Gender Responsive Budgeting: A Focus on Agriculture Sector

UN WOMEN
United Nations Entity for Gender Equality and the Empowerment of Women

Lead Author: S. Seethalakshmi
Technical Inputs: Yamini Mishra, Bhumika Jhamb and Shrijna Dixon
Editorial Inputs: Isha Chaudhary
Design: Imagica Graphics
Cover Photo: blogs.worldwatch.org/nourishingtheplanet

Gender Responsive Budgeting: A Focus on Agriculture Sector

Contents

Abbreviations

AP	Andhra Pradesh
AAP	Annual Action Plans
ATMA	Agriculture Technology Management Agency
ATM	Assistant Technology Manager
ADH	Assistant Director Horticulture
AEO	Agriculture Extension Officer
BAAP	Block Agriculture Action Plan
BTM	Block Technology Manager
BTT	Block Technology Team
BFAC	Block Farmers Advisory Committee
CIGs	Commodity Interest Groups
CDP	Community Development Programme
CIAE	Central Institute of Agriculture Engineering
CIWA	Central Institute for Women in Agriculture
DDH	Deputy Director of Horticulture
DAC & FW	Department of Agriculture and Cooperation & Farmers Welfare
DADF	Department of Animal Husbandry, Dairying and Fisheries
DARE	Department of Agriculture Research and Education
DAAP	District Agriculture Action Plan
DFAC	District Farmers Advisory Forum
EU	European Union
FF	Farmer Friend
FIGs	Farmer Interest Groups
FSGs	Food Security Groups
FTA	Free Trade Agreement
FAO	Food and Agriculture Organisation
FRA	Forest Rights Act
GDP	Gross Domestic Product
GOI	Government of India
GRB	Gender Responsive Budgeting
GBC	Gender Budget Cells
GBS	Gender Budget Statement
GFRAS	Global Forum for Rural Advisory Services
ITD	Innovations in Technology Dissemination
IDWG	Inter Departmental Working Group
IHDS	India Human Development Survey
ILO	International Labour Organisation

JLG	Joint Liability Groups
JDA	Joint Director Agriculture
KCC	Kisan Credit Card
KHAS	Karnataka Household Asset Survey
LFPR	Labour Force Participation Rates
MIDH	Mission for Integrated Development of Horticulture
MoA	Ministry of Agriculture
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MWCD	Ministry of Women and Child Development
MP	Madhya Pradesh
NRLM	National Rural Livelihoods Mission
NFSM	National Food Security Mission
NATP	National Agriculture Technology Project
NABARD	National Bank for Agriculture and Rural Development
NES	National Extension Services
NCW	National Commission for Women
NFI	National Foundation of India
NHM	National Horticulture Mission
NMAET	National Mission Agriculture Extension and Training
NSSO	National Sample Survey Organisation
RKVY	Rashtriya Krishi Vikas Yojana
RRBs	Regional Rural Banks
RHEO	Rural Horticulture Development Officer
SMAE	Sub Mission on Agricultural Extension
SMAM	Sub Mission on Agricultural Mechanisation
SHDO	Senior Horticulture Development Officer
SAAP	State Agriculture Action Plan
SEWA	Self Employed Women's' Association
SEWP	State Extension Work Plan
SLSC	State Level Sanctioning Committee
SC	Scheduled Caste
SECC	Socio Economic Caste Census
SIAET	State Institute of Agriculture Extension and Training
SAMETI	State Agriculture Management Extension and Training Institute
ST	Scheduled Tribe
SHG	Self Help Group
SREP	Strategic Research and Extension Plan
ToR	Terms of Reference
UNHDR	United Nations Human Development Report
WTO	World Trade Organisation

Acknowledgements

I would like to thank the GRB unit at UN Women for conceptualising this study and approaching me to undertake the same. I would like to specially thank Dr. Bhumika Jhamb, Ms. Shrijna Dixon, Ms. Yamini Mishra, Ms. Subhalakshmi Nandi and Ms. Navaneetha Sinha at UN Women for their valuable inputs and support at various points during the study.

I would like to acknowledge the support and coordination provided by Project Directors of ATMA and the Deputy Directors of Horticulture in Betul and Bhopal districts in Madhya Pradesh as well as their counterparts in Anantapur district in Andhra Pradesh which enabled the field visits to various villages and collection of primary data possible as part of this study. I would also like to specially acknowledge the valuable time, support and insights provided by the extension staff under ATMA such as the BTM, ATM and the Farmer Friends in the above districts as well as the field based personnel of the Horticulture department which really enriched this study in so many ways.

I would also like to sincerely thank the large number of woman and man farmers in the study districts, who shared their experiences and critical reflections of various schemes, from their vantage point as 'beneficiaries' of government funded schemes. It is the multiple interactions and discussions with these farmers that form the basic source, force and resource for this research.

I would like to thank Dr. G.V. Ramanjaneyulu and Mr. Ravi Kanneganti at the Centre for Sustainable Agriculture (CSA), Hyderabad for their insights and suggestions related to methodology and selection of schemes, prior to undertaking this study.

Introduction, Objectives and Study Methodology

1. Background

Over the past two decades, Gender Responsive Budgeting (GRB) has emerged as an important tool for mainstreaming gender issues as part of the ongoing struggle to make budgets and policies more gender responsive in several countries across the world. Beginning from the mid-1980s to date, over 90 countries have thus far endorsed GRB as a valuable tool for engendering budgets and policies all over the world.

In India, it was arguably the report of the expert group of classification of government expenditure in 2004-05, which became instrumental in laying out the road map for GRB in the country. One of the Terms of Reference (TORs) of the expert group was to look into and suggest ways to integrate GRB in the budgetary processes of the Government of India with plausible institutional mechanisms. Following this, the Ministry of Women and Child Development (MWCD) adopted "Budgeting for Gender Equity" as a mission statement in 2004-05. A Strategic Framework of Activities to implement this mission was also framed and disseminated to all the Departments and Ministries of the Government of India (GoI). This actually marked the institutionalisation of GRB in the country. Since then, there have been several significant achievements. The introduction of Gender Budget Statement (GBS) in the year 2005-06, aimed to reflect the quantum of budgetary allocations for programmes/schemes that substantially benefit women, was the first most significant step taken by the government. Another important mechanism institutionalised by the Ministry of Finance was the setting up of Gender Budget Cells (GBCs) which serve as focal points for mainstreaming gender through GRB. Further, several capacity building workshops have been organised by the MWCD to orient officials on GRB. Following the adoption of GRB at the national level, several states have also undertaken measures to institutionalise GRB at the sub-national level. One of the main tools institutionalised at the state level is the Gender Budget Statement (GBS).

However, the potential of GRB as a tool to mainstream gender issues remains largely untapped in India, given its limited application at the sectoral level so far. Global experiences show that application of GRB at the sectoral level is an essential step in mainstreaming of gender throughout the planning and budgeting cycle and has been identified as an effective and sustainable strategy at central and decentralised levels of government. Since it is within sectors that national policies are translated into specific programmes and interventions; it is imperative to ensure that sector-specific plans and budgets are developed, implemented and monitored in a gender responsive manner. Unfortunately in India, both at the union level as well as at the sub-national level, sectoral application of GRB remains largely unexplored.

At the national level, the two key institutional mechanisms, namely the GBS and GBC, have been limited in their effort and success to promote the application of GRB at the sectoral level. By virtue of following the Union Government, states too, suf-

fer from similar limitations. At the sub-national level, efforts seem to have coalesced at the production of a GBS. For GRB to be meaningful, it is important to invest in purposive gender planning at the sectoral level i.e., identifying gender gaps in the sector and then delineating prioritised action points to address the gender gaps. It is only after this exercise that the question of budget arises. Further, given India's federal structure, any attempt to engender budgets will achieve little success unless focused efforts are made at the sub-national level. Therefore, in addition to engaging with ministries/departments at the Union level, it is critical to intervene at the levels of state governments, given the fact that the total expenditure incurred from the state budgets accounts for more than half of the total public expenditure in the country. A further area of concern that emerged from a UN Women-National Foundation of India (NFI) study on GRB is the absence of customised knowledge products in the form of sector specific GRB training manuals, etc., for capacity building of officials in any sector. This has also been limiting the application of GRB as a tool across sectors in the country.

2. GRB Analysis of the Agriculture Sector: Objectives, Scope and Methodology

Agriculture is the principal source of livelihood for more than 58% of the population in India. The agriculture and allied sectors contributed approximately 13.9% of India's GDP (at constant 2004-05 prices) during 2013-14. Evidence from various nationally representative surveys points to the fact that an overwhelming majority of women are involved in agriculture as cultivators and agricultural labourers across rural India. The Census 2011 data on Cultivators and Agricultural Labourers shows that around 65.1% of female workers depend on agriculture, either as cultivators or agricultural labourers, while only 49.8% of male workers do the same. Despite women's vital contribution to agriculture and other allied sectors in India, they lack control over productive assets such as land and livestock and in accessing technologies, irrigation, credit, extension services and markets, etc., that are vital for sustaining agriculture. Women as workers in the sector also experience gender differentials in agricultural wages as well as face discrimination and biases at various levels due to deeply entrenched, patriarchal socio-cultural practices both within the households and production/work spheres.

It is against the broad context and background as laid out above that UN Women conceptualised and initiated an action research project involving a GRB analysis of the agriculture sector in India with the following two-fold objectives:

- Conducting a GRB analysis of the agriculture sector (including specific schemes)for developing a nuanced understanding of gender issues in the sector
- Designing a customised knowledge product in the form of a training manual on GRB (using key insights from the GRB analysis) for capacity building of officials in the sector at various levels.

2.1 Scope and Methodology

There are several analytical frameworks and approaches for application of GRB in various contexts. For purposes of conducting a GRB analysis of the agriculture sector, this study broadly seeks to adapt/employ the five-step framework formulated by Debbie Budlender. The tool starts with the situational analysis of the sector, followed by analysing the gender responsiveness of policies and programmes in the sector, assessing budgetary allocations in the sector, monitoring expenditure and finally assessing outputs and outcomes of policies and programmes in light of the gaps identified in the first step (Budlender and Hewitt 2003). The broad scope of this action research assignment is as follows:

- Conduct an analysis of agriculture sector from a gender lens, based on secondary research.
- Assess the extent to which the current agriculture sector policies, schemes and budgets address gender issues in the agriculture sector.

- Identify key agriculture sector schemes and empirically analyse the same in select field locations with respect to their design, planning, budgetary allocations and expenditure, implementation, monitoring and evaluation from a gender lens.
- Collect data from the field with respect to the select schemes through focus group discussions and interviews with relevant stakeholders at various levels and develop case studies to substantiate the evidence.
- Recommend specific changes at the level of policies and schemes to make them more responsive to the concerns and needs of women.
- Based on the evidence collected, design a training manual for building the capacities of officials in the agriculture sector (both at Union and state level) to apply GRB as a tool.

2.2 Structure of Report

For the purposes of analysis and sharing of research outcomes, this report is divided into three broad parts.

Part I contains a gender analysis of the agriculture sector and provides an overview of key challenges and constraints faced by woman farmers in the sector along with a review of various policies and programmes aimed at supporting woman farmers.

Part II of the report contains findings from the GRB analysis of two specific agriculture sector schemes that are centrally funded, namely – Support to State Extension Reforms, also known as ATMA (Agriculture Technology Management Agency) and the National Horticulture Mission (NHM) under the Department of Agriculture and Cooperation and Farmers Welfare (DAC& FW), Ministry of Agriculture (MoA). Detailed criteria for selection of these two schemes as well as the methodology for field study and findings therein are discussed under the relevant section of this report.

Part III is the concluding section and provides a set of key policy recommendations for empowering woman farmers engaged in agriculture as well as in relation to the specific schemes analysed as part of this study.

PART-I

Women Farmers in Indian Agriculture

An Overview of Key Issues, Challenges and Policy Initiatives

Introduction

There is now sufficient evidence from various micro-studies as well as nationally representative surveys that point to the fact that an overwhelming majority of women are involved in agriculture as cultivators and agricultural labourers across rural India. The Census 2011 data on Cultivators and Agricultural Labourers shows that around 65.1% of female workers depend on agriculture, either as cultivators or agricultural labourers, while only 49.8% of male workers do the same. Across the country, the slow, often uneven and largely incomplete nature of agrarian transition involving the shift of labour from agriculture to other sectors has also been gender-biased to a large extent. As more and more men have moved over to nonfarm work in the industrial and service sectors, women have remained substantially in agriculture. Women's domestic work burden, lower mobility, lesser education, and fewer rights and control over assets have limited their entry into non-agricultural sectors and also their range of nonfarm options. The livelihoods of different categories of woman farmers such as those owning some land, others cultivating as tenants or working as agricultural labourers for wages, etc., in varying agro-geological contexts have also been adversely affected by the falling growth rates in the agriculture sector over the last two decades, pushing men to move out of agriculture. Increasing feminisation of agriculture but with little recognition of their role in land and livestock management has meant that women have largely remained invisible to the government in terms of agricultural policies, programmes and budgets as well as formal support systems as regards credit, extension, insurance and marketing services.

1. Situation Analysis of Women in Agriculture Sector

It is against the above background or context that the specific constraints and challenges faced by woman farmers are sought to be analysed in depth along with a review of some of the sectoral policies and programmes (including budgetary allocations) that have been initiated by the government for supporting women in agriculture. In the final section, an attempt is made to provide the way forward through a set of key policy recommendations in the last part of this section.

1.1. Methodology

The methodology for carrying out a gender analysis of the agriculture sector broadly involves a review and analysis of available secondary data sources such as the Population Census, Agriculture Census, NSSO reports as well as a comprehensive review of secondary literature that includes various research reports, books, articles and papers on the subject from both national and international journals. The review also includes various policies and plan documents related to the sector as well as programmes/schemes and budgets in the sector. Given the limited scope and time-frame of this assignment, the gender analysis is limited to the agriculture sector alone while briefly touching upon overarching issues in the related and allied sectors like animal husbandry, fisheries, forestry, etc., wherever relevant.

Section-I:

Challenges and Constraints of Women Farmers

This section begins with an analysis of some of the key challenges faced by woman farmers who are engaged in farming in various capacities across various agro-production systems. Some of the key issues discussed here include lack of ownership over productive assets such as land, undervaluation and undercounting of women's work in agriculture, disparities in accessing information, extension and technologies, asymmetries in accessing credit and other financial services as well as factors constraining women's participation in decision making spaces and institutions. The section ends by briefly examining some of the current challenges confronting woman farmers such as the unequal impact of trade, introduction of genetically modified crops, the threat of climate change and land dispossession due to diversion of farmland for various non-farm purposes.

1. Lack of Ownership and Access to Land

In a country like India, where over 70% of the total population and 80% of the poor live in rural areas, the centrality of land to people's lives and livelihoods cannot be overstated. Apart from being a key livelihood asset, arable land is also the most valued form of property and productive resource in the rural agrarian economy. For a significant majority of rural households in the country, land is the single most important source of security against poverty. Traditionally, it has been the basis of political power and social status. At a symbolic and cultural level too, land provides a sense of identity and rootedness to many.

1.1 How Much Land Do Women Own?

Over the past several decades, various initiatives have been taken by the central and state governments in the form of policy, legal and administrative measures to entitle the landless poor to land rights. Since the 1950s, as part of land reform programmes, various initiatives were undertaken by the states to redistribute land in excess of ceilings to landless households and smallholders, abolish the hierarchy of interests that existed between the state and the actual cultivator, consolidate fragmented land holdings and regulate tenancy contracts, etc. However, access and ownership over agricultural land continues to be one of the single most important constraints for women involved in farming. The degree of implementation of land reforms and its impacts has also varied widely from state to state depending largely on the political commitments of the ruling governments, the nature and type of reform undertaken in each state as well as state-specific legislations formulated in relation to land. Further, deeply embedded patriarchal biases and socio-cultural practices prevailing in all communities along with gender bias in administrative machinery at various levels and legal constraints have effectively prevented large sections of women from claiming rights to land (Agarwal 1994, 2002).

A combination of the above factors has meant that during the post-independence period, the gains of the first three-four decades of land reforms went largely in favour of men. In India, collection of data on property and land holdings is done primarily at the household level as part of large-scale surveys and agricultural censuses. In the absence of gen-

der disaggregated data on land holdings, several micro-studies in various states indicate that land reform initiatives have tended to disproportionately favour men in the country. These studies reveal that typically few women own arable land and even fewer effectively control the same (Saradamoni 1983, Agarwal 1994, 2002, Chen 2000, Gupta 2003, Kodoth 2004). Women's lack of ownership over land has wide-ranging implications at the socio-economic and political levels.

holdings operated by women by class and caste. The system of gender disaggregated collection of data as part of the agricultural census was introduced in the country for the first time in the year 1995-96. According to the 2000-2001 Agricultural Census, women operated land holdings accounted for only 11%of all the holdings in India. Figures from the latest Agricultural Census of 2010-2011 indicate that this situation has only improved by a small margin with women's holdings accounting

Distribution of Number of Operational Holdings and area operated (Agriculture Census 2010-11)

I. ALL INDIA

Gender	Marginal		Small		Semi-medium		Medium		Large		All Size Groups	
1. ALL SOCIAL GROUPS												
	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area
M	79602	30826	21672	30882	12375	33644	5338	30762	911	15073	119898	141187
F	12616	4538	2999	4205	1438	3827	495	2813	70	1101	17618	16485
T	92356	35410	24705	35136	13840	37547	5856	33709	1000	17379	137757	159180
2. SCHEDULED CASTES												
M	11553	4283	2184	3070	903	2410	302	1722	49	786	14990	12270
F	1690	581	277	381	99	259	27	151	3	54	2096	1425
T	13243	4864	2461	3450	1002	2668	329	1873	52	839	17087	13695
3. SCHEDULED TRIBES												
M	5702	2800	2556	3677	1599	4328	692	3974	106	1706	10655	16484
F	763	358	322	457	179	477	66	374	9	144	1338	1810
T	6464	3157	2877	4133	1777	4805	758	4347	115	1850	11993	18294

Number in '000 | Area in '000 ha.

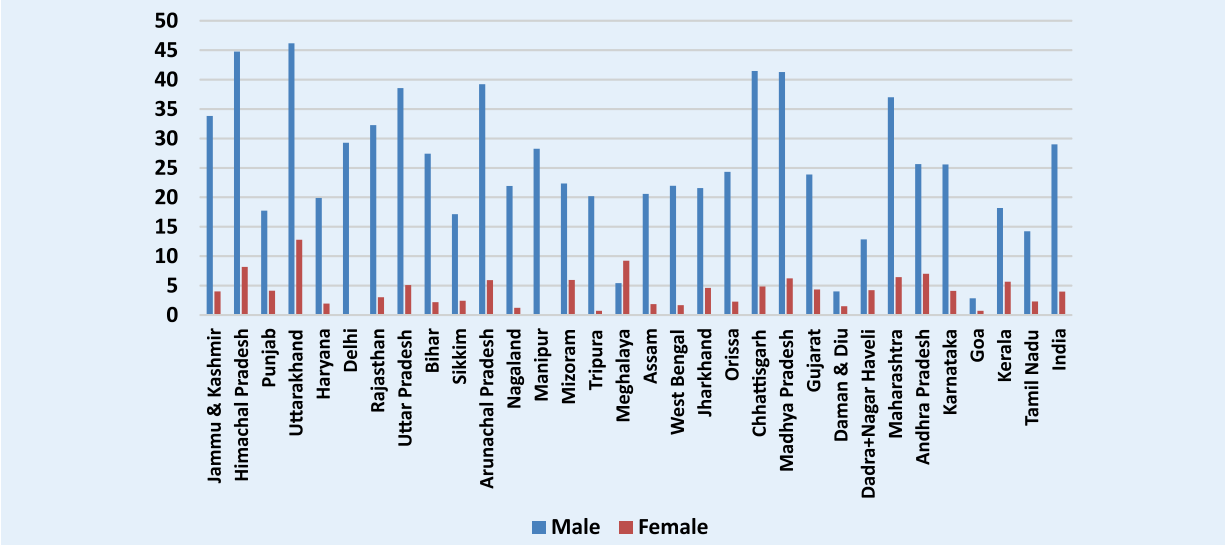
Evidence from various macro data systems further indicates the poor status of women's landownership across different classes and caste groups in India. The Agricultural Census in India which was carried out for the first time in 1970-71 and is carried out at an interval of every five years forms an important statistical data base for various policy decisions related to agriculture. In the collection of Agriculture Census data, the 'agricultural operational holding' (as against ownership holding) is considered as the basic unit of decision-making in all programmes of agriculture development and is therefore adopted as the basic unit for data enumeration in the census. During the first several rounds of the Agricultural Census, no specific efforts were made to collect information about the number and extent of agricultural

for 12.79% of all holdings comprising about 10.36% of the operated area.

- Firstly, the above data indicates that at all India level, female holdings are abysmally low at 12.8% in terms of number and 10.4% in extent across all social groups. Within the scheduled caste category, the composition of female holdings is more or less same in terms of extent, but in numbers, the proportion is slightly lower at 12.3%. In the Scheduled Tribe category, it is further lower both in terms of number and extent of holdings, i.e., 11.2% and 9.9% respectively.

- Secondly, within the agricultural land holdings by women, the proportion of marginal holdings is higher than in the case of their counterparts.

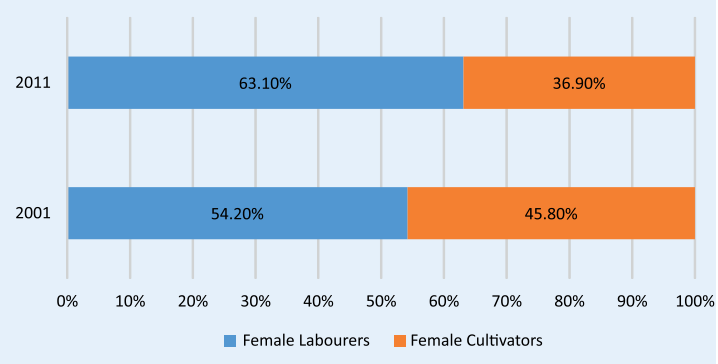
Incidence of Agricultural Land Ownership by Sex, Rural India (States), IHDS 2011-12



Source & Courtesy: IHDS, 2011-12 (Excerpted from the presentation of Swaminathan H. et al at MAKAAM Meeting, Bengaluru, 20.08.15)

The proportion of marginal holdings in the total holdings is 66.4% in number and 21.8% in area in the case of male holdings, where as it is 71.6% and 27.5% respectively in case of female holdings. The average holding is also lower for the female holdings at 0.94 Ha as compared to 1.18 Ha of male holdings.

Changing Composition of female workforce in agriculture



Source: Census of India, 2011

As per other reports such as the India Human Development Survey (IHDS) Report for the year 2011-12, the incidence of agricultural land ownership by women across India is less than 10% as illustrated above.

The survey findings indicate that Uttarakhand in Northern India and Meghalaya in North Eastern India are the only exceptions where women's agricultural land ownership is close to 10% or above as in the case of Uttarakhand. Further, this report also indicates that only 6% of rural Indian households have at least one woman owning land. Out of all the rural households which own some land, there are only 11% households where at least one woman owns some land. This means that 89% of rural households in India having some land effectively keep out women from accessing any rights to such property! The Census data 2011 also reflects the growing distress in Indian agriculture with men moving out of agriculture and the growing feminisation of the workforce in the sector with millions of women joining the category of agricultural labourers as compared to the previous Census data in 2001.

There has been a 24% increase in the number of female agricultural labourers, from 49.5 million in 2001 to 61.6 million in 2011.The decadal comparison of the Census data also shows a fall in the category of women as cultivators again indicating women's increasing loss of access to cultivable agricultural lands. The total number of woman cultivators has come down from 41.9 million in 2001 to 36 million in 2011.These figures again indicate women's poor ownership over productive assets such as land and

their increasing dependence on the lands of others for work as wage labourers or for purposes of cultivation through leasing in these lands.

1.2 Data Collection Methods: Some Issues

It is important to mention here that the collection of agricultural Census data related to land holdings is drawn from existing land records available with the revenue departments in various states. However, the Census data does not accurately reflect the true picture on the ground given the poor state of land records that have not been updated for a long time in many states. It is also extremely difficult to obtain data on land titles held by women from official land records since land records for the entire country are not disaggregated by gender and digitised accordingly for easy access. In the land title recording system in India, the responsibility of mutation and registration of land titles lies with the land holder. Land records are often outdated and inaccurate when landholders do not report transfers in land title. More importantly, land transferred to women by various means such as family or through government land distribution is often not verified and recorded correctly by the revenue officials. Therefore, the data from Agricultural Census is only indicative of the extent of land holdings operated by various categories of farmers, including women but does not truly reflect the actual land ownership and cultivation patterns, including tenancy across the country. For example, the discrepancy in the latest data related to the total operated area in the country as per the Agricultural Census 2010-11 and the latest National Sample Survey Organisation (NSSO) report on land and livestock holdings 2012-13, further reinforces the above set of issues related to data collection methods. The Census data estimates the total area operated as 159.6 million hectare in the country whereas the NSSO report on land and livestock holdings estimates that around 95 million hectare of land as extent operated in 2012-13. The NSSO figure is about 65 million hectare lower than the numbers put out by the Ninth Agricultural Census (Kishore and Jain, 2015). This discrepancy could again be attributed to data collection methods and sources that in turn impact the survey outcomes.

As mentioned earlier, most of the nationally representative surveys in India routinely collect asset ownership and other related data only at the household level. However, this methodology often conceals the intra household dynamics that are closely linked to the gender differences between male and female members of the household across different caste, class and age groups in relation to not only assets but a range of other resources. More importantly, using the household as a unit of enquiry often prevents a meaningful understanding of the differential consequences and well-being outcomes for men and women following the disparities in access to and control over various resources.

The Karnataka Household Asset Survey 2010-11 (KHAS) forming part of a larger project that seeks to measure Gender Asset Gaps in Ecuador, Ghana and India and funded by the MDG3 Fund under the Dutch Ministry of Foreign Affairs, makes an important methodological departure by collecting individual level asset data in these three countries. While this study reveals gender disparities in asset ownership in Karnataka, the study also quantifies what women and men own for a wide range of physical and financial assets, which in turn shows the extent and nature of the gender asset gap. The study highlights how individuals acquire assets and how this links up to the existing legal framework as well as the association between women's asset ownership and household decision-making (Karnataka Household Asset Survey, 2011). The study provides a useful template for the collection of individual-level asset information in other parts of the country apart from serving as a baseline for similar surveys in Karnataka in the future.

The Land and Livestock surveys of the NSSO also collect and publish data on type and number of livestock owned by households and the Debt and Investment surveys publish data on value of livestock owned by households. However, as with land ownership, the primary unit is the household in these data sets and there are no gender-disaggregated data on ownership or control of livestock within the household. The availability of such data could also reveal interesting patterns and segregation of the livestock economy.

1.3 Importance of Land Rights for Women

The importance of land rights for women has been variously argued, as an overview of available literature on the subject reveals. Firstly, in articulating the importance of land rights for women, the emphasis has been on *"women having effective and independent rights in land, effective rights being rights not just in law but also in practice; and independent rights being rights that women enjoy in their own capacity and independent of those enjoyed by men"* (Agarwal, 2002). Effective and independent land rights for women have been further argued as important on at least four counts: welfare, efficiency, equality, and empowerment.

On the welfare count, it has been argued that land access can notably reduce a household's risk of poverty whereas for several reasons land solely in men's hands need not guarantee female welfare. In contrast, direct land transfers to women are likely to benefit not just women but also children. Evidence both from India and from many other parts of the world shows that women, especially in poor households, spend most of the earnings they control on basic household needs, while men spend a significant part of theirs on personal goods, such as alcohol, tobacco, etc (Dwyer and Bruce, 1988). This, in turn, affects child welfare. Children in rural India are found more likely to attend school and receive medical attention if the mother has more assets (Duraisamy, 1992 as cited in Agarwal, 2002). Apart from differences in spending patterns, women with assets such as land have greater bargaining power, which can lead to more gender-equal allocations of benefits even from male incomes. In short, women's and children's risk of poverty would be reduced and their welfare enhanced if women had direct access to land, and not just access mediated through male family members.

It has also been argued that women without any property become highly vulnerable in the event of widowhood, desertion by their husbands as well as during their old age. In such contexts, it has been argued that land can provide women both direct benefits such as growing crops, trees, vegetables, fodder, etc., as well as indirect benefits by serving as a collateral for credit or as a mortgageable or saleable asset during any crisis. There are also varying estimates of the actual number of female-headed households in rural India, especially in the context of increasing male out-migration. The latest Socio-Economic Caste Census data indicates that there are around 12.83% of woman-headed households in rural India (SECC, 2011). As per an ILO study, around 20-25% of rural households are de facto female-headed due to widowhood, desertion, or male out-migration (Kanchi, 2010). Examining the gaps in the gender disaggregated data on the rural economy of India, other analysts also advocate moving away from the concept of head of household and an accompanying focus on female head of household for analytical and policy purposes. While highlighting that data on head of household, based on the recognition criterion, is useful for household identification, it has been argued that the category of female-headed household is heterogeneous with respect to many characteristics and therefore a 'blunt policy indicator' (Swaminathan, 2013).

The importance of secure land rights for women has also been argued from the perspective of enhanced agricultural productivity (Giovarelli and Wamalawa, 2011). In addition to welfare gains, more gender-equal land rights could also enhance productive efficiency of the farms where the holders are more motivated to make productivity-enhancing investments in their fields in the form of labour saving and other technologies, seeds, water, etc. Secure rights for women would also help increase output by improving women's access to credit while serving as collateral for the same. This can prove especially crucial in situations where women are the principal farmers, as where male out-migration is high, or where widows are cultivating separate plots still formally owned by kin. Having greater rights and control over their own land would also enable women to use their traditional knowledge on various farming practices much better than men apart from being able to assert themselves better with agencies that provide inputs and extension services. However, while welfare arguments for women's land rights have received some policy attention, the efficiency argument has often been used negatively to

deny women rights over land on the basis that land transfers to women will reduce output by reducing farm size and increasing fragmentation. However, there is no noteworthy evidence of an adverse size effect on output. In fact, in India and other parts of South Asia, small farms are found to have a higher value of output per cultivated unit than large farms (Banerjee, 2000). However, it has been argued that fragmentation can arise equally with male inheritance and where necessary, farmers have dealt with this problem through consolidation, purchase and sale, land leasing arrangements, and joint investment and cultivation by small groups. In India, as a result of these measures, the number of fragments per farm has declined from 5.7% in 1961 to 2.7% in 1991 (Agarwal, 2002).

Both the equality and empowerment argument in favour of land rights for women are important on their own merit, since gender equality and women's empowerment are a measure of a just and progressive society. Equality in land rights is a critical element in women's economic empowerment. Endowing women with land would empower them economically as well as strengthen their ability to challenge social and political gender inequities. This sense of empowerment accompanying improved land rights also enhances women's ability to assert themselves within the home, in the community, and with the state.

While land rights are posed as a priori to employment options for women, both on and off farm, it has also been argued that education and employment can be very useful in enabling women to negotiate patriarchal regulation and to claim effective right over property. Using women's experiences in the post-land reform period from Kerala as a basis, Kodoth argues that property affords security only as long as the right is enforceable and sustainable in practice as any amount of pressures can be brought on women to sell or otherwise transfer it. At another level, even where women receive title to land, unless this is adequate, the lack of other means of survival can force them to alienate it. She argues that it could be more productive to consider the mutually reinforcing effects of property and employment for women (Kodoth, 2004). Another additional link that has also been established through research is the positive relationship between women's property status and domestic violence. The critical impact of women's own property status on their risk of spousal violence is clearly brought out by a study in Kerala (Agarwal and Panda, 2007). The study is based on data collected in 2000-01 for a sample of 502 women in ten wards of Trivandrum district in Kerala. A panel resurvey of the same households was taken up in 2004-05. Women owning immovable property faced far lower spousal violence as per the study. 49% of the property-less women reported long term physical violence as compared to 18% and 10% respectively of those who owned either land or a house and 7% if they owned both (ibid, 2007).

In arguing for land rights for women, rights over land and other productive resources are far more important for women belonging to Dalit, Adivasi and other backward communities in India since they form the largest proportion of landless agricultural labourers in the country. As per the draft paper of the Ninth Five Year Plan, 77% of Dalits and 90% of Adivasis are either 'absolute landless' (own no land) or 'mere landless'. Landlessness and lack of access to other resources are found to augment food insecurity amongst these sections. Lack of rights to resources like land and water makes women from these communities far more vulnerable to both caste-based abuse, exploitation and patriarchal violence in various contexts (Narula, 1999). An ILO study indicates that 81% of woman agriculture workers are from Scheduled Castes, Scheduled Tribes and other Backward Classes and 83% from landless, marginal or small farm households and that more than half the woman workers in agriculture are employed as unpaid family workers (Kanchi, 2010).

Indigenous communities living in various forest regions across the country are also not immune to the feminisation of agricultural work. Women are the chief producers and collectors of food in most forest based communities, including swidden or shifting agriculture (also known as Jhum) and in home gardens, bearing responsibility for choosing seeds and locations, weeding, fertilising, processing produce, and so on (Dashora 2010, Kelkar and Wangchuk, 2013). It is the reliance of Adivasi and

indigenous women on natural resources and agriculture that makes them exceedingly vulnerable to climate change, especially as they often live among the world's poorest with limited access to resources. In most of the forest dependent communities, access to land is largely defined by customary practices and rights that often exclude women from having independent rights over land. The problem is further compounded with large sections of forest dwelling communities in the country having no formal rights over vast tracts of the forests on which they have been cultivating and using for various livelihood purposes for several generations. The passage of the Scheduled Tribes and Other Forest Dwellers (Recognition of Forest Rights) Act 2006 or FRA Act, for the first time sought to formally recognise the rights and claims of various forest dwelling communities and provide them formal titles to land. But implementation has been largely tardy as various studies indicate (Ramdas, 2009: Rao, 2013). The latest report on the implementation of this Act across various states indicates that out of 44,05,395 claims filed so far, a total of 38,13,344 (86.5%) of the claims have been disposed of as on October 31st 2015 (www.forestrightsgov.in).These include claims filed and processed in the category of individual and community forest rights. However, there is no gender disaggregated data indicating the number and extent of rights for women from the forest communities. Some micro-studies from Andhra Pradesh indicate that while women have been active in filing individual claims, they were granted titles to hardly 10% of what they had filed claims for and community rights have been virtually denied or negated in most cases thereby ignoring women's relationship to their land and environment (Ramdas, 2009).

While economic development creates more jobs in the industrial and service sectors, it is the men who move away and avail of these while the women who are left behind are compelled to become the prime agriculturists without the benefits of having the title to the land, the necessary resources and access to irrigation, credit, seeds, fertilisers, extension services, etc., required for enhancing production and household income. They may also have to cope with debts left behind by the men. Hence, a highly vulnerable group of women is being created and the challenge is to adopt a rights-based approach to empower them (Kanchi, 2010). The large presence of women in the unorganised sector with increasing stakes in agriculture and low levels of asset building is leading to the feminisation of poverty and resulting in what some analysts describe as "capabilities failure" (Nussabaum and Sen, 2011).

2. Women's Work in Agriculture: Invisible, Underpaid, Unpaid and Underreported

Accompanying poor ownership and control of assets such as land, another major challenge for woman farmers is their lack of visibility and identity as farmers despite their major contribution to agriculture and allied sectors such as animal husbandry, poultry, fisheries, etc. However, their actual time and contribution to the rural economy is not accurately captured in official statistics. Women workers often work under adverse conditions of work with lower wages and with fewer opportunities for work owing to various factors. The following section dwells on some of these key issues.

2.1 How Much Time Do Women Spend in Agriculture and Allied Sectors?

There are several micro-studies that indicate that women's participation in agriculture in India is anywhere between 60-75% in most of the farm related activities such as raising nurseries for seedlings, thinning, sowing, transplanting, weeding, preparation of fertilisers as well as application of fertiliser and pesticides, in gap filling, winnowing, grading, shifting produce to threshing floor, cleaning and processing the grain, etc. In activities such as cutting, picking, cleaning and drying of grains, storage and processing, women's participation was found to be almost 100% (Chayal et al, 2010).

Other empirical evidence shows that women carry out 60-75% of all farming related work across most regions of India and across most crops grown. Men's work is agriculture is largely restricted to ploughing, purchase of seeds, fertilisers and pesticides and mar-

keting of the produce. Several micro-studies point to the fact that there exists a clear gender based division of labour with more woman-days going into farming than man-days in a variety of agricultural operations, which are divided and performed by men and women based on gender (Rao, 2006). The mode of female participation in agricultural production varies with the land-owning status of the farm household. Women's roles range from managers to landless labourers. In all farm production, the average contribution of women is estimated at 50-60% of total labour, much higher in certain regions. Girls are preferred in cottonseed production because their wages are lower than those of adults. Moreover, they work longer hours, more intensively and are generally easier to administer. Gathering of fuel wood is the exclusive responsibility of women and girls. In general, male activities such as land preparation, planting, sowing, and fertiliser application are one-time jobs, usually accomplished within a stipulated timeframe. Female activities, however, such as weeding, are recurrent daily activities, lasting from the time the seed is planted until it is harvested (Dashora, 2010). Other empirical studies further indicate that women's participation rate in the agricultural sectors is about 47% in tea plantations, 46.84% in cotton cultivation, 45.43% growing oilseeds and 39.13% in vegetable production. While these crops require labour-intensive work, the work is considered quite unskilled (Singh and Ranja, 2009).

While rural Indian women are extensively involved in agricultural activities, the nature and extent of their involvement also differs along variations in agro-production systems. There are community-based differences regarding women's participation in agriculture, therefore, location, cropping patterns, ethnic affiliation and economic and educational background also have implications for the specific division of labour within a given family unit. Various micro-studies also indicate that a higher proportion of women are involved in farming of animals as compared to men (Singh and Tuachan, 2009). Empirical studies also indicate that women's involvement in livestock management is higher as compared to men varying along activities such as cleaning of animals and sheds (67%), feeding (79%), milking (46%), traditional health care (67%) and collection of fodder (88%) (Mishra et al, 2008). Depending upon their economic status, women perform a variety of tasks related to livestock care and management such as animal care, grazing, fodder collection, cleaning of animal sheds, processing of milk and related products, etc. In India, women account for almost 93% of employment in dairy production (Kelkar, 2011: WTO, 2010). Men generally take care of the health aspects of the livestock, their sale and purchase and consequently the incomes accruing from the same are in the hands of men. Women's control over livestock and income from marketing and sale of products remains minimal. Women have no ownership rights over livestock and income from most activities (except from small poultry) often belongs to men (NCW, 2005). Further, 75% of membership in dairy cooperatives is male (Sujaya, 2006).

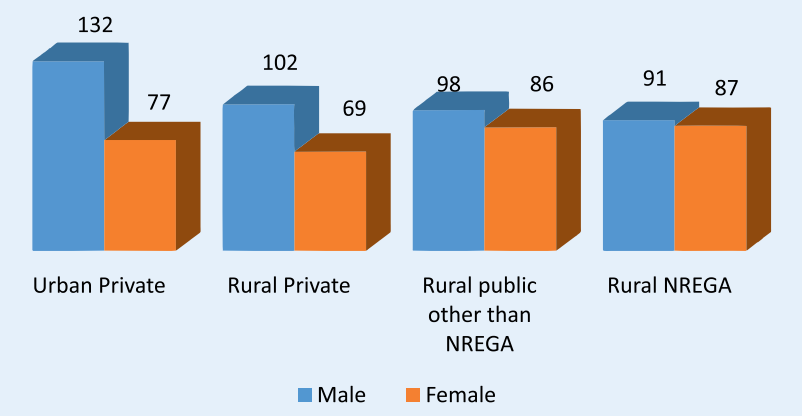
In drought prone and semi-arid regions of the country, livestock forms a key source of livelihood and an invaluable source of family income. Studies in semi-arid regions of Gujarat and Rajasthan indicate that livestock contribute to 45-52% of the family incomes in these regions. Local communities in these regions often maintain a mix of both large and small animals for various purposes. In these regions, milk production contributes a major share of livestock production and is next only to cereal production with regard to overall contribution of agricultural production (Rangnekar, 2004). Women play a major role in taking care of livestock and backyard poultry in these regions and contribute to both sustainable production and food security for the households through judicious use of local resources such as fodder and water as well as availability of grazing spaces and commons which are scarce in these regions. Apart from agriculture and livestock, women also heavily participate in other allied sectors such as fisheries. According to the Food and Agricultural Organisation (FAO), Indian women represented a share of 21% and 24% of all fishers and fish farmers, respectively (FAO, 2011). Some empirical studies also point to the fact that there is no sufficient attention to worksites where workers are predominant and active such as cultivation of crops and vegetables that are largely of subsistence in nature, regeneration of degraded forests, wasteland and watershed development. This has also meant that women's contribution and

concerns remain invisible in planning and largely ignored in agriculture knowledge and technology institutions (Sujaya, 2006).

2.2 Gender Differences in Wages

Even while a little under four-fifths of the rural woman workers are employed in agriculture, the sector is characterised by decelerating and differential wages on the basis of gender and degradation of resources. It is estimated that about 60% of all agricultural operations are handled exclusively by women while female hourly wage rates in agriculture vary from 50-75% of male rates, and are too low to overcome absolute poverty. The following data illustrates that with the exception of rural MGMNREGS, the male-female disparity in wages is significant, with male wages being 1.4 times higher than female wages.

Daily actual wages of male and female workers in 2009-10 in Rupee (NSSO 2011)



Source: Based on data from NSSO (2011)

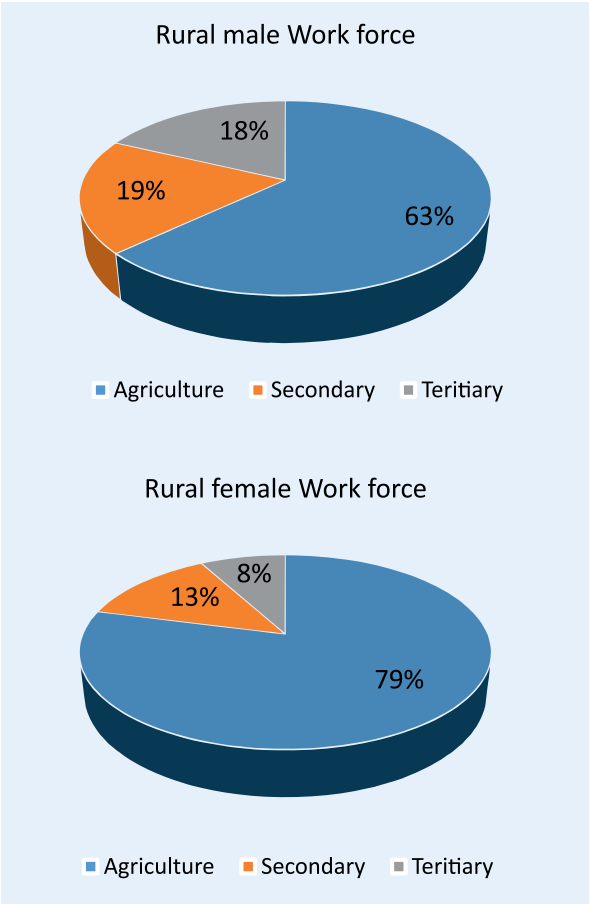
Various studies further indicate that despite women's increased participation in the labour market, there exists a 'gender-based resource division' in the household between propertied men and largely penurious women. Women's lack of control over family's resources is both a cause and an effect of their near negligible influence over household decisions and bargaining outcomes. The depressed asset positions of women and the resulting outcomes within the household are actually responsible for the 'gender-based class division' in the labour market (Da Corta and Venkateshwarlu, 1999; Chaudhary, 1994). Women's lack of control over family's productive assets impinges on their ability to work on them and assert a claim over the incomes from them. This further erodes their ability to bargain for better wages in the labour market. Moreover, the gendered expectations surrounding women's time-use within the household further impinge on women's abilities to allocate their work time freely and erodes the possibility of pursuing non-agrarian work options associated with higher pay thus adding to their 'unfree' status in the labour market (Garikipati, 2008).

In India, the typical work of the female agricultural labourer or cultivator is limited to less skilled jobs, such as sowing, transplanting, weeding and harvesting that often fit well within the framework of domestic life and child-rearing. Many women also participate in agricultural work as unpaid subsistence labour. According to United Nations Human Development Report, only 32.8% of Indian women formally participate in the labour force, a rate that has remained steady since 2009 statistics. By comparison, men constitute 81.1% (UNHDR, 2011).

2.3. Capturing Women's Work: Some Issues

While women in agriculture in their multiple roles as farmers, cultivators, agricultural labourers, etc., have always worked harder than men and for longer hours, their role as workers has not been adequately captured in official statistics nor has their work been suitably recognised by planners and policymakers. According to the 66th round of the NSSO Survey, the labour force participation rate (LFPR) in 2009-10 was far lower for women as compared to men in both rural and urban areas. The LFPR refers to the proportion of those who are both employed and unemployed, but looking for work. While the LFPR was 56% of the total male population in all age groups in both rural and urban areas, it was much lower at just 27% for females in rural areas and only 15% in urban areas (NSSO, 2011). For the same year at the all

Sector-wise share of Male and Female Workforce in Rural Areas, NSSO, 2009-10 (All India)



India level, the NSSO report notes that the LFPR for rural males in the age group of 15-59 years was 85% while it was only 40% for rural females. While these figures appear to indicate the withdrawal of women from productive work, they can also be interpreted as declining opportunities for productive work for women, especially in rural areas, even as men move on to other areas for wage work. The NSSO data for 2009-10 as illustrated below shows that around 62.8% of all rural male workers are in agriculture, but 79.4% of all rural female workers are in agriculture.

By 2011-12 (68th NSSO Round), 48.9% of the total workers in India were in agriculture (43.6 male and 62.8 female), 24.3% in secondary (25.9% male and 20% female) and 26.8% in tertiary (30.5% male and 17.2% female). As per this 68th Round of NSSO, 64.1% of rural workers in India were engaged in agriculture, when it comes to distribution by industry of work. It is worth noting that this comprises 59% of the 'usual status' male workers and 75% of female workers in rural India. Most rural women are "self-employed", that too in agriculture, working on the family's land and hiding a large proportion of unpaid labour. The Census 2011 data on Cultivators and Agricultural Labourers reflects a similar picture: 65.1% of female workers depend on agriculture, either as cultivators or agricultural labourers, while only 49.8% of male workers do the same. In terms of absolute numbers, 14.98 crore female workers are in agriculture.

Even while women cultivators and agricultural workers are visibly working in agricultural production, they often report themselves to be 'principally engaged in housework'. It is worth noting that 61.6% of rural women aged 15 to 59 years report household work as their principal usual activity status, with 45% engaged in various activities for obtaining food for the household: working on kitchen gardens, maintaining household animal resources, collection of food and food processing activities. Even this so-called household work is therefore farming, apart from the involvement of women reported as self-employed workers or casual labour in agriculture in a more overt and direct sense!

The reasons for the under-reporting of women's work in official statistics are many – to begin with, women's work is often home-based, informal, flexible, and often, an extension and continuum of their domestic work and therefore difficult to differentiate from paid work (Kanchi, 2010). Women also bear the responsibility of almost all the household related chores performing a wide variety of tasks such as cooking, cleaning, fetching water, fuel, fodder for animals, taking care of the children and older persons thus saving time and incomes for the household apart from also generating income through their paid work. However, there is no official recognition of their work or measures to effectively quantify their work in economic terms to inform policymaking. While women's direct contribution to the economy in terms of paid work is generally and more easily captured in data sources as it implies a quantified contribution, especially in a monetised market economy, income augmentation and income saving activities are often outside the market realm if not directly in

the non-market economy, and combined with the nature of women's work being intermittent and sometimes irregular, difficult to assign a value and quantify, often possibly even recognise (Dewan, 2015).

Trends in employment and unemployment in India, as presented by the Census data as well as the quinquennial surveys of the National Sample Survey Office for the past decades have been the subject of discussion and many debates amongst analysts, academics and practitioners in the field. In the context of varying definitions of work and workers as well as data collection methods deployed by these nationally enumerative surveys, it has been argued that time use statistics would go a long way in accurately capturing the nature and extent of women's paid and unpaid work in various regions and explain the mystery behind the so called 'missing labour' in NSSO surveys (Hirway, 2012). Arguing for the fact that this "non-missing labour force" (which is actually labouring but unaccounted for) has important implications for the employment and labour policy in the country, analysts also argue that time use statistics has the potential of overcoming some weaknesses of the NSSO as well as of adding new information on the labour force (ibid, 2012).

An important aspect of women's role as workers is the decline in their workforce participation rates as compared to men. Female labour force participation in India is lower than many other emerging market economies and has been declining since the mid-2000s (Das et al, 2015). Based on a comparison of women's rural work participation rates between 2004-05 and 2010-11 for various states, Dewan argues that there has been a significant fall in women's rural Work Participation Rates across most states, with the national average falling drastically from one-third to one-fourth, Further, all states report much less than half of their rural women 'working' as defined by the NSSO, with Himachal Pradesh being the only exception to record over 52% (Dewan, 2015). While Work Participation Rates for men too have declined, though not in the same proportion as compared to women, it has further been argued that the increasing involvement of women in the workforce is not necessarily a reflection of enhanced work opportunities for women or their economic empowerment but is often a response to a complex set of economic and non-economic factors such as withdrawal of the state from the public sphere, low growth and recession, decline in household incomes, rising poverty, increasing wager differentials, worsening working conditions, deepening gender-based division of labour, declining male employment and higher levels of male migration. In the wake of shifting macro-economic policies, these processes often entail conflicting and contradictory outcomes for women (ibid, 2015).

It has also been emphasised that the issues relating to capturing women's participation in economic activity especially in the context of rural India are myriad and intermixed, and require an urgent rethinking and redefining of concepts of employment, labour, livelihoods and work, especially in the context of changing macro-economic policies that impinge in many ways on women's opportunities and struggle for dignified livelihoods (Dewan, 2015). Other analysts also point to some of the policy measures that could help address the gender gap in labour force participation such as increasing labour market flexibility that could allow more women from the informal sector to be employed in the formal sectors of the economy, improving infrastructure, higher social spending including investment in female education, etc (Das et al, 2015). Evidence from more recent reports also points to the increasing need for providing social protection measures, in addition to providing public investments in agriculture and rural development sectors in order to not only protect consumption and eliminate poverty but also to foster productivity and future employability in these sectors. When social protection programmes are gender sensitive and targeted at women, positive impacts for women and infants are enhanced (FAO, 2015).

3. Gender Gaps in Access to Extension Services and Technologies

Given land serves as a key criterion for establishing who extension clients are, extension services have

often been designed for farmers with access to or ownership over land. Women's access to land in rural areas is shaped by a complicated web of social, legal, and customary norms and this in turn poses a major challenge for women in accessing the much required extension and advisory services related to farming. Several micro-studies reveal that gender inequalities in land ownership significantly reduce women's access to extension services. Even when women do own land, their plots are small, often of poor quality, requiring extension advice tailored to the agronomic potential of their landholdings. Land ownership often facilitates eligibility for access to other productive resources, such as credit or producer associations, which allow men and woman farmers to act on the information they receive (Manfre et al. 2013).

3.1 How Many Women Access Extension Services?

There is no accurate gender disaggregated data regarding differential access to extension services and technologies by female and male farmers in India. However, findings from various micro- and macro-studies attest to the fact that woman farmers are deprived of extension and advisory services to a large extent that in turn impacts the overall productivity and returns from their farms. According to an FAO report, women comprise, on average, 43% of the agricultural labour force in developing countries, ranging from 20% in Latin America to 50% in Eastern Asia and Sub-Saharan Africa" (FAO, 2011). The report argues that reducing gender inequalities in access to productive resources and services could produce an increase in yields on women's farms of between 20% and 30%, which could raise agricultural output in developing countries by 2.5% to 4% (FAO, 2011).Figures from a World Bank study on men's and women's access to advisory services shows relatively low levels of contact between farmers and extension agents, with disproportionally lower levels of access for women. In the study, a review of selected regions of Ethiopia, India, and Ghana found that the levels of access to agricultural extension varied by region and by type of crop or livestock, but that women's access was regularly less than men's. In Ethiopia, women's access was 20% compared with men's at 27%; in India, levels were 18% of woman-headed households and 29% of man-headed households; in Ghana, only 2% of woman-headed households and 12% of man-headed households reported receiving extension advice (World Bank, 2010). Women were also excluded from rising to leadership positions in key institutions such as cooperatives as a result of biases about their skills. In India, only 10% of dairy cooperatives had woman chairpersons (ibid, 2010). A fact sheet on extension services brought out by the Global Forum for Rural Advisory Services (GFRAS), notes that extension services in India are not always uniform in terms of coverage and that positions are not always filled, limiting the support farmers are able to receive. For example, in India, of the 143,863 positions in the Department of Agriculture, only 91,288 posts are filled. Combined with the large number of farm households in the country, this small number of positions means that on an average, extension services only reach 6.8% of farmers (GFRAS, 2012). Apart from the problem of overall shortage of extension staff, another significant issue is the inadequacy of female extension functionaries proportionate to that of male staff in the agriculture departments, who can meet the specific needs of the growing number of woman farmers and workers across the country. Again, there is no readily accessible gender disaggregated data related to the number of positions at various levels in the extension departments of various states.

3.2. Are Extension Services Gender Sensitive?

Another key area of concern is that agricultural research, extension, including extension delivery mechanisms and methods often do not take into consideration women's role and work in agriculture while designing the content and methodologies for extension delivery and dissemination of information. The overall focus of extension delivery has in fact been more crop-based, focussing largely on increasing crop productivity and output. A look at the history and development of extension services in the country indicates that during the period of the 1950s-60s, the Community Development Pro-

gramme (CDP) that was initiated on a pilot basis in 55 project areas was later scaled up as National Extension Service (NES) to provide extension services on a wider scale. During the 1960 and 70s, the focus later shifted to concentrating extension manpower and resources in select areas with the objective of increasing food production and self-sufficiency under the Agricultural District Program (IADP) which came to be more commonly known as the 'Package Programme'. Thus, the CDP's multi-purpose approach was replaced by a single-line extension system that focussed largely on the major food grains (mainly rice and wheat) towards the national goal of food security. The package programme that centred on disseminating Green Revolution technologies comprising of high yielding varieties of seeds, fertilisers and pesticides in the high potential, irrigated areas of the country, had little impact on the productivity and incomes of farmers in rain-fed areas. The concerns and needs of different kinds of woman farmers in both the irrigated as well as rain-fed regions of the country received little or no attention in these shifting paradigms of extension in the country.

During the mid-1990s, the Government of India and the World Bank began exploring new approaches to extension in an attempt to address systemic constraints and also to decentralise the extension system in a manner that would enable greater role and participation of farmers in articulating their extension needs and priorities related to farming in various contexts. The institutional mechanism that emerged out of this pilot project was the setting up of an autonomous institution at the block level across various states called Agriculture Technology Management Agency or ATMA, that would enable decentralisation of research and extension along with convergence with various line departments and research institutions and provide decision making space for farmers to voice their needs. Importantly, enabling woman farmers to voice their priorities and concerns formed an important objective of ATMA, which is a centrally supported programme being implemented in several districts of the country since 2005. More importantly, the introduction of ATMA marks a shift from crop-based extension delivery to a more holistic, group or cluster-based approach based on the ideology of convergence amongst various departments. There are not many micro-evaluation studies that have focused specifically on understanding the impact of the ATMA programme on woman farmers and their access to extension services. In one of the studies in Jharkhand district, it was found that the ATMA programme was hardly able to reach out to women or even tribal groups, the majority population in the state. One of the major constraints was the insistence of the programme on payment of user fee by farmers as a strategy to build greater ownership. This was, however, a deterrent for most Adivasis who often lacked the resources to pay for their participation in various activities and were consequently excluded from ATMA activities (Rao 2005).

3.3 Availability and Access to Gender Friendly Tools and Technologies

Extension services often fail to take into account the activities of women who are unpaid farm workers on their own family farms or employed on farms owned by others. There is adequate evidence that introduction of new technologies often implies a reduction of labour time for men, but sometimes this comes at the expense of the already overburdened women on the farm (Lele, 1975; Burfisher and Horenstein, 1982). In addition, extension services have long neglected the introduction of labour-saving technologies, such as grinding mills or more efficient cook stoves that could make women's tasks more efficient and free up their time for income-earning pursuits (Carr, 1980). In other cases, the introduction of certain innovations, particularly the mechanisation of agriculture, has been accompanied by a reduction in the number of jobs available to women, and therefore, their opportunities for earning income. For a long time now, analysts (Boserup, 1970) have argued that giving new tools and machinery to men, increases their control over agriculture and widens the gap between men's and women's productivity. Mechanisation may also serve to make female wage labour redundant, eliminating jobs for women in agriculture without providing alternative sources of employment (Lele, 1975).

'The seemingly simple act of removing the husks from maize cobs by hand is tougher than it sounds. A female worker uses her fingertips on average 522 times, her fingernails 144 times and her palms 55 times for every single kilogram of grain she produces', according to a survey carried out by the Ministry of Agriculture in 2014. Most of the physically arduous and taxing tasks are often performed by women such as sowing, transplanting, weeding, etc. Yet, there has been insufficient attention in developing tools and technologies that can potentially reduce the drudgery of woman farmers and workers in the country. Reduction in the drudgery of women's work in agriculture also has potentially beneficial impacts on their education, food security, health, productivity, etc. The nature of women's manual labour has not changed much in large parts of the country, either because technologies and innovations haven't catered to their particular needs, or because they are inaccessible or unaffordable. Part of this problem is that female agricultural labourers are an invisible workforce who often see farm work as an extension of their family role, or are seen by data collectors and policymakers too, as unpaid assistants to male farmers. A related part of the challenge of tackling the agricultural drudgery endured by women is in changing ingrained cultural attitudes. For example, women are often denied access to equipment, such as blacksmith and carpentry tools, which would make their work easier and less physically taxing. The rate of technological change in the tasks that men perform has been much faster, such as, tractors and combined harvesters to plough and harvest the crop for marketing. Given the male bias of tool use, there is an urgent need to tailor technologies to meet the needs of female agricultural workers and to make them cheap enough for women to access. These could include farm machines that take account of the different needs and capacities of women's bodies, catering to their typically lower mass and muscle strength, postural differences, load-bearing and lung-breathing capacity, oxygen consumption rates, etc. The performance of a tool or equipment, therefore, not only depends on the constructional features, but also on the workers operating it.

There seems to be a growing interest in designing technologies to improve the lives of woman farmers with some of the centrally funded institutions such as the Central Institute of Agricultural Engineering (CIAE) based in Bhopal, Madhya Pradesh, engaging in collecting data on the physical stature of male and female farm workers in India to guide the development of gender-friendly tools. Other institutions, such as the Centre for Women in Agriculture (CIWA) based in Orissa, are also involved in research and development of tools aimed at woman farmers and workers. A compendium of gender-friendly tools and technologies comprising 69 different tools, including details of their operation and price, are available on the official website of the DAC under the agriculture ministry. In addition, the sub-mission on agricultural mechanisation, under the National Mission for Agricultural Extension and Technology (NMAET), also has specific provisions and subsidies for accessing agricultural machinery and implements through the Custom Hiring Centres. There are several other schemes with a subsidy component for availing agricultural tools and machines. However, lack of knowledge and awareness about the availability of these technologies combined with timely accessibility and affordability are some the major challenges for woman farmers.

4. Gender Gaps in Access to Credit and Financial Services

Availability and access to adequate, timely and low cost credit from institutional sources is of great importance to women who form the bulk of small and marginal farmers in the country. Along with other inputs, credit is essential for establishing sustainable and profitable farming systems. Women farmers face major constraints in accessing credit and other financial services such as crop insurance, coverage of risk and compensation in the event of crop loss and damage, etc. The primary reason for a large number of woman farmers being denied equal access to credit is because the land is not in their name. Differential access to credit and related support services also adversely impact the productivity, investment capacity, and incomes of farms managed or operated by woman farmers. A recent World Bank paper hypothesises that labour and credit market imperfections – by discouraging

off-farm income-generating activities and restricting access to inputs, respectively – affect female farm productivity more deeply than male productivity. Based on empirical evidence and analysis, the paper argues that agricultural labour productivity is, on average, 44% lower on female-headed plots than on those managed by male heads with 34% of this gap is explained by differences in labour market access and 29% by differences in credit access (Lopez and Lopez, 2015).

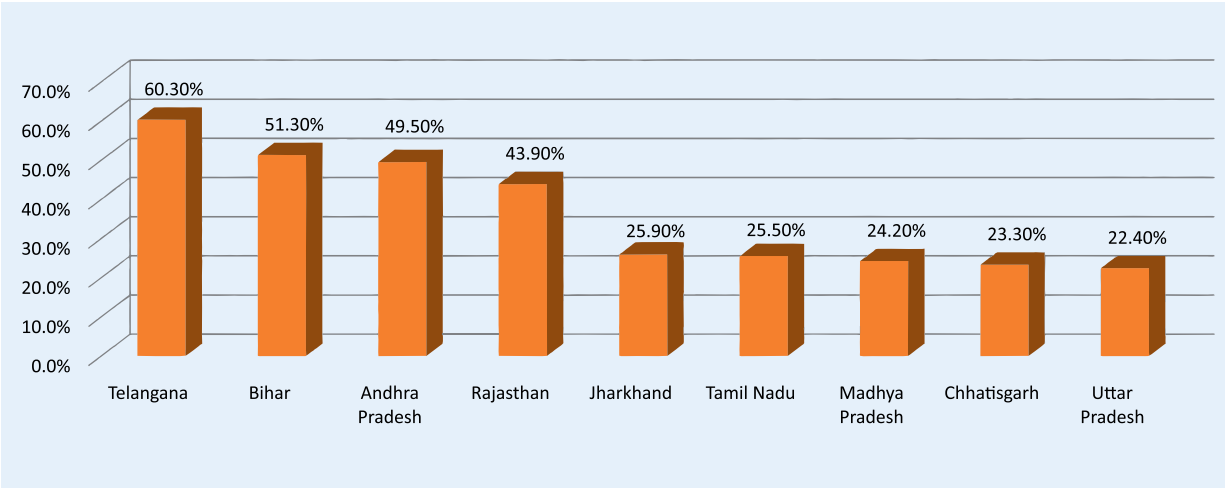
A report by the "Task Force on Credit Related Issues of Farmers" set up by the Ministry of agriculture shows that when woman farmers take credit for agricultural purposes from other non-banking institutions such as Self Help Groups (SHGs), it is often not recorded as 'agricultural loans'. Further, in the case of tenant farmers, share croppers, oral lessees, who had received loans for agriculture through Joint Liability Groups (JLGs), it is often recorded as 'other loans' (GOI, 2010). Experience from different parts of India reveals that when banks don't lend money, woman farmers end up taking debts from private moneylenders often at very high rates of interests thus leading them into a vicious cycle of indebtedness. Further, in areas where men have left farming and migrated to cities or in cases where women are widowed and single, they also find it harder to hire farmhands for hard physical labour such as ploughing and cannot afford help or cannot find men willing to work for them. In the absence of additional labour, women are forced to till smaller plots of land, perpetuating the cycle of disadvantage.

There is no gender disaggregated data with regard to the exact number of woman farmers availing credit for agricultural purposes from various sources. While various initiatives have been taken by the government over the years for enhancing the flow of credit to agriculture through special farm credit packages, interest subvention to farmers, extension of interest subvention on post-harvest loans, collateral free loans, Kisan Credit Card Scheme (KCC), etc., access to formal credit institutions continues to elude a large number of woman farmers. For example, the Government of India introduced the KCC in 1998-99 to ensure timely flow of credit to all farmers, including those who are tenant farmers, sharecroppers, those farming under oral leases who are eligible under the scheme . The scope of KCC also includes term credit and consumption needs and the scheme is implemented throughout the country by commercial banks, cooperative banks and Regional Rural Banks (RRBs). However, poor awareness amongst women about the scheme combined with deep-seated gender and institutional biases against the poor have prevented a large number of women from accessing the scheme. As per a report hardly 5% of women have been issued the KCC (Swaminathan, 2005). The GoI taskforce on credit needs of farmers also recommended that management information system (MIS) on KCC be redesigned to reflect ground level reality and to provide disaggregated data on new and old clients, on woman clients and on small and marginal farmers across the country. The taskforce also made recommendations for creation and maintenance of data related to woman cardholders (GOI, 2010).

The SHG bank linkage programme (SBLP) was launched by NABARD in 1992 to facilitate collective decision-making and provide 'doorstep' banking to the poor. However, the credit provided by woman SHG members from their own savings lying with banks is estimated to be of a high order than those actually provided by banks. There is, however, not much data or documentation on the total credit flow to rural families, especially to women who are engaged in farming, from the internal savings and credit activity of SHGs.

The 70th round report of the NSSO on the situation of agricultural households in India (NSSO, 2013) shows that indebtedness in terms of average amount of outstanding loan per agricultural household was Rs. 47,000 approximately, with 52% of agricultural households estimated to be indebted; out of this, 60% were from institutional sources, which is a minuscule improvement in terms of institutional coverage as compared to the earlier round of the NSSO Survey in 2003 (59th round). At that time, 57.7% households had loans outstanding from institutional sources.

Percentage of Outstanding Loan from the Money Lender



Source: Key Indicators of Situation of Agricultural Households in India, NSS 70th Round (2013)

Of the average outstanding loan amount of Rs 47,000 at the all India level, about 26% of the loan was taken from the moneylender. There are again wide variations within states as illustrated above. In Telangana, Bihar and Andhra Pradesh, more than 50% of the outstanding loan is from the moneylender. Though Kerala has the highest amount of outstanding loan of Rs 2,13,600, only 2.2% of this loan is from the moneylender. This is a broad indicator of access to the banking system for the agricultural households. In the lowest size class of land possessed, only 15% of outstanding loans were from institutional sources. If this is the national picture in relation to formal access to credit, one can well imagine the status of poor households and especially of woman farmers in the lowest strata in accessing institutional credit.

A comparison of the NSSO 59th and 70th round surveys also reveals that only 4% had ever insured their crops and 57% were unaware of crop insurance in 2003. In 2013, across crops, more than 90% of agricultural households had no crop insurance. Groundnut, soybean, cotton and green gram were small exceptions with figures hovering around 86% to 90% not having crop insurance.

5. Unequal Access to Institutional Spaces

Cooperatives have been long seen as a social institution providing partnership, solidarity and resources to woman farmers as well as tackling gender inequality. In India, they have had quite a success. In many instances in which women are barred from participation, women only cooperatives are critical in empowering and educating. Yet female participation in cooperatives is still relatively low, and some argue, it is because men are still seen as primarily in charge of agriculture and income generation. Only 7.5% of women participate in cooperatives as compared to 92.5% of men. Of India's 450,000 cooperatives with a membership of 204.5 million, there are only 8,171 woman cooperatives with a total membership of 693,000 women.

Despite that, woman-only cooperatives, which include cooperative banks, stores, and food vendors, have done quite well and provided a whole range of services to their members. In India, with a view to involve women in the process of decision-making in local self-governing bodies including cooperatives, a 33% representation has been instituted and in a number of states all boards of directors have women serving on them. International organisations (such as SEWA) have been working quite successfully with partners to form a membership of 1.24 million women in India, of which 54% are agricultural workers.

6. Women Farmers and the Environment

Extreme climatic changes are among the factors that have begun to jeopardize agricultural production

globally. India's agricultural sector which depends greatly on the variations in climate and weather is defined mainly by the monsoon season. The appropriate levels of precipitation that last from June to September, predicate a bountiful agricultural yield later on in the year. Monsoon seasons with insufficient or excessive precipitation, hurt the agricultural sector. Increasing temperatures and erratic precipitation have begun to exhaust agricultural land and create high variations of land. In the past couple of years, these trends have made a noticeable impact in India, causing droughts and unpredictable rainfall. Just one season of such weather patterns can be devastating to the livelihood of farmers, who can find no resilience in small farms.

The loss of biodiversity in India and specifically food crops is a serious concern for food security and sustainability of the agricultural sector in India. The connection between woman farmers and environmental health is not simply for subsistence and survival. It also stems from a long existing cultural valuation of India's agricultural fertility in ritual and practice. Women's connection to land is reflected in their almanac-like knowledge of plant varieties. Rituals and ceremonies in various parts of the country show this close relationship. There is Lohri, the harvest festival of Punjab, or N*avadhanya Puja*, which translate to the worship of nine cereals, celebrations that take place in southern India. Both ceremonies celebrate the role of women in agriculture and fertility and importance of environment and biodiversity.

Furthermore, traditional agricultural methods heavily utilised by woman subsistence farmers boast environmentally-friendly features, such as seed preservation, natural fertilisers and crop rotation techniques that do not exhaust delicate soil. In the wake of Green Revolution's reforms, it is clear that many of the high yield recommendations had severe environmental impacts. The negative environmental impacts of the Green Revolution are barely beginning to show their full effect. The widespread chemical pollution in communities that utilise pesticides and herbicides is creating a public health problem, which has disproportionately impacted women.

In the state of Punjab which was touted as a success of Green Revolution, cancer rates have skyrocketed. A 2008 study by Punjabi University showed a high rate of genetic damage among farmers, which was attributed to pesticide use. Ignorance of the appropriate use of pesticides, resulting in the heavy use, improper disposal, the use of pesticides as kitchen containers, and contamination of drinking water with heavy metals are contributing factors. In reaction to the health and monetary costs of inorganic farming many women are turning to organic farming practices. On a micro-level women are organising into collectives to exchange knowledge, organise organic seed sharing, to pursue organic and sustainable agricultural practices.

Rural women are often dependent on the natural environment for their livelihood. Maintenance of households and women's livelihoods are, therefore, directly impacted by climate-related damage to or scarcity of natural resources. Limited rights or access to arable land further limits livelihood options and exacerbates financial strain on women, especially in woman-headed households. Poor women are less able to purchase technology to adapt to climate change due to limited access to credit and agricultural services (for example, watering technology, farm implements, climate-appropriate seed varieties and fertilisers). Damage to infrastructure that limits clean water, hygienic care, and health services can be especially detrimental to pregnant or nursing women (10-15% of all women, at any given point) as they have unique nutritional and health needs. Public and familial distribution of food may be influenced by gender and make women and girls more susceptible to poor nutrition, disease and famine, especially when communities are under environmental stress. Increased time to collect water (due to drought, desertification or increased salinity) and fuel (due to deforestation or extensive forest kill from disease infestations) decreases the time that women are able to spend on education or other economic and political enterprises, and increases their risk of gender-based violence.

7. Gendered Impact of Macro Economic Policies

Since 2007, India and the European Union have been in negotiation over a Free Trade Agreement (FTA) between the two bodies. It is an extension of the neoliberal policies imposed by the International Monetary Fund and the World Bank as developmentally advantageous to India. However, in the long run it is predicted that the EU-India FTA will not bring gains to the agricultural sector of India. Rather, it is predicted by a study conducted by the Centre for Trade and Development in 2009, that the EU will benefit at the expense of the small Indian agricultural labourers and farmers. It is predicted there will be a small increase in agricultural exports that will be dwarfed by larger increase in agricultural imports. In addition, agricultural employment will decline in India. Furthermore, there is concern about the social impacts of opening up of the Indian market to European Union's agricultural goods such as general and specialty food crops.]

The FTA may lead to increased imports of the products that women are typically involved in, such as cereal production, tea or coffee, confections, and oilseeds. With the EU's competitive advantage this will hurt a number of woman farmers and labourers that are employed in these sectors. For example, EU dairy products, a heavily-protected industry in the EU, will most likely enter Indian markets competing with smaller animal husbandry production methods specifically attached to women. Competition may threaten women's and their families' livelihoods and create problems of food security and deepen gender inequality by stifling the expansion of capabilities for girls and women. Agro-processing, the creation of cereals and grains mixtures, in India is a large employer of woman workers and strong competition can adversely affect them. In addition, since the EU has considerably lower tariffs than those in India, the FTA will induce a loss of tariff revenue in India, which will have to reduce tariffs. This will bring about a loss of revenue source generally used by the government on social spending.

The FTA, as insisted by the EU, will also remove export restrictions and increase the liberalisation of investment in agriculture in India. This does not bode well for smaller Indian agricultural production industries that have thus far been insulated from such rough competition for resources. As foreign investors begin to vie for power over agricultural or natural resources in India, women's access to resources and decision-making abilities will be further threatened. Women who do agricultural work for subsistence will be at risk of losing the basic resources such as water, seeds and other natural resources used to feed their families.

The FTA is still under negotiations. Since initial discussion on the FTA, there has been a major public outcry due to problems, besides the agricultural cited above, that are predicted to arise. In April 2013, Germany supported FTA. Progress on the FTA has been delayed due to EU demands that India open its markets further. Europe currently waits for India to raise its cap on "FDI by foreign insurance companies from 26 to 49%" and also decrease import duties for luxury items such as cars, wine and spirits.

PART-II

GRB Analysis of Select Schemes in the Agriculture Sector

Reflections from Field Research on ATMA and NHM Schemes in Madhya Pradesh and Andhra Pradesh

Introduction

As a next step following a detailed situation analysis of woman farmers and an overview of existing policies and programmes, this part or section of the report focuses on findings from an analysis of select schemes in the agriculture sector from a Gender Responsive Budgeting framework. The two schemes selected for the GRB analysis include the Agriculture Technology Management Agency (ATMA) and the National Horticulture Mission (NHM). Both the schemes are centrally funded to a large extent, with a small contribution from the states.

The first section here outlines the criteria for selection of these schemes for the purposes of GRB analysis. This is followed by an overview of the two states – Madhya Pradesh and Andhra Pradesh – and a profile of the two districts – Betul and Ananthapur – selected in these states for an in depth study of the above mentioned schemes. The second section of this report contains an overview of the two specific schemes, including the key objectives, activities, operational strategies and funding pattern under these schemes. This is followed by a note on the methodology adopted for the study of the two respective schemes along with an analysis of major findings from the study as well as key recommendations for improving the scheme in future.

Section-I:

1. Rationale and Criteria for Selection of Schemes for GRB Analysis

The Ministry of Agriculture in India has a widespread and comprehensive administrative set up in the form of key departments, divisions with attached offices at the central level as well as subordinate offices at both the central and the state levels which in turn coordinate with a network of apex institutions for the overall governance of the agriculture sector in the country. Under the Ministry of Agriculture, the Department of Agriculture and Cooperation (henceforth DAC) is one of the three constituent Departments, the other two being the Department of Animal Husbandry, Dairying & Fisheries (DADF) and Department of Agricultural Research and Education (DARE).

Amongst the three different departments under the Ministry, the DAC is the most critical department which is involved in the formulation and implementation of several programmes and schemes related to some of the key areas such as credit, technology, extension, cooperation, marketing, etc., that are critical to the organisation of agriculture, horticulture and related activities in the rural areas. The DAC is organised into 27 Divisions and has five attached offices and twenty-two subordinate offices which are spread across the country for coordination with state level agencies and implementation of central sector schemes in their respective fields. Given the scope and timeframe of this current study, two specific schemes, i.e., ATMA falling under the extension division and NHM falling under the Horticulture division of the DAC were selected for purposes of carrying out and in-depth GRB analysis.

The specific criteria used for selection of the schemes for the GRB analysis is as follows:

- The selected scheme needs to have been in operation for a minimum number of five years or more.
- The physical/geographical spread of the scheme and coverage of the beneficiaries should be large enough to enable mainstreaming of the outcomes of the GRB analysis at various levels.
- Convergence of the scheme with other sub-missions, schemes under a given sector.
- The scheme should have a stated objective of addressing woman farmers (at least a targeted percentage of women) through budgetary allocations.
- A significant allocation of the budgets to the scheme by the central and state governments.
- The importance/significance of the selected scheme to woman farmers in the organisation of agriculture as a livelihood activity in rural areas.

2. Socio-Economic Profile of Selected States and Districts for Study

The GRB analysis of the abovementioned schemes was taken up in two states across the country – Andhra Pradesh in South India and Madhya Pradesh located in the central region of the country to enable a better understanding of the schemes in terms of their implementation in different agro-climatic, socio-economic and political contexts. What follows here is a socio-economic profile of these two states and the two selected districts within these states, with a focus especially on the agriculture sector and the role of women within the same.

i) Andhra Pradesh

The present state of Andhra Pradesh was formed in 2014 and was part of the erstwhile undivided Andhra Pradesh, which was divided into two states, viz., Telangana and Andhra Pradesh, following the passage of the AP state Reorganisation Act in Parliament. The current state of Andhra Pradesh has 13 districts with a total population of around five crore as per the 2011 Census. The geographical area of the state is around 1.6 lakh sq km and is spread over six agro climatic zones and broadly five different soil types. Andhra Pradesh has a total cultivated area of 63.4 lakh hectare and the major crops are rice, oilseeds, pulses, cotton, maize, tobacco, vegetables, fruits, oil palm, etc.

The Gross state Domestic Product (GSDP) of the state at constant prices for the year 2014-15 is estimated at Rs 2,64,521 crore as against Rs 2,46,724 crore in 2013-14 indicating a growth of 7.21%. The growth in the agriculture sector for 2014-15 is 5.9%, which is less than overall growth rate as well as the growth rate in services sector which is 8.48%. However, it is slightly higher than the 5.25% growth rate in industries sector. The Primary sector in AP, which includes agriculture, horticulture, livestock, fisheries and forests and logging sub-sectors, contributes 17% to GSDP (all India 13.9%) as per 2013-14 year estimates at constant prices, though it employs 62% of its total population. Within the sector the growth rate as well as contribution of the livestock and fisheries sub-sectors isis increasing rapidly and put together has surpassed the contribution of agriculture sub-sector. Within agriculture, the contribution of horticulture is also rapidly increasing. This scenario overall points to the diminishing status and importance being given to traditional agriculture by the policymakers and provides a glimpse of the shift that is happening. The growth rate of agriculture sector over the last five years is presented in Table-1.

Table-1:
Year-wise Growth Rates in Agriculture Sector

Year	2010-11	2011-12	2012-13	2013-14	2014-15
Growth %	-1.14	1.36	7.69	6.94	5.90

The distribution of the workers engaged in agriculture and the landholdings present the picture of marginal holdings and inadequate distribution of land in the state. In Andhra Pradesh, as per 2011 Census, there are around 33 lakh cultivators whereas the agriculture workers amount to 1.09 crore, i.e., almost three times the number of cultivators. Female cultivators and agriculture workers comprise around 30% and 50% in respective categories. There are a total of 76,21,118 agriculture holdings covering around 80 lakh hectare (Agriculture Census 2010-11) of which 65% are marginal holdings, i.e., less than one hectare covering only 27% in area. Holdings other than small and marginal constitute 14% of holdings in number but 45% in area. The female operational holdings constitute 28% (21,53,195) in numbers and 24% (1932811) in extent, one of the highest in the country.

The Andhra Pradesh government recognises that the agriculture sector is in crisis and places the official figures of farmers committing suicides at 1,943 during 2004-14. However, the unofficial estimates are many times higher than this number. The government identifies the problems as stagnation in the productivity of major crops in recent years, increase in cultivation costs and non-increase in the farmer's income. The government, in 2014-15 has come up with a strategy paper for Mission on Primary sector, to transform the agriculture and allied sectors. The key interventions

identified are: (a) Increasing productivity of the primary sector, (b) Mitigating the impact of drought through water conservation and micro-irrigation, (c) Post-harvest management toreduce the wastage, and (d) Establishment of processing, value addition capacity and supply chain of the identified crops. However, it identifies the interventions mostly in the nature of technical and managerial aspects without accompanying interventions related to structural issues. Key aspects like identifying, recognising and making the actual cultivators (predominantly landless, small and marginal holders and women) the centre of policymaking with regard to all aspects related to agriculture are glaringly missing in the strategy paper.

ii) Anantapur District

Anantapur district is located on the southwestern side of Rayalaseema region of Andhra Pradesh state. The district has two distinguishing features; it has the largest geographical area among all the districts of Andhra Pradesh and also receives the lowest quantum of rainfall among all the districts of Andhra Pradesh and second lowest in India with a mean rainfall of 553 mm. The geographical location of the district in the middle of peninsular India, makes it the driest part of Andhra Pradesh. There are 63 mandals in the district which have been broadly divided into 11 blocks, based on agro-geological features. Rainfall is largely erratic and the district barely receives about 31 days of rain during the monsoon period. The district is also dominated by shallow red soils which are low in organic matter and nutrient content with low moisture retention capacity. Due to continuous droughts the ground water levels have gone down precariously and the areas under bore wells/wells have shown a declining trend. Hardly 13% of gross sown area is covered by irrigation support. Out of the gross irrigated area of 1.37 lakh Ha, canals accounted for 17.37%, tanks 1.36%, tube wells 70.83%, wells 10.02%, and other sources 0.42%. All the principal sources except canals are non-precarious. Although a number of water shed development programmes were implemented in the district, the problems of soil erosion and poor groundwater recharge remain as acute as ever.

The district has a total population of 40.8 lakh, of which rural population constitutes 72%. Cultivators and agriculture workers constitute around 20% and 43% of the total working population respectively. Out of the total cultivators (4,13,253) woman cultivators constitute nearly 33% but their share in agriculture workers is 55% out of total agriculture workers of 8,79,537 in the district. The share of agriculture and allied sectors in Gross Domestic Product (GDP) ofthe district ranges from 24.25% (agriculture – 16.88%, livestock – 6.30, forestry & logging – 0.88%, fishing – 0.18%). The total geographical area of the district is 19.13 lakh Ha. The cultivable land in the district is mostly under occupation of small and medium farmers. The total agriculture holdings in the district are 7,27,237 amounting to 12,72,187 Ha. Out of which the holdings in the name of women constitute 2,01,965 (28%) covering an extent of 3,21,362 (25%).

Agriculture, which is largely rained, forms the primary source of livelihood for almost 80% of the district's population. Anantapur is a major groundnut-growing district in the state, accounting for nearly 50% of the total area under groundnut crop in the state and contributing more than 60% to the state's output. Frequent droughts and uncertain rains during the last several years have led to highly fluctuating returns from agriculture causing distress migration of large numbers of people seeking survival outside the district. The worst affected in this scenario are the poor, comprising largely Dalit and tribal communities and women, who own very little land and livestock. Over the past decade or so, the district has also witnessed an alarming increase in the number of farmers committing suicides, burdened by debts due to increasing costs of cultivating groundnut and subsequent crop failure as a result of pest infestation and poor rains. The district had an extensive network of tanks and kunta's (small ponds) and dug wells which formed the main source of irrigation earlier, but these have been eroded and dried up due to overexploitation and neglect and have over time been replaced by bore wells, causing a sharp fall in groundwater tables in the district.

iii) Madhya Pradesh

Madhya Pradesh is the second largest state in the country in terms of area with total geographical area of 308 lakh hectare and total population of 72 million. It constitutes about 9% of the total geographic area of the country and six percent share in total population. Role of agriculture and allied sector including animal husbandry and fisheries is wider and more significant due to agrarian nature of the state economy. There are 11 agro-climatic zones, five crop zones and varying land use, soil types, rainfall and water resources, distributed across 51 districts in the state. Also, a significant proportion of tribals and Dalits reside in the state, together comprising 35% of the total state population. Almost half of the state's geographical area is under cultivation having net sown area of 154.55 lakh ha in 2012-13 and gross cropped area has gone up to 232.32 lakh ha in 2012-13.

The state GDP for 2014-15 at constant prices (2004-05 prices) is Rs 2,53,533 crore as against Rs 2,30,095 crore for 2013-14 with a growth rate of around 10%. The agriculture sector is contributing 24.9% to state's GDP. Madhya Pradesh has been one of the leading states in the country by exhibiting agriculture growth rate of 9.04% during the 11th Five Year Plan. Compared to other states, the growth rate in agriculture sector over the last three years has been consistently high and more than the growth rate of the overall GDP.

As far as operational land holding pattern in Madhya Pradesh is concerned, the highest proportion (44%) of land holdings belong to marginal farmers (less than 1 ha), followed by small farmers (1-2 ha) with 27% but together they constitute only 34% of the total operational area. According to Census 2011, 69.8% of the total workers and 85.6% of the total rural workers are dependent on agriculture for livelihood in Madhya Pradesh which comprises 31.2% cultivators and 38.6% agriculture labours. Women cultivators constitute 33% and agriculture workers constitute 48% in respective categories. In contrast to Andhra Pradesh, the ratio of total agriculture workers to total cultivators is relatively low. It is only around 1.25 compared to almost 3 of Andhra Pradesh. The proportion of landholdings by women in terms of both numbers and extent are very low, i.e., 9.6% and 7.6% respectively. Even in those holdings, small and marginal holdings constitute 80% but covering only 44% in terms of extent.

In its Madhya Pradesh Agriculture Economic Survey Report of 2014, the government has outlined the challenges facing the agriculture sector in the state and the proposed strategies for sustaining and furthering the high growth in the sector. Some of the major challenges mentioned include high dependency of its population on agriculture and allied sector as the prime source of income and employment generation, Fragmentation of land holdings into smaller units, low production and productivity of major crops and low proportion of gross irrigated area. The proposed strategies to address these issues include raising the crop productivity, enhancing income levels from farming with supplementary income andproviding gainful employment round the year by promoting allied activities like dairying, poultry farming, horticulture, fisheries and aquaculture, bee keeping etc within the village itself. It also proposes to promote sustainable agricultural development through efficient management of land and water resources, watershed development approaches and promote organic farming with necessary requisites like accreditation, testing and certification facilities for organic produce. However, these strategies appear to overlook the key issues of feminisation of agriculture, the need to re-orient the agriculture policies and processes of various schemes as per the needs of majority of actual cultivators and design appropriate and effective extension systems.

iv) Betul District

Betul district is located towards the extreme southern side of Madhya Pradesh. It has a population of 15.75 lakh (2011 Census).The district is predominantly rural, comprising of 10 administrative blocks, with 81 per cent of the population living in the villages. Of the total population, 39.4 per cent are STs. Historically, the district is tribal-dominated with Gond and Korku being the main tribes of the

area. Agriculture is a major occupation for a large number of households in the district. The average rainfall of the district is fairly high with 1083.9 mm. The main crops are wheat and chickpea. The total extent of land cultivated in Kharif season is around 4.25 lakh hectares and in rabi around 1.77 lakh making the gross cultivated area around 6 lakh Ha. The percentage of land under irrigation is up to 40%.Total cultivators are 2.54 lakhs of which 36% are woman cultivators whereas agriculture workers are 3.5 lakhs with 55 % of them being women. Cultivators and agriculture workers put together constitute around 78 % of workers where as in the case of women this share is 87% which establishes the higher participation of women in agriculture sector. In the tribal areas, large numbers of tribal women collect and sell firewood from the forests for their livelihood. In Betul district, the total number of agriculture holdings are 2,14,909 covering an extent of 4,74,319 Ha. Holdings on the name of women constitute 11.6% in number and 9% in extent which is very low. Small and marginal holdings constitute 62% in number and only 25% in extent which clearly shows the increased marginalisation of agriculture holdings as well as upward concentration of land.

Section–II:

GRB Analysis of ATMA Scheme in Andhra Pradesh and Madhya Pradesh

1. Overview of ATMA Scheme

Agricultural Technology Management Agency or ATMA is a registered society of key stakeholders involved in agricultural activities for sustainable development in the district by integrating research-extension activities and decentralising day to day management of Public Agricultural Technology System. At the District level, ATMA serves as a focal point for integrating research and extension activities and helps in decentralising the management of agricultural technology transfer.

During the period 1998-2005, extension reforms in India were pilot tested in 28 districts of seven states under the Innovations in Technology Dissemination (ITD) component of World Bank funded National Agricultural Technology Project (NATP). The purpose of NATP's innovation in Technology Dissemination Component was to pilot test new organisational arrangements and operational procedures in order to strengthen as well as decentralise the existing extension system. One of the key goals here was to decentralise decision-making to the district level through the creation of Agricultural Technology Management Agency (ATMA) all over the country. A related goal was to increase farmer input into programme planning and resource allocation, especially at the Block level, and to increase accountability to the farmers.The project process involved adopting bottom up planning procedures for setting the research and extension agency in order to make the technology dissemination farmer driven and farmer accountable. The extension delivery was oriented towards group approach catering to the location specific requirements of the farmers. Gender concerns were also given adequate emphasis under the project.A third major goal was to increase programme coordination and integration, so that the programme thrust such as farming System innovations, Farmer organisation, Technology gaps and Natural Resource Management could be more effectively and efficiently implemented.

The experiences from this experiment served as a basis to launch the Scheme **"Support to State Extension Programmes for Extension Reforms"** in its first phase from 2005-06. In the year 2007, both the National Development Council (NDC) and the National Policy for Farmers highlighted the need for revamping and strengthening the extension system to provide for improvements in the skill levels of the farming community and harnessing the potential of ICT in villages. The National Policy for Farmers further envisaged support to state governments for strengthening the extension machinery through re-training and re-tooling of existing extension personnel.On the basis of experience gained during the implementation of the Extension Reforms scheme from 2005 to 2009, the Government of India in 2010 further revised the centrally sponsored scheme "Support to State Extension Programmes for Extension Reforms" or ATMA by modifying and strengthening the earlier scheme.

1.1 Objectives and Key Activities

Some of the Key Objectives of the Revised Scheme are as follows:

- Providing innovative, restructured and autonomous institutions at the state/district/ block level.
- Encouraging multi-agency extension strategies involving Public/ Private Extension Service Providers.
- Ensuring an integrated, broad-based extension delivery mechanism consistent with farming system approach.

- Adopting group approach to extension in line with the identified needs and requirements of the farmers in the form of Commodity Interest Groups (CIGs), Farmer Interest Groups (FIG), Food Security Groups (FSGs) at village level.

- Facilitating convergence of programmes in planning, execution and implementation.

- Addressing gender concerns by mobilising farm women into groups and providing training to them.

- Moving towards sustainability of extension services through beneficiary contribution

Towards addressing the above objectives, some of the key activities under ATMA include training and capacity building of farmers in identified areas from seed to sale, including training in value addition, post-harvest and processing technologies, providing technical support to farmers by setting up farmer field schools and demonstrations at the panchayat or block level around frontline technologies in one or more crops and/or allied sector activities focusing on integrated Crop or pest management including field preparation, seed treatment, etc , organising exposure visits for farmers both within and outside the state, use of innovative communication technologies for disseminating information to farmers etc.

1.2 Strategy

The objectives and activities under the "Revised ATMA Scheme" are sought to be met through strengthened infrastructure as well as induction of additional personnel, at the state, district, block and village level through the institutional mechanisms as summarised below:

- Provision of specialist and functionary support at different levels viz., State Coordinator and faculty, supporting staff for SAMETI at state level, Project Director, Deputy Project Directors and supporting staff at District level and Block Technology Manager (BTM) and Subject Matter Specialists (SMSs) or Assistant Technology Managers (ATMS) at the Block level;

- Innovative support through a 'Farmer Friend' at Village Level @ 1 Farmer Friend per two villages;

- Revision in ATMA Cafeteria (i.e. list of extension related activities to choose from) to include some additional activities and to provide for enhanced unit costs for some of the activities;

- Farmers Advisory Committees at state, District and Block levels comprising a group of farmers to advise and provide inputs to the administrative bodies at each level;

- Support to SAMETIs for creating essential infrastructure; and

- Delegation of powers to State Level Sanctioning Committee (SLSCs), set up under Rashtriya Krishi Vikas Yojana (RKVY), to approve the State Extension Work Plan SEWP) prepared under the Extension Reforms Scheme.

The strengthened institutional arrangements along with key personnel at various levels are detailed below.

State Level

- The state Level Sanctioning Committee (SLSC) set up under Rashtriya Krishi Vikas Yojana (RKVY) is the apex body to approve State Extension Work Plan (SEWP) which forms a part of the State Agriculture Plan (SAP).

- The SLSC is supported by the Inter Departmental Working Group (IDWG). IDWG is responsible for day-to-day coordination and management of the Scheme activities within the state.

- The State Nodal Cell (SNC) consisting of the State Nodal Officer and the State Coordinator (along with supporting staff) ensure timely receipt of District Agriculture Action Plans (DAAPs), formulation of State Extension Work Plan (SEWP) duly in-

corporating Farmers' feedback obtained through State Farmer Advisory Committee and its approval by the SLSC. The SNC will then convey the approval and monitor implementation of these work plans by SAMETIs and ATMAs. The SAMETIs will draw-up and execute an Annual Training Calendar for capacity building of the Extension functionaries in the state. While doing so, the SAMETI will check duplication and overlapping of training content, training schedule as well as trainees.

District Level

ATMA is an autonomous institution set up at district level to ensure delivery of extension services to farmers. ATMA Governing Board is the apex body of ATMA which provides overall policy direction. ATMA GB is assisted by the District ATMA Cell comprising of the Project Director (PD) ATMA, Dy. PDs and Staff in the discharge of its functions. ATMA Management Committee is the executive body looking after implementation of the scheme. District Farmers Advisory Committee is a body to provide farmer's feedback for district level planning and implementation. With dedicated staff provided for the ATMA, it is envisaged as a district level nodal agency responsible for overall management of agriculture extension system within the district, including preparation of Strategic Research and Extension Plan (SREP).

Block Level

At the Block level, two bodies viz. Block Technology Team (BTT) (a team comprising officers of agriculture and all line departments within the block) and Block Farmers Advisory Committee (BFAC) (a group exclusively consisting of farmers of the block) function jointly (with the latter providing farmers' feedback and input) as part of ATMA. BFACs are meant to represent Farmer Interest Groups (FIGs) / FOs existing within the block on rotation basis to advise the arr. The Block ATMA Cell consisting of these two bodies, Block Technology Manager and Subject Matter Specialists will provide extension support within the Block, through preparation and execution of Block Action Plans (BAPs).

Village Level

- The Farmer Friend (FF) will serve as a vital link between extension system and farmers at village level (one for every two villages). The FF will be available in the village to advise on agriculture and allied activities. The FF will mobilise farmers' groups and facilitate dissemination of information to such groups, individual farmers and farm women directly through one to one interaction individually or in groups and also by accessing information / services on behalf of farmers as per need through Common Service Centres (CSC) / Kisan Call Centres (KCC).

- Commodity Interest Groups (CIGs), Farmer Interest Groups (FIGs) and Food Security Groups (FSGs) will serve as a nodal point for information and technology dissemination among its members.

- Wherever available under their respective Schemes, Agri-entrepreneurs will supplement the efforts of extension functionaries by making quality inputs available to the farmers and by providing them critical technical advice.

- Farm Schools serve as a mechanism for farmer-farmer extension at 3 to 5 focal points in every Block.

1.3. National Mission on Agricultural Extension and Technology (NMAET)

During the 11th Five Year Plan, there were 17 different schemes of the Department ofAgriculture & Cooperation (DAC) under which extension activities, dissemination of agricultural technology, adoption/ promotion of critical inputs, and improved agronomic practices were being disseminated. Under the 12th five year plan, the National Mission on Agricultural Extension and Technology (NMAET) was envisaged towards achieving greater convergence and amalgamation of activities under these various schemes. The NMAET consists of 4 Sub Missions as follows:

i. Sub Mission on Agricultural Extension (SMAE)
ii. Sub-Mission on Seed and Planting Material (SMSP)
iii. Sub Mission on Agricultural Mechanisation (SMAM)
iv. Sub Mission on Plant Protection and Plant Quarantine (SMPP)

The ATMA scheme, falling broadly under the SMAE is sought to be used as a medium to build convergence with all the other sub-mission, given extension and technology diffusion cross-cut across all the four sub-missions. Under NMAET, revised guidelines for the implementation of the ATMA scheme were issued by the DAC in 2014.

1.4. Funding and Coverage

Until 2015, a major part of the ATMA scheme was supported by the central government with the funding pattern being 90% by the central government and 10% by the state government. The 10% state's share consisted of cash contribution of the state, beneficiary contribution or the contribution of other non-governmental organisations. However, following the recommendations of the 14th finance commission, this funding arrangement has changed to 60:40 since 2015 with the ratio of contribution by the central being 60 % and by state governments being 40% towards the scheme from the beginning of the financial year 2015-16 onwards.

The ATMA scheme is currently operational in 639 districts in 28 states and 3 UTs of the country and the remaining rural districts are also proposed to be covered in the coming years.

2. Methodology for GRB Analysis of ATMA Scheme

The ATMA scheme in both Andhra Pradesh and Madhya Pradesh is sought to be analysed from a gender lens against the above objectives, strategies, planning and funding pattern visualised in the operational guidelines formulated forthe programme at the central level. On the implementation front, the ATMA scheme is largely guided by the detailed set of guidelines issued by the Ministry under the modified ATMA scheme in the year 2010 and revised later under the NMAET guidelines issued in the year 2014. Therefore, the scheme guidelines form the referral point for the analysis of field observations based on which some of the key gender related implications are sought to be drawn out here. As mentioned earlier, Anantapur district in Andhra Pradesh and Betul district in Madhya Pradesh have been selected for the analysis of the ATMA scheme. Additionally in Madhya Pradesh, two villages in Bhopal (rural) block were selected to enable a comparative analysis possible.

Some of the Key areas for GRB analysis of the ATMA schemes in both states include

- Understanding the Planning Processes
- Examining the Budgeting Processes (including convergence with other schemes)
- Implementation mechanismor structure at various levels
- Assessing the Impact of the Scheme for various stakeholders, especially woman farmers
- Analysing the Monitoring and Reporting Systems

2.1. Selection of villages for Study

Prior to the selection of study villages, discussions regarding the objective of the study was shared with key personnel and officials involved with the implementation of the scheme at the state and the district level. The selection of villages for the study of the ATMA scheme in both districts was based on criteria such as

- Socio-economic profile of the villages in terms of caste and land holding patterns
- Location of villages in terms of proximity to the block or district headquarters as well as interior villages

- Villages where different interventions under ATMA have been implemented such as farm schools, demonstrations, exposure visits, formation of FIG, CIG, FSG groups, research and extension linkages etc.

- Villages comprising male and female beneficiaries under ATMA

Based on the above criteria, the following villages were selected in Betul and Anantapur districts of the two states. In Madhya Pradesh, field visits were undertaken to two villages of Bhopal (Rural) district, located close to Bhopal city primarily for purposes of comparison.

State	District	Village	Block
Madhya Pradesh	Betul	Bagoli	Betul
		Donkhya	Betul
		Juwadi	Godadhongri
		Dhamori	Athner
	Bhopal	Teelakhedi	Phanda
		Narela Hanmant	
Andhra Pradesh	Anantapur	Shekshanpally	Uruvakonda
		Chinnapalamada	Tadipatri

2.3. Study Methodology

The study methodology adopted for data collection involved a combination of quantitative as well as qualitative data with the following components.

- Collection of secondary data related to study districts and villages through review of key plan and policy documents, district handbooks etc. This also includes review of other third party evaluation reports of the scheme such as those by NABARD.

- Field visits to 8 villages and focus group discussions with the beneficiaries of the ATMA scheme (both men and women) as well as those who are part of the CIG, FIG, FSG groups.

- Discussions and Interviews with Key ATMA staff (BTM and ATM) at the block level and Farmers Friend at the Village level.

- Discussion with members of ATMA farmer advisory bodies like DFAC and BFAC

- Discussions with PD and DPD, ATMA and other agriculture officials at the state level like Commissioner Agriculture (also the SNO of ATMA), and ADA and at the district level like DDA and JDA

- Visits to SIAET, Bhopal and SAMETI Hyderabadfor discussions with Extension and Gender faculty to understand the content and process of their training programmes to agriculture officers at various levels.

3. Understanding the Planning Process in ATMA

Planning forms the most critical component in the entire cycle of a project or scheme. Theoretically, planning under the ATMA scheme is supposed to be based on a comprehensive understanding of issues affecting farmers in various agro-ecological zones and in convergence with various line departments through the preparation of a Strategic Research and Extension Work Plan (SREP). The SREP is a comprehensive vision document identifying research/ extension priorities for every district, keeping in mind agro-ecological conditions and existing gaps in technology generation and dissemination in all agriculture and allied sector areas/ activities. The SREP therefore forms the basis in the process flow for evolving annual action plans from the block level upwards. In every district, the SREP is to be prepared and reviewed or updated once in every five years. SREPs are to be prepared for new districts in coordination with the line Departments, Krishi Vigyan Kendras (KVKs), Private Sector, Farmers and other stake-holders at the district level (page 6-7, ATMA Guidelines, 2014 under NMAET).

As per the NMAET guidelines 2014, SREPs are to form the basis for formulation of Block Action Plans

(BAPs) on an annual basis. Block Action Plans are then to be consolidated at the District level to prepare the District Agriculture Action Plans (DAAPs). District Plans are to be worked out in such a manner that these serve as subset of the Comprehensive District Agriculture Plans (CDAP) prepared for the District under Rashtriya Krishi Vikas Yojana (RKVY). The DAAPs are to be consolidated in the form of State Extension Work Plan (SEWP) which then forms a part of State Agriculture Plan (SAP).

3.1. Need Identification and Planning: Gaps in theory and practice

Discussions with the ATMA personnel, including the Project Directors overseeing the programme at the district level indicates that there are wide gaps in the planning process as visualised under the guidelines and the actual process followed in practice. To begin with, in both the study districts, i.e., Betul and Anantapur, discussions reveal that the SREP documents for these districts were prepared several years ago and have not been revised in the recent past. Annual plans at various levels are prepared every year without much link or basis to the SREPs. While the process of preparing the SREP allows space for identification of differential needs and priorities of farmers in various contexts, the extent to which this process is designed to reflect the specific needs and concerns of woman farmers and workers in various settings remains quite unclear. This is because a large part of the current staff in ATMA (especially at the block or district level) have been recruited in the last 4-5 years, while other senior officers have been transferred and posted afresh and most of them have not been directly associated or involved in the preparation of the SREPs for their districts.

Discussions during field visit also indicate that the existing personnel in ATMA are both overworked and also lack capacities for preparing a comprehensive document like SREP. For example, one of the Project Directors of ATMA interviewed during this study shared that, *"it is better if the preparation of SREP is is outsourced to a specialised agency. Preparing such a comprehensive, multi stakeholder document is clearly beyond our capacities and time. Further, while the SREP is conceived well at a theoretical level, it appears to be impossible to practically operationalise the same by bringing in all the line departments on board to converge our plans and budgets".*

In practice, the manner in which annual plans are made does not offer much room for purposive and participatory planning with different sections of the farming community such as SCs, STs and especially women who farm under various agro-geological conditions, within a district. Discussions reveal that draft annual plans under ATMA for every agricultural year are prepared during the beginning of the year in January-February. The annual plans are often prepared separately by all the line departments such as agriculture, animal husbandry, horticulture, fisheries, sericulture etc. rather than collectively by integrating cross cutting areas related to training, extension or research under each department. There are no indications of purposive planning with the key representatives and personnel of all these departments coming together for the planning process. Following separate planning by each of the above departments, their requirements related to extension are clubbed under broad activities such as training, demonstrations; exposure visits etc and then passed onto the ATMA and these are then budgeted accordingly under ATMA. During field visits to the study districts, the block level functionaries of ATMA shared that planning often tends to be a random, technical exercise where the broad activities under ATMA for the previous year are revisited and the number of trainings, exposure visits and demonstrations are just revised by adding a few new themes or by changing the number of such activities for the next year. Often, there is not much scope for a detailed review of what interventions had worked effectively or what did not and then planning accordingly.

3.2. Role of Women in ATMA Committees

The revised ATMA scheme has provisions for participation of farmers, especially woman farmers in planning and decision making bodies from the block level upwards with 30% of the membership in these

bodies being reserved for women. At the block level, the Block Farmers Advisory Committee (BFAC) acts as an agency or platform for providing farmers' feedback and inputs to the Block Technology Team (BTT) for preparation / compilation of Action Plans and for prioritisation of ATMA related activities at the block level. The BTT is headed by the senior most official of the department at the block level. As per the guidelines, the BFACs need to be formed with around 20-25 members covering different categories of farmers within the given Block, with due representation to at least 8 woman members (30%)drawn from sectors such as agriculture, horticulture, livestock and two members from the Mahila Mandal apart from others belonging to the weaker sections of the society (page 70, NMAET guidelines 2014). The BFAC members are expected to meet atleast once a month during the peak agricultural season and quarterly during the lean season.

Representation of Women in BFACs (Betul District)*		
Block	Total Members	Women Members
Betul	24	8
Shahpur	22	9
Chicholi	22	9
Ghoda Dongri	21	8
Multai	23	8
Amal	22	9
P.Pattan	22	8
Bhainsdehi	22	8
Bhimpur	24	9
Athner	24	9
TOTAL	**226**	**85**

Representation of Women in BFACs (Anantapur District)*		
Block	Total Members	Women Members
Ananthapur	24	8
Tadipatri	24	2
Gotty	25	6
Uravakonda	20	9
Dharmavaram	21	8
Kalyandurg	Yet to form BFAC	
Rayadurg	Yet to form BFAC	
Penukonda	21	7
Hindupur	27	8
Kadiri	20	9
Madakasira	25	8
TOTAL	207	65

*Source:Office of Deputy Project Director, ATMA, Anantapur District
*Source: Office of the Pariyojana Sanchalak, ATMA, Betul District

Gender disaggregated data related to the number of woman members in the BFACs in both the study districts reveals the following. The above data reveals that a little over 30% of the members in all the BFACs are women in both the study districts. However, discussions with woman members of the BFACs reveal that their actual participation in these farmer advisory committees is largely nominal and not very effective. For example, Ms. Saraswathi, a member of the Anantapur BFAC shares that meetings have not been held over the last 6 months even while monthly meetings are stipulated by the guidelines. "*Even when meetings are held, we need to travel long distances to participate in these meetings at the cost of our work getting disturbed. Sometimes, they pay us the travel charges but sometimes they don't. Our opinions and problems are not given much importance in these meetings.*" The above data also reveals that the BFACs have been formed in only 9 out of 11 blocks in Ananthapur district. In Betul district too, woman members comprise on an average around 37% in all the block level farmer advisory bodies. Discussions with some of these members in Athner and Ghoradongri blocks reveals that while the BFAC meetings are held quite regularly, women do not always get to play an active role in these committees and are often unaware of their role and responsibilities on the committee. Also, selection of woman members in these committees is often from better off, land owning communities and they do not represent the concerns and priorities of women from marginalised sections such as STs in the area.

In the District Farmer Advisory Committees (DFACs) again in both the study districts, there is a similar trend with 30% of the members here being women. In the Betul DFAC, 8 out of 22 members are women while in Anantapur district, women are underrepresented with only 3 out of 22 members being women. However, the extent to which there are coordinated efforts to ensure that the inputs from farmers, especially woman farmers in these advisory committees actually feed into the plans

and budgets approved by higher level bodies such as the ATMA Governing Board (GB) or the Management Committee (MC) at the district level is questionable. This is particularly so given the irregular and largely arbitrary manner in which the BFAC meetings appear to be held. Further, there is nothing in the guidelines to say that the inputs from these farmer advisory committees will mandatorily be given consideration in approval of plans and budgets by higher level bodies. As per the guidelines, the administrative bodies such as the GB or MC will consider suggestions given by these Advisory Committees based only on the technical feasibility and financial viability (including availability of funds). Further, the guidelines say that *"if inputs are not received from these Advisory Committees before the meetings of BTT, ATMA (GB and MC), in time, the respective administrative bodies need not delay their deliberations and decision making solely on this account"*. Discussions with ATMA personnel in Anantapur also revealed that the same members continue on various farmer advisory committees while the guidelines stipulate that they need to be changed or rotated after the expiry of their term every 2-3 years. According to the staff, there is also male resistance to including woman members in the committee with block level officers of the department often rejecting the names of woman members proposed by the ATMA staff and continuing with existing members through mere resolutions being passed, extending their term on the committee.

4. Analysing the Budgeting Process

An analysis of the budgeting process within ATMA along with the allocations and expenditure patterns reveals some important issues.

Under ATMA, the process flow for approval of plans and release of budgets is as follows. To begin with, block action plans (BAPs) are prepared every year by February at the level of various blocks and sent to the office of the Project Director, ATMA for approval. The BAPs are then integrated into the District Annual Agriculture Plans (DAAP) and then sent to the state level. The DAAPs from all districts are integrated into the State Extension Work Plan (SEWP), which in turn becomes part of the State Agriculture Plan (SAP). The State Level Sanctioning Committee (SLSC) set up under Rashtriya Krishi Vikas Yojana (RKVY) is the apex body to approve SEWP. The SLSC is supported by an Inter Departmental Working Group (IDWG). IDWG is responsible for day-to-day coordination and management of the Scheme activities within the state. The State Nodal Cell (SNC) consisting of the State Nodal Officer and State Coordinator (along with supporting staff) of ATMA ensure timely receipt of District Agriculture Action Plans (DAAPs), formulation of State Extension Work Plan (SEWP) duly incorporating Farmers' feedback obtained through the State Farmer Advisory Committee (SFAC) of ATMA and its approval by the SLSC. The SNC will then convey the approval and monitor implementation of these work plans by SAMETIs and ATMAs. The consolidated State Extension Work Plan, developed at state level is submitted to GoI for approval. On approval, the GoI releases funds to state and in turn the funds are released to districts and thereby to blocks for implementation of various activities as per the plans.

However, the actual experience of planning and budgeting as discussed in the previous section reveals that planning along with budgeting are often focussed on physical and financial targets for every year which are often carried out in an arbitrary manner. Discussions with the personnel at the district and block level indicates that the budgeting process flow outlined above often happens without much integration of inputs of farmer advisory committees at various levels and is not based on any purposive planning aimed at identification of the needs of different groups of farmers, especially women.

4.1. Budgetary Allocations, Releases and Expenditure

The budgeting process, as discussions reveal, is based on working out the broad activities under ATMA such as training and capacity building of farmers, farm schools and demonstrations, exposure visits etc. At each block, the consolidated budget for the total number of these activities is worked out and sent to the district level where it is aggregated. For ex-

am-ple, discussions with the Project Directors and Deputy Project Directors of ATMA in both the study districts indicates that based on the average number of blocks within these districts (10-11 blocks), the total budget projection for every financial year is around Rs 3 crore, but the actual budgetary allocations and release is far lower than what is often projected. For example, the budgetary allocations for both the states and the two study districts over the last two years reveal the following.

Allocations for ATMA (Rs. in Lakh)

State/District	2013-14	2014-15
Madhya Pradesh		1576.57
Betul District	95.75	159.11
Bhopal (Rural) District	67.85	77.84
Andhra Pradesh	3790.934*	3002.322
Anantapur	126.524	149.920

*Office of Commissioner of Agriculture, Vindhyachal Bhavan, Bhopal
*Directorate of Agriculture, GoAP, Hyderabad (Data for undivided State of AP

The intra-district allocation of budgets also reveals that the total budget released is allocated equally to all blocks within the district irrespective of the size of the block or in response to the specific needs of farmers, especially belonging to SC, ST sections in these areas. In Betul district for example, around 8 out of 10 blocks are tribal blocks. However, the size of these blocks in terms of number of villages or the location of some of the villages which are quite interior and difficult to access often translates into varying implications in terms of budgeting around extension related activities. A look at the budgetary allocations above also shows that Bhopal rural district, in comparison, comprising of only two development blocks (Phanda and Berasia) received almost 80% of the funding that Betul district received during the two budget years mentioned above. In Anantapur district again, a closer look at the budgetary allocations revealed that budgets allocated to the district under the scheme were being equally allocated to all the 11 blocks, irrespective of their size. Budgetary allocations that are 'scale neutral' as in this instance paper over context specificities, with often negative implications for woman farmers. Secondly, budgetary allocations also do not factor in the percentage or population of woman farmers in each of these blocks. The additional cost of reaching out to woman farmers in interior or far flung villages is often not factored into these allocations. Allocations in this sense are also gender neutral. Further, equal allocation often impedes planning and implementation of any context specific activities under the scheme in these areas.

While expenditure details as against the budgetary allocations for ATMA were not available for Betul district, figures for Andhra Pradesh and Anantapur for the years 2012-13 and 2013-14 reveal that the expenditure for the above years was quite lower than the amount allocated. For example, for Andhra Pradesh, figures show that out of Rs 30 crore released for the year 2014-15, only a little over Rs 18 crore was actually spent in all the 13 districts together. Figures for Anantapur for the same year reveal that out of Rs 1.49 lakh released to the district, only around Rs 1.13 lakh were actually utilised or spent. This also further indicates poor planning or ineffective implementation of various activities. A third party evaluation of the ATMA scheme in Andhra Pradesh carried out by the NIRD for the years 2010-11 and 2011-12 also further attests to the above findings. To quote from this evaluation report, *"Government of India has released an amount of Rs 2,023 lakh during 2010-11 and Rs 1,700 lakh during 2011-12 towards implementation of ATMA scheme. About 56% in 2010-11 and 44% in 2011-12 of the central funds released had been utilised. No utilisation of funds under innovative and other innovative activities at state level during 2010-11 and 2011-12 and under innovative activities at district level during 2010-11"* (Evaluation Report of ATMA, NIRD, 2012). The staff at the extension department at the Directorate clarified that it is a common practice to adjust unspent amount at the end of the annual financial year as revalidated amount against the budget for the next year.

The cafeteria system under ATMA is positive in terms of the rationalisation of the number of person days for various activities such as training, exposure visits, etc. The cafeteria described in the scheme guidelines has a set of non-prescriptive activities to be undertaken as per local needs and conditions that each state can choose from. However, the cost

norms for some of the farmer oriented activities poses a challenge when such activities are taken up in interior and tribal villages where the travelling distances are longer and not easily accessible. In short, while the cafeteria is non-prescriptive in nature, the cost norms laid down for some of these activities such as Rs 4,000 for each demonstration, for example, are restrictive. A breakdown of the total budget allocated to districts also further reveals that a greater part (55-60%) is spent towards meeting salaries and other administrative expenses of the personnel, leaving a smaller part for the actual implementation of various activities under the scheme. Delayed release of funds as a result of delayed submission of utilisation certificates by the districts was also pointed out as a major reason for staggered implementation of planned activities in the district. Since most of the activities under ATMA are planned around the agriculture cycle, delayed release of budgets often has an adverse impact on these activities with farmers in any area. Interactions with personnel also revealed that while the central share of the funds under the scheme are released on time; delay in release of state share of funds also negatively affects implementation.

4.2 Allocations and Expenditure on Women under ATMA

Analysis of budgets also shows that despite 30% allocations to woman farmers and woman functionaries within the scheme, there is no attempt to ensure that the allocated budgets are spent meaningfully on women through factoring in the priorities and needs of women in the overall planning and budgeting process. The ATMA cafeteria makes several of the farmer oriented activities such as preparation of SREPs, trainings, farm schools, formation of village level groups such as FIGs, FSGs etc mandatory while ensuring coverage of 30% woman beneficiaries in all these activities. However, there are no mechanisms to track allocations and expenditure separately for woman beneficiaries at various points in the process of the scheme implementation. The cafeteria also does not mandate number of person days for woman-oriented activities such as need identification processes, awareness building work, group formation, skill training exclusively for woman groups, etc. Discussions with ATMA personnel also reveals that in the event of budgets allocated to women remaining unspent (which is again largely notional), the money is often used up for other activities and is difficult to track since there is no separate head of account for woman beneficiaries, unlike the amount allocated to SC and ST beneficiaries, which when unspent lapses and cannot be diverted or used for other activities. A look at the monitoring and reporting formats reveals that while there is data related to number of women participating in various activities under ATMA, there is no gender disaggregated data to show the actual amount spent on the number of woman farmers participating in each of these activities under the scheme.

Details of Beneficiaries under ATMA Interventions (2013-15)

District	Year	Total Beneficiaries	Women	Men
Anantapur	2013-14	4728	1040	3688
	2014-15	5056	1466	3590
Betul	2013-14	7358	1844	5514
	2014-15	9518	2955	6563

Source: Directorate of Agriculture, GoAP, Hyderabad,
Office of Pariyojana Sanchalak, ATMA, Betul District

For example, if one looks at the ATMA related data illustrated in the above table for the two study districts, it shows that out of the total number of beneficiaries under the scheme, close to 30% of the beneficiaries are women. The assumption or inference here from this data is if woman farmers constitute 30% of all the beneficiaries in all ATMA related activities, then this is taken to mean that 30% of the budgets allocated were indeed spent on them! Further, Project Directors interviewed during this study also shared that when ATMA budgets are allocated to other line departments for carrying out extension related activities, it is often difficult to track the percentage of these budgets utilised specifically for woman beneficiaries since these departments do not give narrative or separate expenditure statements for the same. Overall, what emerges here is that while the scheme guidelines specify coverage of 30% of woman beneficiaries under various activities, there are no clear guidelines or formats related to how such an expenditure pertaining to woman

beneficiaries might be maintained which are also in turn backed by narrative reports.

In Madhya Pradesh, separate Gender Budget Statement (GBS) is generated every year indicating percentage of expenditure on woman beneficiaries under various schemes of the government. However, a look at the GBS of the agriculture department for the year 2015-16 shows 100% expenditure on women under almost all the state and central schemes, including the sub-mission on agriculture extension or ATMA. The generation of GBS in this manner is not useful since it does not meaningfully capture or reflect the quantum or percentage of expenditure on women as compared to men.

5. Convergent Planning and Budgeting

As per the guidelines, ATMA is conceived as a programme aimed at effective delivery of extension services through convergence with other centrally supported programmes and schemes as well as state schemes. Analysis of the planning and budgeting processes in ATMA also reveals an overall absence of meaningful convergence between ATMA and other such schemes and sub-missions of the government.

One of the primary reasons for the lack of convergence appears to be that each of the line departments work with their own mandates, schemes and budgets despite the fact that the objectives along with several components of these schemes overlapping with that of ATMA. In Andhra Pradesh for example, there are several state schemes such as *'Polam Badi'* (farm school), Integrated Nutrient Management (INM), *'Chandranna Rythu Kshetram'* (farmer demonstration plots), farm mechanisation, etc., that have components of extension and training that overlap with ATMA. Furthermore, all these schemes have a mandatory allocation of 33% of the total budgets for woman farmers. In terms of implementation though there is no convergence between these various schemes and ATMA. Similarly, the Madhya Pradesh Women in Agriculture (MAPWA) is a long running programme aimed at addressing the specific needs and involvement of woman farmers but one does not see much cross sharing of learning or insights from this programme feeding into other schemes, including ATMA.

The guidelines clearly state that similar training and field extension related components in other programmes of the DAC and state governments are to be implemented through ATMA. Funds earmarked for such activities under different sub-missions of NMAET, missions and schemes/programmes will be utilised through ATMA. Similarly, ATMA funds will also be suitably used to cover training and field extension objectives/activities of other sub-missions, missions and schemes/programmes. ATMA personnel are also expected to be effectively utilised for extension related activities under various sub-missions. Commenting on the lack of convergence in planning and implementation even under the sub-missions of NMAET, one of the project directors of ATMA shares, *"While the NMAET guidelines envisage convergence of all similar components under the four sub-missions under ATMA, except the sub-mission on agriculture extension, the planning, budgeting and funding under all the remaining three sub-missions is under the Deputy Director, Agriculture and there is barely any convergence"*. ATMA personnel in both the study districts also share that all the line departments at the district level see ATMA as another, separate programme rather than as a mechanism to complement and converge all their ongoing activities. Citing the example of the sub-mission on agriculture mechanisation (SMAM) under NMAET, one of the ATMA BTMs shares that *"The SMAM has a huge potential to be integrated with ATMA but we have no idea how many farmers have been allotted the Custom Hiring Centres under this sub-mission"*.

The preparation of SREPs at the district level also forms the key to avoid duplication of schemes with-similar objectives and funding and to ensure wider coverage both in terms of number of farmers and range of activities. In practice though, with the SREPS pending revision, there appears to be no mechanism for functional convergence of various departments and schemes, especially at delivery point which in turn also negatively hampers the overall implementation of these schemes, including ATMA.

6. Implementation Mechanism under ATMA: Issues and Challenges

Perhaps the most critical link in the translation of any programmatic objectives into action is the presence of committed frontline staff at the ground or field level. During the first five years following the introduction of ATMA (2005-6 up to 2010), the scheme did not provide for dedicated extension personnel at the state, district and block levels. The work pertaining to ATMA was mostly being looked after by officers of state departments as an additional charge. The modified ATMA scheme along with the guidelines issued in 2010 importantly notes that the extension system below the block level is not optimal and consequently, the implementation of the scheme in the field could not show the desired impact. On the positive side, the introduction of the modified ATMA scheme with guidelines issued in 2010 and further revised in 2014 has meant additional infrastructure as well as induction of more extension personnel at various levels and especially at the block level. It is, therefore, important to examine the implications of these changes at the ground level, especially for woman farmers.

6.1 Operational Mechanism at the District Level and Below: Some Issues

At the district level, each ATMA unit is expected to function under the overall supervision of a Project Director (PD), ATMA, who will be responsible for management of agricultural extension services within the district including holding of regular meetings of ATMA Management Committee (MC) and ATMA Governing Board (GB). The PD will in turn be assisted by two Deputy PDs who would work under the administrative control of PD, ATMA. The recruitment of woman officers either as PDs or as one of the DPDs is not mandatory as per the guidelines. In Bhopal, ATMA is headed by a woman PD and a male DPD, while in Betul both the PD and the DPD are men. In Anantapur, the position of a PD has been lying vacant for a long time with one DPD, who is also a male officer being appointed as in-charge PD. The district currently has a full time PD who was appointed around four months ago. The PD-ATMA of Bhopal district shares that, *"ATMA scheme enabled the creation of new positions in the cadre of DDs in several districts because of which 50 new posts were created. Out of these, five officers appointed as PDs are women. Being appointed in the cadre of Deputy Directors is something that we as woman officers would have had to wait for another four-five years"*.

However, discussions with all the PDs and DPDs indicates that in the day to day operation of various activities at the district level, the Deputy Director – Agriculture (DDA) who heads the Department at the district level is more powerful or has more authority. The reason for this is that the department has more funding and far more personnel than ATMA. It was also pointed out that since the department officials had been involved in the implementation of ATMA for the first five years after its introduction, they continue to hold sway and authority on several aspects related to its implementation. Moreover, budgets related to several other central schemes such as RKVY, NFSM, NMSA as well as other sub-missions under NMAET are directly under the administrative control of the DD. Further, all the state schemes including licensing powers related to seeds, fertilisers, pesticides, etc., resides with the DDA's office. According to the officers, while all of the above schemes entail extension related components, ATMA tends to be seen as another separate scheme or programme by the personnel of the agriculture department. Therefore, the autonomy envisaged under the guidelines is more notional than functional since there is not much freedom for independent planning and convergence of various activities. ATMA staff at the block level in Anantapur also shared that they had very little functional autonomy in planning and prioritising various activities, including budgeting as well as in drawing and spending money for various activities such as trainings, demonstrations, etc. Department officials such as the Assistant Directors (ADs) and the Agricultural Officers (AOs) at the block level were those who took all the major decisions. Further, in selection of villages too for various activities such as formation of groups, etc., staff shared that there

was political pressure to select the villages adopted by Members of Parliament under the 'Sansad Adarsh Gram Panchayat'.

Gender Disaggregated Data of ATMA Staff at Block Level

District	Block Technology Managers (Block Level)		Assistant Technology Managers (Block Level)		Farmer Friend (Village Level)	
	Male	Female	Male	Female	Male	Female
Betul	7	3	8	4	550	119
Anantapur	8	1	8	5	-	-

As per the guidelines, the block level staff of ATMA such as the BTM, ATMs and the FFs form part of the Block Technology Team (BTT) which is convened by the senior most official (often the AD) at the block level. Even in matters related to selection of woman farmers as members of BFAC, the above officials had more say and decision making powers. The above findings thus suggest that while ATMAs are theoretically visualised as autonomous, registered bodies at the district level, they do not appear to have much functional and operational autonomy in practice.

6.2 Staffing, Recruitment and HR Issues in ATMA

At the block level, the revised guidelines provide for the recruitment of one Block Technology Manager (BTM) to coordinate all ATMA related activities and two-four subject matter specialists or Assistant Technology Managers (depending on the size of the blocks) from multiple backgrounds such as agriculture, fisheries, horticulture, animal husbandry etc who can provide exclusive extension related services to farmers in these areas. The modified ATMA scheme also provides for recruitment of farmer friends (FF) at the rate of one such person for every two villages. The FFs are primarily responsible for creating awareness, mobilising farmers into groups at the village level and them suitably on agriculture and allied activities. For the recruitment of BTMs and ATMs, the guidelines do not provide for any reservations for woman personnel but at the level of farmer friends, preference is to be given to woman farmers who have the requisite qualification (senior secondary or high school pass outs) and required experience as farmers.

Based on focus group discussions with ATMA staff in the two study districts, gender disaggregated data of the ATMA staff was worked out which is as follows:

As the above data reveals, there are more men at the level of BTMs who coordinate all the ATMA related activities at the block level. Out of 11 blocks in Anantapur district, this data shows that the positions of two BTMs are vacant while in the rest, it is mostly men in these positions. Even while several positions of ATMs are vacant and yet to be filled, there are more women in the position of ATMs in both the districts as the above data indicates while there are far fewer women as farmer friends *(Krishak Mitra)* as compared to men in Betul district. In Anantapur, there are no farmer friends. Discussions revealed that since Andhra Pradesh already had a system of *'Adarsha Rythu'* or progressive farmers in place at the village level, no farmer friends were recruited specially under ATMA. However, most of these progressive farmers were again men who are also politically well connected at the village and panchayat level. Around the time of this study, the system of progressive farmers was being done away with and replaced by a cadre of Multi-Purpose Extension Officers (MPEOs). The newly recruited MPEOs are mostly graduates trained in agriculture and other allied fields. Each of them is assigned an area of 1,000 hectares (2,500 acres or roughly two-three villages) for coverage of extension activities and they are paid a monthly salary of Rs 8000. Data from the Directorate of Agriculture shows that a total number of 3,838 MPEOs have been recruited to date, with 1,766 of them being women.

The above data also shows that the existing staff under the scheme is quite inadequate in comparison to the physical area that is expected to be covered at the block level. For example, there are 1,356 villages across the 10 blocks in Betul district. Further, all blocks are not similar in size and vary in terms of number of villages and physical access. In Anantapur, the size of the blocks is even higher with each block having around 250 villages on an average. This

means that the contact density of technically trained staff at the higher level with the farmers directly would most likely be very minimal in larger blocks. Discussions also revealed that the recruitment of key ATMA staff such as the BTM and ATM on a contractual basis is also a major disincentive for qualified staff from being recruited as well as retained in the programme. In Madhya Pradesh, discussions with ATMA staff revealed that the government has taken a decision to recruit all the ATMA staff afresh but a formal notification related to the same is pending. While the reasons for fresh recruitment appear to be largely unclear, it has created insecurity amongst existing staff, who fear losing their contractual jobs. In Bhopal, the staff shared that their current contracts have not been renewed and payment of salaries was also pending for over two months and the mandatory annual increase in salaries by 10% was also not being implemented. In Anantapur too, staff shared that the issue of contractual employment was one of the key issues shared in the ATMA union meeting that is organised by the union members annually in Delhi. One of the decisions taken in this meeting was to represent the issue to the concerned ministers, both at the central and state levels to seek clarity and their intervention in the matter.

Women staff of ATMA also shared that lack of clear HR policy within ATMA related to recruitment, retention, promotion, increment in salaries, arrears, etc., was a major issue. Women staff shared that while the guidelines provided for 30% allocation to women extension functionaries, there was no clarity about how this was being operationalised. Absence of maternity leave and related provisions as well as lack of vehicles to undertake travel to remote villages in the block were specifically cited as key issues by the woman staff. Women staff, especially in the capacity as ATMS, also shared that they had limited opportunities to go to the field. In Anantapur for example, most of the women ATMs were often attached to the Assistant Director's (AD) office and had limited exposure to the field. One of the ATMs for example shared that *"for the first year after my recruitment, I was entirely confined to the ADs office and was barely assigned any work, despite my professional training and background. There were days when I would just go to office and go back home without doing any work. I actually felt like a security guard for the ADs office."*

The lack of adequate woman staff at all levels, especially as farmer friends is again a matter of concern since they form the most critical interface between the scheme and the farmers at the village level. While the guidelines provide for recruitment of woman farmer friends, findings from the field in Betul reveal that the qualification conditions related to secondary/high school pass out is often a major impediment for recruiting woman farmers. Further, an annual honorarium of Rs 6000 for these FFs is also quite inadequate for covering even the travel and other contingency expenses. Field findings further indicate that those recruited as FFs are often political appointees (coming through the panchayats), mostly well-off farmers who use the opportunity to build their own contacts and goodwill with officials at various levels.

6.3. Capacity Building of Staff, HR Policy

From the point of view of mainstreaming gender concerns into the scheme, perhaps the most important provision visualised as under the revised guidelines is the recruitment and positioning of Gender Coordinators at the state Level. As per the 2014 guidelines, one Gender Coordinator is to be assigned to each state to provide overall support and capacity building for mainstreaming gender concerns in the scheme. This Coordinator will function under the overall supervision of the State Nodal Officer (SNO) of ATMA and continuously provide support and gender related strategies to the SNO through conducting studies, collection of gender disaggregated data, etc. However, positions of Gender Coordinator are lying vacant in both the states. This also negatively affects gender mainstreaming processes in the scheme at various levels.

Discussions with key ATMA staff at the state, district and block levels in both the states also revealed that their overall understanding of gender issues in the agriculture sector as well as key challenges and

problems confronting woman farmers was quite poor. Most of the staff, including officers at the senior level too had little or no exposure to gender issues through training or capacity building programmes. Opportunities for such capacity building were also limited with officers and staff being nominated for such training programmes on a rotation basis. The State Institute for Agricultural Extension and Training (SIAET) in Bhopal and the State Agricultural Management and Extension Training Institute (SAMETI) in Hyderabad were the two nodal agencies in both the states involved in conducting regular trainings and capacity building programmes for the staff of agriculture and allied departments. However, discussions with some of the faculty in these institutions revealed that the training courses on gender were often limited to one-and-a-half hour sessions involving basic conceptual inputs on gender along with discussing issues like gender based division of work in agriculture, etc. Practical application of learning and inputs into purposive planning or gender responsive budgeting, programme implementation, monitoring processes, etc., were almost negligible. This was largely because most training programmes were one off events with often no follow-up support or long term capacity building and hand holding processes in place.

Discussions with the staff at the block level also revealed that most of the staff had not even gone through the mandatory induction training around the guidelines and objectives of the ATMA scheme. While the guidelines and cafeteria provide for mandatory induction training and refresher courses for extension functionaries along with cost norms and number of days for each of such courses, discussions with ATMA staff in both districts reveal that most of them had gone through induction trainings, including orientation to scheme guidelines almost a year after being recruited. Most of the staff shared that they had personally oriented themselves to the guidelines and sought clarification from senior staff or officials whenever required. None of the frontline staff had ever participated in any training programme on gender issues and most of them confessed that they made attempts to reach out to woman farmers because of the mandatory provision in the guidelines related to 30% coverage of woman beneficiaries in all the activities under the scheme. Coming from technical backgrounds, none of these staff had any prior exposure or training on gender issues at the college or university level. The lack of orientation to gender perspectives at various levels has significant implications for gender responsive planning and budgeting processes under the scheme.

The overall absence of any meaningful engagement with gender issues in the scheme points to the basic need for a thorough gender orientation of all the officers and key staff of the scheme through a well planned and phased out capacity building process focussed on gender issues at various points throughout the programme cycle. Recruitment of gender coordinators not only at the state level but also at the district levels is important to hand hold gender mainstreaming related processes at various levels.

7. Examining the Impact of the ATMA Scheme on the Ground: Some Experiences

ATMA activities are broadly divided into Farmer Oriented Activities, Farm information Dissemination, Research-Extension-Farmer (R-E-F) linkages and Innovative Technology Dissemination activities. Given the limited time and resources, the focus of this study was limited largely to looking at farmer oriented activities such as mobilisation of farmer groups, women food security groups, training/exposure visit of farmers, arranging demonstrations etc which are broadly aimed at empowering farmers. The impact of the above activities are analysed through the use of illustrative case studies and focus group discussions and experiences of farmers in the study districts in an attempt to draw out some of the gender related implications.

7.1. Impact of Demonstrations around Improved Farming Techniques

One of the key activities taken up under ATMA involves organisation of demonstrations on new and

improved farming techniques in agriculture and allied activities with the primary aim of enhancing productivity and farm incomes while ensuring that the farmers also adopt these techniques in the long run. As part of this study, field visits were undertaken to villages where some technology related demonstrations were either underway or had been successfully completed in the recent past in order to understand farmers experiences of the same. With the help of the ATMA officials, two villages were selected for looking at the impact of demonstrations in Anantapur district and the experiences of farmers in these villages are captured here as follows.

Case Study 1: Field Demonstrations on Micro-nutrient Management in Groundnut Crop

Shekshanpally Thanda *(a separate settlement comprising primarily of tribal households of Lambada Tribal Community)* is a habitation falling under Uruvakonda block of Anantapur district, comprising roughly 100 households, all belonging to the Lambada tribal community. Agriculture and wage labour form a major source of livelihood for almost all the households here. Paddy, groundnut, jowar, Bengal gram, foxtail millets and fruits like papaya, sweet lime, etc., are cultivated in the village. Almost all the households cultivate on lands that were assigned to them by the government during the period of the 70s. Average landholding is around 3-5 acre. Agriculture is mainly rain fed with bore wells forming a supplementary source of irrigation. Every household in this habitation has dug around 4-5 bore wells, while incurring a huge volume of private loans for the same. However, with groundwater tables rapidly depleting in these areas, over 100 bore wells in this village have gone dry and become defunct over the years.

Over the past 10-15 years, mono-cropping of groundnut crop has led to gradual fall in annual yields in the region. The major cause for poor or depleting yields is also the gradual loss of soil fertility due to excessive use of chemical fertilisers and pesticides for cultivating groundnut crop. Under irrigated conditions, combined with heavy use of fertilisers and pesticides, the crop output per acre is around 10-12 bags. Ironically, farmers who were growing the same groundnut crop over two decades ago using organic manure and very small amounts of pesticides got a similar yield of around 10-12 or even 14 bags per acre. Groundnut was earlier also intercropped with various other crops, including cereals and pulses like green gram, Bengal gram, etc., often enabling farmers to offset or spread their risks even during times of poor monsoon or crop failure.

The Intervention and Its Impact

Under the ATMA scheme, a micronutrient enhancement initiative in groundnut crop was introduced in this village during the kharif cropping period of 2013. The objective of this technology transfer was to enable farmers understand new techniques in crop management, especially soil fertility and pest management towards also realising higher gains in terms of output. A total area of 50 hectares was chosen for carrying out a series of on field demonstrations in micronutrient management practices, covering roughly 125 farmers, including a few from the surrounding villages who hold lands in Shekshanpally village. The micronutrient initiative involved using specified quantities of gypsum, boron, potassium and zinc sulphate during various stages of crop growth such as root growth, flowering and pod formation, etc. In addition, farmers were encouraged to grow jowar, castor, green gram, etc., as border crops to control pests in ground nut crop. As a result of this micronutrient enhancement initiative that was conducted over a period of six months and monitored on a regular basis, the selected farmers saw an incremental increase of three-four bags of groundnut per acre.

The Block Technology Manger (BTM) of ATMA, who was closely involved in conducting the micronutrient technology demonstrations here shares, *"It was initially a big challenge in mo-*

bilising and explaining the merits of this technology to them. But we held a series of meeting with mostly the men in both Shekshanpally and adjacent villages since some of the men there also own lands in this habitation. Gradually, farmers agreed to put part of their lands under this demonstration. Also, use of boron during the flowering phase was earlier unknown to the farmers here and so was the use of zinc which helps in reducing the salinity in the soil. The use of gypsum also helps in pod formation since it has calcium. The integrated use of all these inputs as part of the micronutrient management practices helps in enhancing the crop yields. Eventually, farmers here are happy with the outcome".

Despite gaining additional crop yields from the improved cropping techniques initiated under ATMA, farmers in this village do not seem to have completely adopted these cropping technologies. During discussions, farmers here expressed reluctance to adopt the technique because of the additional cost of Rs 4000-6000 per acre that they would have to incur on purchase of gypsum, boron and other inputs that had been provided to them at a subsidised rate under the scheme. At the time of field visits to this village in August, a large number of families had already migrated out of the village in search of work, primarily due to monsoon failure this year. Several households, including women had migrated to the neighbouring Kadapa district and also to Bengaluru city to work on construction sites with no work being available under NREGS. Further discussions with farmers here revealed that investments in rejuvenating a network of five local tanks falling under two panchayat villages, including Shekshanpally through construction of a side canal from the Handri Neeva river to enable water flow into these tanks would in the long run help irrigate close to 8,000 acres of land. This proposal has been pending for a long time with the local political leaders promising action during every election but failing to take up the project later.

Farmers' experiences in Shekshanpally village indicates the mismatch between local needs and contexts and extension initiatives in the form of technology transfers that are often geared towards providing immediate, short term solutions to farmers without taking into account long term, more sustainable solutions to them. In a district like Anantapur where groundnut cultivation is already marked by high input costs, subsequent indebtedness and suicides by farmers, extension services need to geared towards supporting farmers in lowering their costs of production as well as towards crop diversification and promotion of supplementary livelihood activities such as livestock rearing, backyard poultry, etc., to prevent distress migration and suicides by farmers. As per various media reports, in 2015, close to six lakh people had migrated out of the Rayalaseema region in Andhra Pradesh comprising of Kadapa, Anantapur, Chittoor and Kurnool districts due to severe drought conditions. Out of these, around two-thirds of those who had migrated out are from Anantapur alone. The larger agrarian context, therefore, calls for a significant reorientation of the extension system to address the needs of farmers in general and more particularly woman farmers.

The above experience also shows that there is no adequate space or effort made for understanding the specific issues and extension needs of woman farmers as part of these technology dissemination interventions. When woman farmers in this village were asked about their participation in the field demonstrations and adoption of these new cropping technologies, a majority of them shared that they were barely consulted in the matter since most of the lands were owned by the men in the village. Woman farmers felt that soil testing and long term support and guidance on soil fertility rejuvenation would be a more sustainable option rather than mere enhancement of micronutrients through use of chemical fertilisers. Further, almost all groundnut crop is grown mostly under rain-fed conditions in the area and timely availability

of water is a major issue. Therefore, even with adoption of improved technologies, the optimal yields per acre would not cross more than 12-14 bags per acre. Women also expressed that weeding was a major problem in groundnut cultivation over the years. They also felt if some support could be given by the government for purchase of small ruminants like goat and sheep, it would help in bringing in additional incomes and even help prevent out migration to some extent. Growing food crops was important and would also help in generating some crop residue as fodder for livestock. Women felt that dairying was also a potential option if water was also available along with fodder. Women also strongly felt that strengthening NREGS at the village level and linking the scheme to land development needs is important in the long run. It is, therefore, important to take into account the more holistic perspectives around livelihood that are being articulated by woman farmers and using these insights for planning suitable interventions under the scheme.

The second case study discussed here is that of Chinnapolamada village in Tadipatri block of Anantapur district where a new technique related to red gram transplantation was demonstrated under ATMA.

Case Study 2: A Red Gram Transplantation Technique under ATMA

Chinnapolamada village in Tadipatri block of Anantapur district has around 700 households, with a population of close to 2,000 people. Cultivation of both agriculture and horticulture crops forms a major source of income to the farmers here. Irrigation is largely through bore wells and drip facility. A majority of the farmers belong to the BC and OC sections, with SC community comprising of 50 households in the village. Land ownership is however highly skewed, with some of the dominant caste households owning close to 30 acres of land. Amongst the SCs, only 10 households own land with land size being 1-1.5 acre on an average.

In 2015, ATMA staff of the block demonstrated a new technique in transplantation of red gram in this village. The technique was developed at the Krishi Vigyan Kendra (KVK) in Medak district of Telangana and the field trials of the same were carried out in this village. Cultivation of red gram by transplantation method is quite new in this area. Farmers here typically cultivate the crop through direct sowing, requiring a large quantity of seeds. Under the new method, farmers can raise red gram nurseries similar to paddy nurseries. This requires just one or two seeds for raising a seedling in a polythene cover. The seedlings are then transplanted on field after 20 to 25 days. The crop, after 30 to 35 days old, needs to be nipped so as to multiply its branches. According to the ATMA staff involved in this demonstration, the new technique is more effective in terms of higher yield and also cost-effective than the traditional method of cultivation. The new method requires just 2 kg of seeds as against 12-15 kg seeds sown in the traditional method on a hectare of land. Since the transplantation is done by giving sufficient space between saplings, the crop grows more healthily with lower possibility of pest infestation. Staff also share that as per the assessment of the scientists who developed this technique, the transplantation technique also enables red gram crop to withstand drought, save water and save time on weeding too.

Initially, when the staff discussed the new transplantation technique with the farmers here, not many farmers showed interest in trying it out. Gradually, around three farmers came forward to allow the demonstration of this new technique on their farms and were encouraged by the results. A discussion with farmers in the village revealed that most of them are keen to adapt the technique on their farms. Some of the small farmers from the SC community however felt that the results could

vary based on type of soil, water availability and the variety of seeds used. The ATMA staff feels that more farmers may come forward to adapt this method in future.

While the demonstration of this transplantation technique itself appears to have its merits, the process followed in conducting these demonstrations raises several questions. As per the ATMA guidelines, selection of beneficiaries for all activities must be done in a transparent manner, while ensuring that at least 50% of them are SC and STs and 30% of them are women. In this village, the technique was discussed and demonstrated with a small group of farmers who are all male farmers, who are from better off sections in the village owning larger parcels of land and drip irrigation facilities. As shared by the SC farmers who own smaller plots of land, the technique would perhaps have varying results depending on soil type, absence of drip etc. More importantly, there was no attempt to involve women in the discussions and demonstration of the technique even though they are involved in almost all aspects of red gram cultivation such as land preparation, sowing the crop, weeding as well as harvesting the crop. The involvement of women would have brought in new perspectives related to the application of the new technique from the point of view of its potential impacts on workload, time, gender-based division of labour and drudgery, etc. The experience in this village clearly indicates that technology demonstration/dissemination cannot proceed in a gender neutral manner in any context.

7.2 Formation of FIG, CIG and FSG Groups under ATMA

In Betul district in Madhya Pradesh, this study looked at the experiences of farmers in various kinds of groups formed under ATMA such as Farmer Interest Groups (FIGs), Commodity based Interest Groups (CIGs) and Food Security Groups (FSGs) at the village level. The experiences are again illustrated through case studies in an attempt to draw out some of the key gender related insights and lessons.

Case Study 3: Experiences of FIG and FSG Groups in Dhamori Village

Dhamori is a village under Athner block of Betul district with a population of around 300 households. A majority of the households belong to the OBC community. Around 100 households in the village have land while the remaining have no land and depend on wage labour as a major source of their livelihood. While many of the households hold job cards, there is no work under the MGMNREGS scheme. A few households also migrate out to work as construction workers to earn their livelihood. Amongst the landed households, around 10 households own over 10 acres each. The average land holding amongst a majority of the households is around 3 acres. In households owning land, most of the land is in the name of men.

Agriculture and wage labour are the primary sources of livelihood for a majority of the households in the village. Some of the major crops cultivated here are soya bean, groundnut, and pulses like red gram, etc. Vegetable cultivation is also predominant in the village such as tomatoes, brinjal, cauliflower, chillies, spinach, etc., which provides a major source of wage labour for the women from the landless households. The vegetables from the village are sold by the men in the markets close by. Given its location, the village has good accessibility to the market in Athneer. Due to poor groundwater levels, water availability appeared to be a major problem here. The village also does not have any major source of irrigation, apart from bore wells. Power facility was also available for only five hours a day, with almost no power being available during the night.

A farmer Interest Group (FIG) named *'Mahalakshmi Krishak Ruchi Samuh'* was formed under the ATMA scheme in 2014. The group has around

25 male farmers. The group was formed based on the initial interest expressed by the farmers to come together and take up some livelihood related activity. The group members went on exposure visits to Jabalpur and Pune to learn about improved farming techniques and post harvest technologies. During discussions, the FIG members here shared that while they got the opportunity to learn a lot during these exposure visits, not all of their learning was applicable in their own village context. For example, learning about onion cultivation in the ridge region was a new learning as it not only improves quality but also productivity but farmers here were not too sure if they could actually try this in their own village since the soil quality was different and water availability was also poor. However, the group members were successful in procuring a spiral seed grading machine, getting subsidised seeds and insecticides, vermicompost units and a biogas unit in their village through convergence with other government schemes. Members of the FIG often lend out the spiral grader to anybody who needs it for Rs 10 per quintal.

A Food Security Group (FSG) comprising exclusively of 12 women was formed under ATMA here earlier this year in February. The group is registered as *"Dhanvarsha Krishi Ruchi Samuh"*. Members of this group are primarily involved in taking up kitchen garden and cultivation of vegetables. Members of this FSG meet once a month to discuss various issues and are also involved in savings and credit activities The FSG members have received a grant amount of Rs 10,000 for this purpose. Woman members of the group also got access to training on seed treatment and shared that this knowledge and information helped them increase their vegetable productivity by at least 25%. Woman members are also keen to go on exposure visits to Jabalpur to learn about simple, time saving tools and devices that can be useful in cleaning wheat. Women were particularly keen on procuring a *'sewai'* (vermicelli, long, thin strips of noodles made from wheat flour) machine that can enable them to make large quantities of sewai in a short time, which they could then sell in the neighbouring villages and also in the market. They also shared that a kilogram of wheat flour could be used to make sewai worth Rs 100 in the market. Currently, there was only one such machine or unit in the area. The average cost of one sewai making unit was roughly around Rs 80,000. But they are not yet provided with any such support to procure that machine.

While the above experience of group formation with farmers in Dhamori seems positive in many ways, it also raises important questions about how men and women are perceived as actors in the agriculture sector. While men are chiefly perceived as farmers and are therefore organised into "farmer interest groups", women are primarily perceived as providers of nutritional food security to their households and are organised into "food security groups". This dichotomy is also recurrent throughout the guidelines governing the implementation of the scheme through the use of terms such as 'farmers' (in an obvious reference to male farmers) and the term 'farm women' which seeks to relegate women to supplementary roles in agriculture rather than recognising them as farmers in their own right. The stereotypical perception of the role of men and women in agriculture is particularly ironic in a district like Betul where the combined percentage of women as cultivators and agricultural workers is around 87%. The organisation of men into FIGs and women into FSGs, which is projected as a special provision for women under the scheme, once again reinforces traditional gender stereotypes in the larger society rather than attempting to change the same. A closer look at the above experience also shows that while men as farmers have come into controlling machinery, new knowledge and technologies, women are trained in conventional areas such as nursery and seed preparation that they have been engaged in for a long time. The experience in Dhamori also indicates women's aspirations to become entrepreneurs through collective ownership of machinery such as the machine for converting wheat flour into noodles as well

as support in marketing the same. ATMA staff and officials must explore the potential of convergence with other schemes and missions such as the National Rural Livelihood Mission (NRLM) to support women in such economic activities and emerge as entrepreneurs in future.

Case Study 4: Experiences of Women in Food Security Group (FSG)

Donkhia village is part of the Padher Khurd panchayat, falling under Betul block of the same district.. A majority of the 100 odd households in the village belong to the Gond and Gaiki Tribal Community. Agriculture and wage labour form major source of survival for most of the households. While there is a high demand for wage labour, the MGMNREGS is largely non-operational in this village for the last five years despite repeated applications to the authorities for providing works under the scheme. Around 10% of the above households are landless while the average land holding amongst those who have land is around 3 acres. Some of the major crops being cultivated here include wheat, maize, soya bean, chikpea, cow pea and several varieties of vegetables. Livestock rearing and backyard poultry forms a supplementary source of survival, providing largely for household needs. While women are actively engaged in all agriculture related activities, almost none of them have ownership over land. Most of the families who possess land also have no formal, legal titles to establish their claims to these lands, given most of them are second or third generation claimants.

Around 42 women from the village are members of the Narmada Mahila Samuh (NMS) for the past five-six years. The NMS is a federation of woman SHGs promoted by Pradhan, an NGO that has been working in these villages for several years. Apart from thrift and credit, woman members of these groups have been supported in agriculture and allied activities to some extent. Around 13 women from NMS in this village have collectively leased in 3 acres of land for cultivation at the rate of Rs 50,000 for a period of two years. Pradhan has also been an active NGO partner in the ATMA scheme for the past few years. Understanding and addressing violence against women also forms an important issue for woman members of these SHGs.

As part of ATMA initiative, a food security group (FSG) was formed with 13 woman members in this village in early 2015. The FSG is named 'Vaishali Jagrut Samuh'. Women members of this FSG received a onetime grant of Rs 10,000 for initiating kitchen garden related activities. Women have prepared nursery beds as well as seedlings for vegetables like okra, chillies, brinjal and tomatoes. As part of the ATMA scheme, the village has a male 'Krishak Mitr' (farmer friend) who facilitates meetings of the FSG group members. The FSG members also received training on improved sowing techniques that have enabled them to save seeds and also improve productivity and output. Woman members also went on exposure visits to Nagpur and Banda to learn about vegetable cultivation. Marketing of the produce is a major challenge for most of the households here, even while the prices for both vegetables and other crops are remunerative. Given the interior location of this village, there is almost no means of public transport here. Close to 60% of the farmers here have Kisan Credit Cards (KCC) that makes them eligible for bank credit and insurance. Over the last three years, extreme weather calamities such as heavy rains and hailstorms have caused extensive damage of crops and vegetables in this village. However, farmers here did not receive any insurance or credit against crop loss or damage due to natural calamities. Women also shared that they had no access to credit, insurance and marketing facilities.

The experiences of women in the FSG group here again indicate limitations on various fronts. While women have taken up vegetable cultivation, marketing appears to be a major issue

here given the interior location of the village. Support in marketing the produce appears to be an immediate need along with credit and insurance against crop loss. Another important issue that requires attention is the resolution of long pending claims on land. Intervention and support of the revenue department must be sought in this regard. There is also an opportunity to record women's claims on land and enable them to gain legal titles over lands since very few of them own land. The amount of Rs 10,000 as a one-time revolving loan is barely sufficient for a group of 13 woman members in the FSG who can take up only small time economic activities at the village level. This amount must be enhanced in keeping with the needs and requirements and more importantly the livelihood options that women's groups are interested in taking up. Women must be supported in taking up collective enterprises or economic activities in the long run, including support for leasing in land and land development along with training, skill building and appropriate extension support through ATMA and other line departments.

7.3 Participation in Trainings and Exposure visits

As part of the farmer oriented activities under ATMA, organising training and capacity building programmes along with exposure visits for farmers forms a critical part of the extension support servicesAs per the revised ATMA guidelines, 2014, the selection of beneficiaries of demonstration plots, inter-district and inter-state trainings within a panchayat area and all farmer group beneficiaries for the above activities is to be done by the respective gram sabhas or gram panchayats in consultation with FIGs and FOs working in the area, as the respective state government may decide. However, if for some reasons, the list of beneficiaries is not finalised in the above manner within the stipulated time frame, the FAC in consultation with FIGs and FOs may select the beneficiaries for various activities under the scheme. In practice though, field visits indicate that the domination of men in most of the panchayat decision-making processes combined with prevailing patriarchal cultural norms often leads to women being excluded from participating in ATMA related activities.

Discussions with women in all the eight study villages in Betul, Bhopal and Anantapur districts revealed that overall awareness about various government schemes, including ATMA, was much lower amongst women as compared to men. During discussions with men, most of them shared that the panchayat office formed a key source of information about various government schemes and subsidies while several of them also shared that they often got information through their frequent interactions with other farmers during informal meetings as well as in market yards, etc. Some also shared that they gained new knowledge from watching the Kisan Channel and also through the Kisan Call Centres (KCC). Women's knowledge about various government schemes was largely confined to their membership and participation in some of the SHG meetings or through whatever information that trickled down through the men in their households.

As per the guidelines, display boards are to be erected in all the panchayats containing the names of the extension staff assigned to that panchayat, their contact numbers as well as their availability on a scheduled day of the week to enable farmers' interaction with them. ATMA funds can be used to cover up to 45% of the villages for putting up these boards. These board are to contain broad details of main schemes (including their major components, eligibility, subsidy pattern, etc) applicable in that area. Besides panchayat headquarters, ,the display boards can be alternatively put up in prominent places in various villages such as fair price shops, milk cooperative societies, PACs, etc. While the use of these display boards appears to be good step towards information dissemination around various public schemes, the extent to which woman farmers are actually able to access and use this information remains a challenge given the poor levels of literacy amongst women as well as their limited physical access to the above public spaces on a regular basis. The mandated display boards, however, could not

be seen anywhere during field visits to the three study districts.

As per the 2011 Census, a look at the literacy rates for two of the key study districts shows that while the female literacy rate for Betul district is around 60.9% for females, amongst the ST women, the literacy rate is just 43% and amongst the SC women, it is just 10%. For Anantapur district, while the overall female literacy rate is just 53.9%, amongst the SC women it is as low as 14.4% and 3.7% amongst the ST women. Given lower literacy rates amongst women in these districts, extension mechanism must involve use of innovative media such as audio-visual communication material or cultural forms such as 'kala jathas', or practical, on field demonstrations to disseminate new technologies and farming related information. Discussions with woman farmers in the study villages revealed that most of them were interested in participating in village level trainings and capacity building programmes. Some of the key areas where women felt they needed knowledge, information and support were seed treatment and storage, effective technologies in weeding to reduce drudgery and work burden, backyard poultry, small ruminant rearing (especially goats and sheep), animal husbandry along with fodder development plots, post-processing, value addition, enterprise development, support for collective land lease and land development. Credit requirement, insurance against weather based calamities and marketing as illustrated in some of the case studies and experiences illustrated here emerged as some of the key areas requiring intervention. Given women's limited ownership and control over land, farm schools and demonstrations must also focus on selecting woman-owned plots or those that are collectively leased in by women to ensure higher participation by and the applicability of the technologies.

The major impediment to women's participation in trainings or capacity building initiatives outside the location of their village was the paucity of time, given their multiple roles in the household, agriculture and other allied activities. There are clear indications that training and capacity building programmes need to be tailored to suit the time and work cycles of woman farmers to ensure their effective participation. Discussions related to women's experiences with exposure visits under ATMA again reveal that most of them were actually keen to learn from the experiences of other farmers, both within the state and outside. Women were particularly keen to apply the knowledge and learning from the exposure visits. However, discussions with women in some of the study villages such as Juwadi, in Godhadongri block reveals that there is limited practical applicability from exposure visits, if their specific needs are not adequately factored. Women here were taken on exposure visits to a tractor factory in Budini and a zonal agriculture research station to learn about wheat and sugarcane cultivation techniques. Women felt that the learning was not directly applicable for the farming conditions in their village. In all the study districts, women shared that all women exposure visits, especially during the non-farming season or time of the year would enable more women to join these visits. Additionally, childcare facilities and safety were issues that women felt were important during these visits. Recruitment of more number of woman farmer friends at the village level and their orientation on gender issues would go a long way in ensuring women's participation in various ATMA related activities. Further, training and capacity building of woman farmers needs to be made a compulsory activity under the ATMA cafeteria along with dedicated budgets provided to the same.

8. Assessing Outcomes: Issues Related to Monitoring and Evaluation

A look at the monitoring and evaluation systems within the scheme in the study districts reveals that the focus of the M&E is largely on reporting on physical and financial targets projected and achieved under some of the broad areas of intervention in the scheme. While there is gender disaggregation of data broadly around number of men and women participating in various activities under ATMA, this alone is not sufficient. Discussions reveal that this data is sometimes adjusted to suit-

ably reflect 30% participation of women in various activities even when they may not have actually participated in the same. Focus on percentage of participation alone is not a sufficient and meaningful way to assess the impact of various activities under a scheme.

The reporting formats under ATMA needs to be backed with gender disaggregated expenditure statements as well as with qualitative data and narrative reports to demonstrate the actual impact of interventions and budgets spent as well the changes in the lives of men and women at various levels. This would involve a thorough re-orientation of other related processes such as planning, budgeting, implementation mechanism, including importantly capacity building processes too within the scheme to enable effective targeting and outreach of women, especially from sections such as SCs and STs possible in extension services. Key changes in the form of Institutional and policy mechanisms at the central and state level are important to enable and support the above processes. At the central level, initiatives in the form of revising the scheme guidelines from a gender perspective with clear operational mechanisms for mainstreaming gender related processes at various levels in the scheme along with adequate budgetary support are important. At the state level, the establishment of "Gender Responsive Planning and Budgeting" (GRPB) cells at the state level, with dedicated staff in the form of gender coordinators at the state, district and block levels would go a long way in institutionalising purposive planning and budgeting in an meaningful manner at all levels in a coordinated manner. In addition to ensuring that the positions of gender coordinators at the state level are filled, guidelines must be issued for recruiting similar personnel at the district and block levels too.

In Madhya Pradesh, a useful beginning has already been made in this direction with the state government issuing a circular (No.1324/1648/2015/1/9) in September 2015, mandating the establishment of GRB cells in all departments. Plans are underway to set up a GRB cell in the agriculture department following the above order. However, the composition and mandate of such GRB cells must be carefully worked out with personnel from the planning, finance and Department of Women and Child Welfare (DWCD) also drawn to ensure greater coordination in plans, budgets and capacity building at various levels. The mandate of the GRB cells must not be confined to monitoring budgets alone in terms of allocations and expenditure but also in capacity building of officials, planning, creation and maintenance of gender disaggregated data at all level as well as in setting up concurrent review systems to generate insights and initiate mid-course corrections in implementation of various department related schemes. In Andhra Pradesh, the file related to the setting up of GRB cells is pending approval and clearance with the fiancé department and the DWCD will need to play a proactive role in initiating the establishment and operationalisation of such cells in future and defining their mandate. Meanwhile, the proposal by the department officers for appointment of Gender Nodal Officers at the Directorate of Agriculture at the state level to handhold and support gender mainstreaming processes needs to be pursued more actively.

GRB Analysis of National Horticulture Mission (NHM)

A second scheme selected for the purposes of GRB analysis is the National Horticulture Mission (NHM). The National Horticulture Mission (NHM) is one of the sub schemes under the Mission for Integrated Development of Horticulture (MIDH), which is being implemented by State Horticulture Missions (SHM) in selected districts of all the states and Union Territories, except the states in the north eastern and Himalayan region of the country.

The first section here begins with a brief overview of the MIDH and NHM scheme, the major objectives of the scheme, operational strategy and the mission structure at various levels, broad set of activities and the specific provisions for women. This is followed by a brief horticulture profile of the two districts (Anantapur and Betul) in Andhra Pradesh and Madhya Pradesh respectively selected for the study of the scheme along with the criteria for selection of villages for field study of NHM and the methodology adopted for the study. Based on the field study of the scheme, the third section here contains analysis of the key findings emerging from the field in relation to the key aspects of the NHM scheme such as planning, budgeting, operational structure, assessment of the impact and strategies on the ground as well as issues related to monitoring and evaluation from a gender perspective.

1. Overview of MIDH and NHM

Mission for Integrated Development of Horticulture (MIDH) is a centrally sponsored mission for the holistic growth of the horticulture sector covering fruits, vegetables, root and tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew, cocoa and bamboo. While GoI was contributing 85% of total outlay for developmental programmes in all the states, except the states in north east and Himalayas, 15% share was contributed by state governments. Again, following the recommendation of the 14th Finance Commission, this funding pattern has changed to 60:40, with 60% contribution from the Center and 40% from the state governments. Apart from NHM, which is a sub-mission under MIDH, the other sub-missions include the Horticulture Mission for North East and Himalayan States (HMNEH), National Bamboo Mission (NBM) apart from schemes under the National Coconut Development Board and the National Horticulture Board (NHB) as well as the National Mission on Micro Irrigation (NMMI), which has since 2014 been subsumed under the National Mission under Sustainable Agriculture (NMSA).

MIDH also works closely with NMSA towards development of micro-irrigation for all horticulture crops and protected cultivation on farmers' field. MIDH also provides technical advice and administrative support to state governments/State Horticulture Missions (SHMs) for the Saffron Mission and other horticulture related activities like Vegetable Initiative for Urban Clusters (VIUC), funded by Rashtriya Krishi Vikas Yojana (RKVY) and NMSA.

1.1. Objectives

The Main objectives of the Mission as per the guidelines are as follows:

(a) Promote holistic growth of horticulture sector, including bamboo and coconut through area based on regionally differentiated strategies, which includes research, technology promotion, extension, post harvest management, processing and marketing, in consonance with comparative advantage of each state/region and its diverse agro-climatic features.
(b) Encourage aggregation of farmers into farmer groups like FIGs/FPOs and FPCs to bring economy of scale and scope.
(c) Enhance horticulture production, augment farmers, income and strengthen nutritional security.
(d) Improve productivity by way of quality germplasm, planting material and water use efficiency through Micro Irrigation.
(e) Support skill development and create employment generation opportunities for rural youth in horticulture and post harvest management, especially in the cold chain sector.

1.2 Strategies and Key Interventions

To achieve the above objectives, some of the key strategies under the mission include:

(a) Adoption of holistic approach to horticulture covering pre-production, production, post harvest management, processing and marketing to assure appropriate returns to growers/producers.
(b) Promotion of research and development of technologies for cultivation, production, post-harvest management and processing with special focus on cold chain infrastructure for extending the shelf life of perishables.
(c) Improving productivity by way of quality through diversification, from traditional crops to plantations, orchards, vineyards, flowers, vegetable gardens and bamboo plantations, extension of appropriate technology to farmers for high-tech horticulture including protected cultivation such as poly house and greenhouse technologies and precision farming , Increase of acreage of orchards and plantation crops including bamboo and coconut, particularly in states where total area under horticulture is less than 50% of agricultural area.
(d) Improve post harvest management, processing for value addition and marketing infrastructure.
(e) Adopt a coordinated approach and promote partnership, convergence and synergy among R&D, processing and marketing agencies in public as well as private sectors, at the national, regional, state and sub-state levels.
(f) Promote Farmer Producer Organisations (FPOs) and their tie up with Market Aggregators (MAs) and Financial Institutions (FIs) to support and ensure adequate returns to farmers.
(g) Support capacity-building and human resource development at all levels, including, change in syllabus and curriculum of graduation courses at colleges, universities, ITIs, polytechnics, as appropriate.

In keeping with the objectives and strategies outlined above, some of the key interventions taken up under the NHM include, development of nurseries (in both public and private sector) for supply of quality seeds and planting material, saplings to farmers, expansion of area under horticulture, rejuvenation of old and senile orchards, organic farming, integrated pest/nutrient management (IPM/INM), support for horticulture mechanisation, establishment of pack houses, cold storage and mobile processing units, as well as supporting farmers in marketing their produce through formation of FPOs, etc. Creation of water resources through convergence with other programmes such as NMSA, MGMNREGS as well as promotion of hybrid vegetable cultivation through provision of plastic crates, trellis, etc., are also taken up through RKVY scheme All the above activities include a part subsidy and loan component provided through the SHM and the DHMs at the district level through cost norms as prescribed under MIDH guidelines.

1.3 Operational Structure

(a) **At the National Level, the Mission has a General Council (GC)** under the chairmanship of Union Agriculture Minister. The composition

of the GC includes ministers from some of the key departments such as commerce, finance, health, food processing, panchayat raj and rural development, environment and forests, micro, small and medium enterprises, who are the members of the GC along with secretaries from the above ministries/departments who are also members. Other key members of GC include the chairperson, NABARD, director general, ICAR and additional secretary (Horticulture) under the DAC apart from horticulture commissioner, advisor, etc. The GC is the formulation body giving overall direction and guidance to the mission, monitoring and reviewing its progress and performance. Without affecting the approved programmes, cost norms and pattern of assistance as approved by CCEA, the GC is empowered to lay down and amend operational guidelines. GC is also expected to meet at least twice a year.

(b) **Executive Committee or EC** is headed by secretary, DAC who will oversee activities of the mission and approve action plans of SHMs and NLAs. The EC comprises members from key ministries/departments such as food processing, biotechnology, AYUSH, industries, panchayat raj and rural development andenvironment and forests along with members of other key institutions such as director general, ICAR; director general ICFRE, director general, CSIR; chairperson, NABARD; additional secretary (In charge of Horticulture, DAC); additional secretary & FA, DAC; joint secretary (Plant Protection), joint secretary (I/C NMSA), commissioner and advisor (Horticulture), etc. The joint secretary and mission director is also a member of EC. EC is empowered to reallocate resources across states and components and approve projects on the basis of approved subsidy norms. EC is also empowered to approve special interventions for tackling emergent/unforeseen requirements. EC can also constitute Empowered Monitoring Committee (EMC)/Sub-Committee (SC) and delegate powers to EMC/SC/mission director, as well as to state governments/State Horticulture Missions/State Bamboo Development Agencies (SBDA) for approving projects in accordance with approved cost norms and pattern of assistance.

The Horticulture Division in DAC will provide the necessary support to GC/EC/EMC and will administer NHM, HMNEH, NBM and CIH scheme.

At the state level, there is a State Level Executive Committee (SLEC) for NHM, HMNEH and NBM, under the chairmanship of Agricultural Production Commissioner or Principal Secretary Horticulture/ Agriculture/Environment & Forests, (in the absence of APC) having representatives from other concerned departments of state government including Forests, the State Agricultural Universities (SAU), institutes under Indian Council of Agricultural Research (ICAR), Growers' Associations/FPOs, etc., will oversee the implementation of programmes of the respective groups. At operational level, state governments have the freedom to establish State Horticulture Mission (SHM) and/or SBDA as a suitable autonomous agency, to be registered under Societies Registration Act for implementing Mission programmes at state and district levels. Panchayati Raj Institutions (PRI) existing in the state will be involved in the implementation of the programme. state and sub-state level structures are to be established keeping in view the specific requirement of the states. Formation of farmer groups/cooperatives of farmers and their tie-up with financial institutions and market aggregators also needs to be encouraged.

At the District Level, the District Mission Committee (DMC) is responsible for carrying forward the objectives of the Mission for project formulation, implementation and monitoring. The DMC may be headed by the chief executive officer (CEO) of zila parishad/CEO of District Rural Development Agency (DRDA)/CEO of Forest Development Agencies (FDA)/ District Development Officer, having as members, representatives from concerned line departments, growers' associations, marketing boards, local banks, self help groups and other non-governmental organisations.

At the district level, the District Planning Committee (DPC) and PRI would be involved in implementing the programme commensurate with their expertise and available infrastructure. They have a role in implementation of MIDH with regard to Identification

of crops/species and beneficiaries in consultation with district panchyats, training, extension and Awareness creation through Panchayats and Gram Sabhas (GS), organisation of PRI and GS meetings and giving feedback to the concerned officials with regard to implementation of MIDH.

In addition, the mission is to have strong Technical Support Group (TSG) with domain experts being selected for the management of and advice on some of the key components of the mission to the state and districts level agencies implementing the mission.

2. Methodology for GRB Analysis of NHM

The NHM scheme in both Andhra Pradesh and Madhya Pradesh is sought to be analysed from a gender lens against the above objectives, operational strategy and implementation mechanism (including planning, budgeting and monitoring, etc) as visualised in the operational guidelines formulated for the same at the central level. On the implementation front, the NHM scheme is guided by the detailed set of operational guidelines under MIDH issued in 2014 by the Horticulture Division under the DAC. Therefore, the scheme guidelines form the referral point for the analysis of field observations based on which some of the key gender related implications are sought to be drawn out here. As mentioned earlier, Anantapur district in Andhra Pradesh and Betul district in Madhya Pradesh have been selected for the analysis of the ATMA scheme. Additionally, in Madhya Pradesh, two villages in Bhopal (rural) block were selected to enable a comparative analysis of the scheme in tribal and peri-urban areas within the state.

Some of the key areas for GRB analysis of the NHM scheme in both states include:

- Understanding the planning processes
- Examining the budgeting processes (including convergence with other schemes)
- Implementation mechanism or structure at various levels
- Assessing the Impact of the Scheme for various stakeholders, especially woman farmers
- Analysing the monitoring and reporting systems

2.2. Selection of Villages for Study

Prior to the selection of study villages, discussions regarding the objective of the study was shared with key personnel and officials involved with the implementation of the scheme at the state and the district level. The selection of villages for the study of the NHM in the districts was based on criteria such as:

- Socio-economic profile of the villages in terms of caste and land holding patterns
- Agro-ecological variation in selection of village sin term of soil type, rainfall, irrigation infrastructure, etc
- Location of villages in terms of proximity to the block or district headquarters as well as interior villages
- Villages where different interventions under have been implemented under the scheme, including in convergence with other schemes such as RKVY, MGNREGS, micro-irrigation under NMSA, etc
- Villages comprising male and female beneficiaries under the scheme

Based on the above criteria, the following villages were selected in Betul and Anantapur districts of the two states. In Madhya Pradesh, field visits were also undertaken to two villages of Bhopal (rural) district,

State	District	Village	Block
Madhya Pradesh	Betul	Khanapur Hamlapur	Betul
		Gunkhed	Athner
	Bhopal	Golkhed	Phanda
		Khajuri Kala	
		Kanasaiya	
Andhra Pradesh	Anantapur	Mucchakota Madugupalli	Tadipatri
		Palyam G.A Kotala Mamiduru	Gooty

located close to Bhopal city primarily for purposes of comparison as well as to understand some of the technical components related to the scheme.

2.3. Study Methodology

The study methodology adopted for collection of both quantitative as well as qualitative data involved a combination of the following components.

- Collection of secondary data related to study districts and villages through review of key plan and policy documents, district handbooks, etc. This also includes review of other evaluation reports such as the Joint Inspection Team (JIT) Reports.
- Field visits to the selected villages and focus group discussions and individual interviews with the beneficiaries of the NHM scheme (both men and women).
- Discussions and Interviews with key field staff involved with the scheme such as the SHDO, RHEO and HO at the district and block level.
- Discussions with key officials like DD-NHM, Bhopal, DD-Betul, DD-Anantapur and the AD-Horticulture at the district level.
- Field visits to Tissue Culture Laboratory in Hamalapur, Betul district.
- Field visits to the hi-tech seedling nursery, protected cultivation (polyhouse), greenhouse, shade net, toxicity testing centre and farmers training centre at Kanasaiya Village, Bhopal district.

3. Understanding the Planning Process in NHM

Planning for various related activities under NHM is based on the preparation of the strategic plan document, which is a perspective plan document outlining the roadmap for overall development of horticulture for each state, projecting also the targets to be achieved for a period of roughly five years (plan period).The perspective/strategic plan document forms a basis for preparation of Annual Action Plan (AAP). The strategic plan document and road map formulated by states contains information on geography and climate, potential of horticulture/bamboo development, availability of land, strategy for development and plan of action proposed to be taken to achieve goals in each district of the state. As per the guidelines, the document should focus on crops having comparative advantage and natural potential for development in the state, adoption of cluster approach for production and linking with available infrastructure, or to be created, for post harvest management, processing, marketing and export. While selecting the cluster, preference should be given to those areas where natural resource base and water resources have been developed under watershed development programmes, Rashtriya Krishi Vikas Yojana (RKVY), Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), etc. Priority should be given for development of such crops, which are required to meet current and future demands.

3.1 Preparation of Annual Action Plan (AAP)

Based on the perspective/strategic plan document for the state, annual action plans for horticulture development are prepared each year for various districts. As per the MIDH guidelines, the AAP should be supported with data/write up on outcome of past interventions covering the details of area expansion (variety/species introduced, increase in productivity achieved and number of clusters created), water resource development as per felt need of the state (amount of irrigation potential created, whether linked with micro-irrigation, maintenance, etc), INM/IPM (including requisite infrastructure created and how these are being utilised for benefit of farmers) and organic farming. Area expansion should be determined based on availability of planting material and a seed/planting material sub-plan should be prepared separately as part of AAP. However, the formats for submission of AAP as per the guidelines, are entirely technical in nature, focussing on area,

production and productivity estimates for various horticulture crops and projections for the year that the plans are being submitted. There is very little human or social focus in these detailed formats in terms of differential needs and priorities, challenges and therefore specific horticulture related interventions required for different sections of the community, especially women.

There is also no focus or assessment of the strength and potential of existing SHGs and other woman farmer groups being able to take up collective cultivation of horticulture crops or the areas where their capacities could be built up and planning for the same. Anantapur district for example, has a wide network of SHG groups and federations formed by the government, under the World Bank supported poverty alleviation programme. Several of these groups have successfully taken up agriculture related activities under the government supported Community Managed Sustainable Agriculture (CMSA) through organic farming, use of natural pesticide management practices etc. However, there does not appear to be any focussed attempt to link these groups to horticulture activities under NHM. Similarly, in Betul district, there are federations of woman SHGs formed by NGOs like Pradhan who have been succe- ssful to some extent in linking these SHG to horticulture production.

A look at the planning process in practice indicates that the preparation of the annual plan every year is largely a technical exercise geared around working out the physical and financial projections for various components under the NHM for the district every year. The sub-components are then budgeted under three broad heads such as MIDH plan, State Plan and RKVY, respectively. Discussions with the NHM staff at the district and block levels in the study districts reveals that there is no purposive planning undertaken to identify the needs and priorities of different sections of farmers, especially women regarding choice of horticulture crops, assessment of land, soil, water resources and more importantly the livelihood portfolio of the beneficiaries which are critical to preparation of physical and financial plans for any area to be taken up under different horticulture crops and then budgeting for the same. Annual Plans are typically prepared by February every year by the districts and then sent to the state office for approval and allocation of budgets. The district plans are collated together under various components/heads and form part of the state plan, which is in turn approved by the SLEC and then sent to the EC of the MIDH as per the guidelines for approval and allocation of funds.

As per the guidelines, the information about the scheme, sub-components, pattern of assistance, subsidy for different components, etc., are to be conveyed through the panchayat by conducting gram sabha's in various villages. However, the guidelines also do not make the role of panchayats or woman SHGs mandatory in planning or budgeting processes at the district level while stating that the role of these bodies will only be *"commensurate with their expertise and available infrastructure'*, (section 4.10, page 10, MIDH Guidelines 2014). Theoretically, panchayat bodies have a key role to play in the planning process through identification of priorities related to horticulture area and crops as well as selection of beneficiaries. In reality though, the role of panchayats in the planning process appears to be quite limited. According to the field staff implementing the mission in the study districts, the panchayat members are more active in selecting and recommending beneficiaries for various subsidies and components in the scheme. However, this is not done as per the guidelines where gram sabha meetings are to be held and beneficiaries need to be selected in a transparent manner. The district panchayats also have a key role to play in disseminating the guidelines about the mission at the block level and below but field visits revealed that while awareness about NHM related activities was quite high amongst the elected members, most of them did not play an active role in disseminating the information. Discussions with some of the SHG group members in the study villages revealed that they had no awareness about their role in the DPCs in preparation of plans or estimates for the district.

4. Understanding the Budgeting Process under NHM

A look at the planning and budgeting process together reveals that rather than the planning process becoming the basis for budgets, it is in fact the budgetary estimates that actually determine the plans under the mission. For example, section 5.3 of the MIDH guidelines reads as follows, "Ministry of Agriculture first communicates the tentative outlay for the year to each state which in turn will indicate sector-wise/district-wise allocations. Agencies at district level will then prepare AAP keeping in view their priority and potential and submit the plan to State Horticulture/Bamboo Mission within the allocated sum", (section 5.3, page 11 MIDH Guidelines, 2014). This is further confirmed by the SHDO in one of the study districts in Madhya Pradesh who shared that, "The financial targets come to us from the directorate and then we match it with physical targets from our side". As per the guidelines, the states can also engage TSG/consultancy services for preparation of perspective/strategic/annual action plans. State Horticulture Mission in turn will prepare a consolidated proposal for state as a whole, get it vetted by the respective State Level Executive Committee (SLEC) and furnish the same, including copy in electronic format, to Ministry of Agriculture (MoA) for consideration by National Level Executive Committee (EC). However, planning which is directed by budgetary allocations also implies that budgetary allocations or expenditure do not really reflect the needs and priorities of an area and different sections of farmers in any realistic manner. The allocations under MIDH for NHM for the two states and study districts for the past two financial years is as follows:

Allocations for NHM under MIDH (Rs in Crore)

State/District	2014-15	2015-16
Madhya Pradesh*	105.00	85.00
Betul District	14.63	17.04
Bhopal (Rural) District	20.29	18.75
Andhra Pradesh	74.59 (in Cr)	119.16 (in Cr)
Anantapur	59.00 (in Cr)	66.23 (in Cr)

*Office of Commissioner of Horticulture, Vindhyachal Bhavan, Bhopal
*Directorate of Horticulture, GoAP, Hyderabad & Office of Deputy Director, Horticulture, Anantapur

While horticulture schemes are better funded than most other schemes, allocations within the state to various districts also depend on the priorities of the government. A look at the budgetary allocations here show that while the overall allocation for horticulture decreased in Madhya Pradesh during 2015-16 as compared to the previous year, whereas it significantly increased in the case of Andhra Pradesh. Budgetary allocations provided here are indicative and do not include the funding for horticulture from RKVY and the state plan. However, allocations for the two years also indicate the skewed nature of funding where smaller districts like Bhopal comprising just two blocks get larger funding as compared to Betul where the potential for horticulture is also much higher. In Andhra Pradesh, NHM is currently being implemented in 10 out of 13 districts in the state. Discussions with the officials in Anantapur indicate that allocations to this district are much higher as compared to other districts, given the plans by government of Andhra Pradesh to develop the district into a horticulture hub in future.

4.1. Provisions/Allocations for Woman Farmers

Under the MIDH guidelines, there are no specific allocations earmarked especially for woman beneficiaries under NHM. The guidelines indicate that while finalising the AAPs, due attention needs to be paid for earmarking specific targets for Scheduled Caste, Scheduled Tribe and woman beneficiaries. However, discussion with the implementing agencies at the district level shows that an attempt is made to cover 33% woman beneficiaries under various components of the scheme. Under horticulture mechanisation again, higher rates of subsidies are envisaged for woman's groups such as SHG, etc., for procuring machines and tools towards reducing drudgery and raising farm efficiency. As per the guidelines, *"Assistance for horticulture mechanisation will also be available to such grower associations, farmer groups, self help groups, woman farmer groups having at least 10 members, who are engaged in cultivation of horticultural crops, provided balance 60% of the cost of machines and tools is borne by such groups. SHM will enter into a MoU with such*

*association/groups to ensure proper upkeep, running and maintenance of the machines and tools".*There is however no gender disaggregated expenditure statement to show the percentage of expenditure spent on woman beneficiaries. Discussions with the field staff and officers involved with the mission at the district levels indicate that while attempt is made to reach out to at least 33% women, it is difficult to reach out to them since many of them do not own land on their name. Interaction with the beneficiaries in the study villages indicates that within the larger land owning classes (also castes), horticulture related subsidies have also enabled land transfers to women. However, the overall percentage of woman beneficiaries under the scheme appeared to be lower, especially amongst the SC and ST sections. In Anantapur, discussions with the horticulture officers at the field level also revealed that when it is not possible to reach out to targeted percentage of women in a district, then the money is diverted to the neighbouring district which may have higher percentage of woman beneficiaries. However, while reporting formats indicate number of male and female beneficiaries under various components of the programme, there is no separate expenditure statement for quantum of funds spent on woman beneficiaries.

5. Operational Mechanism and Strategy: Some Issues

A look at the operational mechanism and strategy adopted for implementation of the NHM at the district level and below reveals some important issues. In all the three study districts across the two study states, the NHM was being primarily implemented by the staff of the horticulture department, albeit with varying staffing pattern and structure, with often varying implications for implementation.

In Betul and Bhopal districts in Madhya Pradesh, the operational mechanism at the district level was the same with the structure and number of staff varying, based on the size of the district. In Betul district for example, the Depurty Director, Horticulture, heads the mission at the district level and is supported by a team of Senior Horticulture Development Officers (SHDO) at the block level, Horticulture Development Officers (HDO) at the circle level, below the block and the Rural Horticulture Extension Officers (RHEO) at the level of cluster of villages, below the block. The structure is the same in Bhopal district too, which is in comparison a smaller district and headed by an assistant director at the district level with a similar structure at the sub-district level as above.

Anantapur, being a large district is divided into two circles, with a Deputy Director- Horticulture (DDH), heading the district level activities while both the circles are headed by Assistant Directors Horticulture (ADH). There 63 mandals (smaller administrative units below the block) in the district have been divided into 18 divisions with 8 divisions under AD-I and 10 divisions under AD-II. The 18 divisions are headed by 18 Horticulture Officers (HO) respectively.

A gender disaggregation data of the staffing pattern in all the study districts reveals some interesting insights as below.

District	Deputy Director		Assistant Director		SHDO		HDO		RHEO	
	F	M	F	M	F	M	F	M	F	M
Bhopal	-	-	1	-	-	3	-	2	1	3
Betul	-	1	-	-	-	3	-	10	3	21
Anantapur	-	1	-	2	-	-	8	10	-	-

*Source: Office of Assistant Director, Bhopal, Office of Deputy Director Horticulture (DDH), Betul and Deputy Director, Anantapur

The staffing pattern clearly reveals gender differences, indicating that with the exception of Bhopal, the decision-making positions at higher level, including those of SHDO are mostly occupied by men. At other levels such as the HDO and RHEO too, the number of women in comparison to men is lower. In addition, Anantapur also had three technical consultants who were all men again. Given the fact that the staff, especially at the block and sub-block levels form the most critical link between the scheme and the farmers, the absence of adequate number of women at the frontline level often has negative implications for involvement or outreach of the scheme for woman farmers. Discussions with the staff at the block and sub-block levels in the above districts re-

vealed that while the physical area for coverage was often vast and large in extent, inadequate staff along with absence of transport facilities, especially for woman staff often had implications for effectively reaching out to farmers, especially women. Women officers shared that travelling long distances in the process of covering targets was a major challenge, especially since these were time-bound and tied to utilisation of allocated budgets. If targets earmarked under the scheme were not covered, it often reflected negatively on their performance. However, woman personnel felt that there was no budgeted provision for transport, especially for woman field officers. Further, the assumption was that if vehicle facilities were provided, it was likely to be misused while there was no provision or allowance separately for field visits.

Discussions with both male and female personnel in these districts also revealed that coming from technical backgrounds, most of them had very little training or exposure to gender issues in the agriculture or horticulture sectors.After their recruitment too, not many of them had participated in any training or orientation courses related to gender issues or gender based planning and project implementation processes. During discussions, many admitted that in schemes that largely involved provision of physical inputs and subsidies, there was barely any attention or focus on extension related issues and that too with a focus on gender. As one of the officers in Anantapur admits, *"a majority of our time and energy goes into just disbursing subsidies to the interested farmer-beneficiaries or keeping up with our earmarked physical and financial targets. In terms of our profile, some of us are posted as officers for technical and extension in horticulture but we barely get time to do any quality extension work. The focus is mostly on delivering subsidies"*.

There was also very minimal convergence of NHM with other schemes such as ATMA for effective extension delivery. Convergence with schemes like RKVY or micro-irrigation was more apparent since these schemes came with a physical component and higher funding. In Anantapur, while several MPEOs have been recruited for extension related activities in villages, very few have been allotted to the horticulture department. Findings from the field in Anantapur also reveals that information about various components of the scheme is actually disseminated through advertisements in the papers with contact information etc, based on which farmers who are seeking to take up horticulture approach the concerned personnel to seek details. A large part of the information is through farmer to farmer but this also means only those who have access to the paper, are literate, avail various subsidies under the scheme on a first come first serve basis. In principle then, while the scheme is expected to be demand driven, designed and delivered according to the local needs contexts and priorities, it is in practice a supply driven process, focussing largely on disbursement of subsidies and physical inputs. The implications of these processes are analysed in more detail in the next section.

6. Examining the Impact of NHM on the Ground

As per guidelines, a cluster based approach is to be adopted for various interventions such as selection of area for different horticulture crops, for production purposes and linking infrastructure and market support to the farmers. However, in practice, implementation of the scheme seemed to be largely diffuse, with individual beneficiaries for various sub-components of the programme such as area expansion under fruits and flowers, pack house, protected cultivation, polyhouse, storage unit, etc. Further, most of the components, including technologies, planting materials and seeds were delivered from private parties, with often very little hand holding extension or marketing support. The impact of some of these interventions are analysed through the use of illustrative case studies, and focus group discussions and experiences of farmers in the study districts in an attempt to draw out some of the gender related implications as well as larger questions and challenges.

The first case study discussed here is based on farmers' experience of cultivating G9 variety of tissue culture banana in a cluster of villages in Anantapur district.

Case Study 1: Banana Cultivation in Mucchakotaand Madugupalli villages

Mucchakota is a village in Peddapappur mandal, falling under Tadipatri block of Anantapur district in Andhra Pradesh. The village has around 700 households, with a population of roughly 3,500 persons. A majority of the households belong to the Reddy (OC) and Talari (BC) community, while the Mala and Madiga (SCs) comprise of around 100 households. The average land holding is around 10 acres amongst the majority of the economically better off Reddy households, some of the BC households also own between 5-8 acres of land. A large number of the SC households are landless and many of them work as agricultural labourers both in the village and in the neighbouring villages too. In most of the land holding households, land ownership is in the name of the men. In the last five years though, small parcels of the family land has also been transferred in the names of women.

NHM/SHM Intervention and its Impact

Some of the major crops that were earlier cultivated in the village include paddy, sunflower, ground nuts, chickpea, green gram, several varieties of millets, vegetables and fruits. Over the last 10 years though, Banana has become a major crop, replacing most other crops in the village. Since this village is located close to Kadapa district, cropping patterns here are mostly influenced by those in the neighbouring district. Around 10 years ago, farmers here began experimenting with traditional varieties of banana, which seemed to be suitable to the area but gradually shifted to high yielding variety of banana such as the G9 (Robusta) variety developed in private labs using tissue culture techniques and popularised under the State Horticulture Mission (SHM) in the district.

During the initial years, farmers saw an increase in their incomes. The average yield of bananas per acre was around 30 tonnes and farmers sold the crop to buyers who came to the village through the help of local marketing agents. Most of the work in banana cultivation such as preparation of land, digging of pits for planting the saplings, weeding, cleaning of suckers (over growth of shoots from the saplings) preparation of manure, fertilisers and pesticides are done by women while men are involved in purchase of planting materials, fertilisers and pesticides, operating drip irrigation as well as in marketing the produce. Farmers selected under the SHM here also got regular inputs and advise from the horticulture extension officer of the department. Several of the male farmers got opportunities to participate in various training and capacity building programmes organised by the horticulture department. The Horticulture Extension Officer for this block shares that the success of banana cultivation here is largely because of the intensive extension services provided to the farmers and capacity building of the farmers on several issues. *"Horticulture involves a lot of technical knowledge, capacities and information. Since women are busy most of the time with other farm work and men perform technical roles, men have participated in most of the training programmes and they are able to absorb the information faster"*. The department also facilitated an exposure visit for farmers to Dharmapuri district of Tamil Nadu to learn from the experiences of other farmers in that state. Most of the farmers here, including woman farmers got access to drip irrigation facility through convergence with the micro-irrigation programme of the government. Gradually, several of the surrounding villages here also started growing the hybrid variety of banana.

Over the years, farmers are experiencing a steep rise in the cost of banana production such as replacem-ent of planting materials, including saplings, fertilisers, pesticides and increasing labour costs. Cost of production per acre has risen to roughly around Rs 1 lakh. Water availability

was also becoming a challenge. Women report an increase in growth of weeds over time, requiring several rounds of weeding during the first three-four months of the banana crop. Further, water availability combined with erratic weather has adversely affected banana production. Fluctuating prices and marketing has also become a major problem.

In the neighbouring **Madugupalli village** of the same block, a large number of farmers out of the 65 odd households in the SC colony of this village have also shifted to growing the hybrid variety of G9 banana over the last few years under the SHM scheme. The village has a total number of 473 households. Prior to banana, farmers here cultivated groundnuts, pulses and vegetables. Farmers here also availed subsidies and drip irrigation facilities to cultivate banana under the scheme. The land holdings of the farmers in the SC colony are smaller (average holding being 2.5 acre) with most of them cultivating on lands assigned to them by the government. A few women also received land on their names from the government. Woman farmers shared an increase in the number of weeding cycles in the banana crop. They also shared that most of their food requirements such as paddy, pulses, millets and vegetables are being purchased from outside over time. Farmers here also report increasing costs of banana production, lack of timely availability of credit, water along with problems in accessing marketing facilities over time. Erratic weather conditions and crop damage due to attacks by wild animals were also major issues in banana production in recent years.

Farmers experiences in the above two villages raise several questions and concerns on many fronts. The first issue is the mismatch between the local context and the choice of banana, which was being promoted under NHM. In a perennially drought prone district like Anantapur, where ground water levels are also poor, the promotion of banana itself as a fruit crop appears to be a wrong choice, even if the variety being promoted is a tissue cultured one. As farmers' experiences clearly reveal, initial years of profit have paved way to rising costs of production as well as the challenge of water availability as well as marketing thus raising questions about the sustainability of promoting such a crop in the district. Farmers experiences in Madugupalli comprising largely of farmers from the SC community is again revealing in terms of the differential abilities of farmers in coping with the same technology. As compared to Mucchakota, farmers in Madugupalli have smaller holdings and also face challenges related to availing timely credit. While farmers are entirely left to take care of marketing the produce themselves, farmers in Madugupalli are more prone to the vulnerabilities of market fluctuations and pricing, given their lower holdings, credit worthiness and ability to take risks as compared to to farmers in Mucchakota, who are generally better off in terms of their socio-economic profile and land holdings. The differential impact of promoting the same crops in different socio-economic settings needs to be carefully weighed while promoting new varieties of crops under horticulture.

A comparison with Betul district, where the G9 variety is also promoted under NHM showed that given higher rainfall conditions and soil type, especially in the tribal belts of the region, the performance of the crop was much better. The beneficiaries, however, were largely individual farmers who were capable of taking risks and market the produce themselves. A visit to the DBT certified Tissue Culture (TC) laboratory set up by a private company called ET Biotechnology in Hamlapur village of Betul revealed that several lakh saplings of banana and other imported varieties were being supplied from the lab all over the state and outside.In Anantapur again, private companies and labs were involved in marketing TC varieties of saplings being distributed under NHM. While the companies also get subsidies for production, it is important to ask whether the same scale of subsidies flow to farmers. For example, a standard number of

1400 banana saplings are recommended for an acre of land, with each sapling costing Rs 20. Field visits in Anantapur also revealed that in the absence of accompanying extension support, the survival rate of these saplings is also an issue sometimes with additional costs being incurred by the farmers in purchasing planting materials. The involvement of private parties and companies provisioning seeds, saplings and a range of other services in the horticulture sector also pertinently raises questions of regulation related to quality control and accountability at several levels.

6.1 Differential Gender Impacts of Horticulture

The experience of cultivating horticulture crops clearly appears to have had differential gender impacts, with often both positive and negative impacts for women. In the case of banana cultivation illustrated above, women in both Mucchakota and Madugupalli raised the issue of food security, with food crops being gradually replaced for market oriented fruit crops for profits. Woman farmers in Madugupalli, where landholdings are much smaller shared the concern about buying food that was earlier produced in the village. The land use shifts caused by conversion of food crop lands into horticulture and its various impacts needs to be examined closer. Women farmers above also shared the issue of additional work load due to additional rounds of weeding involved in cultivating banana. In fact, this is an area where the potential of horticulture mechanisation clearly needs to be explored towards addressing women's workload and drudgery.

On the positive side, perhaps the most unintended impacts of horticulture has been the transfer of lands in the names of women which has been largely facilitated due to the availability of subsidies in the form of drip and sprinkler irrigation technologies. Land transfers to women were clearly evident in villages and households, where the holdings were larger in size. The criterion for availing drip irrigation under the micro-irrigation programmes such as APMIP and MPMIP necessitate that the land holding size be below 2 hectare (around 5 acre) in order to be considered for subsidies for availing drip irrigation. As a consequence, several households in the study villages in Anantapur had transferred lands in the names of women. In Mucchakota village in particular, discussions revealed that in the last five-eight years or so, around 35% of the households in the village had transferred land to women within the households primarily to avail drip irrigation related concessions. A closer look at the caste and land holding patterns of households that had transferred these lands to women revealed that a majority of these above households belonged to the upper caste Reddy community in the village that had always traditionally held large parcels of lands. Further, while the transfer of land to women, even if for instrumental reasons, seems empowering on the one hand, whether women actually held effective land rights in terms of influencing key decisions related to choice of crops, technologies, etc., remains a big question. In several of the villages studied, it is the men who effectively decide what to grow and where to sell, etc. In some of the villages in and around Bhopal district and Betul too, land transfers were being made in the name of women to primarily circumvent land ceiling limits as well as avail drip irrigation and other horticulture scheme related subsidies. Such lands, especially in cases where the property was self acquired, was being converted into large horticulture crops and fruit orchards in order to seek exemption from ceiling limits as well as to avail horticulture related subsidies. These experiences also raise issues related to distortion of subsidies in some ways, especially if they are being availed by large land owning farming households.

Case Study 2: Experience of Flower Cultivation under NHM, Betul District

Hanumanth Kanathe is a 37-year-old farmer living in Gunkhed village of Athneer block in Betul district. He belongs to the Kunbi community (OBC). He is a graduate in Botany and dis-

continued after a year of enrolment in a post graduate course in the same subject. He has three brothers and a sister who are all currently married. Hanumanth has always been keenly interested in farming and began by helping out his family on their 4 acres of family land even while he was a student at college. The family used to grow food crops like wheat, soya bean, a few varieties of pulses and vegetables on their farm. Livestock also provided a supplementary source of income.

As a keen farmer and learner, Hanumanth sought to learn and apply various farming techniques from other farmers, both within and outside his district. He also had the opportunity to participate in various training programmes and exposure visits to agricultural extension and research institutions as well as farms in Nagpur, Pune, Nasik, etc., in Maharashtra. During the year 2001, on one such visit to Girola village in Nagpur district, Hanumanth learnt about cultivation of exotic varieties of flowers such as chrysanthemum (locally known as *guldowdi)*.). He saw possibilities of adopting some of the techniques in cultivating these flowers in his own village, given roughly similar weather and soil conditions in both places. Initially, he began growing chrysanthemum flowers in 1/4th acre of their land and managed to get an output of 7 kg of the flower. Each kilogram of the flower was sold for Rs 480 and he made good profits from the same. Encouraged by this success, he continued with flower cultivation which he gradually expanded to around 1 acre of the family land.

During the initial years, Hanumanth managed to make good profits from cultivation of chrysanthemum since there was a good market for these flowers, especially during festivals and wedding period in Nagpur in the neighbouring state. He also purchased another 6 acres of land from another farmer in the village. Subsequently, under the NHM scheme, he was able to avail drip irrigation facilities through his mother since a part of the family land was registered in her name. Hanumanth got the opportunity to participate in training and exposure visits as well as extension inputs and advice from horticulture officers as a beneficiary of the scheme.

Over the years though, Hanumanth shares that there has been a steep fall in profits while the input costs of cultivating flowers have increased several times over. He attributes this situation to several factors. Firstly, from being a lone farmer cultivating chrysanthemum, there are today over 50 farmers in this village who are cultivating these flowers in roughly 100 acre. Several of them have also received inputs and support under the NHM scheme. There has been an overall increase in supply of flowers from this village. Secondly, soil fertility has also deteriorated due to increased use of fertilisers and pesticides and this has adversely impacted flower yields over the years. Additionally, cost of production has increased from Rs 3000 an acre to almost 20,000 or more per acre depending on soil conditions while labour costs have also gone up. Farmers also incur additional costs on transportation to Nagpur market since there is no local market for these flowers – an important factor that has made a dent into profits is a fall in prices for these flowers. In 2014, a kilogram of the flowers fetched only Rs 80 in the market as against Rs 180-300 during the earlier period. Summing up his experience, Hanumanth says, *"Farming is only profitable, if you do it all yourself, otherwise it is all losses. It is also important to alternate the land under flower cultivation with other food crops and practice mixed cropping. This will ensure protection of soil fertility apart from helping to offset losses in flower cultivation".*

Case Study 3: Experience of Sweet Lime Cultivation under NHM, Anantapur District

Ramavat Bujjakka is a 45 year old farmer living in Palyam village of Gooty block in Anantapur district of Andhra Pradesh. She belongs to the Lambada Tribal Community (ST). She lost

her husband several years ago and has three children. Bujjaka attended primary school but dropped out of school due to financial hardship at home.

The family owns a total of 4. 5 acres of land. The land continues to be in the names of her father-in-law, her husband and his brother despite the death of both her husband and his father. Out of the 4.5 acres of family land, Bujjakka has been cultivating sweet lime in 2.5 acres for the past 12 years. Over the past five years, she has received support under the NHM scheme for cultivating sweet lime in the form of new saplings and for pruning and canopy management. She has also received subsidy for some saplings under the MGMNREGS scheme. Bujjakka herself works on the farm everyday apart from taking care of her household and her children who go to school and college.

Most of the households in the village belong to the ST community and have been growing sweet lime for several years apart from groundnut, paddy and vegetables like okra, brinjal, tomato and onion. Sharing her experience of cultivating sweet lime, Bujjakka says that during the initial years, cost of production was reasonable and the returns were good owing to good prices for the fruit in the market. The soil quality and water availability in the village were also other favourable factors. Over the years though, the overall area under sweet lime has come down drastically in the village. Bujjakka shares that the primary reason for this is the severe shortage of water due to depletion of ground water levels in the village. Several bore wells in the village have failed due to fall in ground water tables. Like other farmers here, she also had to spend money hiring water tankers for wetting the sweet lime crop and saving it from drying up. Pest infestation has also increased over the years leading to higher doses of pesticide usage. The average cost of production has also gone up to Rs 30,000 per acre. Bujjakka further shares that most of the time, inputs and advice around pesticide and fertiliser use are mostly given by private dealers who visit the village on a regular basis. Accessing bank credit is a major challenge for her. There is also crop loss due to attack by wild animals. However, there is no provision under SHM for fencing or insurance against natural calamities like drought or hail storms. Ironically, the price of sweet lime in the market has gone up in recent times to Rs 45,000-50,000 per tonne. But market access and value addition continues to be a major issue, especially for farmers like Bujjakka. Several farmers here make their own arrangements for marketing the produce. There are no pack houses or storage centres for storing the fruit in the village. All the grading, packing, etc., are done by the private dealers who come to the village from Anantapur town or even from Chennai and Hyderabad city to purchase the fruit. The price offered by the dealers or marketing agents is often lower than the actual market rate. Bujjakka shares that under these circumstances, most of the farmers in the village including her, have shifted to cultivating varieties of millet crops like finger millets and foxtail millets. These crops withstand adverse weather conditions and require minimal inputs and there is also a huge demand in the market for these crops, she says.

It is again useful to compare the above two case studies to highlight the differential experiences of men and women involved in horticulture, albeit the differing geographical contexts outlined above. The experience of Hanumanth Kanathe reveals that as an educated male farmer with mobility and exposure to various horticulture technologies, his ability to take risks, even in the volatile markets and fall in incomes is higher. However, in the case of women like Ramavat Bujjakka, the risk of higher input costs, lack of extension support as well as market fluctuations can result in adverse consequences for their livelihoods. These experiences again indicate the need for factoring in differential priorities of men and women, especially single women who are seeking to sustain in horticulture and the need for support systems and subsidies for them.

7. Assessing Impact: Issues with Monitoring and Evaluation Processes

A look at the monitoring and evaluation systems within the NHM scheme in the study districts reveals that the focus of the M&E is largely on reporting on physical and financial targets projected and achieved under some of the broad areas of intervention in the scheme. While there is gender disaggregation of data broadly around number of men and women participating in various activities under NHM, this alone is not sufficient. Further, a look at the concurrent evaluation reports by the Joint Inspection Teams (JIT) also indicates that there is little or no focus on gender related issues or a gender audit of various components in NHM as part of these evaluations. The JIT reports for Madhya Pradesh for example are mostly focussed on the physical and technical aspects of horticulture and not on the social dimensions or even issues on like the impact of land use shifts due to horticulture promotion in different areas, etc.

The reporting formats under the scheme needs to be backed with gender disaggregated expenditure statements as well as with qualitative data and narrative reports to demonstrate the actual impact of interventions and budgets spent as well the changes in the lives of men and women at various levels. This would involve a thorough re-orientation of other related processes such as planning, budgeting, implementation mechanism, including importantly capacity building processes too within the scheme to enable effective targeting and outreach of women, especially from sections such as SCs and STs possible in extension services. Key changes in the form of Institutional and policy mechanisms at the central and the state level are important to enable and support the above processes. During a training workshop on GRB for officers of the agriculture and horticulture departments in Andhra Pradesh, the officers from the horticulture department reported that they had received revised formats with gender related indicators this year (2016) for filling in information related to various components of NHM. However, there were no detailed guidelines to support or help the personnel in accurately filling in the detailed budgeting formats. There was also a suggestion from the officers participating in the above training from various districts that the appointment of gender nodal officers at the directorate level along with training a group of master trainers in Gender Responsive Planning and Budgeting Processes will also go long way in institutionalising these processes.

Towards a Methodological Framework for Application of GRB in the Agriculture Sector

The starting point for this action research has been that while GRB has made some important strides over the past decade in India, perhaps the biggest stumbling block has been its sectoral application in any expansive manner. While there is no blue print approach to applying GRB, its potential for sectoral application in different contexts has often been limited by the lack of appropriate methodological frameworks and tools that can be suitably adapted and creatively customised to suit a given context or sector. Using the insights and outcomes of this action research process as a basis, an attempt is made here to consolidate or summarise a methodological framework for application of GRB in the form of some key steps and processes which are outlined as follows.

- The first step in the GRB analysis of the agriculture sector involves a gender analysis of the agriculture sector that is aimed at understanding the specific challenges and problems being faced by women and men across different sections of the farming community. This exercise could be undertaken through a secondary review of existing literature and data that already exists in the form of Census data, Agriculture Census, reports based on various research studies etc. Alternatively, gender analysis of the sector can also be done in a selected field area or site. Again, a whole range of participatory tools and techniques such as resource mapping, transect walks, problem ranking, focus group discussions, case studies, life histories, etc., can be creatively used with different sections of farmers to generate a nuanced understanding of issues from a gender lens.

- The second step in the GRB process involves a critical review of sectoral policies, schemes and programmes in order to understand whether these suitably address the differential needs, priorities and problems of women and men engaged in farming in different contexts. This sectoral review of policies, schemes, etc., could again be undertaken based on an extensive review of secondary data and literature that is available on government websites (both at central and state level) as well as looking at other research studies, reports based on empirical, micro–studies, etc.

- A third important step in the GRB analysis involves looking at budgetary allocations for the agriculture sector in India as well as specific allocations for various schemes and programmes from a gender lens. The budget analysis could focus on understanding the nature of funding, subsidy or assistance patterns across different schemes, analysing funding patterns for separate schemes for woman farmers as well as on changing patterns of funding related to ongoing or new schemes that have earmarked allocations for women, etc. It is also useful to understand changes in budgetary allocations for various schemes and key shifts, if any in these allocations over time, in the light of macro-policy shifts and political changes in order to draw out larger gender implications for the farming sector.

- This research also demonstrates the value of identifying and studying select schemes in the agriculture sector in order to develop an in depth understanding of gender related issues that are involved in operationalising a scheme. This could then form an important fourth step in the GRB application process. In order to do this, it is useful to start with schemes that have an earmarked percentage of allocations, specifically for woman farmers. Further, it is also useful to start with those schemes that have clear operational guidelines to support the implementation of the schemes at various levels. Gender analysis of select schemes can in turn involve several sub-steps outlined as follows.

    - The first step in the GRB analysis of a scheme could be to begin with a gender analysis of the scheme guidelines. This involves looking at how women and men in the agriculture sector are visualised in the scheme along with attempting to understand how their concerns and priorities are reflected in the scheme objectives and strategies. Equally important would be to understand whether the strategies and objectives are adequately gender mainstreamed to address gender related challenges and problems in agriculture.

    - Collection of gender-disaggregated data (including compilation and consolidation of existing data base) on various indicators such as number of women and men involved in farming as cultivators, agricultural workers, etc., along with caste and land holding patterns is an important second step, prior to planning.

    - The third important step then can be planning, using the gender disaggregated data base. Purposive planning should ideally begin with a review of ongoing interventions in terms of their responsiveness in relation to the differential needs, concerns and priorities of various sections of women and men in the farming community and integrating these insights into the preparation of Annual plans and quarterly plans. Preparation of annual action plans (AAPs) and related formats must be done in a manner that reflects the above concerns and insights. In addition, convergent gender planning with other departments, wherever possible, is again important, especially where there are schemes/budgets with overlapping objectives.

    - The next step could be to look at the operational strategies related to the scheme to see whether they are adequately gender sensitive and responsive to the local contexts and needs of women and men and whether they are consistent with the gender related objectives and outcomes envisaged in the scheme guidelines. At the level of implementation, it is also important to look at the staffing pattern in terms of how many men and women are there at various levels of operation/administration in the department, their capacities and skills, levels of gender awareness and sensitivity in responding to gender related issues as well as opportunities for upgrading skills and their capacities through training and non-training avenues and also the support systems and mechanisms for different personnel to effectively perform their roles and responsibilities. It becomes imperative to ask whether there are earmarked budgets for taking up the above activities.

    - Analysing budgets is then an important step in the GRB framework that has to complement the above steps and not be seen as a separate activity. This analysis must focus on whether allocations to woman farmers belonging to different sections (SC, ST, minority, etc) have been made in response to their differential needs and concerns. It is important to mention here that gender responsive budgeting is also about realistically factoring in the additional costs involved in reaching out to women and men of different sections, if effective targeting and coverage of the marginalised sections have to be achieved under any scheme funded by the government.This involves continuous review of all the above budgetary allocations are re-

quired,including training andcapacity building of staff on gender issues. Equally important is the need to analyse whether earmarked allocations for woman farmers have actually been spent within the selected schemes. This means developing gender disaggregated expenditure statements that meaningfully reflect the extent to which women and men of various sections have benefitted from the scheme. Insights from budgeting processes emerging from this research indicate that inadequate allocations and inadequate spending/expenditure reflect poor planning and outreach of schemes to intended sections, such as women.

- As a last step, assessing the existing monitoring and reporting systems, including external/third party evaluations, etc., is important in order to understand whether they focus on merely physical and financial targets and outputs alone or if they meaningfully reflect the impact of interventions and schemes at various levels in the lives of men and women in the farming community. This importantly includes asking whether there are gender disaggregated data and management information systems (MIS) in place at various levels to periodically track and monitor both the qualitative and quantitative impacts of various interventions in the sector on various sections. This research reveals that it is important to have monitoring, evaluation and learning (MEL) systems that are continuously responsive to the changing needs and priorities of the various sections of the farming community, especially women, that can in turn meaningfully inform purposive planning and policy related processes at various levels.

- Finally, the findings from the GRB analysis at various levels must also be used as a basis for revisiting operational guidelines and objectives related to various schemes and revising the same from time to time in response to varying needs and challenges of women and men involved in agriculture.

As GRB continues to be applied in a more expansive manner across various sectors in India, innovative methodological frameworks and tools will gradually evolve over time. It is hoped that this research may possibly offer a small opening in terms of offering a framework for its practical application in the agriculture sector.

PART-III

Conclusions and Key Policy Recommendations

Conclusions and Key Policy Recommendations

This study on GRB analysis of the agriculture sector began with a review of secondary literature, existing data and relevant policy reports and documents to understand the key constraints and challenges being faced by different categories of woman farmers across the country. Evidence from various studies and nationally enumerative surveys and data systems point to the fact that a vast majority of female workforce in India is concentrated in agriculture and more woman-days, as compared to men's time and work, go into every acre of land cultivated across crops and regions. However, the enormous contribution of woman farmers goes unrecognised and unsupported by society and state alike, and woman farmers are not even recognised as farmers in their own right. Evidence also indicates that women's access and ownership to land, which is a key resource for farming, is mediated by a complicated web of social, legal and customary patriarchal norms in different parts of India. Lack of ownership and control over land is also one of the major impediments to woman farmers from accessing credit, inputs, seeds, extension services and a range of other schemes, and support systems that are critical to sustaining agriculture.

Amongst woman farmers again there are cultivators on own lands, cultivators on family-owned lands, share-croppers and tenants, women dependent on forests, pastoralists, woman livestock farmers, female agricultural workers and so on. As per India's National Policy for Farmers 2007, all of these women are rightfully classifiable as farmers. Various other research findings point to the fact that if woman farmers are treated on par with male farmers, incremental agricultural productivity improvements are bound to take place on plots farmed by women. Gender equity therefore is an important concern for sustainable agricultural development. With increasing feminisation of agriculture, it is important to recognise the critical role that woman farmers play in agriculture, and also underscore the importance of agriculture in the lives of a majority of female workers in the country.

To empower women farmers in agriculture, the broad policy measures that are urgently required include:

(i) Addressing the lack of visibility and identity of woman farmers
(ii) Securing their rights over resources, both individual and commons such as land, water, etc
(iii) Creating and ensuring entitlements over agricultural services (credit, insurance, technologies, extension services, inputs such as seeds, etc) on par with male farmers
(iv) Providing social protection cover in the form of better working conditions, equal wages, pensions, child care support,maternity entitlements, etc
(v) Guaranteeing equal space for woman farmers in all decision-making bodies related to agriculture

Some of the specific policy recommendations flowing from the above identified priority areas are as follows:

- **Identifying & Registering Woman Farmers**: Efforts must be made to identify and enumerate/register various categories of woman farmers from the revenue village upwards in a time bound manner, backed by suitable guidelines issued for this purpose from the concerned ministries at the central level. The process to be adopted for this enumeration could be broadly similar to the one followed for registering workers and entitling them to job cards under the MGNREGS scheme being imple-

mented all over the country. The registration drive must be backed by wide publicity and required budgets to enable all categories of woman farmers to self-register themselves and avail identity cards as farmers. This could be a concrete step towards operationalising the expansive/widely inclusive definition of farmers, applicable as per the National Policy for Farmers, 2007.

- **Enhancing Women's Rights to Public Land**: Through a combination of measures such as enumerating and prioritising landless women especially from SC, ST sections (including those from farm suicide-affected households, liberated manual scavengers, etc) in all public land distribution, land assignment programmes and giving them secure, inalienable rights over such land. Lands thus assigned to such landless women must not be alienated to any other public purpose and assignment conditions must include a clause related to development of such lands by the government. Further, state tenancy laws must be reviewed and suitably amended to allow leasing of all unused, potentially cultivable lands (endowment lands, ponds, water bodies, canal embankments, inland fisheries rights, etc) to landless woman's groups while recognising such groups (SHGs, JLG, cooperative, other collectives) as a valid category of landowners eligible for coverage under various schemes.. Also, all unused land available with government, railways, irrigation department, canals, highway department should be allotted to woman farmer collectives for agriculture development and livelihood promotion. Support must be provided through convergence planning and budgets for converting cultivable fallows into food production farms including millets, under woman farmer leadership to produce millets, pulses, other food crops and fodder.

- **Equal Rights over Private Land**: Regarding private land, greater awareness drive and campaigns must be taken by the State Revenue Departments to create awareness amongst women about their rights under the Hindu Succession Amendment Act (HSAA) 2005. Further, joint registration of land with spouses has to be encouraged along with measures such as concessions in registration fee, stamp duty, etc., to incentivise land transfers to women. Gujarat has set an important example in this context.

- **Women's Rights over Commons**: Women farmers access to and control over commons like forests, grazing lands, water resources, etc., needs be prioritised and strengthened, including their role in the management and governance of these commons. Government must also ensure dovetailing of various schemes and budgets through convergence planning for enhancing the knowledge, capacities and other support systems such as irrigation, credit, etc., especially for marginalised women (SC/ST) whose dependence on common lands is higher.

- **Gender-disaggregated Land and Livestock Database**: All state governments must initiate efforts to develop and maintain a gender disaggregated database consisting of extent of land holdings (both public/assigned lands and private lands) by women across various castes, classes, etc., to enable better targeting and outreach of various agricultural schemes. This initiative must include recording women's names in all relevant land records from the village level upwards. central government (Department of Land Records) should issue specific directions and clear guidelines to all state governments to take up this exercise. Efforts must also be initiated to collect and maintain data related to livestock ownership by women across various castes and communities.

- **Women Resource Cells**: A single window system in the form of 'Women Resource Cell' should be created from the mandal/block level upwards in the revenue departments in all states that aims to address and resolve all land issues related to women in a time -bound manner.

- **Mainstreaming Time Use Surveys**: Collaborative initiatives must be undertaken between the DAC & FW and the Ministry of Statistics and Planning (MoSPI) to accurately capture and reflect women's work in the agriculture and allied sectors through

mainstreaming time use surveys as well as ensuring that the data from such surveys, carried out at regular intervals informs policies and programmes in the agriculture and allied sectors, including gender differentials in wages, gender sensitive social security policies etc.

- **Constitution of Joint Liability Groups of woman farmers**: Irrespective of their land ownership so that credit can be accessed, that too on par with the other Kisan Credit Card benefits needs to be expanded. Recording of woman farmers' name in the Cultivator's column of land records would further enable them to access institutional credit along with their inclusion under crop insurance schemes and other such compensation packages in the event of natural calamities, disasters, etc.

- **Inclusion of Woman farmers in Extension**: Concerted efforts should be made to ensure that all concerned line departments related to agriculture, horticulture, animal husbandry, etc., include woman farmers in their extension services. Inclusion of modules on woman farmers and women's land rights in the training of agriculture officers and extension personnel and revenue officials is important. In addition, efforts should be made to utilise the skills and capacities of successful woman farmers as last mile extension workers and trainers or 'Krishi Sakhis' and community resource persons to reach out to other woman farmers.

- Government should ensure that various schemes and programmes build technical capacities of woman farmers to take up sustainable farming, soil conservation, social forestry, dairy development, horticulture, livestock rearing including small animal husbandry, poultry, fisheries, etc., to benefit woman farmers. Woman farmers should be technically equipped by also training and capacity building through dissemination of information related to sustainable agriculture, credit, market, government schemes, financial literacy, enterprise management, legal literacy, etc.

- Women have been champions of sustainable farming, and have also conserved natural resources including seed diversity. Women have been the seed selection agents, conservers and savers in agriculture for their communities. There are also other associated knowledge systems that woman farmers hold – agricultural research and development should be furthered keeping in mind woman's farmers existing knowledge and skills, and also their needs, priorities and preferences.

- Mahila Kisan Sashaktikaran Pariyojana (MKSP) should be scaled out/replicated on a massive scale, and strengthened.

- To reduce the burden of gendered roles and responsibility related to food security and other household needs, and to also build on women's existing skills and knowledge, women should be supported for running seed banks that revive seed diversity and promote seed self-reliance; similarly, tool banks with gender friendly tools for drudgery reduction need to be set up in all villages through custom hiring centres under the SMAM of NMAET. The Food Security Army/Green Army experience in Kerala may be suitably modified and replicated for the purpose.

Finances and Budgetary Allocations

- Allocation for agriculture budget should be at least 25% of total budget allocations.

- Allocations for women across all schemes must be in at least 50% or in proportion to the percentage of women's involvement in agriculture in various agro-geological contexts across the country.

- At least two-third of loans given should be subsidies/grants. Financial institutions should provide customised terms and conditions for loans to woman farmers including SC, ST, single women and differently-abled women. All woman farmers including tenants and share croppers should have access to bank accounts (Jan Dhan Yojana), credit, irrespective of land title deeds, and Kisan Credit Cards.

- Financial support should be provided to woman's farmer collectives to lease or develop infrastruc-

ture for maintaining grain banks, seed banks, godowns for storage of crops and also for primary agriculture processing. In this, priority should be given to Dalitand SC/ST hamlets.

- Adequate and appropriate disaster compensation fund should be set aside, specifically to support woman farmers to cope with climate change induced extreme calamities like drought, flood and hailstorm. Public investments should be made in communitarian agro-enterprise development, with adequate handholding until the enterprise manages to take off, including on capacity building on various fronts.

- At least 30% of all fertiliser subsidies to begin with should to be given to organic agricultural inputs procured from woman's collectives.

- 70% of all investments in agriculture (assets, inputs, energy, irrigation, credit) under various schemes of the Agriculture Ministry must be targeted at woman farmers.

- Separate budgetary provision and targets (central and state) for capacity building and input support for woman farmers must be worked out.

- Separate budgets must be allocated to provision social security and public healthcare services, including maternity entitlements for woman farmers and workers under various schemes of the ministry. This is in the context of privatised health care cost adding to the debt burden of farming households who are already reeling under acute agrarian distress.

By Way of Conclusion...

In an attempt to understand how agriculture schemes containing earmarked allocations for women are actually operationalised, this study attempted to examine two such centrally-funded schemes under the DAC & FW – the ATMA scheme under the modified NMAET of the government and the NHM, a sub-mission under the MIDH, also under the Horticulture division of the DAC. The schemes were studied in two select districts (Betul and Anantapur) of two states, Madhya Pradesh in Central India and Andhra Pradesh in South India.

The ATMA scheme was launched with the specific objective of bringing in reforms in the extension system by way of decentralisation of research and extension along with convergence with various line departments and research institutions and providing decision-making space for farmers, especially woman farmers to voice their needs. More importantly, the introduction of ATMA marks a shift from crop based extension delivery to a more holistic, group or cluster based approach based on the ideology of convergence amongst various departments. The induction of additional extension personnel at various levels as well as infrastructure support are important changes introduced through ATMA. In practice though, the manner in which ATMA is being implemented raises important questions and concerns about the manner in which extension reforms actually bear out on ground and whether re-engineered extension architecture through additional infrastructure and more personnel actually meets the changing priorities and extension needs of farmers, especially woman farmers on ground.

The National Horticulture Mission was formally launched in the year 2005 with the overall objective of giving a fillip to the holistic growth of horticulture crops such as fruits, flowers, spices, etc., through area specific, regionally differentiated strategies, which includes research, technology promotion, extension, post harvest management, processing and marketing, in consonance with the comparative advantage of each state/region and its diverse agro-climatic features. Encouraging aggregation of farmers into farmer groups like FIGs/FPOs and FPCs to bring economy of scale and scope as well as enhancing farmers, income and strengthening nutritional security, improving productivity by way of quality germplasm, planting material and water use efficiency through micro-irrigation as well as supporting skill development and creating employment generation opportunities for rural youth in horticulture and post harvest management, especially in the cold chain sector form some

of the key objectives of the NHM. The study reveals that the overall push within the horticulture sector towards high-end technologies like polyhouse and tissue-culture as well as input-intensive cultivation of horticulture crops is bringing in important shifts in land use patterns with often differential gender impacts for men and women. With shifts in land use and dependence on volatile markets for horticulture crops, food and nutritional security are at stake, especially for women and children.

In many ways, this study brings out the stark contrast in funding patterns between various schemes of thegovernment reflecting also the changing priorities and macro-policy shifts at the national level. Findings from the study of the ATMA and the NHM brings out what can be termed as 'small ticket subsidies' that the ATMA scheme represents, as opposed to the "big ticket subsidies' that characterises the NHM. This hugely contrasting and even contradictory approach to funding various schemes is amply evident for example in the case of individual farmers, who are very often well to do availing subsidies to the extent of almost Rs 16 lakh under the intensive technologies or polyhouse farming initiatives being promoted under NHM. In sharp contrast, groups of women (around 10-12) as part of the food security group (FSG) receive an amount of no more than Rs 10,000 per group, under the ATMA scheme! Even here, with limited funding, the number of FSGs that women can form is limited to only around two per block! What is also more disturbing is the ideological framework underpinning these schemes, where poorly funded woman's groups are expected to take on the burden of food security while individual (often male) farmers are given huge subsidies for taking up high-input, high-end technology driven horticulture crops. While the NHM envisages supporting institutions or farmer collectives in the form of SHGs, FPOs, etc., in order to enhance their income and nutritional security, there was no sufficient evidence of these objectives being borne out on the ground. In fact, there are indications from this research that the nature and type of horticulture crops being promoted through NHM, with additional funding also coming in from RKVY, etc., is actually compromising the food and nutritional security of local communities. Further, the manner in which these two schemes have been designed, funded and implemented also starkly reflect the differential constituency of farmers who they seek to address, speak or reach out to! By virtue of its focus on promoting certain kinds of high-input and high-end technology based fruits, flower or vegetable crops, the NHM invariably excludes the poor, and especially the women from poorer sections. While the ATMA scheme envisages mainstreaming gender concerns across all the initiatives, as part of the extension reforms that it envisages, evidence from this research again indicates that women are largely sought to be gender stereotyped in their traditional roles as food security providers or nurturers through activities such as food security groups, nursery promotion, etc., which do not offer enough space for women to move beyond and assert themselves as farmers in their own rights. This research also throws open the larger question of whether the extension reform that was envisaged through the ATMA is in tune with the changing aspirations, priorities and challenges confronting different sections of woman farmers in diverse agro-ecological conditions in the current context. Some of the larger issues and questions that this initial research opens up require to be probed in detail in future.

Recommendations Related to ATMA and NHM

Based on the study findings, some of the key recommendations aimed at strengthening the gender perspective within these two schemes as well as meaningfully improving the schemes in favour of woman farmers are as follows.

- **Reformulation of scheme guidelines with clear gender mainstreaming processes** laid out for purposive planning, budgeting and implementation mechanism as well as monitoring and impact assessment systems at various levels. Under ATMA, the SREPs must be revised in all districts by incorporating differential gender needs and extension priorities of different sections of farmers as against the changing agrarian context.

- **The terminology of "farm women' (used interchangeably with woman farmers** in the ATMA

guidelines) must be replaced with woman farmers in an attempt to recognise and strengthen the identity of women as farmers in their own right.

- **Enhancing allocations to woman farmers from the current 30% to at least 50%** or in proportion to their involvement in farming in a given area with clear mechanisms for tracking and ensuring the budgetary allocations and expenditure as well as impacts laid out

- **Monitoring and Reporting Systems under both schemes must be revised** to reflect qualitative, gender differentiated changes in the lives of male and female farmers as an outcome of various interventions under the scheme.

- **Recruitment of gender coordinators** or gender nodal officers at the respective directorates at the state level and ideally at the district levels too, to hand hold, build capacities and continuously anchor the gender mainstreaming processes

- **Institutionalisation of GRB in the agriculture and horticulture departments through creation of Gender Budget Cells (GBC) within these departments.** The composition of the GBC must include personnel from the planning, finance and Department of Women and Child Welfare. The GBCs must be mandated with a clear role in all aspects of planning, budgeting, concurrent monitoring and evaluation of various schemes as well as capacity building of department personnel on gender issues.

- **Gender sensitisation/training to be made a mandatory** activity under ATMA cafeteria for all functionaries along with being made a part of induction and refresher courses. Such trainings are important for personnel of horticulture department too at periodic intervals and should be made mandatory for incorporating gender concerns at various levels for all the initiatives.

- **The existing contractual staff under ATMA scheme and the Horticulture Department need to be absorbed as full time staff** into the department in the long run. Additional staff, especially woman extension workers must be recruited at the block level and below and concerted efforts and budgets must be dedicated to building their capacities on gender related issues in the sector.

- **Purposive and convergent planning** at the block and panchayat level must be undertaken with a focus on gender issues in order to achieve meaningful outcomes between multiple programmes and schemes (both central and state funded) with overlapping objectives and aims.

- Enhancing the technical capacities and skills of woman farmers is important especially to enable them to take up collective activities under NHM, supported in turn under ATMA.

- **Budgeting needs to factor in the additional cost involved** in integrating gender related concerns into a scheme – from purposive planning, training and capacity building of both, personnel and farmers, implementation, etc. A certain percentage of untied funds to be kept aside as part of each scheme for these purposes.

- **At the panchayat level, periodic gender audit of all schemes,** including implementation gaps, allocations, etc., needs to be institutionalised and the feedback from the same needs to be used for corrective measures. Special mahila gram sabhas need to be organised to focus on auditing various schemes with allocations for women. This initiative needs to be backed with appropriate GOs/circulars from the MoRD, followed by specific measures from the Department of PR & RD at the state level.

- **The agriculture and horticulture departments must work in tandem to ensure that food crop production lands are not diverted to high-end, horticulture crops** such as flowers and exotic variety of fruits, etc., that can potentially hamper

food security. This involves concurrent land use planning along with the revenue department to ensure sustainable land use and food security in the long run.

- **Some of the schemes under the DAC could be consciously designed to incentivise land transfers to women.** The example of micro-irrigation linkage under the NHM that emerges from this study is an important pointer. However, the potential downside of such initiatives in terms of consolidation of land holdings amongst certain class/caste groups, as well as possible distortion of subsidies in the process also needs to be carefully examined.

Overall, what appears to be emerging from this study is that at the central Level, initiatives in the form of revising the operational guidelines of all schemes and missions/sub-missions under the DAC from a gender perspective with clear operational mechanisms for mainstreaming gender related processes at various levels along with adequate budgetary support are important. At the state level, the establishment of "Gender Responsive Planning and Budgeting" (GRPB) cells, with dedicated staff in the form of gender coordinators at the state, district and block levels would go a long way in institutionalising purposive planning and budgeting in an meaningful manner at all levels in a coordinated manner.

While the scale and scope of this study is limited to an analysis of just two schemes for the purposes of understanding GRB in the agriculture sector, the methodology and the findings offer a useful framework for applicability to understanding other schemes, both under the DAC as well as under other ministries/departments at the national and state levels. It is hoped that the findings and recommendations from this study will be used by policymakers at various levels to bring in meaningful changes not just within schemes but also take proactive measures to institutionalise gender responsive planning and budgeting mechanisms to meaningfully address the emerging needs and aspirations of different sections of woman farmers in India.

UN Women is the United Nations organisation dedicated to gender equality and the empowerment of women. A global champion for women and girls, UN Women was established to accelerate progress on meeting their rights worldwide. UN Women supports United Nations Member States as they set global standards for achieving gender equality, and works with governments and civil society to design laws, policies, programmes and services needed to implement these standards. It stands behind women's equal participation in all aspects of life, focusing on five priority areas: increasing women's leadership and participation; ending violence against women; engaging women in all aspects of peace and security processes; enhancing women's economic empowerment; and making gender equality central to national development planning and budgeting. UN Women also leads, coordinates and promotes the United Nations system's work in advancing gender equality.

UN WOMEN
United Nations Entity for Gender Equality and the Empowerment of Women

C-83, Defence Colony
New Delhi 110024 INDIA
Tel: +91-11-4045 2307

www.unwomen.org