

# **Women empowerment and dynamics in SAT agriculture and the role of technology**

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**International Crops Research Institute for the Semi-Arid Tropics,**

**Patancheru, Andhra Pradesh**

**By**

**Emon Banerjee**



**International Crops Research Institute for the Semi-Arid Tropics**

**Patancheru, 502 324**

**Andhra Pradesh, India**

**[icrisat@cgiar.org](mailto:icrisat@cgiar.org)**

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# 1. Introduction

India is a country where women are worshipped as goddesses (devis) in numerous forms. In fact, few of the most powerful Gods in Hindu mythology are in the female form of Kali, Durga, Lakshmi, Saraswati. Yet, the crime rate against women in India is one of the highest in the world. Discrimination with respect to sexes is also glaring. When we talk of Indian women in general, what we envisage is a submissive, docile lady contrary to the fiery, powerful forms of women whom we worship. India has a sex ratio of 940 females to 1000 males(census 2011). Literacy rate for males is 82.14% and for the females is 65.45%(census 2011). India also missed its millennium development goal deadline of 2005 of eliminating gender disparity in primary and secondary education. The latest(2008) figures for Gross Enrolment Ratio according to the Gender parity Index is 0.97 in Primary Education, 0.82 in Secondary Education and 0.7 in Tertiary education(Education for All- Global Monitoring Report UNESCO). Any statistic of India that brings out the gender parity is skewed in the favour of the males. Why is the situation so, at a time where we have a women president leading the country, where few of the most successful entrepreneurs, business persons and bureaucrats are women, is a question that we all brood about in our minds. Is it that, women in human form are less powerful and thus, the respect that we have for them plummets in the real world? We would rather not think so.

Also there is a significant transition in the demeanour of women as we move from urban to rural areas. Where women in urban areas are increasingly supplementing their roles as homemaker with a consistent income from outside jobs, rural women are still battling with poverty and inequality within the family, let alone outside despite increasingly earning for the family from daily casual work. In SAT regions which are often characterised by scanty and uncertain rainfall , on which agricultural production largely depends, infertile soils, poor infrastructure, extreme poverty, rapid population growth, and high risks,(Thomas S. Walker and James G. Ryan, 1990, Village and household Economies in India's Semi Arid Tropics) the situation of women is even more precarious with respect to access to resources and the empowerment scenario.

On one hand where there is extensive feminisation of labour force in agriculture in India, the underlying fact remains that the composition of main to marginal workers among rural female workers changed from 70:30 in 1991 to 54:46 in 2001 whereas the composition of the rural male workers is still heavily tilted towards main workers – from 98:2 in 1991 to 85:15

in 2001, Primarily, work opportunities did not keep pace with the demand for work in the economy as a whole and, particularly, in the rural sector. Being poor, people accept even marginal work rather than remaining unemployed. Hence, the share of marginal workforce has increased. (Swarna S. Vepa, EPW, June 18, 2005). Marginal workers are those workers who had not worked for the major part of the reference period i.e. less than 6 months/ 183 days (Government of India, Ministry of Home Affairs). This is a clear indicator of casualization of the female work force without the benefits of a stable source of income.

Economists have tended to approach the labour markets as neutral arenas in which buyers and sellers interact. By contrast markets are gendered institutions which operate at the intersection of the productive and reproductive economies-that is, as markets structured by gendered practices, perceptions, norms and networks(Elson, D., 1999 'Labour Markets as Gendered Institutions: Equality, Efficiency and Empowerment Issues' World Development 27:3).Statistics show a general trend in the feminisation of workforce over a period of time, or the increase or decrease in the absolute numbers in male-female work force participation. Though this gives an actual picture of the dynamics of the labour market, little does it speak about the factors driving the actual well being of the women participants of the market? Thus, there is an increasing build-up of interest in empowerment studies. In the light of this there are numerous authors who have made significant contribution towards understanding and explaining notions of empowerment or lighting up the to the world why is there a need for empowering women.

Third World countries are increasingly forced to rely on internal resource mobilisation to make up for sharp reductions in external aid and resources. Alongside this, development processes are often indifferent to the interests and needs of the poor. In this scenario, women's contributions – as workers and as managers of human welfare – are central to the ability of households, communities and nations to tackle the resulting crisis. However, women suffer from decreased access to resources and increased demands on their labour and time. If human survival is the world's most pressing problem, and if women are crucial to that survival, then the empowerment of women is essential for the emergence of new, creative and cooperative solutions.(Sen, G. and Grown, C. ,1985 Development, Crisis, and Alternative Visions: Third World Women's Perspectives, DAWN). India though is a developing country, the SAT areas are extremely resource poor and due to the particularity of dryland agriculture, public policies or investment initiatives have bleaker prospects of

achieving success in dryland than in irrigated areas (Thomas S. Walker and James G. Ryan, 1990, Village and household Economies in India's Semi Arid Tropics).

It thus becomes all the more important to study women with a perspective of productive form of human capital who has equal rights with men to make equal or similar contributions to the society. Especially so, because there is an increasing trend of out migration of men for better paid jobs, leaving the onus of all the operations of agriculture on women. It is thus imperative that the benefits of technology are now directed to women. Female farmers, who are more likely to be asset poor and subsistence oriented than their wealthier male counterparts, stand to benefit significantly from such technology (World Bank 2009).

With this background, this paper is an attempt, to look beyond the already existing differences in gendered roles in agriculture to understand what is the driving force behind such differences and examine technology as a driver of empowerment of women in SAT agriculture of Maharashtra.

## **2. Objectives of the study**

There are three very clear objectives of this study. And the conclusion of the paper relates to the objectives mentioned at the beginning.

1. Study the labor allocation per household under family male, family female, hired male and hired female hours over two generation of VLS(1975-77 and 2008-2009) for 4 villages of Maharashtra.
2. Study the present condition of women in Kinkheda under the different indicators of empowerment given by the WEAI.
3. Understand if there is an effect of technology in empowering women in agriculture.

## **3. Methodology**

This report draws from the database of the two generations of ICRISAT's Village Level Studies. The first generation of data was collected between 1975 and 1984 and second generation commenced from 2001 and continues till today. Data for only four VLS villages of Maharashtra, Shirapur, Kalman, Kanzara, Kinkheda have been used.

Another part of the study is based on a sample survey of 35 households from Kinkheda. A random sample of 35 households was chosen which included 63 respondents, 34 females and 29 males. Of the 35 households, 7 were women headed. The head male and female were interviewed.

Also, a focus group meeting with 25 female villagers of Kinkheda provided some useful insights regarding the situation of women in the village and the dynamics with respect to men.

The study is also based on a newly introduced index of empowerment of women developed by the USAID, IFPRI and OPHI called the Women Empowerment in Agriculture

Index(WEAI). It provides a formula to quantify empowerment in different regions. However, since it is only a new index which has just been released in march 2012, and it still being in its initial stages of being piloted, it was not possible to use the index as it is. Thus, only the indicators mentioned in the WEAI for empowerment had been used as a base for studying empowerment.

#### 4. Labour hour allocation per household for the four VLS villages of Maharashtra

The labour hour allocation over two generation of VLS for the four villages of Maharashtra has shown the same trend. Hired female hours for a household have the highest share for all the four villages over all the six years. There is a reversing trend between hired male hours and family male hours. For all the villages in the years of 1975,76,77 hired female hours is followed by hired male hours. However, the share of hired male hours has gone down for the years of 2008-10. Family female hours are the lowest among all the allocated categories for all the years across all the villages. This trend shows an increasing feminisation of the labour force in the four villages (see fig 1 to 4).

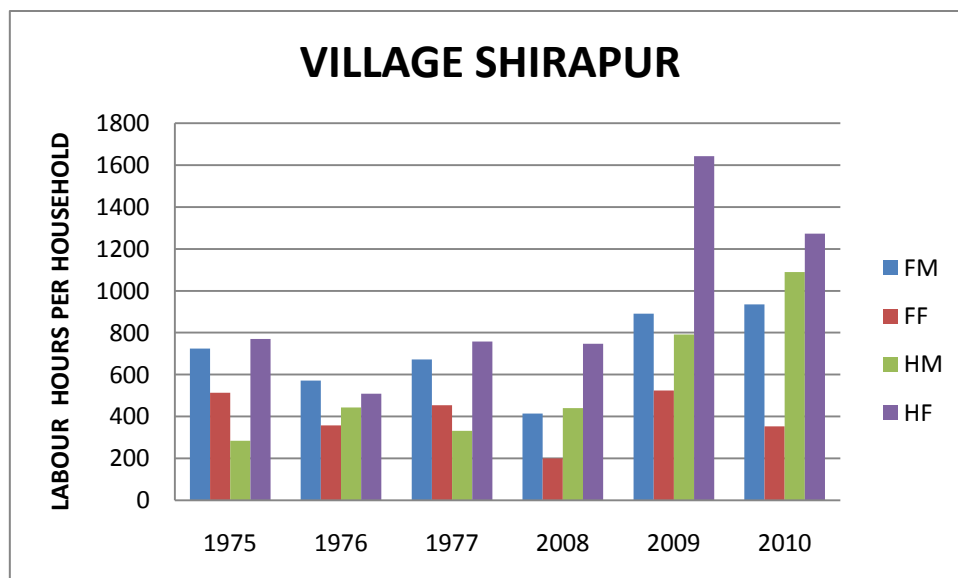
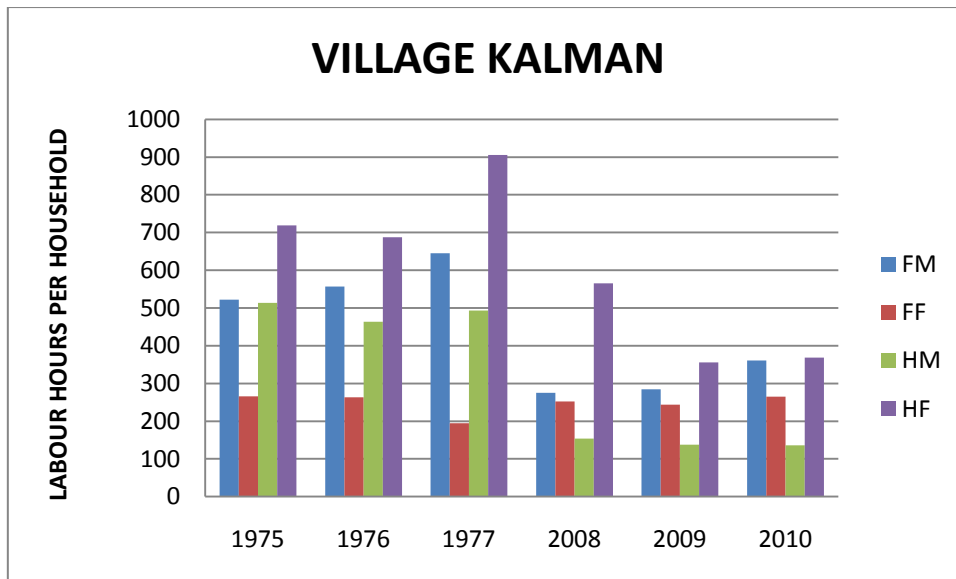


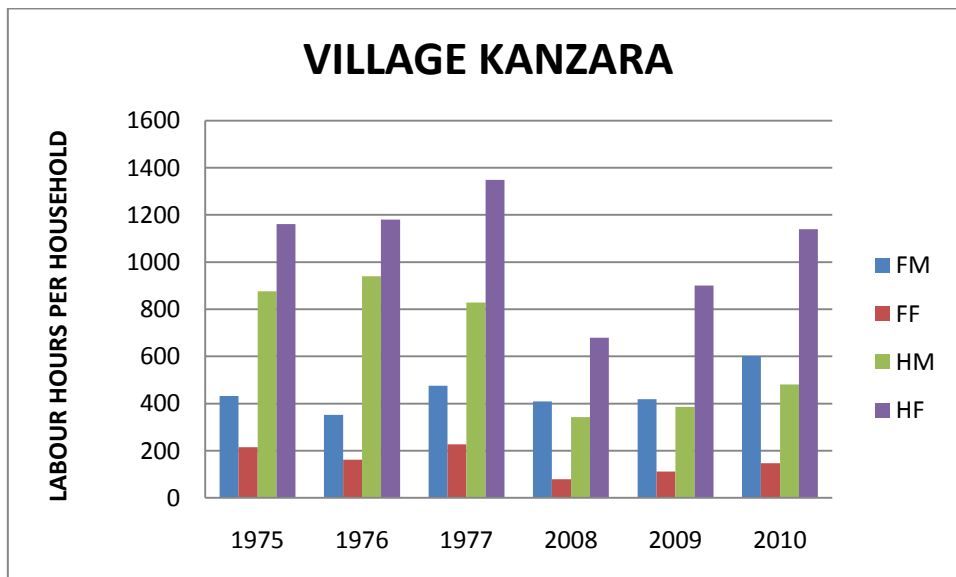
FIG 1: Labour hour allocation per household in village Shirapur



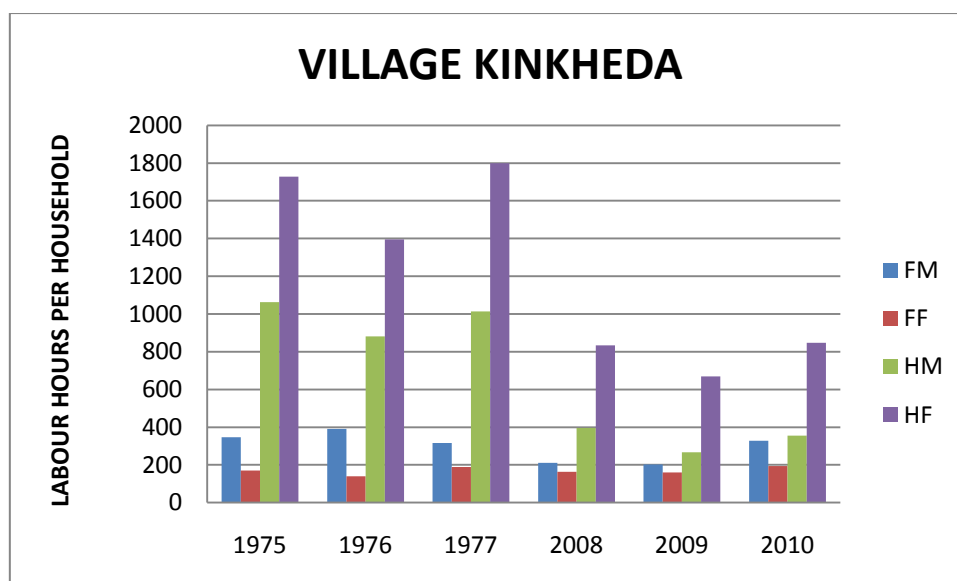


**FIG 2: Labour hour allocation per household in village Kalman**

FM- Family male hours FF-Family female hours HM-Hired male hours HF-Hired Female hours



**FIG 3: Labour hour allocation per household in village Kanzara**



**FIG 4: Labour hour allocation per household in village Kinkheda**

FM- Family male hours FF-Family female hours HM-Hired male hours HF-Hired Female hours

## 5. Indicators of women empowerment

The findings of this paper is extensively based on the ten indicators of the Women's Empowerment in Agriculture Index(WEAI). It is very important to form theoretical perspective of empowerment before trying to analyse empowerment per se. Different authors have different perspective of the term empowerment. The perspective used for this paper is a reflection of Naela Kabeer's understanding of empowerment as a process by which those who have been denied power gain power, in particular the ability to make strategic life choices(Kabeer, N,1999 'Resources, Agency, Achievements: Reflections on the Measurement of Women's Empowerment', Development and Change, 30, 3 July1999, Blackwell Publishing). Also women's empowerment is examined vis-a-vis men's as a process over the last ten years. The ten indicators of the WEAI gives a comprehensive picture of empowerment that takes into account almost all the possible indicators of empowerment. However, the Index is still in its initial stages of being introduced and ignores some important aspects like education as a resource to achieve empowerment or take consideration of

empowerment as a process over years. Those aspects that have been considered missing were also tried to be considered.

Another major attempt of the study is to understand the impact of technology on empowering women. Technology is understood or considered as the inputs of fertilizers, seeds and equipments for this paper. Both access to and adoption of technological inputs is considered. It is a purely qualitative study based on a single shot survey in the village Kinkheda of Akola district in Maharashtra and focus group meetings with women and men of the same village.

Thus this attempt at studying empowerment of women in rural Maharashtra is to form an understanding of the actual living condition of women in agriculture vis-a vis men and living under the impact of a technological revolution and absorbing the benefits of the same if any.

The following texts contain the findings from the study under different indicators, which if looked at together, as a complete means to understand the concept of empowerment or the extent of empowerment of an individual of an area would bring out a picture of the actual living situation of the men and women of that particular area. Also the relation between technology and empowerment cannot be ignored as it forms a major part in the conclusion of the study.

### **5.1. Input in productive decisions and autonomy of production**

This is in fact the most major contributor towards understanding the notion of empowerment. Time and again authors have stressed on the issue of decision making as an indicator of empowerment. Naela Kabeer in her most acknowledged paper on empowerment, “Resources, Agency, Achievements: Reflections on the Measurement of Women's Empowerment”, S. Batliwala in his paper "The Meaning of Women's Empowerment: New Concepts from Action”, Oxaal and Baden in their paper, “Gender and Empowerment: Definitions, Approaches and Implications for Policy” have all increasingly stressed on participation of women in the decision making process as a means to understand empowerment. If men and women have equal rights in productive decision making in intra-household affairs and decisions regarding production at their farm, it is an ideal situation which reflects high levels of cooperation between the male and female which leads to a higher estimate of the

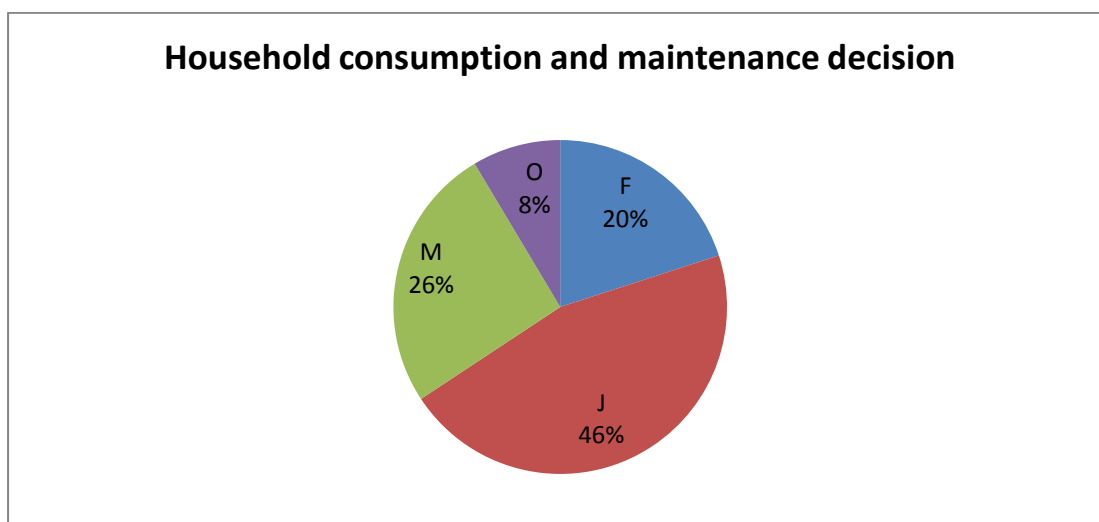
empowerment situation of an individual, whether male or female. In a country like India where culturally males are the expected predominant decision makers in a household due to strong patriarchal power relations leading to women having less control over material assets and intellectual resources it is interesting to study the changing power roles in the household and the paper is an attempt to do the same.

Decision making in the following five categories were taken into consideration-

1. Household consumption and maintenance decisions.
2. Children's education decisions.
3. Contingency decisions
4. Decisions regarding input in farms.
5. Decisions regarding output in farms.

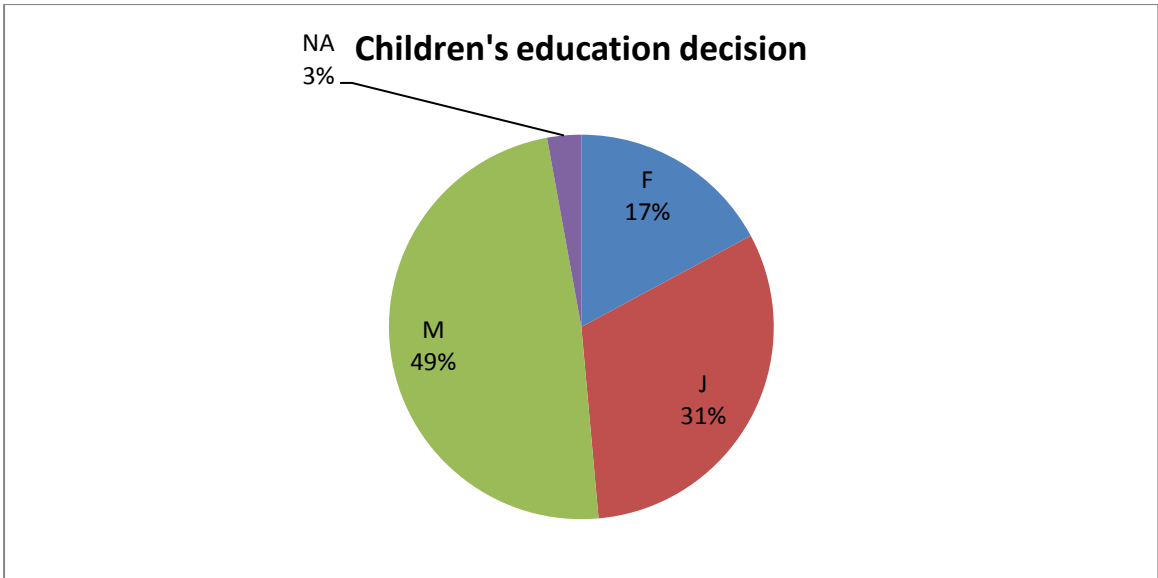
All the indicators have been studied vis-a-vis men. The following pie charts indicate the percentage of households in which the five categories of decisions as mentioned above are taken under the following heads:

1. Male(M)
2. Female(F)
3. Joint with spouse(J)
4. Others(O)
5. Not applicable because labour household (only for the 4<sup>th</sup> and 5<sup>th</sup> category of decision making).(N)

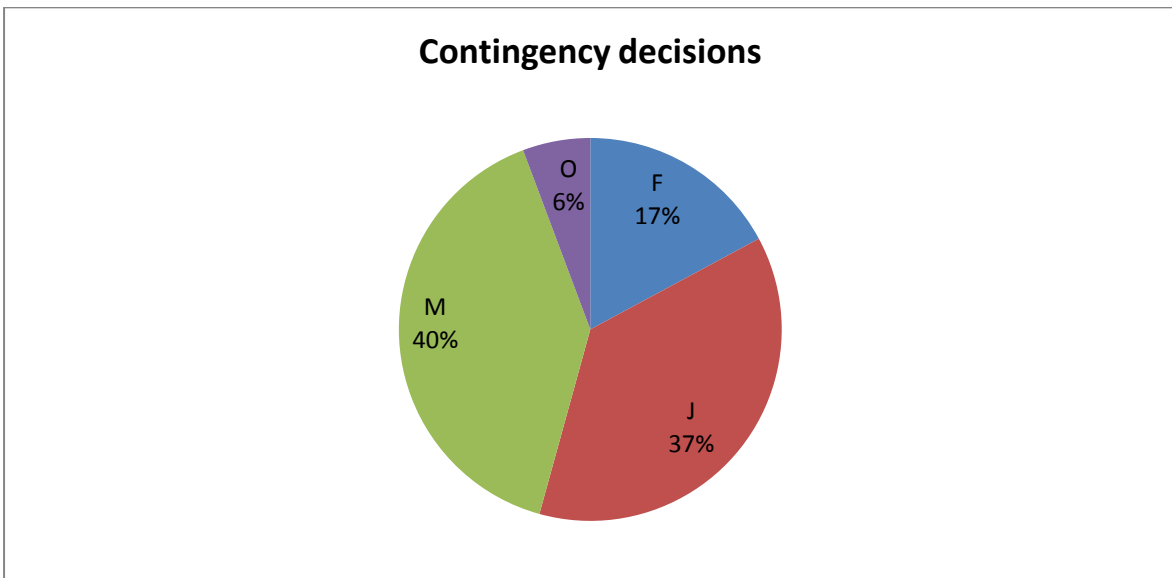


**FIG 5: Percentage of households making decisions under the categories**

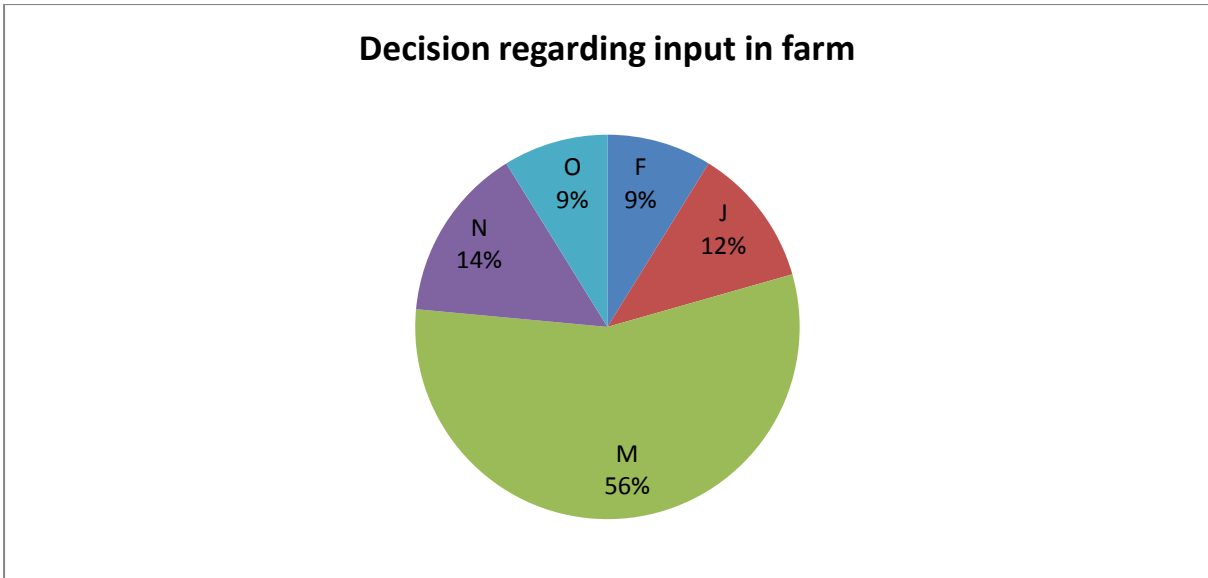
M- Male F-female J- Joint with spouse O- Others.



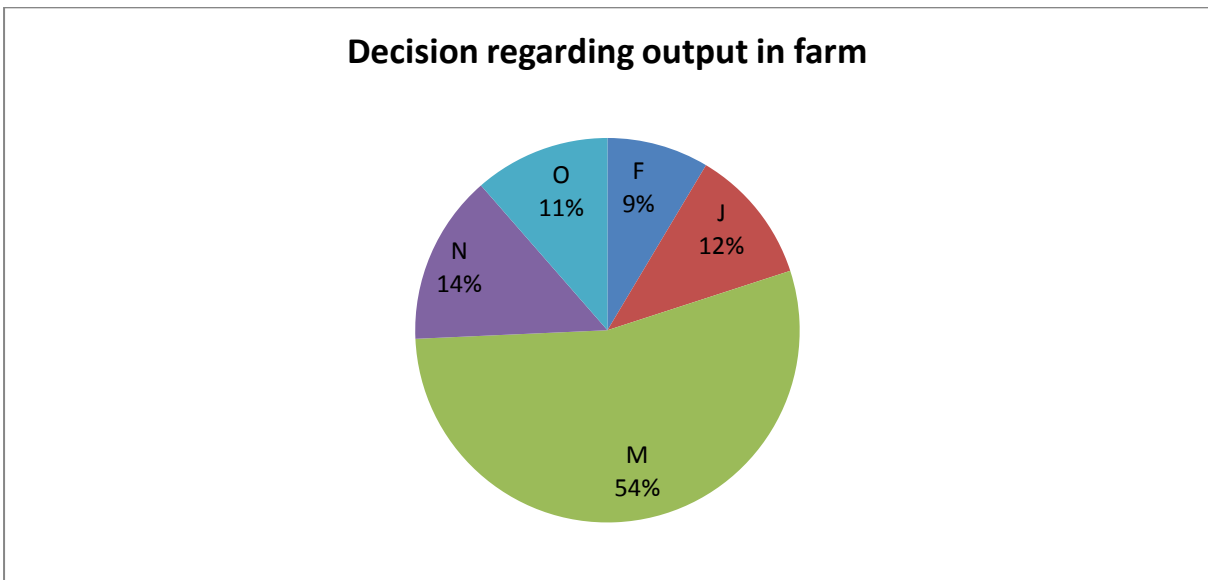
**FIG:6 Percentage of households making decisions under the following categories**  
M- Male F-female J- Joint with spouse O- Others.



**FIG 7: Percentage of households making decisions under the following four categories**  
M- Male F-female J- Joint with spouse O- Others.



**FIG 8: Percentage of households making decisions under the following five categories**  
 M- Male F-female J- Joint with spouse O- Others N- non labour households



**FIG 8: Percentage of households making decisions under the following five categories**  
 M- Male F-female J- Joint with spouse O- Others N- non labour households

From the above pie charts it is clear that, in decision categories of household consumption and maintenance, women have a slightly better role to play than in the other categories of decision. Though only female decision making in household consumption and maintenance category was still less, majority (46%) of the households said they implemented joint decision making roles when it came to household decisions. For children's education decision, 49% of the households in the survey that formed a majority reported that the males

in the house decided about children's education. One major reason that supplemented this result was, men thought women were incapable of taking such decisions as the general education levels of women was low, especially women who have been married for more than 10 years are generally uneducated with no schooling years behind them. For contingency decisions, the villagers still showed some presence of mind, with 37% reporting that it is joint decision making when it comes to some emergency, but it was surprising that even in this category males played a predominant role, with 40% of the households reporting that males take decisions in this front as well. So in times of emergency, instead of taking decisions which is the most suitable according to the situation, female members of the house have to consult with the men in the house and only then appropriate action can be taken. For the input decisions and the output decisions on the farm, it was a common trend that males took the major chunk of decisions, 56% and 54% respectively. It was followed by joint decision making in both the categories, reported by 12% of the households. Females took decisions regarding the input and output of the farms, only in cases where the households were headed by women, which was the case, only if the husband is dead or separated. The 9% of the households in both the input and the output category, which have reported decisions from women, are all women headed households.

Thus it is a clear trend that women are not seen as sole decision makers outside the household, in fact even within the household, for a women to be a sole decision maker regarding anything substantially important is very rare. Joint decision making is still common within the household. But majority of the households reported that males are the decision takers when it came to decision regarding production on field and important decisions within the house.

Majority of the societies in India are patriarchal. As such any asset owned by a family is passed down the male line. Land is thus mostly inherited from the fathers and forefathers. Despite the Hindu Property Act, which necessitates the division of property equally between the children, it is a well known tradition that assets, especially land is passed on to the male child. As such the ownership of land as an asset remains with the men of the house. Since the ownership remains with the men, the decisions' regarding the use of the plot also remains with the men. Autonomy with respect to production remains with the males of the house as they are the owners of the plots. Also another reason to support this finding would be the fact that traditionally women in Indian societies have been seen as homemakers who are more

responsible for the intra-household activities. Due to the increasing phenomenon of out migration of males and the increasing need to sustain their family by income from agriculture to combat acute poverty, females are extensively eyeing agriculture as a primary source of income. However, they are still in the shadows of the patriarchal power roles where men take majority of the decisions.

## 5.2 Ownership, purchase, sale and transfer of assets

Assets, for this study have been classified as land, machinery and livestock. Land as had been mentioned earlier, is primarily owned by the men and had been inherited in the household. Machinery for farming is hired across the small, medium and large classes of farmers. Farmers being resource poor, they don't have the means to buy even small implements like plough or harrow. There are four tractors in the village which belong to the large farmers which is hired out during peak season. Sometimes tractors from other villages also have to be hired, if the demand is high. Most of the hired machinery, especially tractors, are only operated by males who have been hired by the tractor owners or is someone from the family of the tractor owner.

It is a well known fact that the most labour intensive tasks in agriculture are feminised. Following is a table showing the break-up of most labour intensive tasks and the most feminised tasks in the six villages of Aurepalli, Dokur, Shirapur, Kalman, Kanzara, and Kinkheda during the year 2008. It is taken from Alison Palacios' report, "Drivers of change: agricultural modernisation and women's status in SAT India".

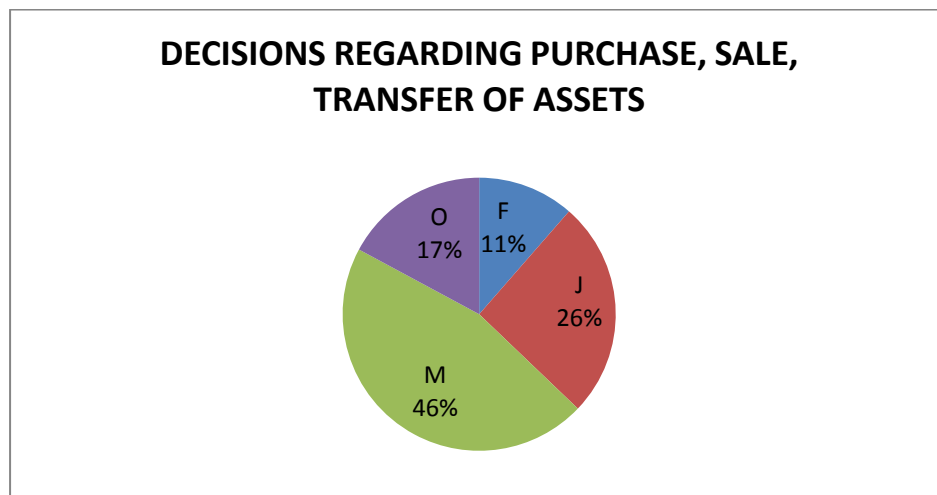
<b>Most labour intensive tasks</b>	<b>Total annual labour spent on task</b>	<b>Most feminised tasks</b>	<b>Task specific labour force that is female</b>
Harvesting	37%	Weeding	93%
Weeding	24%	Fertilizer application	73%
Irrigation	8%	Harvesting	66%
Land/seedbed prep	8%	Threshing	60%
Planting	5%	Planting	60%
Threshing	5%	Manure application	33%
Fertiliser application	2%	Land/seedbed prep	22%
Inter-culturing	2%	Pesticide application	12%
Pesticide application	1%	Irrigation	6%
Manure application	1%	Inter-culturing	1%



It is clear from the table that the most labour intensive jobs in agriculture belongs to women and as such technology with respect to machinery used in farm are not owned or operated by them. Also since the ownership or the onus of using the machine/equipment is not in the hands of the women, decisions regarding the use, purchase, sale or transfer of machinery does not belong to the women. The third category of assets that is livestock is majorly acquired as gifts (dowry) from marriage and in some cases purchased. Again, the ownership of the livestock remains with the males of the house and the decisions regarding purchase, sale, transfer of assets are the responsibility of the males.

Following is a pie chart showing the distribution of the decision making roles in the following four categories:

1. Female(F)
2. Male(M)
3. Joint with spouse(J)
4. Others(O)



**FIG 9: Percentage of households making decisions under the following four categories**

M- Male F-female J- Joint with spouse O- Others

It is clear from the above pie chart that males are the predominant decision takers when it comes to decisions regarding purchase, sale or transfer of assets. Also majority of the households said that joint decision making prevailed in this category. The role of women in this category of decision making was limited to the female headed households.

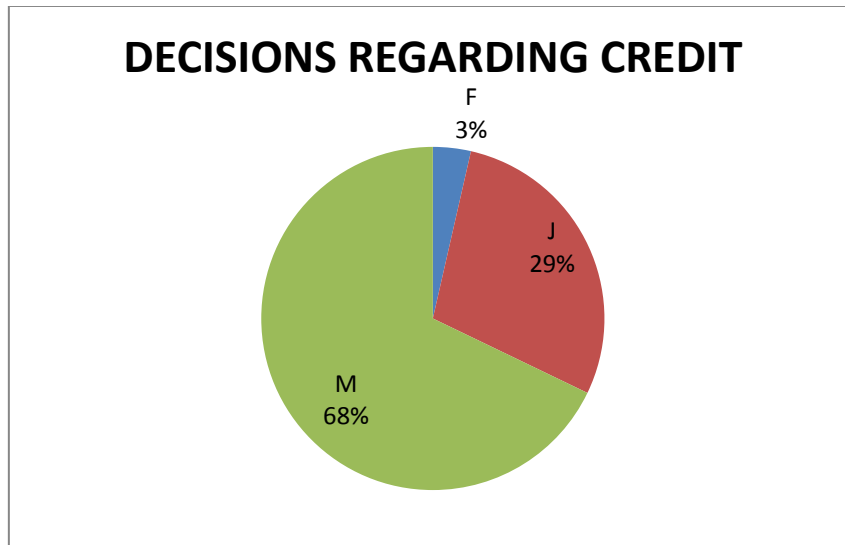
### **5.3 Access to and decisions regarding credit**

Consistent with the theory of A. Goetz and R.Gupta, in their paper ‘Who takes credit? Gender, Power and Control over loan use in rural Bangladesh’, (1996), it was found that a significant proportion of women’s loans are controlled and invested by male relatives, while women borrowers bear the liability of repayment. All the 35 households of the sample chosen had access to credit, with some minor difficulty in acquiring the loan. The scenario had changed from previous years, when the accessibility of credit was limited due to small number of credit institutions or sources of credit. The situation is better as mentioned by all the households. However there is a typical situation where the collateral for agricultural crop loans is the land holding of the farmer, which is owned by men, thus the ownership of the loans is also in the names of the men. Thus if a women farmer wants credit for agriculture, it is imperative for her to own a piece of land. For women headed households, which is mostly the case when the male has died or separated, the women owns the loan but it has passed down to her because of the death of her husband. In case, the women does not own any land, it is not possible for her to take a new loan from formal sources of credit.

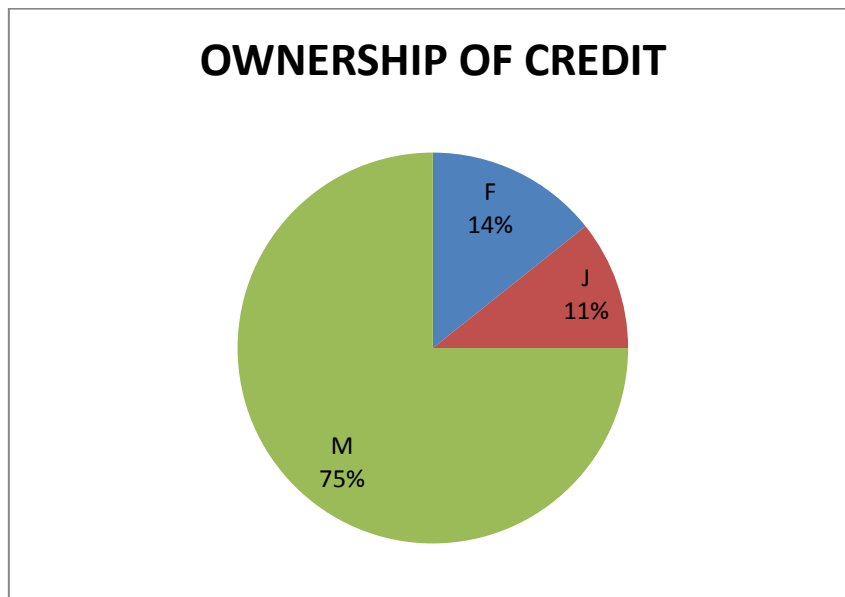
There is a disparity between the ownership of loans and the decisions regarding the same. Out of 35 sample households, 68% reported that males take decision regarding credit and only 3% households reported that females take decision regarding credit which is the case of a women headed household. However, 75% of the households reported that males owned the credit or the loan was taken in the name of men, however, 14% also reported that women were the owners of the loan. This implies that there are households where the loans were taken by women women borrowers but the decision regarding the loans were not their own that is the men controlled the loan whereas the loanees were women.

Following pie charts show the decision making in the households regarding credit and the ownership of credit under the following categories:

1. Male(M)
2. Female(F)
3. Joint(J)



**FIG 10: Percentage of households making decisions under the following three categories**  
 M- Male F-female J- Joint with spouse or other members of the family



**FIG 11: Percentage of households owning credit under following three categories**  
 M- Male F-female J- Joint with spouse or other members of the family

## **5.4 Control over use of income**

In the sample of 35 households, the average female income was 36 % (approx) and the average male income was 64% (approx). Empowerment has become a buzzword in the international development scenario and the major focus is on the economic empowerment of women as it is seen as an opportunity for economic growth and gender equality goals. This study is consistent with the theory of Emily Esplen and Alyson Brody that “accessing credit or earning a wage does not in itself equate with empowerment. Initiatives to this end are an important step but they are not the solution. Rather, we need to keep in mind the complex social factors that prevent some women from benefitting from economic opportunities, or from being empowered despite access to these opportunities.”

50% of the women interviewed, noted that their position intra-household would not have been any different and was irrespective of their income. They did not feel there would have been any difference in their status within the household had they earned any less or any more. The remaining 50% who thought income made a difference to their status within the household noted that they might have been better off with an extra income. 62.07% of the men interviewed noted that their position within the household would have been better, had they earned more.

This indicates that more males are susceptible to income than females. Majority of the women interviewed had little control over the use of their income. The income generated from working as labourers in someone else’s field or due to an additional source like tailoring went to a common house fund which was controlled by the men or jointly by men and women of the house. None of the household, except the women headed households reported that the women alone had sole right over the use of their income. The focus group meeting brought to light an interesting perspective of the women of that village. The men they thought, spent 50% of their income on buying toddy and the remaining 50% on buying meat. In comparison, the women spent their income more efficiently and effectively.

## **5.5 Group member and speaking in public**

Being a part of a group and being comfortable in public speaking is seen as a very important indicator of empowerment. It is thought that, the more women interact in the social networks and form their own networks and come out of the boundaries of their own home to meet in a public forum or even informal group meetings, it helps in making them more confident in

their roles that they have to play outside their homes. In fact some of the most acknowledged readings on empowerment relate women to their participation in self help groups and public speaking skills. As stated by Naela Kabeer in her famous paper ‘Resources, Agency, Achievements: Reflections on the Measurement of Women's Empowerment’, that a major dimension of measuring empowerment is agency, that is the ability to use resources to bring about new opportunities, empowerment should not be measured as a stand alone policy where women are the mere recipients of the government policies. Empowerment should happen from within. Participation in self help groups, or any other group participation for that matter enhances the ability of a woman to think for herself, thus empowering her. Not only self-help groups economically empower women but also it provides a platform for women to come out of their comfort zones to form fellowships with other women to discuss different aspects of their lives.

There has been a huge growth in the number of SHGs in all India levels in the last decade. And 90% of the members of the SHGs are women. Kinkheda reported a total number of 12 SHGs till 2008, unfortunately all of them closed down due to default by some members. Presently all the SHGs in Kinkheda are defunct and the women of the village are not a part of any other group or forum. They assemble at the village temple only during ekadasi for bhajan and kirtan for devotional purposes. When asked why there is no social gathering as such, most women replied that they kept busy with their own work and the men in the house did not let them gather in a group. However, men did meet up in small informal gatherings for toddy consumption and Kinkheda also shows a history of high levels of toddy consumption among the males. Altogether it is a dismal situation when it comes to being a member of a group, women rarely go out of their homes to form a community of forum.

Despite this, public speaking was not a major issue with the men or women of Kinkheda. All the men interviewed said that they are comfortable speaking in public and majority(80%) of the interviewed women said that they are comfortable speaking in public. 44.44% of the interviewed males said that their public speaking has improved over time, remaining said it had not improved and remained the same. 52.94% of the interviewed females said that their public speaking has improved over the years. The major reason behind the improvement is the repeated exposure to the same people from the village. Also women who had been married for greater number of years, showed better public speaking skills than the rest.

## **5.6 Workload and leisure**

Workload and leisure time might not appear as important indicators of empowerment, however they are in their own way a very important way of judging the dynamics in a household with respect to the potential a man or women has to use resources to create a gainful opportunity for themselves.

Workload and leisure time might be seen as interrelated to many other disciplines which might be indicators of empowerment. For example, higher workload and lesser leisure time may culminate in restrained ability to participate in group building exercises resulting in reduced socialising activities which in turns affects public speaking ability of women or men. It might also restrict the ability of an individual to earn from an extra source like supplementing income from agriculture with a small scale business of handicrafts or tailoring.

The question, “who do you think has a higher workload?” yielded the most interesting replies in this study. 53% of the female respondents said that men have a higher workload than women, the remaining 47% of the female respondents said that the women had a higher workload compared to the men. 61% of the male respondents said that the workload of men is higher in a given day, the remaining 39% thought the women had a higher workload compared to men. However only 20 out of the 35 households that is 57% of the households had matching views between the husband and the wife and that both made the same statement. It is a clear indicator of the fact that males and females have glaring difference of opinions when it comes to considering who has a higher workload. A focus group meeting with the women of the village further corroborated the fact that, indeed there is a huge difference in what the men think and what the women think especially regarding workload. Almost all the women complained how they slog it out every day and have to balance the work in the house and the fields and how the men just do not acknowledge that fact. This picture was a little different than what came out of the interviews, which brings out another further observation that women are backward in terms of expression than men and the behaviour exhibited by women is different in front of different interest groups like male and elder members of the house and other female members.

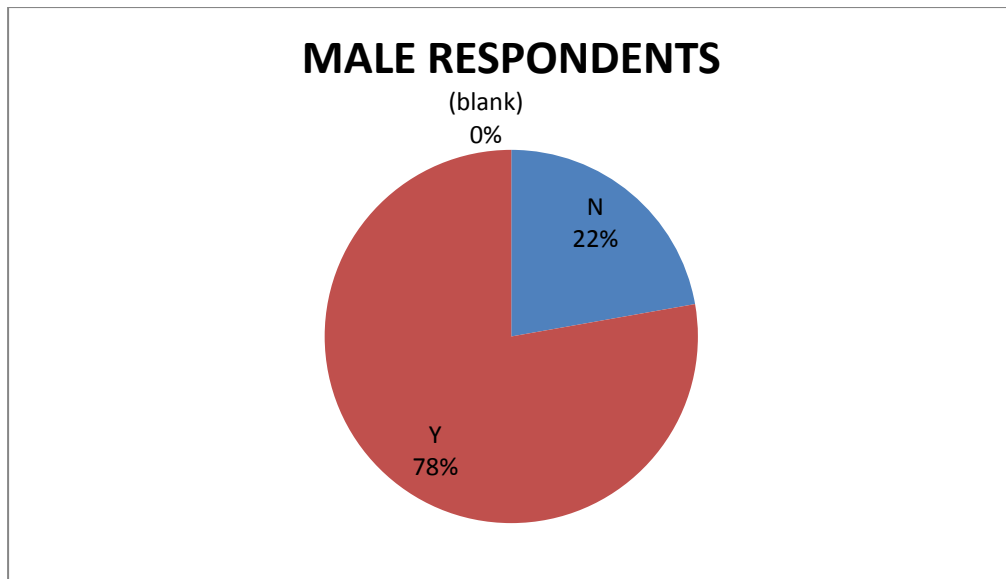
## **6. Women empowerment and role of technology**

Technology wherever used, is generally seen or associated with men. The fact that technology can make significant difference to the life of rural women especially the ones involved in agriculture is marred by some constraints to adoption of technology. Despite women's critical role in agriculture (globally they are responsible for at least 50% of food produced), women generally lack access to effective technologies and resources such as credit, extension, seed supply and labour saving devices(GENDERNET practice notes, [www.oecd/dac.net](http://www.oecd/dac.net)). The finding of this study is consistent with the above statement. Women were limited in their access to technology on farm to an extent that they were not even accepting of the benefits accruing out of technology.

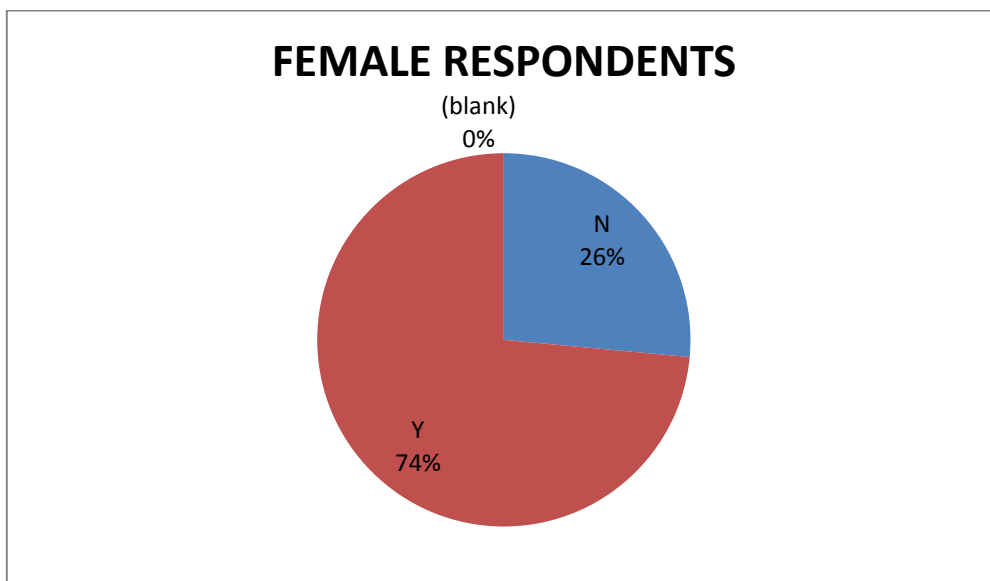
It is already mentioned earlier that women were generally not involved in decision making regarding use of technological inputs like seeds or fertilizers unless it is a women headed household. When it comes to operating mechanised implements, the situation is even worse. Women have no access to operating implements, the autonomy of which remains with the men. Women are involved in the most labour intensive tasks. Somehow women seem to be detached from the notion of technology empowering them. When asked about technology that has affected their lives most drastically in the last few years, most women came up with the names of technology used at home like gas stove, mixer, grinder, television and the likes, it was surprising that none of them mentioned any equipment on farm. The same question when asked to the men yielded different replies. The men were increasingly dependent on the technology on farm and were directly benefitting from the same.

So technology or the benefits accruing out of it has different perspectives for both men and women. Where women think in terms of technology that can reduce their drudgery at home, they also seem to think that there is nothing on field that can reduce their workload to any extent. Men majorly think of technology that can ease their work in the fields.

The following pie charts show the responses of men and women when asked if technology makes them more powerful.



**FIG 12: Percentage of male respondents who felt empowered due to availability of technology Y-Empowered N-Not empowered.**



**FIG 13: Percentage of female respondents who felt empowered due to availability of technology Y-Empowered N-Not Empowered**

Similar proportion of men and women had felt the benefits of technology affecting their lives. However, majority of the respondents who felt that technology had benefitted them also felt there were constraints in the adoption of technology. The constraints varied for men and women. For men the major constraint to adoption of technology was the availability of funds, followed by the lack of knowledge about a particular technology, also some noted that the small size of landholdings would limit the benefits of technology especially mechanisation as



it would render their machines and equipments idle, lack of irrigation was another major drawback when adopting technology. Women spoke mostly of household technologies and the constraints to adoption were the availability of funds, and the major hurdle as most women thought was the need to convince the males and the elders in the household regarding the benefits of a certain technology. For the respondents who said that technology does not impact their life in anyway, there seems to be a mental block with respect to the benefits of technology. Given the resources to buy technology, they would prefer continuing with traditional form of farming like using bullock instead of tractors or use chulha instead of a gas stove because they think they could use the resources to buy or spend in other essential stuff for the home like investing in their children's education. Thus it is clear that the opportunity cost of using technology, is very high and thus it is not very lucrative for the villagers who are resource poor to invest in technology. After fulfilling their subsistence needs only can the poor think of technology as a means of empowering them. Some women even mentioned that they would rather slog hard than buying technology, and save the money to spend on other essential items.

Also another very noticeable trend was the replacement of women labour from weeding operations by men owing to the increased use of weedicide sprayers. Weeding is considered as one of the most feminised tasks in agriculture because it involves a lot of bending and moving with dexterity. In fact weeding is the most feminised operation in agriculture in the four VLS villages of Maharashtra according to Alison Palacios' report, "Drivers of change, agricultural modernisation and women's status in SAT India". This trend is being reversed with the increasing use of weedicide sprayers which are heavy implements that have to be carried on the back and men majorly take up the job. So, this is also a case of technology displacing women labour.

## **7. Insights from the study**

Considering the situation of women in the village of Kinkheda and the feedback received from them in terms of their own assessment of the various indicators of empowerment following are certain policy measures that can be undertaken to

1. Form a more detailed understanding of the term empowerment and the way it impacts the lives of men and women.
2. Enable a measure of empowerment to form a quantitative estimate of the potential and actual empowerment levels of individuals.
3. Estimate the major drivers of empowerment.
4. And study the impact of technology on empowering lives in the SAT agriculture of India.

The general education level of Kinkheda is low. For the 89 VLS households of Kinkheda, in 2008, the mean education years is as low as 5.5 years for the females and a slightly better average of 6.92 for the males. Education if seen as directly correlated with the empowerment levels of an individual, is a very powerful parameter that would contribute towards empowering an individual. But education cannot stand alone. Education should be incentivized with vocational training for skill building among students in schools, so that they can directly contribute towards an enterprise building at home.

Women seem to submit to the imposing roles played by the males or other members of the household. It is thus very necessary for the women to realise their self worth and consider themselves as productive resources who can take decisions side by side with men. Counseling women on a regular basis to bring to light the advantages of empowerment is necessary.

Often empowerment policies are targeted towards the development of women leaving out the men from the picture. The dynamics of a society is intricately structured where there are equal activities between man and woman. Thus men also ought to be engaged in relation to addressing gender inequalities in agriculture. Policies should focus on women and take into consideration the participation of men in implementing such policies.

Access to technology is constrained, not limited, and technology is not appearing to directly help rural women, thus there is an urgent need to develop women friendly technology that will not only physically empower women, but also increase their productivity, thus letting

them maintain their stronghold. The concept of technology has to be brought out of homes to the work place of women and promoted as something that makes work easier.

Available technology that is portrayed as a man's domain has to take into consideration women. As most of the machinery is hired in villages like Kinkheda, which are 100% operated by men, women have to be motivated to take up jobs there driving a tractor.

There should be more social group building exercises by the women, the women in Kinkheda barely meet in two weeks. Some women do not go out of the house because their husbands tell them not to. The social networking in villages should go up. Formation of SHGs is a step further. Only stricter recovery measures have to be implemented so that members do not default.

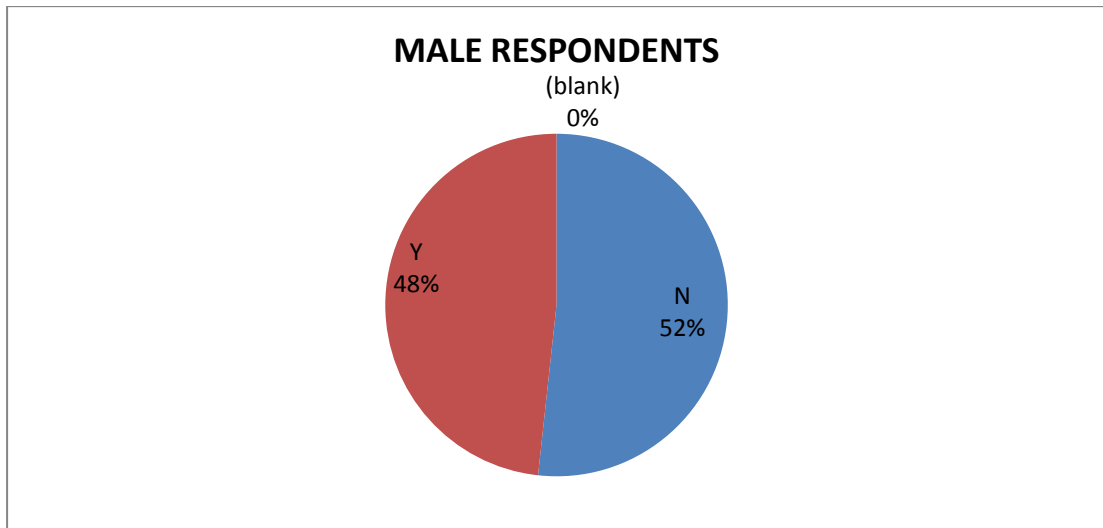
Women have to improve their knowledge regarding inputs and techniques in agriculture and increase market connections and come out of the social boundaries of their homes where they are restricted in their decision making roles. Increasing the awareness of ICT (Information and communication technology) is a major way of achieving this goal. Increased use of mobile phones and television enrich women which might result in greater share in decision making roles.

Drinking habit of men is a major problem in the village of Kinkheda. In fact women noted that if a man earns Rs. 100 in a day, Rs. 50 would be spent on buying alcohol and the remaining would be spent on buying meat. This has to be controlled. Women can get together to form a campaign against men in Kinkheda like the women in Aurepalle had dealt with this problem.

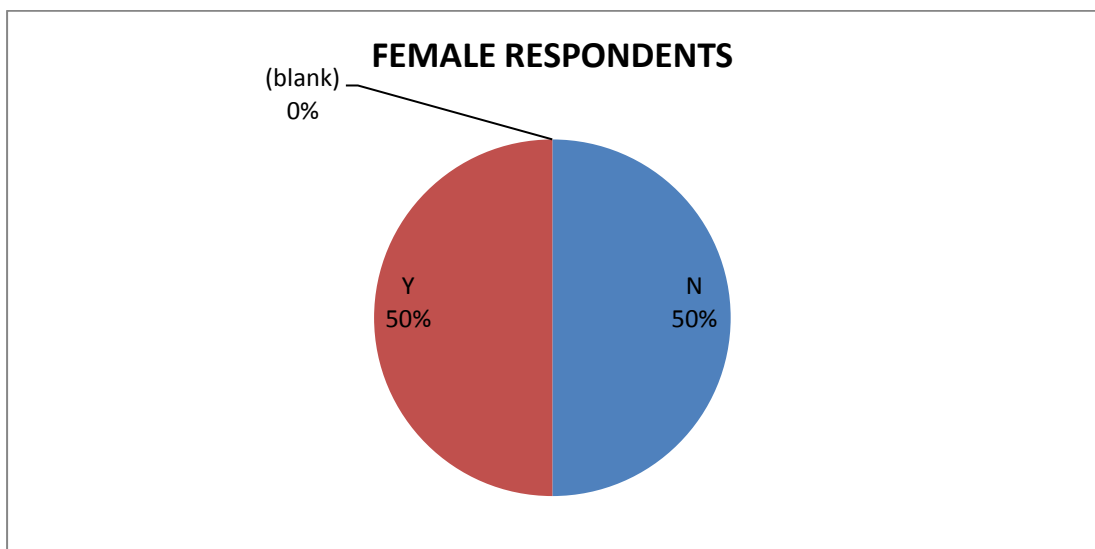
## **8. Conclusions**

1. The proportion of labour allocation per household in the four villages of Maharashtra over the period of 1975-77 and 2008-10 has more or less remained the same across the four categories- family male, family female, hired male and hired female. The major share of labour is from the hired female category which is followed by family male hours on the field. The total labour hour allocation has decreased over the years owing to a large number of people now relying on secondary sources of income.

2. Empowerment level under the ten indicators of the WEAI seems to be moderate though the situation is better than before. When researching about what changes the villagers of Kinkheda had felt over the last ten years and if they themselves felt empowered, following are the results that surfaced,



**FIG 14: Percentage of male respondents who felt empowered compared to ten years before Y-Empowered N-Not Empowered**



**FIG 15: Percentage of female respondents who felt empowered compared to ten years before Y-Empowered N-Not Empowered**

Almost an equal proportion of males and females felt empowered compared to 10 years before. Though in absolute numbers, more females felt empowered than men in the chosen sample.

3. Technology does seem to impact the lives of men and women in agriculture but there is not enough evidence to suggest that technology empowers women in agriculture at least in the case of Kinkheda.

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## ANNEXURE

### 1. SCHEDULE FOR GENDER EMPOWERMENT AND TECHNOLOGY

ADOPTION- June 2012

COUNTRY	STATE	YEAR	VILLAGE	VLS HHID	CENSUS HOUSEHOLD NO.	DATE

PERSONAL INFORMATION:

NAME OF RESPONDENT		SEX	
AGE		MARITAL STATUS	
YEARS SINCE MARRIAGE		RELATIONSHIP TO HEAD	
CASTE		EDUCATIONAL QUALIFICATION	
LANDHOLDING SIZE:			

1	Do you contribute in decision making in the household?			
	If yes, which of the following category?	Individual	Joint	Others
I	Household consumption decision.			
ii	Household maintenance decision.			
iii	Children's education decision.			
iv	Contingency decision.			
v	Others.			
2a	Do you contribute to the decisions regarding production on farm?			
	If yes, in which of the following categories?	Individual	Joint	Others
i.	Fertilizers			
ii.	Seeds			
iii.	Pesticides			
iv.	Own labour requirements			
v.	Hired labour requirements			
vi.	Machinery to be used			
2b	Is it individual or joint decision making in the following output decisions	Individual	Joint	Others

i.	Main crop production				
ii.	Sale quantity				
iii.	Fodder production and use				
iv.	Others				
3a	Do you own assets?				
	If yes, which of the following categories of assets do you own?	Purchased	Inherited	Acquired	Hired
i.	Land				
ii.	Machinery				
iii.	Livestock				
iv.	Others				
3b	Do you think this enhances your position in the house?				
3c	If yes, how?				
4a	Do you have a right to exercise purchase, sale, transfer, of the assets that you have inherited, held or acquired?				
4b	If not, who has the right?				
5a	Do you have access to credit?				
5b	Who takes the decisions on credit?	Individual	Joint	Others	
5c	On whose name is the loan taken?				
5d	Are you currently in a loan?				
5e	What purpose was the loan taken for?				
5f	What was the source?				
6a	Are you a part of an SHG?				
6b	If yes, are you a member or a leader?				
6c	Are you a part of any other group or community?				
6d	Do you benefit from this?				
6e	How?				
7a	Are you comfortable speaking in public?				
7b	Has your public speaking skills improved over time with greater exposure to members of the same village?				
7c	Does speaking in public make you more confident as a person?				
8	Is your workload more than the opposite sex's/ your spouse's workload?				
9	Is your leisure time more than the opposite sex's/your spouse's workload?				
10a	In the total household income, how much is your contribution?				
10b	Do you think if the income was any higher, your position in the household would be any different?				
10c	If yes, how?				
11a	Do you have access to better variety seeds?				
11b	What technology has affected your life most drastically?	On farm	Off farm		
11d	Are you better off?				
11e	What percentage of your land is HYV cultivated?				
12a	What are the farm implements that are used in all your plots? Is it owned or hired?		O	H	

12b	Who operates the mechanised implements?			
12c	Who does the manual work?			
12d	What are the constraints in adoption of technology?			
13a	Has there been a change in your status in the household over the years?			
13b	If yes how?			
14 a	Do you think technology makes you more powerful in a way? Yes or no.			
14 b	How?			