rights guaranteed by the welfare state is still unequal. Yet the state has traditionally limited its role to education or health measures, which have not factored on gendered barriers to women's access and have failed to empower women (Usha, 2004).

While patriarchal ideology restricts women's access to productive work outside the home, economic hardship often necessitates this. The result is a triple burden, of household and childrearing as well as wage labour. Women in many areas are becoming the major provider of family income, yet their decision-making over its disposal depends on household power relations. So long as the household sustains a patriarchal hierarchy, women will not attain economic autonomy (Verma et al., 2005).

The most cruel aspect of gender subordination is women's lack of control over their own bodies. In most parts of India, women have no say in whom or when they marry and the satisfaction of male needs is the purpose of sexual relations. Fertility regulations in pursuit of are often pawns in the struggles among individuals, families, religions and state (Krishnaraj and Desai, 2007).

The control of women's physical mobility, a crucial aspect of status, is also influenced by caste, class, religious, and community structures. While women's physical mobility may increase with their entry into the labour force, it also makes them vulnerable to assault, molestation and rape. Increased physical mobility thus cannot translate into higher status unless there is a social transformation that makes mobility a safe proposition for women (Philomena et al., 2005).

Owing to dissent voiced by feminist scholars on the widespread assumption that gender inequality as a challenge can be overcome with effective and sustained advocacy as it is more about mindsets and less about policies, especially economic policies, there have been some attempts to integrate economic and social policies but gender concerns have not been accorded requisite attention (Usha, 2004).

These disadvantages have led to a situation where gains in women's economic opportunities lag behind those in women's capabilities. This is inefficient, since increased women's labor force participation and earnings are associated with reduced poverty and faster growth, women will benefit from economic empowerment but so too will men, children and society as a whole. Women's lack of economic empowerment, on the other hand, not only impedes growth and poverty reduction, but also has a host of other negative impacts including less favorable education and health outcomes for children and a more rapid spread of HIV/AIDS. Thus, it is extremely important to ensure that women are economically empowered. There are various factors that contribute to the economic empowerment of women. These factors operate at various levels as shown in Figure 2 (UNDP, 2006).



OPPORTUNITIES FOR ECONOMIC DEVELOPMENT OF WOMEN

Figure 2

Gender mainstreaming is an important aspect of good governance. It seeks to ensure that institutions, policies and programs respond to the needs and interests of women as well as men, and distribute benefits equitably between women and men. It contributes to social, economic and cultural progress. It leads to greater fairness, equity and justice for women and men, thus enhancing the accountability of governments to achieve results

for all citizens. While mainstreaming is clearly essential for securing human rights and social justice for women as well as men, it also increasingly recognized that incorporating gender perspectives in different areas of development ensures the effective achievement of other social and economic goals. Mainstreaming can reveal a need for changes in goals, strategies and actions to ensure that both women and men can influence, participate in and benefit from development processes (Desai and Maithreyi, 2007).

Although government agencies such as a national women's machinery may provide the initial impetus for gender mainstreaming activities, these strategies will not be effective or sustainable if individuals and groups within a society do not understand the importance of the change being sought. Civil society has an important role to play in, to fulfill its commitment to gender mainstreaming. The principle of gender equality is enshrined in the Indian Constitution in its Preamble, Fundamental Rights, Fundamental Duties and Directive Principles. The Constitution not only grants equality to women, but also empowers the State to adopt measures of positive discrimination in favour of women (Maya, 2004).

National Policies for Women

The National Policy for Empowerment of Women 2001 had as its goal bringing about advancement, development and empowerment of women in all spheres of life through creation of a more responsive judicial and legal system sensitive to women and mainstreaming a gender perspective in the development process. The strengthening and formation of relevant institutional mechanisms and implementation of international obligations/commitments and co-operation at the international, regional and sub-regional level was another commitment. The Government in their National Common Minimum Programme (2004) has laid down six basic principles of governance one of which is to empower women politically, educationally, economically and legally (Government of India, 2006).

The constitutional obligations and different plans, programmes and policies have laid emphasis on women's empowerment, to make them achieve participants in the process of development. Measures taken by the

government of India include the establishment of the National Commission for Women (NCW); Rashtriya Mahila Kosh (RMK); launching of Indira Mahila Yojana (IMY), Balika Samridhi Yojana (BSY); and Rural Women's Development and Empowerment Project (RWDEP). Forming a National Policy for empowerment of women and setting up a National Resource Centre for Women are other efforts of the context undertaken by government in the interest of women (Verma, 2005).

The entry of women into political spaces has the potential to recorder gender power relation in the public arena. The entrenched nature of patriarchy throughout mainstream institutions, however, requires both a critical mass and a strategic link between women who enter politics and a mass-based progressive women's movement to which they are accountable. Moreover, sustainable changes require women's entry not only to formal political spaces but also community- level spaces, which means eliminating obstacles that impede their effective participation (Mukta, 2005).

Women's status also depends on intangible resources, including self-confidence and self-worth, as well as information, knowledge, and specific skills. A just society ensures that all individuals can acquire basic levels of these resources, eliminating discrimination that causes lack of confidences and guaranteeing every individual an equal opportunity to access information, improve, development interventions must be designed to serve the goals of gender equality. Women's accesses to knowledge, information and skills have to be made (Sangeeta, 2007).

Although fundamental freedoms and rights are guaranteed equally, women's lives are bound by family, community and religious traditions that contravene their legal rights, along with legal discourse itself. Yet it is crucial that women engage with legal discourse upon which future law may be built (Sarla, 2005).

Another interesting feature of the empowerment frame work is the treatment of gender roles. In this perspective, 'gender issues' do not arise merely from gender role differentiation, but from inequalities deriving from the gender division of labour and allocation of benefits. In this perspective gender

inequality and subordination should be kept at the centre of gender responsive planning, a point that underpinning of the empowerment framework appears to be a structuralized interpretation of gender inequality (Krishnaraj and Desai, 2007).

The capacity – building support strategy for gender mainstreaming is now a sub-programme in the global gender programme are UNDP, managed through the gender in development programme. It also draws on the growing body of research on gender and organizational change, of which examines how organizations reproduce gender and social inequalities in their work practices and values and on the basis of this knowledge, develops strategies for promoting organizational change. In terms of 'institutional scope', therefore, the strength of this approach lies in its focus on overcoming gender bias within development organizations themselves (Mishra, 2006).

Gender Empowerment

Over the past decade, gender equality and women's empowerment have been explicitly recognized as key not only to the health of nations, but also to social and economic development. India's National Population Policy 2000 has empower the women for health and nutrition'as one of its crosscutting strategic themes. Additionally, the promotion of gender equality and empowering of women is one of the eight Millennium Development Goals (MDGs) to which India is a signatory. The pairing of the two concepts of women's empowerment and gender equality into one MDG implicitly recognizes that gender equality and women's empowerment are two sides of the same coin: progress toward gender equality requires women's empowerment and women's empowerment requires increases in gender equality (Figure 3).

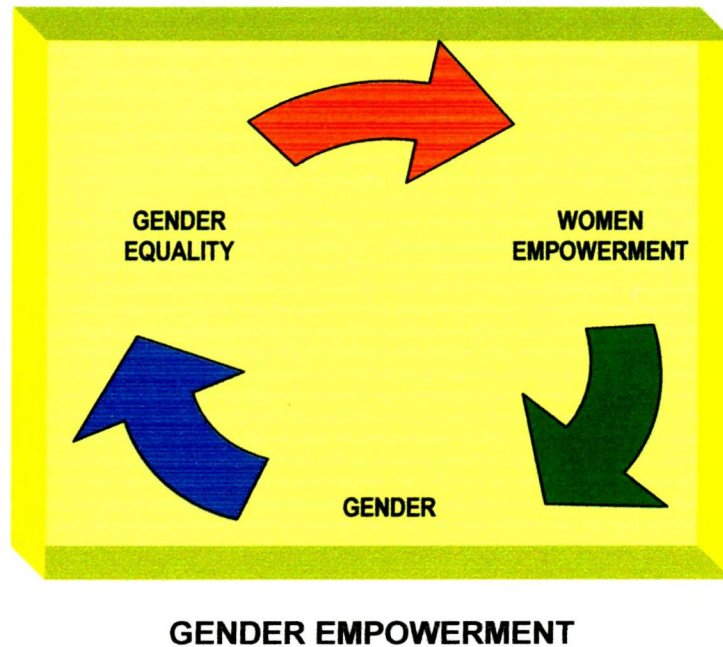


Figure 3

Since gender inequality and women disempowerment occur in all the different domains in which women and men interact and function, both concepts are multi-dimensional; consequently, they give rise to a large number of potential indicators. Indicators of gender equality/inequality are typically designed to compare the status of women and men on particular characteristics of interest; whereas, by definition, indicators of empowerment/disempowerment tend not to be relative. Instead, indicators of empowerment are designed to measure roles, attitudes, and rights of women and sometimes men (Utpal and Bhola, 2004).

B. Gender Analysis in Agriculture

Agriculture is one of the strongholds of the Indian economy and is regarded as the largest sector of the country's economic activity. About 80 percent of the Indian population either directly or indirectly depends on agriculture for their income. Most of the women perform various works for their livelihood and agriculture is considered as the biggest unorganized sector where large numbers of Indian rural women take part actively. These rural women who work in the farm participate in a wide range of farm activities by slogging alongside with men in the field as well as taking care of the home

and children thereby performing multiple roles that a homemaker and of a partner in the farming activities outside the home (Dinesh, 2003).

The agriculture sector of India has occupied almost 43 percent of India's geographical area. Agriculture is still the only largest contributor to India's GDP even after a decline in the same in the agriculture share of India. Agriculture also plays a significant role in the growth of socio-economic sector in India (www.business.mapsofindia.com).

In the earlier times, India was largely depending upon food imports but the successive stories of the agriculture sector of Indian economy have made it self-sufficient in grain production. The country also has substantial reserves for the same. India depends heavily on the agriculture sector, especially on the food production unit after the 1960 crisis in food sector. Since then, India has put a lot of effort to be self-sufficient in the food production and this endeavor of India has led to the Green Revolution. The Green Revolution came into existence with the aim to improve the agriculture in India.

The services enhanced by the Green Revolution in the agriculture sector of Indian economy are,

- ❖ Acquiring more area for cultivation purposes
- ❖ Expanding irrigation facilities
- ❖ Use of improved and advanced high-yielding variety of seeds
- ❖ Implementing better techniques that emerged from agriculture research
- ❖ Water management
- ❖ Plan protection activities through prudent use of fertilizers, pesticides and cropping applications

All these measures taken by the Green Revolution led to an alarming rise in the wheat and rice production of India's agriculture. Considering the quantum leap witnessed by the wheat and rice production unit of India's agriculture, a National Pulse Development Programme that covered almost 13 states was set up in 1986 with the aim to introduce the improved technologies to the farmers. A Technology Mission was introduced in 1986 right after the success of National Pulse Development Programme to boost the oilseeds sector in Indian economy. Pulses too came under this

programme. A new seed policy was planned to provide entree to superior quality seeds and plant material for fruits, vegetables, oilseeds, pulses, and flowers (Haque, 2003).

The Indian government also set up Ministry of Food Processing Industries to stimulate the agriculture sector of Indian economy and make it more lucrative. India's agriculture sector highly depends upon the monsoon season as heavy rainfall during the time leads to a rich harvest. But the entire year's agriculture cannot possibly depend upon only one season. Taking into account this fact, a second Green Revolution is formed to overcome such restrictions. An increase in the growth rate and irrigation area, improved water management, improving the soil quality, and diversifying into high value outputs, fruits, vegetables, herbs, flowers, medicinal plants, and bio-diesel are also on the list of the services to be taken by the Green Revolution to improve the agriculture in India (Johl, 2005).

India ranks second worldwide in farm output. Agriculture and allied sectors like forestry, logging and fishing accounted for 15.7 per cent of the GDP in 2009–10, employed 52.1 per cent of the total workforce, and despite a steady decline of its share in the GDP, is still the largest economic sector and a significant piece of the overall socio-economic development of India. Yields per unit area of all crops have grown since 1950, due to the special emphasis placed on agriculture in the five-year plans and steady improvements in irrigation, technology, application of modern agricultural practices and provision of agricultural credit and subsidies since the Green Revolution in India.

India's agriculture sector contributed approximately 14.2 per cent to India's gross domestic product (GDP) during 2009-10. Agriculture sector is vital for the nation and is the principal source of livelihood for more than 58 per cent of the population. Agriculture sector has touched a growth rate of 4.4 per cent in the second quarter of 2010-11 thereby achieving an overall growth rate of 3.8 per cent during the first half of 2010-11(Economic Survey, 2010).

According to the latest numbers made available by the Central Statistical Organisation (CSO). India's GDP at factor cost at constant prices registered an increase of 8.5 per cent in the year 2010-11. This revised estimate of 8.5 percent growth for GDP in 2010-11 is only a shade below the advance estimates that had pegged GDP growth for 2010-11 at 8.6 percent.

In case of the agriculture and allied sector, the revised estimates have pegged growth in 2010-11 at 6.6 per cent, which is much higher compared to the advance estimates that had put growth at 5.4 percent. In this context is important to note that the third advance estimates of crop production released by the Ministry of Agriculture have shown a significant upward revision as compared to second advance estimates in the production of wheat (84.27 million tons from 81.47 million tons), oil seeds (302.51 lakh tones from 278.48 lakh tones) and sugar cane (340.54 million tons from 336.70 million tons). These revisions are responsible for lifting the GDP growth rate for agriculture and allied activities sector (Economic Outlook, 2011).

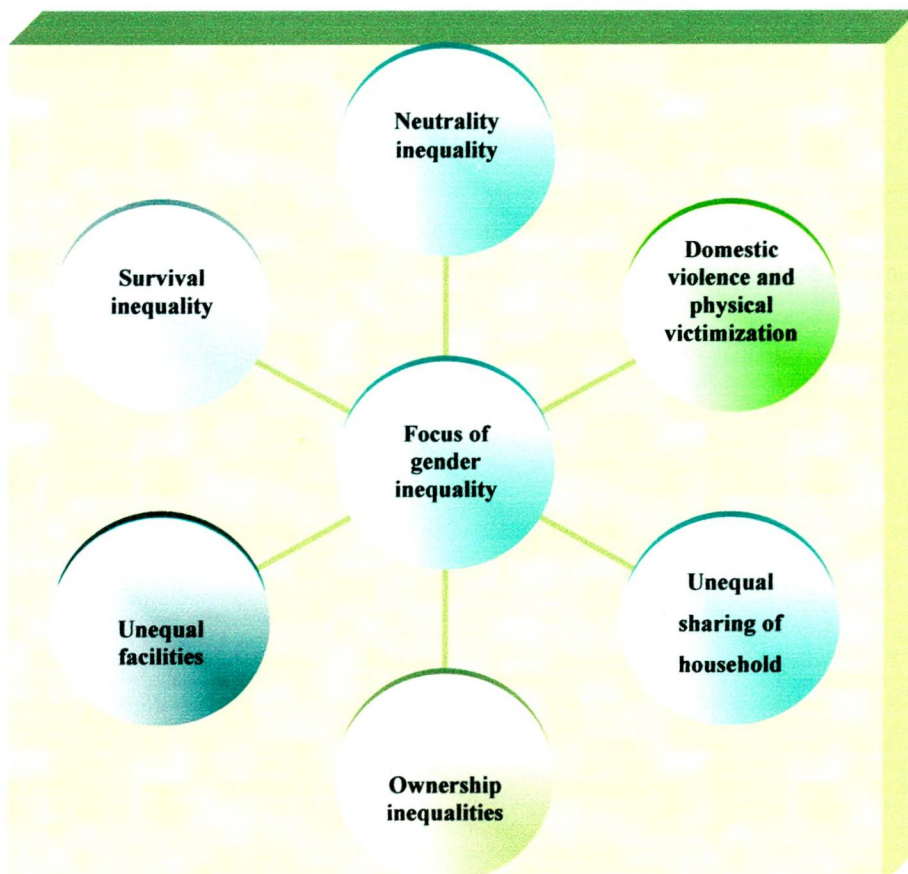
India targets to achieve 9.5 per cent average economic growth in the 12th Five Year Plan (2012-17), on back of an estimated agriculture growth rate of 4.2 per cent. The growth target for agriculture for the 12th Five Year Plan was announced by Abhijit Sen, a member of the Planning Commission. The Planning Commission has emphasised on a minimum 4 per cent growth in agriculture as it provides broad based income benefits to the rural population and also because it is necessary to avoid inflationary pressure, which could arise if high levels of growth are attempted without corresponding growth in domestic food production capabilities," according to Dr Manmohan Singh, the Prime Minister. The Government has earmarked US\$ 40.66 billion for various programmes in 2011-12, he added (Reserve Bank of India, 2011).

For sustainable development conservation of natural resources is one of the most important requirements. Steps should be taken to conserve and protect ecological foundations essential for sustainable increase in agricultural productivity. This can be achieved through eco technologies such as bio-information, space and renewable energy technologies (Papola, 2005).

“Everything else can wait, but not agriculture”, is the statement is even more relevant today that when made by Jawaharlal Nehru it 47 years ago, since only the rapid spread of ecological agriculture, can help to achieve the national goals of food and jobs for all (Swaminathan, 2006).In order to safeguard the interest of farmer community, it is essential to have coordination between the farmers and the department in implementing the schemes (Haque, 2003).

Importance of Gender Equality in Agriculture

The persistence of sharp gender inequalities in many different forms is one of the most striking aspects of Indian Society, and it yields disparities in well being as well as differences in power and decision making authority (Desai and Maithieyi, 2007). The different focus of gender inequality can be stated as in Figure 4.



FOCUS OF GENDER INEQUALITY

Figure 4

Woman's role as a woman itself affects adversely her other roles, there by remaining in a disadvantageous position everywhere in society (Vani, 2004).

The agriculture sector is becoming more technologically sophisticated, commercially oriented and globally integrated; at the same time, migration patterns and climate variability are changing the rural landscape across the developing world. These forces pose challenges and present opportunities for all agricultural producers, but women face additional legal and social barriers that limit their ability to adapt to and benefit from change. Governments and donors have made major commitments aimed at revitalizing agriculture in developing regions, but their efforts in agriculture will yield better results more quickly if they maximize the productive potential of women by promoting gender equality (Clark, 2002).

Gender equality is crucial for agricultural development and the attainment of the Millennium Development Goals (MDGs). The definition of gender used in the sourcebook is the economic, social, political, and cultural attributes and opportunities associated with being man or woman. The definition in the Global Monitoring Report 2007 on gender equality means equal access to the "opportunities that allow people to pursue a life of their own choosing and to avoid extreme deprivations in outcomes," highlights gender equality in rights, resources, and voices.

Gender issues must be addressed in development. First, gender dimension is crucial for economic reasons and from the efficiency point of view. This is especially true in the agriculture sector, where gender inequalities in access to and control over resources are persistent, undermining a sustainable and inclusive development of the sector. Second, equity or distributional issues are related to gender differences in outcomes. Gender differences, arising from the socially constructed relationship between men and women, affect the distribution of resources between them and cause many disparities in development outcomes. Third, gender roles and relations affect food security and household welfare, critical indicators of human

development. And last gender equality is a basic human right, one that has value in and of itself in many parts of the world (Usha, 2004).

The gender gap in agriculture

Agriculture is underperforming in many developing countries for a number of reasons. Among these is the fact that women lack the resources and opportunities they need to make the most productive use of their time. Women are farmers, workers and entrepreneurs, but almost everywhere they face more severe constraints than men in accessing productive resources, markets and services. This “gender gap” hinders their productivity and reduces their contributions to the agriculture sector and to the achievement of broader economic and social development goals. Closing the gender gap in agriculture would produce significant gains for society by increasing agricultural productivity, reducing poverty and hunger and promoting economic growth (Varma, 2007).

Constraints of farm Women

Unequal Land Rights

The laws governing women’s rights to land differ widely in various parts of the world (World Bank, 2000). Despite the spirit of law and custom, women generally failed to inherit land in their name and even if women were formal legal owners, management of the land was taken over by men (Maya, 2004). Some religious laws forbid female land ownership. The inheritance laws are biased against women. Women’s right to inherit, own and control property, were determined primarily by the values and norms which were socially acceptable as well as the mechanisms of intra-household decision making and distribution (Swarnakar, 2008).

Some development projects have made innovative attempts to give women access to land. For example, in Andhra Pradesh ‘state land grant scheme’ promoted women’s access to land. In Karnataka, project funds were used to lease land for women’s group (Singh and Kumar, 2007). Women also tend to be allocated poorer land, whose quality deteriorates when intensively cultivated (Ghosh et al., 2008).

Technological Biases on Women

Female workers generally own eagerness tools than men. Since farm capital contributes positively to yields, female farmers are likely to have lower yields than male. Moreover, new technology has often been inappropriate to women's need. For women who farm in their own plots, new agricultural technology may reduce drudgery and increase productivity. However use of improved tools and equipment need better skill and training (Murugan, 2008). But for female hired labourers, adoption of labours saving devices may mean the loss of employment and income. But mechanization need not necessarily displace labour but could reduce the hours of work (Kaur, 2006). Also where principally husbands make decisions about investment in equipment, investment in labour saving technologies for women is given frequently low priority. The 'traditional socio-cultural barriers' regarding use of tools/gadgets by women is yet another problem. The attitudes of people need to be influenced to break this barrier (Agarwal, 2005).

The research system in agriculture is also male dominated and masculine oriented. No deliberate attempts have been made to evolve women specific home and farm technologies to reduce their ergonomic burdens. Thus, their effectiveness and efficiency is not fully utilized (Desai and Maithreyi, 2007).

Gender Blindness in Agriculture Extension System

Swaminathan (2006) reported that male extension workers by pass female farmers. The extension approaches and strategies usually followed for transfer of technologies do not cater to the needs of farm women. Most training programs for women continue to emphasize on household and domestic skill rather in agriculture and animal husbandry. Further even the venue, timing, duration, content and methodology of training are not very appropriate for farm women with trainings largely being confined to institutional settings (Laxmi Devi, 2007).

Lack of Access to Credit

Women are more in disadvantageous position than men because property that is acceptable as collateral, especially land, is held by men. Some of the social and cultural barriers in getting credit are

- Low educational level of women
- Lack of familiarity with loan procedures
- Exclusion from local farmers group

Women tend to be involved in the production of relatively low return crops that are not included in formal sector lending programs (World Bank, 2000).

Lower level of Education

Average literacy rates for men in developing countries were over 50 per cent, while two-thirds of women still illiterate (World Bank, 2000). This disparity continues to be larger in rural areas, where educational attainment is lower. Better-educated farmers are more likely to adopt new technologies and do have access to extension services (Dhandapani and Murugan 2007).

Role of Women in Agriculture

Agricultural policy is still dominated by the false view that 'farmers are men'; 'women are only housewives'. Though women contribute significantly even disproportionately, yet remained 'inactive' and 'depending'. There is a conceptual inability of statisticians and researches to define women's work inside the house and outside the house (farming is usually a part of both). According to the assessment in the Indian Himalaya, a pair of bullock works for 1064 hours, a man for 1212 hours and a woman for 3485 hours in a year on a 1-hectare farm. A woman's work is more than of a man and 2 bullocks combined (Dinesh, 2003).

The roles and status of women in agriculture and rural areas vary widely by region, age, ethnicity and social class and are changing rapidly in some parts of the world. Policy-makers, donors and development practitioners need information and analysis that reflect the diversity of the contributions women make and the specific challenges they are confronted with in order to make gender-aware decisions about the sector (Ramya and Jayakumar, 2008).

Rural women are responsible for 60 to 80 per cent of food production in developing countries, yet female farmers are often underestimated and overlooked in agricultural policies and strategies. (UNFPA, State of the World Population, 2005).

Table - I gives the number of women in agriculture, plantation and other activities:

TABLE I
STATISTICS ABOUT WOMEN IN INDIA

Women population (2001)	494.83 million
Women workers (2001)	127.05 million
Women as main workers (2001)	72.65 million
Women as marginal workers (2001)	54.40 million
Women owner cultivators (2001)	41.30 million
Women wage workers (2001)	50.09 million
Women as household industry workers (2001)	8.08 million
Women as other workers (2001)	27.57 million
Women in organized sector (1999)	4.80 million

Women play a significant role at all the various stages of food production, processing and preparing. Many of the poorest countries have an agriculture-based economy. About 3/5 of the world's poor are women, scores of whom depend on agriculture for survival (Bhadouria and Dua, 2008).

Women's role in agricultural production is essential for the nutritional status of families as well as the generation a source of income. A key role in providing water for households as well as farming adds to this picture of feminisation of agriculture. Consequently, a gender-balanced agricultural

growth is critical to successful agricultural programming and, in turn, to reducing poverty and attaining the Millennium Development Goals (MDGs) (Ramya and Jayakumar, 2008).

Infrastructure and access to markets are critical to women's ability to turn agricultural production into a source of income. Degradation of agricultural soil forces women to find alternative areas for food production or new sources of income. This not only exacerbates agricultural land conversion and degradation of land resources, it also adds to the pressure on women farmers, who may face greater risks to their health and physical safety as they venture further and further away from their homes to find productive land to meet their families' needs. It is therefore essential that women take part in decisions on the use of land (Vyas, 1994).

Despite the diversity in the roles and status of women in agriculture, the evidence and analysis presented in this report confirm that women face a surprisingly consistent gender gap in access to productive assets, inputs and services. A large body of empirical evidence from many different countries shows that female farmers are just as efficient as their male counterparts, but they have less land and use fewer inputs, so they produce less. The potential gains that could be achieved by closing the gender gap in input use are estimated in this report in terms of agricultural yields, agricultural production, food security and broader aspects of economic and social welfare (World Bank, 2004).

Because many of the constraints faced by women are socially determined, they can change. What is more, external pressures often serve as a catalyst for women to take on new roles and responsibilities that can improve their productivity and raise their status within households and communities. For example, the growth of modern supply chains for high-value agricultural products is creating significant opportunities – and challenges – for women in on-farm and off farm employment. Other forces for social and economic change can also translate into opportunities for women (Punia, 2005).

Thus the empowerment of women through the provision of training in managerial skills, appropriate technology and resources must receive priority in agricultural development programmes if such programmes are to contribute significantly to economic development and the reduction of poverty (Harper, 2008).

Five main gender issues have emerged as being of particular significance in the Agriculture and rural development sector :(as given by Common Wealth Secretariat).

1. Equal access to land and water resources, and to credit and other support services;
2. Gender differences in roles and activities;
3. Gender and agricultural extension and research;
4. Gender, agricultural biodiversity and commercialization; and
5. Women's empowerment and equal access to decision-making.

These are inter-linked and all require social change, which needs to have substantial political support, if the limits to growth are to be overcome (Vani, 2004).

Sustainable production is very important for food security. In every region of the developing world, millions of women work as farmers, farm workers and natural resource managers. In doing so, they contribute to national agricultural output, maintenance of environment and family food security. They make above contributions despite unequal access to land, inputs and information- A grower body of evidence indicates that if male-farmers access to input would occur, benefiting both women and men. Intimate from Food and Agriculture Organization (FAO) of United Nations show that women account for more than half of labour required to produce the food consumed in the developing world.

Agricultural policy-makers and development practitioners have an obligation to ensure that women are able to participate fully in, and benefit from, the process of agricultural development. At the same time, promoting gender equality in agriculture can help reduce extreme poverty and hunger.

Equality for women would be good for agricultural development, and agricultural development should also be good for women.

Women, like men, can be considered “productive resources”, but they are also citizens who have an equal claim with men on the protections, opportunities and services provided by their governments and the international community. Gender equality is a Millennium Development Goal (MDG) in its own right, and it is directly related to the achievement of the MDG targets on reducing extreme poverty and hunger. Clear synergies exist between the gender-equality and hunger-reduction goals (Purushothaman and Sangeetha, 2008).

Policy and planning focus

- Given the diversity of the agro-ecological system and the resulting wide varieties of farming systems, it is important that state level efforts in gender planning are supported by gender/sex segregated data pertinent to local situation
- The current efforts on creating agricultural data and gender information in farming systems across the country should be co-ordinate and the available information should feed into the planning process
- 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 curricular to integrate a gender approach in all technical areas of agricultural sector
- Existing policies related to targeting women and gender-equity should be widely communicated to all involved development work including women clientele
- Review of the land right policies and implementation of land distribution for gender equity and women's land rights
- Farmer's right initiatives should explicitly address concerns of women farmers

Programme focus

- Develop programmes to train Panchayat leaders in gender-integrative participatory approaches and local planning
- Develop programmes for rural women to build leadership skills for managing agriculture community-based development activities
- Develop economic and political literacy programmes for rural women to utilize development inputs effectively
- Support agriculture extension in-service training programmes and other relevant agricultural curricular activities to support gender-sensitive extension agents
- Put in place appropriate institutional mechanisms for information exchange and cooperation between the agencies that focus on women's affair and agriculture-related technical activities
- Support women-managed rural production and marketing ventures in horticulture, floriculture and post-harvest processing in commodities
- Provide technology training and input support to women to take advantage of emerging high-value agribusiness sector including bio-technology and forest products(Raj, 2000)

Women received attention of the Government right from the beginning of Indian planning. However, the shift from 'welfare' to 'development' of women took place in the Sixth Five Year Plan (1980-85). The Eighth plan (1992-97) promised to ensure that the benefits of development from different sectors do not by pass women. The Rashtriya Mahila Kosh (RMK) was set up in 1993 to meet the credit needs of poor and asset less women. The Ninth Plan (1997-2002) made two significant changes in the strategy of planning for women-'Empowerment of women' become the primary objective and secondly the plan attempted 'convergence of existing services' available in both women-specific and women related sectors. The Tenth Plan (2002-07) has made a major commitment towards 'empowering women as the agent and socio-economic change and development'. Based on the recommendations of National Policy for Empowerment of Women, the Tenth Plan suggests a

Three-fold strategy for empowerment of women, economic, social empowerment and gender justice (Ramya and Jayakumar, 2008).

The gender perspectives incorporated in the plan are the outcome of extensive consultations with different stakeholders, including a Group of Feminist Economists. In the Eleventh Plan, for the first time, women are recognized not just as equal citizens but as agents of economic and social growth. The approach to gender equity is based on the recognition that interventions in favour of women must be multi-pronged and they must:

- (i) Provide women with basic entitlements,
- (ii) Address the reality of globalization and its impact on women by prioritizing economic empowerment,
- (iii) Ensure an environment free from all forms of Violence Against Women (VAW)—physical, economic, social, psychological etc.,
- (iv) Ensure the participation and adequate representation of women at the highest policy levels, particularly in Parliament and State assemblies, and
- (v) Strengthen existing institutional mechanisms and create new ones for gender main-streaming and effective policy implementation (Planning Commission, 2008).

Governments, donors and development practitioners now recognize that agriculture is central to economic growth and food security – particularly in countries where a significant share of the population depends on the sector – but their commitment to gender equality in agriculture is less robust. Gender issues are now mentioned in most national and regional agricultural and food-security policy plans, but they are usually relegated to separate chapters on women rather than treated as an integral part of policy and programming. Many agricultural policy and project documents still fail to consider basic questions about the differences in the resources available to men and women, their roles and the constraints they face – and how these differences might be relevant to the proposed intervention (Rath, 2007).

Gender-aware policy support and well designed development projects can help close the gender gap. Given existing inequities, it is not enough that policies be gender-neutral; overcoming the constraints faced by women requires much more. Reforms aimed at eliminating discrimination and promoting equal access to productive resources can help ensure that women – and men – are equally prepared to cope with the challenges and to take advantage of the opportunities arising from the changes shaping the rural economy. Closing the gender gap in agriculture will benefit women, the agriculture and rural sectors, and society as a whole. The gains will vary widely according to local circumstances, but they are likely to be greater where women are more involved in agriculture and face the most severe constraints (Antony, 2006).

While it seems obvious that closing the gender gap would be beneficial, evidence to substantiate this potential has been lacking. This edition of *The State of Food and Agriculture* has several goals: to bring the best available empirical evidence to bear on the contributions women make and the constraints they face in agricultural and rural enterprises in different regions of the world; to demonstrate how the gender gap limits agricultural productivity, economic development and human well-being; to evaluate critically interventions aimed at reducing the gender gap and to recommend practical steps that national governments and the international community can take to promote agricultural development by empowering women (Aruna et al, 2009).

Government of India in its agriculture reforms has initiated a scheme entitled "Support to State Extension Programmers". The major guiding principles of the scheme are as:

- Reforming State Agricultural Extension
- Promoting private sector to compliment and supplement public extension system
- Augment media and information technology
- Empowerment of women through mainstreaming gender issues
- Capacity building /skilled up-gradation of farmers and farm women

Increasing women's access to land, livestock, education, financial services, extension, technology and rural employment would boost their productivity and generate gains in terms of agricultural production, food security, economic growth and social welfare. Closing the gender gap in agricultural inputs alone could lift 100– 150 million people out of hunger (Sangeeta, 2007).

No blueprint exists for closing the gender gap, but some basic principles are universal: governments, the international community and civil society should work together to eliminate discrimination under the law, to promote equal access to resources and opportunities, to ensure that agricultural policies and programmes are gender-aware, and to make women's voices heard as equal partners for sustainable development. Achieving gender equality and empowering women in agriculture is not only the right thing to do. It is also crucial for agricultural development and food security (Choudary, 2000).

The challenge in the Eleventh Plan is to improve the availability of agricultural inputs, credit, marketing facilities, technology and skill training for the increasing number of women farmers. Resources pooling and group investment financial and infrastructural support will be provided. Women in agriculture will be on the top of the Eleventh Plan agenda and a two-pronged strategy will be adopted (1) ensuring effective and independent land rights for women and (2) strengthening women's agricultural capacities (Varma, 2007).

A specific scheme will be devised Ministry of Women and Child Development (MoWCD) for identifying and helping women in states where agrarian crisis have ravaged families (Yadav, 2006).

Indian laws related to women in agriculture

Article 39 of the Indian Constitution directs the state to ensure that "citizens, men and women equally, have the right to adequate means of livelihood", that "there is equal pay for equal work for both men and woman", and that "the health and strength of workers, men and women, are not abused and that citizens are not forced by economic necessity to enter avocations unsuited to their age or strength". On the other hand, article 16 of the

Constitution, starting the principle of equality in employment, applies to public employment only.

With regard to treatment, the Equal Remuneration Act of 1976, as amended, prohibits discrimination in employment conditions (including promotion, training and transfer) (sec. 5, as amended in 1987). On the other hand, protective legislation prohibits women's night work in a number of sectors. As for agriculture, the Plantations Labour Act of 1951 prohibits the employment of women between 19 hours and 6 hours (except for midwives and nurses) unless there is permission from the state government (Section.25).

The Equal Remuneration Act states the principle of equal remuneration for the "same work or work of a similar nature". In complying with this requirement, employers cannot reduce wages; therefore, in case of existing sex discrimination, the higher wage is payable to workers of both sexes (section. 4). The equal remuneration principle is also guaranteed in the case law (Harper, 2008).

Recommendations for Action given by United Nations Educational, Scientific and Cultural Organization (UNESCO)

This contribution to the gender debate is not intended as a rigid template to be superimposed by governments on all the agencies concerned with renewable natural resources, in the expectation that gender mainstreaming will result. It is rather an inventory of the issues which governments are grappling with throughout the developing world in the face of rapid and far-reaching changes, together with a few suggestions which may be helpful in mapping a way forward.

In the complex area of land tenure, property rights, resettlement and access to land there is still some way to go to improve the position of women, particularly where female-headed households are concerned. In some cases the legal situation has been addressed but social norms still disadvantage women by only allowing them access to land through male kin. This land issue is one of the many which will require political will for change to happen,

otherwise any possibilities of improved food security or reductions in rural poverty will be constrained (Sarla, 2005).

There is a continuous need to improve access for women to credit, agricultural services, technology and information. The collateral which is provided by land is important in obtaining credit but the increasing availability of micro-credit will, it is hoped, provide access for many women previously outside the formal banking system and consequently denied credit funds (Jain, 2008).

There is also the unfinished business of advancing women in key areas within all the agencies with responsibilities for rural development. This will only take place when girls have equal access to education, when there is a political willingness to promote women and when women themselves wish to make their career in sectors which have not in the past seemed attractive. Therefore, women will need to be actively recruited into the fields of agricultural research, economics and rural development in order to shift the balance (Promila, 2004).

C. Public Private Partnership in Agriculture

Public Private Partnership (PPP) describes a government service or private business venture which is funded and operated through a partnership of government and one or more private sector companies. These schemes are sometimes referred to as PPP, P3 or P³. A Public-Private Partnership is a contractual agreement between a public agency and a private sector entity to share the skills and assets of each sector in delivering a service or facility for the use of the general public, and also share the risks and rewards inherent in it (Sathana and Jesintha, 2011).

Public Private Partnerships are a popular type of collaboration in many sectors of the economy around the world. In one form or another, partnerships between public institutions and private individuals or organizations have existed for centuries. Medieval church-building is arguably one example; in the 19th century, Universities in the USA and Germany played a key role in facilitating their countries' industrialization. Modern examples continue to

include tertiary education, as well as such diverse areas as infrastructure, defense, pharmaceuticals, road management and the Olympics.

There is also a growing realization of the value of PPP in agriculture, and particularly for projects that benefit farmers in developing countries. So far, however, very few agricultural PPPs exist. Those that do are largely experimental, and form a new field of practice and inquiry for the participants. PPPs can take a variety of forms. They are not limited to bilateral collaboration between a government agency and a private corporation. PPP for sustainable agricultural development can also include, for example, multi-partner structures that bring together private companies with entities such as Non-Governmental Organizations (NGOs), university research institutes and foundations (Marco and Paul, 2011).

Partnerships in agricultural research and innovation

Collaborative mechanisms in research fields and in the private sector share resources and risks and generate innovations for the development of the agricultural sector, including the livestock, forestry, and fisheries sectors. Possible partners include research institutes, universities, and extension agencies in the public sector, and producers' associations, businesses, and individual producers in the private sector. Often, in less-developed countries, these partnerships are supported by governments and international cooperation agencies (Hartwich et al., 2007).

In India agriculture is a state subject and the main extension agency is the state Department of Agriculture (DoA). Most of these states have a separate wing (under DoA) or a Department for Horticulture, Soil and Water Conservation and Watershed Development. Among the various line departments, DoA has the maximum number of field staff for extension. Extension Division lays down major policy guidelines on extension matters and the Directorate of Extension implements specific programmes and activities (Hall, et al., 2003).

The contribution of public extension in attaining self-reliance in food production is very well recognized. But in this changing time, public extension alone is not sufficient to address multi-faceted problems faced by farmers.

Public extension is also constrained by limited resources, wide ratio between farmers and extension personnel and also by added responsibility of handling emerging issues like marketing extension, agri-business, quality consciousness and World Trade Organization (WTO). The need of the hour is to involve all the stakeholders in agriculture in the development process. In the Indian context, such private extension service providers available are, unemployed agricultural graduates, agricultural consultants, consultancy firms, progressive farmers, farmers organizations, co-operatives, non-governmental organizations, NGO run KVK, agri-business companies, input dealers, newspapers, agricultural magazines, private television channels, private sector banks, internet and donor agencies (Kremer and Wane, 2005).

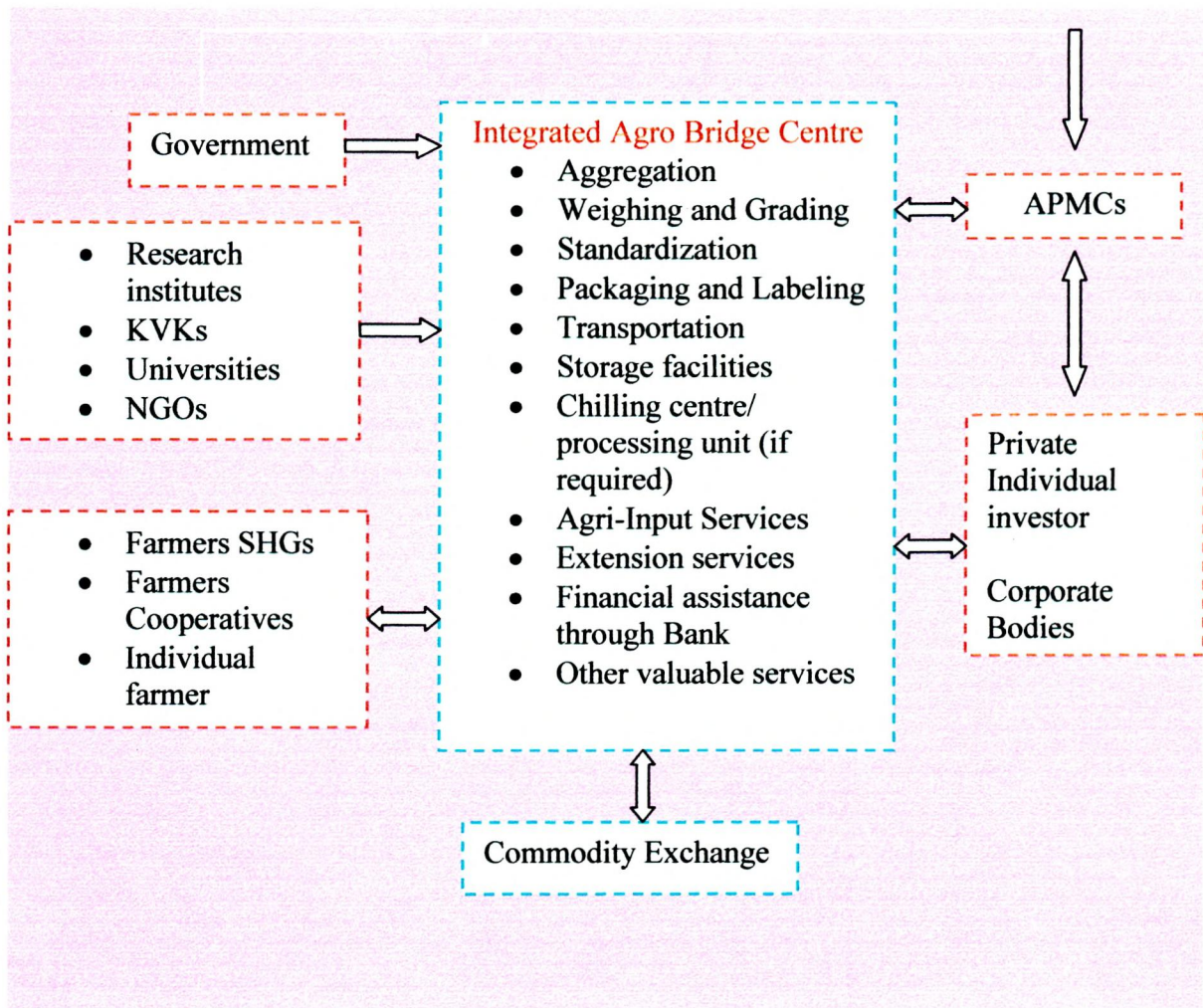
Public Private Partnership Approach

Public Private Partnership could augur well for the development of agricultural sector and private investment could get rid of the problem of poor infrastructure. The market as well as the state should work hand in hand to ensure higher returns to farmers and better services to consumers. The private sector would both encourage cooperation and competition and would offer better value for money. The Agricultural Produce Market Committees (APMCs) act should be amended by all states and the Mandi taxes could be removed to allow for sustainable results for the farmers (Mani, 2007).

To develop the integrated agri-value chain, linking various stack holders of agriculture market the Public Private Partnership approach can provide a better platform. The “Integrated Agro-Bridge Center”, which would not only fulfill the agriculture input requirement but also provide better and efficient agriculture produce market. In India the agriculture produce is distributed according to geographical proficiency. Such distribution can be termed as the production hubs for the particular crop. Successful replication of PPP models across various production hubs for key commodities can lead to the evolution of Indian agriculture from inefficient, supply driven, low- value business scenario to an organized, high-tech, demand-led and high-value orientation (FAO, 2004).

Public Private Partnerships (PPPs) are essential for advancing agriculture to meet global challenges in food security. They help widen access to technology and link farmers to markets. By combining strengths, the partners can all make better progress than on their own. The Foundation is involved in a wide range of such partnerships. Thus, the PPP model would provide the multi-user facilities and establish an integrated agro- value chain, which would amplify the agriculture operational efficiency. Even the private players would also get the benefit due to well-organized structure of the market.

In day-to-day reality of the business, supply chain formation, value addition and efficient market are creating equality between trade partners. The sustainable and professional relationship between them plays a vital role. The government as well as private sectors is having two fold responsibilities in cross border trading. On one hand a good climate in agri-value chain and market is required to develop and on other hand to create better environment for small and marginal farmers by providing them a holistic platform (World Bank, 2006).



PUBLIC PRIVATE PARTNERSHIP PROPOSED BY AGRICULTURAL PRODUCE MARKET COMMITTEE

Figure 5

The flow diagram shows the role and responses of the public and private sectors to strengthen the market competitiveness of Indian agriculture. Government plays a direct role in establishing the APMC. Public and private institute like Research Institutes, KVKs, Universities NGOs and Farmers SHGs, Farmers Cooperatives, and individual farmer contribute towards establishing Integrated Agro Bridge Centre. Apart from these public and private institutes, private individual investor and Corporate Bodies play major role in this centre. The commodity exchange is done both domestically and through foreign markets.

All the participants voiced that Public-Private Partnership is the need of the hour and such partnership will strengthen percolation of biotechnologies to

the poorest of the farmers. These partnerships will be beneficial to both as their strengths are complementing each other. These partnerships will reduce the time between the development of the technology and its reaching the end user — farmer (Pray 2001).

Policy

The specific areas of co-operation between the Public-Private sectors should be identified urgently, and thereafter the goals are set-up by developing a proper plan of action and monitored at the highest policy level on both sides. Simplified mechanisms need to be developed in public sector for entering into the partnership with private sector. Decision making process should be lot more quickly and decentralized. Need for a declared national strategy for promoting PPP in agri-sector. A well-understood mechanism between the Public-Private sector partners for IPR, especially in benefit sharing needs to be evolved. Steps will have to be taken so that there is 'mutual trust' building between the Public and Private sectors, especially in terms of IPR related issues, benefit sharing and public awareness, ensuring win-win situation for both sides. Regulatory mechanisms need to be simplified and streamlined as a single-window system for speedy testing and clearance of useful products (Spielman and Grember, 2004).

In the last decade there has been a strong trend for governments of donor countries to encourage, and in some cases require, increased participation by the private sector in agricultural research. Many of the more advanced developing countries have emulated this trend and established policies that encourage increased participation by the private sector in areas where it has comparative advantage. Whereas in the past policymakers in developing countries did not recognize the private sector as an important resource for carrying out national programs, there has been a marked and progressive change in which the private sector is now generally acknowledged to be a key player in development. This view is endorsed by the international development and finance community, which recognizes the private sectors in the North and the South as increasingly important national and international resources (FAO, 2006).

D. Studies Related to Research

The studies related to the present research are reviewed briefly and given below:

Devadas (1990) in her study on "Women in Farm and Home Development" observed that farm women in the Karamadai block in Coimbatore district earned Rs.100 to 250/- per month through part time participation in income generating activities such as cattle rearing, poultry, sheep, use of agricultural by – products such as making incense sticks, arappu making, shampoo power, broom making, candle making, chalk making, preparing jam, pickle, murukku, masala powder, basket weaving and tailoring.

Santhi (1991) in her study on "Indigenous Resource Management by Farm Women" found that the main sources of income were from the sale of agricultural produce like palmgar, tapioca, tuber, tamarind, coconut and vegetable. Small poultry rearing was another major source of income for farm women.

Singh and Sharma (1991) conducted a study on "Women in Rice Based Farming System in Uttar Pradesh". In this study efforts were made to compare the level of participation of males and females of hills and plains separately, in paddy cultivation. It was revealed by the authors that the highest level of involvement of women in hills was in dehusking (100.00 per cent), storage (90.00 per cent), seedling uprooting (87.50 per cent), transplanting, winnowing and nursery aftercare (82.50 per cent), manual weeding and harvesting (75.00 per cent) and threshing (70.00 per cent). On the other hand, the land preparation was carried out in 77.50 per cent cases exclusively by males, while in 20.00 per cent cases, mostly with smaller holdings, it was carried out jointly.

In plains, it was observed that the highest level of participation of females was found in storage (54 per cent), dehusking (52 per cent), while the operations carried out jointly were harvesting (80.70 per cent), threshing (80.70 per cent), winnowing (73.10 per cent), nursery sowing (55.70 per cent) and transplanting (51.90 per cent). It was also found that the major operations

carried out predominantly by males were irrigation (63.40 per cent), plant protection (65.40 per cent) and top-dressing (73.40 per cent).

Sreedevi (1996) conducted a study on “Gender Analysis in Managerial Abilities and Farming Performance in Krishna-Godavari Zone of Andhra Pradesh” with an objective to examine the managerial abilities of women and men and their relationship with socio-economic variables. The study revealed that men had more managerial abilities than women. It was further stated that women and men were not significantly differing in planning and supervision. However, the difference between women and men was found significant in case of organizing, communication coordination and controlling. It was found from the study that equal percentage (90 per cent) of women and men farmers expressed economic problems. Lack of knowledge about improved technologies was expressed as the major constraint in narrowing the efficiency in farming. Women (75 per cent) and men (55 per cent) felt that, they had less contact of extension workers. Inadequate and untimely supply of agricultural inputs, frequent cut-off power and lack of irrigation facilities were the problems expressed by both the gender.

Shashi and Patricia (1997) conducted a research on “Gender Roles in Farming Systems in Haryana State, India: Implications for Food Security”. The objective of research was to study the gender roles in the farming system in terms of operations and time spent and to suggest implications for food security. Twenty-five men and women from each of the four selected villages were randomly selected for interview through a structured interview schedule.

The results showed that in generally male dominated operations (ploughing, sowing, manure and fertiliser application, and spade work during field irrigation, pesticide dusting and marketing of grains) the mean scores of man’s workload were higher than women. However, in the case of female dominated operations (weeding by *kasola* weeding by *khurpi*, carrying load on head, storage of grains) and jointly operated operations (harvesting, and threshing) the mean scores of women’s involvement were higher than those of men. The overall work load of women (in terms of average man days) was higher than that of men in high and medium socio-economic strata whereas, reverse trend was observed in case of low socio-economic stratum. However,

pooled data showed higher involvement of women than men in wheat cultivation.

Parvathi et.al. (2001) conducted a study on “Measurement of Knowledge of Farm women on Post-harvest Technologies” in Viruthunagar district in Tamil Nadu. The results of the study revealed that more than half of the farm women (58.33 per cent) possessed medium level of knowledge on post-harvest technologies. About one-fourth of the respondents had high level and less than one-fourth had low level of knowledge on post-harvest technologies.

Brij and Sharma (2006) conducted a study on “Knowledge and Adoption Level of Improved Technology among Rural Women owing to Extension Programmes”. The study focused on the differences in the knowledge level and adoption technique of SHG members and non SHG members. It was found that there were significant differences of the above aspects between SHG members and non SHG members. Chemical weed control, pre-sowing soil treatment, sowing in lines at proper spacing have been comparatively least adopted, although the level of their adoption has been found higher among beneficiaries than non-beneficiaries.

A study conducted by Varma (2007) on “Women in Agriculture –A Socio-Economic Analysis” in Karnal and Hisar district of Haryana state. The main objective of the study was to examine the nature and extent of involvement of rural women in agricultural operations and home activities. Operations like transplanting and storage of grains were found to be exclusive domain of women. The other farm operations like weeding, harvesting, carrying head load, threshing and winnowing were performed jointly by men and women, though more women were involved. The household activities were predominantly by women.

A research conducted by Ogato et.al. (2007) on “Gender Roles in Crop Production and Management Practices: A Case Study of Three Rural Communities in Ambo District, Ethiopia”. The key objective of the research was to identify the constraints facing both male and female farmers in Ambo district, to analyze their needs and interests and to recommend appropriate

policy measures and strategies for effectively redressing the identified challenges. The results of the analysis indicated that female farmers contributed more than their male counterparts in crop production and management. However, despite their significant role in agriculture, the triple roles of female farmers are not well recognized or valued. The promotion of sustainable agricultural development in the district requires that the needs of both rural male and female farmers are to be addressed in a comprehensive and systemic manner.

A study on “Role of Rural Women in Farm Management Decision Making Process: Ordered Probit Analysis” was carried by Damisa and Yohanna (2007). The study was conducted in Chikum and Igabi Local Government Areas of Kaduna State, Nigeria. Four villages were randomly selected out of which 50 women were selected randomly from each village to form the sample size. A total of 200 women were therefore randomly selected for the study. It was discovered that the socio-economic characteristics of the women farmers significantly affected their decision making in agriculture. It can therefore be concluded that though the woman farmer is heavily involved in agriculture in Nigeria, the level of her participation in farm management decision making is quite low. This can be attributed to the age, education, land tenancy and the wealth status of the woman. Majority of the women interviewed were however found not to be formally educated and are of the low income group.

A research was conducted by Jeyalakshmi and Santha (2008) to study the knowledge level of farm women on sustainable plant protection technologies in onion cultivation”. The study was conducted in Dindigul district. Overall knowledge level of farm women on sustainable plant protection technologies was found to be low in onion. It is apparent that special efforts should be taken to improve the knowledge level of garden land farm women on sustainable plant protection technologies in onion.

Jain (2008) conducted a study on “Women in Agriculture –Their Conditions of Work” in Madhya Pradesh. The objective of the study was to find out the differences in participation rates of men and women in agriculture. The results show sharp differences by sex. More than half of the female

population (42.10 per cent) is engaged in agriculture, while male agricultural labours comprise only 20.70 per cent of their total rural male workers of Madhya Pradesh. The reasons were increasing intensity of cropping, which increased the proportion of female participation in agriculture. The higher participation of females against the male in agriculture activities is attributed to the factors like:

- agricultural activities provide some light work to women such as looking after the grazing cattle, scaring the birds;
- women cannot do strenuous works;
- the female workers are illiterates and they cannot be employed in non-agricultural occupations

Rizwana and Thelma (2009) conducted a study on “Knowledge level of paddy growers regarding improved practices of paddy cultivation in Raipur”, Chhattisgarh state in 2004/05. The study estimated the knowledge level of recommended rice cultivation practices among farm women and farm men of IVLP (Institutional Village Linkage Programme) and non- IVLP villages. An operational measure for knowledge was developed by constructing a teacher-made knowledge test as suggested by Anastasi (1961). A significant difference was found between the knowledge level of male and female farmers in both types of villages. The reason for the low knowledge of farm women was less exposure to training pertaining to rice farming. In some cases, farm women’s busy schedule at home prevented them from participating in extension activities and that resulted in poor knowledge. This study clearly established that women farmers lagged behind with respect to their knowledge of rice farming technology. Intensive training programmes, group discussions, demonstrations, tours, field visits etc are some of the techniques suggested for increasing their knowledge level.

A study conducted by Jadhav et.al. (2010) on “Knowledge Level of Farm Women Regarding Mango Post Harvest Technology in Latur District” it was revealed that majority of the respondents belonged to middle age group and educated up to secondary school level with medium income group. Majority of them (41.67 per cent) possessed semi-medium land holding and

67.5 per cent had medium social participation. It was observed that majority of the respondents had medium level of knowledge regarding mango post harvest technology.

The study on “Communication Strategy for Empowerment of Women in Agriculture” was carried by Solanki et.al. (2010). The study was undertaken to identify the factors hindering empowerment of women in agriculture and to suggest suitable strategy for quick and better empowerment of farm women. The finding of the study revealed that inadequate technical competency of women in agricultural aspects was the major factor hindering their development. The knowledge level of women in crop production, horticulture and animal husbandry aspects was only 19.25, 15.75 and 25.90 per cent, respectively. Similarly involvement of women in decision making in technical matters was very poor with mean scores of only 10.02 per cent in crop production, 0.58 per cent in horticulture and 17.90 per cent in case of animal husbandry. A significant and positive correlation between knowledge of women's involvement in decision making was observed. Therefore, in order to promote women's involvement in decision making in agricultural aspects, they should be technologically empowered.

A study was conducted by Chayal and Dhaka (2010) on “Analysis of Role Performance of Women in Farm Activities” in Bundi district of Rajasthan. A total of 200 farm women were selected as respondents through proportionate random sampling. The findings showed that cutting, picking, cleaning of grains, drying of grains, storage, processing, weeding, winnowing are the major farm operations mainly performed by farm women. Participation of farm women in agriculture was significantly affected by socio-economic variables like –age, family income, land holding.

Kiranjot (2011) conducted a study on ‘Data Base on Rural Women and Indigenous Knowledge’ a part of the All India Coordinated Project on Home Science (Extension Component) from the state of Punjab. The state was represented by five agro-climatic zones namely Sub-Mountainous Undulating Zone (Zone I), Undulating Plain Zone (Zone II), Central Plain Zone (Zone III), Western Plain Zone (Zone IV) and Western Zone (Zone V). From each zone

minimum of two districts were selected which were further represented by two blocks. From each block two villages were selected for data collection.

The study represented by 2980 households from five agro-climatic zones representing five distinct landholding categories clearly indicated an active participation of women in most of the selected activities. Highest participation in farm activities was found in sub-mountainous undulating zone. Maximum participation of women was observed in harvesting and weeding.

A study was conducted by Nikulsinh (2011) on "Role Performance of Tribal Farm Women in Agricultural and Animal Husbandry in Gujarat" in the Navsari district of the Gujarat state. The objectives of the case study were (i) to study the participation of the tribal farm women in agriculture, animal husbandry and household activities along with correlations. (ii) to study the tribal farm women's involvement in decision making.

The finding of the study revealed that farm women's participation was seen highest in sowing, weeding and nipping / picking and threshing. Farm women took a self-decision for decoration of house (79.17 per cent) and selection and preparation of food (70.83 per cent) in case of home management. Farm management was dominated by husband decision and majority of the farm management decision was taken by their husbands, animal husbandry management was completely dominated by women's self decision. The relationship between independent variables like age, education, land holding, family size and number of children of the respondents and their participation in crop husbandry was observed positively significant.

The study on "Public Private Partnerships in Agricultural Research: an Analysis of Challenges Facing Industry and the Consultative Group on International Agricultural Research (CGIAR)" was carried by Spielman and Grebmer (2004). The study was to assess the opportunities for, and challenges to, creating and sustaining public private partnerships between the international agricultural research centers of the CGIAR and leading multinational, research-based agribusiness companies. Tentative findings suggested that while incentives and perceptions do differ between sectors, sufficient common space existed or can be created through incentive

structuring to facilitate greater partnership. However, both public and private sector partners inadequately account for and minimize the costs and risks of partnership. Similarly, partners discount the need for brokers and third-party actors to manage research collaborations and reduce competition between sectors. Finally, partners are operating without sufficient information on existing partnership experiences, lessons, and models, potentially contributing to a persistent or widening gap between sectors.

A research project on Strengthening Public Private Partnerships in Latin America carried out by Frank, Maria, Suresh and Jaime (2007). The study dealt with the farmer putting emphasis on the process that culminates with the creation of the partnership in which case partners usually reach a verbal or written agreement (the partnership contract) about their commitments and a work plan. Seven cases were analyzed where project interventions supported partnership building. The study highlighted several successful capacity strengthening elements relating to identifying partner interests and motivation, negotiating partner commitments, fostering leadership, and building relationships that enable joint learning and innovation. In this context, the study focuses on policymakers and administrators in agricultural development who were interested in brokering partnership building among public and private agents in agricultural innovation and other fields. The study's results also showed that partnerships could not be established as a quick fix; partners did not respond effectively to capacity strengthening when it was pressured or hurried. Finally, it was important to ensure the participation of decision making hierarchies in partnership building efforts if all the work to develop the partnership is to come to final result in final negotiations, commitments, and signed agreements.

A research project on "Effectiveness of Public and Private Extension System in Delivering Services" was carried by Singh and Narain (2008). The study was conducted in two districts (Kanpur Nagar and Kanpur Dehat) representing Central Plain Zone of Uttar Pradesh including 200 farmers on effectiveness of extension service provided by public and private extension system. The study clearly indicated that public extension system still assumed the supremacy over private extension system in ensuring supply of seed of

the field crops whereas distribution of seeds of vegetables and planting materials was largely in the hands of private. The supply of fertilizers, weedicides, fungicides and insecticides was also done mostly by private agencies. However, new technological inputs are increasingly becoming 'private' rather than 'public' good.