

# **CHAPTER I**

## **INTRODUCTION**

### **1.1 The Task Force**

The National Commission for Women (NCW) had sponsored a Workshop jointly with M.S. Swaminathan Research Foundation in Chennai on Technological Empowerment of Women in Agriculture in which professionals from academic institutions, Government and research organisations had participated. As an outcome of this workshop, the NCW set up a National Task Force on Technological Empowerment of Women in Agriculture (Annexure 1). The Task Force noted that women are involved in all stages of production and post harvest work e.g. from field preparation to sowing, transplanting, fertiliser and pesticides application, weeding/hoeing, irrigation, harvesting, threshing, etc. Several technologies have been developed for reducing drudgery and enhancing output. However, many of these operations, either are not ergonomically suited to women, or the opportunities for skill and training required for using the tools, equipment etc. are not easily available to them.

It was further noted that the multiple roles of women necessitate the integration of the gender perspective while considering technological inputs. The provision of support services such as childcare, basic facilities of drinking water, sanitation, fuel etc. cannot be overlooked while attempting to empower women technologically.

The National Task Force has set-up four subgroups to look into (i) Drudgery of Women in Farm Operations (ii) Reorientation of Course Curricula (iii) Policy and Legislation including Credit and (iv) Occupational Health Hazards and Environment (Annexure 2). This report incorporates the recommendations emanating from the sub-groups as well.

Some of the members of the Task Force have also expressed the opinion that this report should be widely circulated for response from different experts and concerned agencies. This will help acquire completeness in relation to different issues of women in farming.

**1.2** THE REPORT OF THE COMMITTEE ON THE STATUS OF WOMEN IN INDIA (1974) states that “any meaningful analysis of restrictions imposed by social attitudes and norms, possession or lack of necessary equipment, e.g. education and other employable skill, political awareness, etc., was only possible by studying women in different categories.” The Committee felt that they had to go beyond the categorisation of the society by castes, communities and classes and look at women in three different circumstances, viz.,

**The National Task Force on Technological Empowerment**

---

- a) Women below the subsistence line, whose problems and constraints are radically different in nature from those, suffered by women in other sections of society;
- b) Women who move continuously between security and subsistence, and often descend below the subsistence line with the disappearance of their means of earning a livelihood; and
- c) Women firmly above the security line.

**Women in agriculture lead a precarious existence and could easily be categorised under group (b), above.**

**1.3** The National Commission for Women (NCW) by virtue of the mandate under the NCW Act of 1990 (See Annexure 3 for details of the Act) has to protect the interests of women in all sectors of development and make appropriate recommendations for improving the quality of their lives to the Government whenever necessary. Keeping these essential issues in focus, the National Task Force on Technological Empowerment of Women was set up in the year 1998.

**1.4** It is also necessary to mention here that at the behest of the Agriculture Minister, an Expert Committee on 'women in agriculture' was constituted to advise the Department of Agriculture and Cooperation on matters relating to women in agriculture. The Committee has convened two meetings and has submitted an interim report. The approved recommendations have been translated into a time bound action plan which has been circulated to all divisions/departments/states as a guideline for developing programme components on those lines. (Details of Action Plan on Recommendations in Annexure 4). Thereafter a series of meeting of the Expert Committee on Women in Agriculture were convened to review the efforts initiated by various divisions on the action plan. Since then, the Expert Committee on women in agriculture has been reconstituted. The Committee held meetings to discuss and approve the recommendations of the sub-group on reducing drudgery of farm-women constituted by the National Commission for Women (NCW). It is essential to mention that the deliberations of the Task Force set up by the NCW were mostly held at a macro-level.

**1.5** Further to setting up of the Task Force for Technological Empowerment of Women in Agriculture, the National Commission for Women sponsored, in collaboration with other institutions, regional workshops on 'Challenges, Opportunities and Constraints faced by the women in agriculture and allied industries.'

## CHAPTER 2

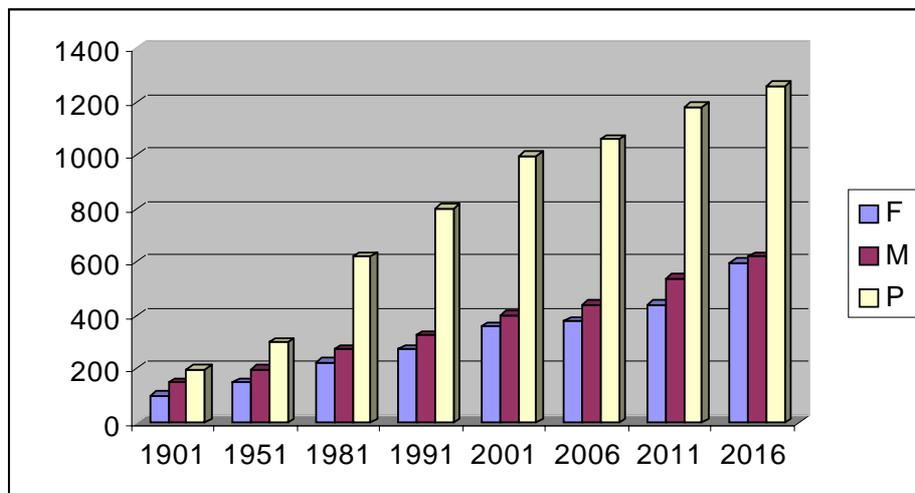
# PROFILE OF WOMEN IN AGRICULTURE

### 2.1 Population

The population of India was projected to have crossed the **ONE BILLION** mark on 11th of May 2000. The growth of Population and projected levels until 2016 is given in the chart below. The 2001 census counted 1027.02 million persons including 531.28 million men and 495.74 million women.

The population in India increased from 238 million to 846 million between 1901 and 1991; the population of males increased from 120.8 million to 439 millions; and the population of females increased from 117 million to 407 millions in the same period. While we have added 318.2 million males to the population of India in 90 years, we have only added 290 million females to the population in the same period.

**Population and projections**



While women play a predominant role in the work force of the country, their status remains one of subjugation and dependence.

#### **The Status of Working Women in India**

- Women are a vital part of the Indian economy, constituting one third of the national labour force and a major contributor to the survival of the family, the poorer the family the greater its dependence on women's income.

## The National Task Force on Technological Empowerment

---

- More than 90 percent of rural women in India are unskilled. This restricts them to low paid occupations. Women generally have no control over land and other production assets, which largely excludes them from access to institutional credit and renders them dependent on high cost informal sources of credit to secure capital for consumption and/or productive purposes.
- Women form the backbone of the agriculture comprising the majority of agricultural labourers in India. Gender divisions in agriculture are stark with all activities involving manual labour assigned to women while all operations involving machinery are generally performed by men. Agricultural wages for women are on an average 30-50 percent less than those for men.

### 2.2 Female Work Participation Rate

The Census in India has been capturing information based on economically productive work. The work done by women is largely in and for the household and is not always counted as economically productive work. Consequently, the work participation rates for women in India have been low compared to men. The Census definitions have also been changing between the decadal Census, making comparisons between the different Census periods difficult, particularly 1961 and the subsequent periods. Broadly, women's work participation is higher in rural areas compared to urban areas in all the Census periods. Women's work is largely in agriculture, which is largely in rural areas. Between 1971 and 1991 there have been small increases in women's work participation rates according to the definitions given in each of the census periods. **Table 1** below gives the work participation rates for males and females in rural and urban areas.

**TABLE 1**  
**WORK PARTICIPATION RATES (1971-91)**

<b>Years</b>	<b>T/R/U</b>	<b>Females</b>	<b>Males</b>	<b>Persons</b>
1971	Total	14.22	52.75	34.17
	Rural	15.92	53.78	35.33
	Urban	7.18	48.88	29.61
1981	Total	19.67	52.62	36.70
	Rural	23.06	53.77	38.79
	Urban	8.31	49.06	29.99

contd...

---

**Profile of Women in Agriculture**

<b>Years</b>	<b>T/R/U</b>	<b>Females</b>	<b>Males</b>	<b>Persons</b>
1991	Total	22.73	51.56	37.68
	Rural	27.20	52.50	40.24
	Urban	9.74	48.95	30.44

(Source : Registrar General of Census)

### **2.3 Women in the Work Force**

A profile of women in the work force of the country, bringing out the gender differential is presented in **Table 2**.

**Table 2**

**Profile of Women (Relative to Men) in the work force in India**

<b>Category</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Total Population	439	407	846
Total Estimated Employment	243	89	332
Total Unemployed Rate (1993-94)	260	244	504
Annual Growth of Employment in Urban Areas (1987-88 to 1993-94)	3.57	3.64	3.59
Annual Growth of Employment in Rural Areas (1987-88 to 1993-94)	3.25	0.87	1.84
Self Employment (1993-94)	Rural 56.7 Urban 41.2	Rural 51.3 Urban 36.7	Rural 55.3 Urban 40.4

(Source : Annual Report, 2000-01, Ministry of Labour, Government of India)

A sectoral profile of female work force indicates that more than 80 percent of female workers are engaged in the agriculture sector in rural India. In the urban areas, women workers are primarily employed (As on March 31, 1999) in the unorganised sectors. These are household industries, petty trades and other services such as buildings and construction etc. Though the overall proportion of women's employment to total employment registered an increase of 0.8 percent as compared to corresponding proportion of women employed in 1998, it still constitutes a far from satisfactory achievement in desired employment levels. The distribution of women employees across industries reveals that —

## The National Task Force on Technological Empowerment

---

Community, social and personnel services sectors employed	— 55.6 percent
Manufacturing units employed	— 21.4 percent
Agriculture and allied occupations employed	— 9.8 percent
Finance insurance, real estate and business employed	— 4.9 percent

As per the survey carried out by the National Sample Survey Organisation in the year 1999-2000, the total employment in both organised and unorganised sector in the country was of the order of 39.7 crore. Out of this, 2.8 crore were in the organised sector and the balance 36.9 crore were in the unorganised sector. Out of the 36.9 crore workers in the unorganised sector 23.7 crore were employed in the agricultural sector, 1.7 crore in construction, 4.1 in manufacturing activities and 3.7 in trade transport, communication services.

A major finding of the Time Use Surveys across the globe has been that women carry a disproportionately greater burden of work than men, and since women are responsible for a greater share of non-SNA (System of National Accounts) work in the care economy i.e. home based work which is difficult to measure they enter the labour market already overburdened with work. (Report of General Diagnosis and Budgeting in India of National Institute of Public Finance and Policy, December 2001). Unfortunately, this dual work burden is neither recognised in the data nor considered adequately in socio-economic policy making.

### 2.4 Population and Agricultural Workers

The **Table 3** overleaf gives details of the number/percentage of agricultural workers in the total population from 1951-2001.

**Table 3**  
**Population and Agricultural Workers (In Millions)**

Year	Total Population	Average Annual Exponential Growth Rate (%)	Rural Population	Cultivators	Agricultural Labourers	Other Workers	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1951	361.1	1.25	298.6 82.7%	69.9 49.9%	27.3 19.5%	42.8 30.6%	140 100%

contd...

---

**Profile of Women in Agriculture**

Year	Total Population	Average Annual Exponential Growth Rate (%)	Rural Population	Cultivators	Agricultural Labourers	Other Workers	Total
1961	439.2	1.96	360.3 82%	99.6 52.8%	31.5 16.7%	57.6 30.5%	188.7 100%
1971	548.2	2.22	439.0 80.1%	78.2 43.4% M-46 F-30	47.5 26.3% M-21 F-50	54.7 30.3%	180.4 100%
1981@	683.3	2.20	523.9 76.7%	92.5 37.8% M-43.71 F-33.09	55.5 22.7% M-19.57 F-46.34	96.6(a) 39.5%	244.6 100%
1991+	846.3	2.14	628.7 74.3%	110.7 35.2% M-39.63 F-34.22	74.6 23.8% M-21.06 F-44.93	128.8(a) 41%	314.1 100%
2001*	1025.0	1.93	741.25 72.3%	127.63 31.7% M-86.3 F-41.3	107.45 26.7% M-NA F-50.0	167.4 41.6%	402.5 100%

@ Data in columns 5-8 excludes Assam.

(a) Includes marginal workers.

+ Provisional Population in 2 and 4 columns includes projected figures for Jammu and Kashmir.

\* Data does not include certain districts of Gujarat hit by earthquake.

M - Male F - Female

(Source : Census of India-2001, Women in India, A Statistical Profile - 1997).

While the percentage of rural population is slowly dwindling due to increased migration towards the cities, the percentage of labourers in agriculture has remained much the same at least from 1981 onwards. It may be said that more women are joining the labour force in these areas.

## The National Task Force on Technological Empowerment

---

### 2.5 Problems Faced by Agricultural Workers

Broadly, the problems of agricultural workers can be classified into two groups viz., social and economic. Social problems emanate from the low status of agricultural workers in the rural hierarchy and the economic problems are due to inadequacy of employment opportunities, poor security of tenure, low income and inadequate diversification of economic activity in rural areas.

- They are dispersed, unorganised and generally have poor bargaining power.
- Due to seasonal work, they often have to migrate for alternative avenues of employment in other areas like construction etc. during off-season.
- Circumstances force many of them either to borrow, from time to time, from private sources for consumption purposes or to meet social obligations and some of them end up as bonded labourers.

### 2.6 Database on Farm Women

A database has been generated from 18,000 rural women who represent different agro-climatic zones of nine states being covered under **All India Coordinated Research Projects (AICRP) in Home Science, which is administered by the ICAR**. The sample also represents five occupational categories of large, medium, small and marginal farming and landless families. The database pertain to participation, decision making and time use pattern related to agriculture, animal husbandry and homestead activities.

The profile of women in terms of their involvement in work, time utilisation and decision making pattern was studied in the seven agro climatic zones of Andhra Pradesh. The data was collected from three zones viz., Krishna, Godavari, Southern Telangana and scarce rainfall zones.

High percentage of independent participation of women (43-81%) was observed in all homestead activities like cooking, cleaning, collection of fuel, fetching water, care of children etc. Independent participation of women was found very marginal in major crop production (1%), post harvest (2%), livestock management (6%) and entrepreneurial activities (0%). This indicates the involvement of men in skilled agricultural work and limiting the role of women in drudgery prone, unskilled activities like weeding, transplanting, harvesting, cleaning, grading etc. It is of interest to note that independent decision making by women on home and family related practices is very marginal (6.9-13.1%) even though home and family is essentially a woman's domain.

---

## Profile of Women in Agriculture

The total time spent in home and farm activities was 15.7 hrs. and 14.9 hrs. respectively. In hill and tribal areas and other regions where men migrate to seek alternate avenues of employment, agriculture is almost completely in the hands of women. A woman's contribution is a very important component in the family resources because she has to play multiple roles- looking after the household, spending long hours-collecting fuel, fodder and drinking water, and in agriculture and related activities.

The project on "Ergonomics on farm women's drudgery" was focussed on studying the physical fitness of women engaged in farm and homestead activities by recording the physiological work load of various tasks of rural women at Mahabubnagar district, Andhra Pradesh. Drudgery prone activities were identified and drudgery index scores were developed. Among the women, fetching water and lunch preparation were considered as drudgery prone activities with maximum index scores 63.71 and 62.0 followed by the activities in dairy domain like feeding animals (59.4), collecting fodder (57.9) household activities like sweeping (56.8), farm activities like weeding (41.4), cutting and uprooting (38.9) and transplanting (37.7).

The activities of water fetching and transplantation were considered as heavy and energy demanding, costing the total energy expenditure of 170.6 KJ and 1223.0 KJ per day respectively.

Both these activities demanded the subjects to spend greater percentage of time. Each unit of increase in time during these activities has resulted in the increase of Total Cardiac Cost of Work (TCCW) by 24.3 beats.

Water fetching and transplantation caused severe pain in the regions of back, lower back, shoulders and limbs indicating the vulnerability of the zones for impairment if control action was not taken. This data will be helpful to place designs interfacing with the worker to improve the worker's efficiency.

The Annual Report for the year 2001-2002 of the ICAR has further elaborated the availability nature of database under the Home Science section.

### **2.7 Women and Work : Attitudes and Emerging Compulsions and Trends**

There is increasing awareness amongst the policy makers, the society and women themselves about the need for enhancing women's economic participation as a means of advancing their status.

**Women have all along been playing a distinctive role in agrarian as well as artisanal employment, where earning livelihood is a family endeavour; women have had a role in it (CSWI).**

## The National Task Force on Technological Empowerment

---

Women face several barriers in attaining economic autonomy and sustainable livelihood for themselves and their dependents due to several legal and customary obstacles to ownership of land or access to land, natural resources, capital, credit, technology and other means of production. Their work and contribution is undervalued and under-recorded. They are often not measured in quantitative terms and are not reflected in national accounts. Owing to underestimation/non-estimation, women's work receives limited social recognition. "The full visibility of the type, extent and distribution of this unremunerated work will also contribute to a better sharing of responsibilities." Agriculture is the major economic activity for women. The comparative distribution of workers in different industrial categories in the three Census 1971-1981-1991 show that there is a significant overall decline in the proportion of persons working as cultivators as seen in **Table 4**.

The decline has been in the case of males from 46 percent in 1971 to 39.63 in 1991. It is significant that in the same period the proportion of female workers in the category of cultivators has risen from 30 percent to 34.22 percent. The proportion of women workers moving out of agriculture in two decades has been slightly less than one percentage point. Occupational shifts in the secondary and tertiary sectors since 1971 in the case of females as well as males has not been very pronounced. Classified data is not available in the 2001 census.

**Table 4**  
**Occupational Shift of Workers Through Decadal Census, 1971-1991**

Category	Persons			Male			Female		
	1971	1981	1991	1971	1981	1991	1971	1981	1991
I. Cultivators	43	41.46	38.41	46	43.71	39.63	30	33.09	34.22
II. Agricultural Labourers	26	25.12	26.44	21	19.57	21.06	50	46.34	44.93
III. Livestock, Forestry, Fishing, Hunting, Plantations, Orchards and allied activities	2	2.25	1.90	2	2.37	1.99	3	1.83	1.60
IV. Mining and Quarrying	1	0.58	0.62	1	0.63	0.70	-	0.35	0.34
V. Manufacturing, Processing, Servicing and Repairs :									
(a) Household industry	4	3.45	2.42	4	3.18	2.09	4	4.57	3.53
(b) Other than household industry	6	7.85	7.76	7	8.91	8.89	3	3.60	3.88

contd...

---

**Profile of Women in Agriculture**

Category	Persons			Male			Female		
	1971	1981	1991	1971	1981	1991	1971	1981	1991
VI. Construction	1	1.66	1.95	1	1.87	2.32	1	0.87	0.66
VII. Trade and Commerce	6	6.33	7.46	6	7.41	8.98	2	2.04	2.26
VIII. Transport, Storage* and Communications	2	2.75	2.81	3	3.36	3.54	-	0.37	0.32
IX. Other Services	9	8.55	10.23	9	8.99	10.80	7	6.94	8.26
	100	100.0	100.0	100	100.0	100.0	100	100.0	100.0

Source : Census of India, 1971 (Series 1 - India Part II-B (i) General Economic Tables). Women in India, A Statistical Profile - 1997, Department of Women and Child Development.

There is discrimination by certain State Governments in the matter of wage payments to women farm workers. The illiteracy of women and the lack of their bargaining power are factors contributing to this discrimination.

The largest sector of employment in India is agriculture, accounting for over 60% of the working population in India. Women make 45% of the agricultural labour force, and the sector employs about 84% of all economically active women.

“A number of micro-level studies from various parts of India show that modern agricultural technologies appear to have increased the per hectare absorption of female labour.” Technologies, which appear to have increased the demand for female labour, include irrigation, the use of bio-chemicals, High Yielding Variety (HYV) technologies and even some degree of tractorisation - though not the use of mechanical threshers and other types of mechanization. In some cases, an increase of female labour use associated with technological change has been greater than the increase in male labour. Together with male migration into non-farm employment, agricultural modernization appears, thus, to be an important factor behind the rising proportion of women in Indian agriculture. The positive impact of this is that more women are moving into wage employment.

The involvement of women is mapped out for various agricultural, horticultural and plantation items, based on the significant operations identified for each item in consultation with experts in the field. (The matrix is given in Annexure 6). “These activities are intensive and regular, almost of an industrial nature in the case of plantations, seasonal for many agricultural and horticultural operations, occasional in case of some of them. Generally, the

**The National Task Force on Technological Empowerment**

---

tasks performed by women included in this matrix have the following characteristics : (a) Repetitive; (b) Monotonous; (c) Specific abilities; (d) Arduous.”

Women’s work is largely undervalued and under-recorded. The economic status of women continues to be significantly inhibited by several customary and legal obstacles, which include lack of access to land, natural resources, capital, credit and technology. The time use survey conducted by the Central Statistical Organisation in 2000 brings out that women spend more time than men in economic activities all of which are not accounted for in the System of National Accounts. Women’s work participation rate is about 22% while it is 51% for men. Women continue to be tied down to land as cultivators or agricultural labourers. Nearly 80% of women are engaged in agriculture, while the figure for men is 60%. While the number of women engaged in agriculture and allied activities (primary sector) has increased in absolute terms, their participation rate has come down from about 90% to 85% upto the 1991 census. This has been viewed with concern particularly for the reason that this has happened despite the Green Revolution. The National Sample Survey, 55th Round (1999-2000) has brought out the further decline in the employment of women in rural areas and an increase in women’s employment in the tertiary sector.

The quality of women’s employment has deteriorated. Regular salaried employment has come down and casual wage employment has increased. Women continue to suffer all the disabilities going with employment in the unorganized sector. Of course, several labour laws have been established/amended for giving labour protection for the unorganized labour, some of them exclusively for women, like the Equal Remuneration Act. However, labour protection for women in unorganized employment is not effective because of problems of implementation of these laws. Employers-employees relationship being rather diffused in employment like building and construction, home based activities etc., conditions of employment of women are often exploitative. Where women workers are migratory in nature, they suffer more than ordinary disabilities. Significant numbers of child labourers are girls. The impact of globalisation and economic reforms on work participation and quality of employment of women is yet to be studied in detail through field research activities.

## CHAPTER 3

# POLICIES AND PROGRAMMES FOR WOMEN IN AGRICULTURE

### 3.0 National Policies

Important among the policies which have very vital implications for women are those relating to population, health, nutrition, education, agriculture, industry, forest, water, housing, credit, science and technology and the media. Specific national policies, as have been adopted, in respect of some of these areas by the Government are presented below in chronological order:

- (i) National Health Policy, 1982
- (ii) Technology Policy Statement, 1983
- (iii) National Policy on Education, 1986
- (iv) National Water Policy, 1987
- (v) National Forest Policy, 1988
- (vi) New Industrial Policy, 1991
- (vii) National Nutrition Policy, 1993
- (viii) National Housing Policy, 1994
- (ix) National Population Policy, 2000
- (x) National Agriculture Policy, 2000
- (xi) National Policy for Empowerment of Women, 2001

**3.1 The National Policy for Empowerment of Women, 2001** inter-alia stipulates the following measures vis-a-vis women in agriculture.

#### (a) Technology

Efforts to develop appropriate technologies suited to women's needs as well as to reduce their drudgery will be given a special focus.

#### (b) Women and Agriculture

In view of the critical role of women in the agriculture and allied sectors, as producers, concentrated efforts will be made to ensure that benefits of training, extension and various programmes will reach them in proportion to their numbers. The programmes for training

## **The National Task Force on Technological Empowerment**

---

women in soil conservation, social forestry, dairy development and other occupations allied to agriculture like horticulture, livestock including small animal husbandry, poultry, fisheries etc. will be expanded to benefit women workers in the agriculture sector.

### **(c) Micro Credit**

In order to enhance women's access to credit for consumption and production, the establishment of new, and strengthening of existing micro-credit mechanisms and micro-finance institution will be undertaken so that the outreach of credit is enhanced. Other supportive measures would be taken to ensure adequate flow of credit through extant financial institutions and banks so that all women below poverty line have easy access to credit.

### **(d) Economy**

Women's perspectives will be included in designing and implementing macro-economic and social policies by institutionalizing their participation in such processes. Their contribution to socio-economic development as producers and workers will be recognized in the formal and informal sectors (including home based workers) and appropriate policies relating to employment and to her working conditions will be drawn up. Such measures could include :

- (i) Reinterpretation and redefinition of conventional concepts of work wherever necessary e.g. in the Census records, to reflect women's contribution as producers and workers;
- (ii) Preparation of satellite and national accounts;
- (iii) Development of appropriate methodologies for undertaking (i) and (ii) above.

These measures when implemented fully and faithfully can contribute immensely to the improvement of the living and working conditions of women in agriculture.

(Annexure 14 for National Policy for Empowerment of Women).

**3.2 The National Agriculture Policy** was announced in July 2000. It seeks to

- actualise the vast untapped growth potential of Indian agriculture,
- strengthen rural infrastructure to support faster agricultural development,
- promote value addition,
- accelerate the growth of agro business,
- create employment in rural areas,
- secure a fair standard of living for the farmers and agricultural workers and their families,

---

## Policies and Programmes for Women in Agriculture

- discourage immigration to urban areas and
  - Face challenges arising out of economic liberalisation and globalisation.
- In a nutshell, the policy seeks to promote
- **Sustainable agriculture**
  - **Food and nutrition security**
  - **Generation and transfer of technology where mainstreaming gender concerns in agriculture will receive particular attention. Appropriate structural, functional and institutional measures will be initiated to empower women and build their capabilities and improve their access to inputs technology and other farming resources.**
  - **Adequate and timely supply of quality inputs**
  - **Incentives and investments in agriculture**
  - **Institutional reforms in agriculture where one of the focal points would be recognition of women's rights in land**
  - **Management reforms**

(Annexure 13 for details of National Agriculture Policy)

### 3.3 National Perspective Plan for Women Farmers

The Technology Mission in the Department of Agriculture and Cooperation is implementing this scheme.

Under the oil seed production programme and the National Pulse Development Programme, preference is given to women farmers. Within the component of distribution of sprinkler sets, the rate of assistance provided to the women farmers is higher than that of general category of farmers. For example, assistance for sprinkler set is to the extent of 50 percent of the cost of the set for a woman whereas others get assistance at the rate of 30 percent of the unit cost. State Departments of Agriculture were requested to make women farmers beneficiaries of gender friendly farm implements.

Efforts have also been made to involve farm-women groups under both the programmes to perform activities involved in maize production in the country. Under UNDP (United Nations Development Programme), sub-programme on maize, preference is also being given to women for training, capacity building programmes, seed production and other programmes like demonstrations.

## **The National Task Force on Technological Empowerment**

---

### **3.4 National Agricultural Technology Project (NATP)**

The National Agricultural Technology Project is considered as a driving force for the growth of agricultural system with equity and social justice. The innovation in technology dissemination component commenced during 1998 in six states through four pilot districts in each state. The project was jointly implemented by the ICAR and Department of Agriculture and Cooperation. Considerable progress has been made in three major components

- research
- innovation in technology dissemination
- organisation and management system in ICAR.

Further, under the NATP, a component on Empowerment of Women in Agriculture has been added in seven states including SAU and ICAR Institutes. This has been planned for a period of two and a half years, beginning 2001-2002, with a budget allocation of Rs. 3.65 crores.

### **3.5 National Research Centre for Women in Agriculture (NRCWA)**

The Indian Council for Agricultural Research has established a National Research Centre for Women in Agriculture (NRCWA) at Bhubaneswar for undertaking women specific research studies in the field of agriculture and allied sciences in order to reduce the drudgery of women and increase their work efficiency. The NRCWA launched 9 research projects, 4 training programmes for women trainers and 25 training programmes for farm-women. While the training programmes were organised to cover 53 women trainers, 26 training programmes were organised for 487 farm-women including the sub-centre at CIAE Bhopal. The nine research projects relate to :

- Identification and improvement of farming systems suited to farm women in eastern India;
- Improvement in backyard poultry farming for farm women of different categories;
- A gender study on agriculture and household economy of tribals of Orissa;
- Development and testing of extension methods for farm women in eastern India;
- Studies on technological empowerment of women in rural aquaculture;
- Occupational health hazards of farm women in coastal Orissa;
- Study of women specific field practices in rice in Orissa;

---

**Policies and Programmes for Women in Agriculture**

- Identification and evaluation of interactive learning modules for dissemination of homestead technologies; and
- Improvement in storage practices of seeds and grains of important crops with women perspective.

### **3.6 Experts Committee on “Women in Agriculture” (ECWA)**

As already mentioned in the Introduction Chapter, the Department of Agriculture and Cooperation is making all out efforts to adopt appropriate differential approaches for solving problems faced by women farmers in relation to upgradation of skills, technological needs, availability of agricultural resources like inputs, credit etc.

A standing mechanism has since been set by the Department of Agriculture and Cooperation for reviewing the content and scope of all the ongoing agriculture development programmes vis-a-vis its impact on women farmers. Its main purpose is to advise the Department on matters relating to women and to analyse the various policies and strategies of the Department and suggest ways to make them gender friendly. (Action plan on recommendations appended in Annexure 4).

### **3.7 Farm Women Development Programme**

**3.7.1 The Central Sector Scheme for women in Agriculture** was approved for implementation in one district in each of 15 States of the country during the ninth five-year plan. The scheme envisages motivating, mobilising and organising women farmers to form groups or identify and consolidate the existing groups of practising women farmers. All the agricultural support services such as technology, input, extension, credit etc. are being channeled through the network of these groups. To ensure sustainability each Farm-Women Group popularly called “Krishak Mahila Shakti Samuh” is set up as a registered society or with Panchayat/ District Agriculture Office. The **table 5** given below indicates details of developmental programmes for farm-women (Upto 2002).

**Table 5**

**Details of Developmental Programmes for Farm-Women**

<b>Categories</b>	<b>Nos.</b>
Viable groups of women farmers constituted	415
Farm women undergoing training	7200
Village based training camps	1603

contd...

## The National Task Force on Technological Empowerment \_\_\_\_\_

<b>Categories</b>	<b>Nos.</b>
Link workers training camps	78
Extension support through result demonstrations	4971
Study tours	66
Mahila ghoshties	27
Sandwich training	204

(Source : Annual Report 2001-2002, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India)

The reports of the review teams have revealed that **the scheme had a very positive impact** on the general awareness levels of women farmers **and has achieved a major breakthrough in addressing their technological and extension needs.** The production and income levels had increased markedly after they had put to practice the technologies/skills learnt under the scheme which has led to their overall empowerment specially with reference to their access to information, training, skill upgradation, capacity building, inputs etc.

### **3.7.2 Externally Aided Projects For Training of Women in Agriculture**

#### **(a) Women youth training and extension project : Karnataka**

**The project in its third phase** is being implemented in all the districts of the State from 1st June 2000. Under the project institutional training programmes and preseasonal camps have been organised for farm women.

#### **(b) Tamil Nadu women in agriculture**

The project which is in its second phase is being implemented in all the districts of the state except Chennai city. During 2001-2002, 1519 farm women had been trained. The objectives of this scheme are training small and marginal farm women on the skill of latest agricultural technology, increasing the production and improving food security in small and marginal holdings, recognition to farm women's productive role and full utilisation of their potential.

#### **(c) Training and extension for Women, Orissa**

This project in its second phase is being implemented in eight districts of Orissa where lady village agricultural workers and farm women are trained. The scheme also provides for forming groups of women farmers and farm women conferences.

---

## Policies and Programmes for Women in Agriculture

### **(d) Training of Women in Agriculture, Madhya Pradesh, Gujarat and Andhra Pradesh**

Under the scheme, village based training, follow up programmes, crop demonstrations, farm women conferences, women krishi melas and special training programmes are organised.

### **3.8 Integrated Pest Management (IPM)**

IPM is an eco-friendly approach which aims at keeping pest below economic threshold by employing all available alternate pest control methods and techniques such as cultural, mechanical, biological control with greater emphasis on use of bio-pesticides and pesticides of plant origin like neem formulations. In order to popularise IPM technology among the State-Extension functionaries and farmers the demo-cum-training programme has been launched by organising 284 Farmer's Field Schools (FFS) in rice cotton, vegetables, pulses and groundnut during kharif, 2000 in 23 states/UTs wherein 770 agricultural extension officers and 7410 farmers were trained in IPM approach. In these FFS training programme, women farmers also participated as they play an important role in weeding, roguing (of pest infested plants/parts) and in the pesticide spray operations.

### **3.9 Approach Paper to the Tenth Five Year Plan (2002-2007)**

In its sectoral policy issues, the Approach Paper has called for bolder steps in agriculture and land management from existing policies and recognised the urgent need to optimise the utilisation of land resources. A focus on increasing work opportunities and productivity of women farmers, increasing women's access to productive land by regularising leasing and share cropping of uncultivated agricultural land by women's groups, encouraging collective efforts in bringing waste lands under cultivation and providing policy incentives to women in low-input subsistence agriculture will have immediate benefits in terms of household, food security and women's empowerment, according to the approach paper.

The Approach Paper has prioritised different areas of focus :

- to raise the cropping intensity of existing agricultural land where the critical problem is the availability of water resources.
- the development of the rural infrastructure that supports not only agriculture but all rural economic activities - like rural and district road connectivity.
- the development and dissemination of agriculture technologies. The quality of agriculture research effort has weakened while the extension system has virtually collapsed.
- serious thought should be given to the issue of declining public investment in agriculture. Although private investment in agriculture has grown, this has often involved macro-

**The National Task Force on Technological Empowerment** 

---

economic efficiencies (such as private investment in diesel generator sets). Instead of seeking low cost options that have higher capital - output ratio, present policies have resulted in excessive use of capital on the farm such as too many tube wells in water scarce regions. A better strategy would be to concentrate on small and marginal farmers and on eastern and rain fed areas where the returns to both capital and labour are high.

- true potential of Indian agriculture can be realised only if there is diversification of agricultural products by increasing the production of pulses, oilseeds, minimise wastage of non-food grains products through improved harvest technologies and marketing infrastructures. There is need to develop animal husbandry, dairying and poultry keeping.

## CHAPTER 4

# MAJOR AREAS OF TECHNOLOGICAL EMPOWERMENT

### 4.1 Drudgery in Farm Operations

Women working in the fields, in post harvest activities and in commercial agriculture have to live a life full of drudgery where they are constantly engaged in monotonous, repetitive tasks that involve harmful postures, wet conditions and handling toxic materials. There is immense drudgery in sowing, transplantation, irrigation, fertilizer application, weeding, plant protection and harvesting. Even in post harvest work, women carry out the operations manually in an arduous manner when technologies are now available for threshing, winnowing, and milling as also for shelling of maize and groundnuts. There are hand/pedal-operated cleaners, solar dryers, metallic storage structures; power operated mills, etc. which can reduce the drudgery in these operations. The transplanter requires only about 16-20 person days/harvest for transplanting as against 25-person days/harvest. Most of the improved agricultural tools available have been mostly tested with male workers only.

However, improved tools and equipment need better skills and training. Since women are usually preoccupied with home management activities such as procuring fuel, water, fodder etc., they are hardly able to spare the time to improve their skills. They need to be provided the opportunity to receive training so that they too can use these technologies.

In order to ensure that improved machinery and tools for drudgery removal does not cause displacement of women labour of any class or category, the design and development of machinery should not only look into the anthropometric and ergonomic dimensions but also the economic and social criteria. For example, the scale and cost of machinery has to be studied in terms of whether it will be owned individually or collectively and how it will be utilised. A machine which costs Rs. 50,000 may be beyond the reach of an individual woman but can be taken up by a self-help group. In other words, structural, organisational and procedural aspects have to be taken into account as well. Weeding with improved implement reduces the body stress. Improved posture while collecting fodder minimises energy loss. The multipurpose khurpa cum sickle is used as weeder, a hoe and cutter. Naveen sickle has a wooden handle with a special handgrip shaped for easy harvesting. The use of improved transplanter eliminates walking in bending posture.

## The National Task Force on Technological Empowerment

---

Several technologies have been evolved from different national agencies and institutes, including farm machinery organisation. There are ample instances that the new technologies have not brought any significant change in improving the drudgery of women. On the other hand, in many cases, these technologies have enhanced the risk potentials. Therefore, a careful study in relation to the assessment of new technologies is of utmost necessity.

One of the constraints of making technology available to women lies in the lack of women extension workers who can help them obtain and learn to use these innovations. Further, in order to allow women to be trained in the new technology, support services for women workers in terms of transport, accommodation, childcare services need to be provided.

### 4.1.1 Ergonomics of Farm Women's Drudgery

In order to reduce the farm women's drudgery in performing household, farm and allied activities and to collect the relevant ergonomical data relating to farm women for designing women friendly equipment, Family Resource Management Component was included in the All India Coordinated Research Project on Home Science. These components aim at identifying the maximum drudgery prone activities performed by the women workers in household, farm and allied fields and their impact on women's health and efficiency. The project is also aiming at collecting the relevant ergonomics data for designing women friendly technologies. The **Table 6** below lists out the drudgery prone activities performed by farm-women.

**Table 6**  
**Drudgery Prone Activities Performed by Farm Women**

Farm Activities	Percentage of Performers	Performance frequency score	Time spent (Hrs./Yr.)
Weeding	54	1.55	234
Cutting/uprooting	55	1.02	218
Transplanting	57	1.01	186
Cleaning	51	1.27	52
Sowing	49	1.03	49
Bundling	46	0.96	66
Removing stalks	39	0.97	72
Picking	33	1.02	83

contd...

---

**Major Areas of Technological Empowerment**

Farm Activities	Percentage of Performers	Performance frequency score	Time spent (Hrs./Yr.)
Winnowing	34	0.97	40
Collecting & bringing fodder	39	4.45	481
Cleaning shed	43	4.81	137
Milking	44	4.47	335
Collecting dung	39	4.78	144
Feeding animals	43	4.82	166
Processing milk	45	4.43	168

(Source : Annual Report, 2000-2001, Department of Agricultural Research and Education, Ministry of Agriculture, Government of India)

Total cardiac cost of work was highest for weeding activity followed by collecting and bringing fodder, transplanting, washing clothes and fetching water. The highest physiological cost for weeding is followed by collecting and bringing fodder and fetching water. Score for rated perceived exertion for collecting and bringing fodder, weeding, transplanting and fetching water were found very high, indicating that the women experience a lot of difficulty in performing these activities.

In fact, farm activities got the maximum score among the difficult activities followed by dairy and household activities.

Details about some manually operated farm implements and machinery are given in Annexure 7.

#### **4.2 Reorientation of Course Curricula**

There is an urgent need for including/mainstreaming gender issues in Agriculture curricula. This is so because major operations in agriculture are carried out by farm-women. In order to reduce their drudgery and bring them into the mainstream it is essential to have a sensitised concern regarding their role in bio-diversity, ecology, medicinal plants, seed production, sustainability, food production, kitchen gardens etc. The course curricula must also be periodically reviewed and assessed to ensure that the gender concerns of farm-women are adequately taken care of and updated as a long term sustainable measure to ensure gender equity in agriculture. Accordingly a continuous change in the curricula is brought about and there is a strong teacher training component and suitable development of appropriate training modules.

## **The National Task Force on Technological Empowerment**

---

Both teachers and learners should be sensitised to address and articulate on issues of empowerment of women.

The introduction of home science in the State Agricultural Universities (SAU) has helped women and in many of the SAU women are in a majority. In fact, the home science courses of the SAU have been totally revised to focus on creating human resource for self-reliance. The women working in the field of extension need institutional and human resource support. There is generally a dearth of senior level women scientists to hold the managerial posts.

It is noteworthy that at the two brainstorming workshops held at NAARM, Hyderabad in 1998-99 the issues related to gender equity in agriculture and gender issues in agricultural curriculum were discussed in depth. The recommendations formulated by the Task Force took into account the result of the deliberations at these workshops.

### **4.3 Occupational Health Hazards and Environment**

The drudgery involved in household and agricultural work is tremendous and leads to several health problems. It has been seen that the most common occupational health hazard of women is overwork. In rural India, women suffer from poor health because of frequent child bearing, worm infestation and malnutrition. Body aches are common because of postural problems in housework and on the farm. At the same time, exposure to house dust, and smoke and carbonmonoxide from wood stove results in respiratory problems. Poor lighting inside the house has also been known to cause weak eyesight. Besides this, women encounter postural problems due to different agricultural activities and exposure to dust and chemicals, which are sprayed as pesticides. The occupational health problems of women have been studied in the cashew, coir, tobacco and prawn processing industries. There is a frequent occurrence of skin problems including contact dermatitis in cashew and the coir industry, and respiratory problems such as asthma in silk filatures. In the coastal regions of Gujarat, Orissa, Kerala and other areas, large number of women are engaged in fish processing, both in organised and unorganised units. The prawn processing units are mainly big industrial sheds where work activities are undertaken in different shifts. Women workers have about 10 hours standing duties with constant exposure to chlorinated water for the purpose of cleaning, grading, peeling, deveining, packing and freezing of prawns for subsequent transportation. The work methods, working conditions and environment and sustained long hours of work in standing posture pose a great deal of physical, physiological stress on women workers.

As women are involved in almost nearly all agricultural operations as well as agro-processing industries, various problems are faced by women and suggestions have been

---

### Major Areas of Technological Empowerment

made from time to time to improve their working conditions. It is necessary that women should be given training to handle the modern equipment being used for agricultural operations. Training to such women should be imparted in selected blocks, which have a predominance of women labour force in agriculture.

Exposure of women to smoky environment in kitchen from childhood makes them prone to disorders like cor pulmonate, congestive heart conditions and severe cardiac enlargements. A statistically significant incidence of cough, cough with expectoration, dyspnea (difficulty in breathing) and lung abnormalities has been found among women cooking with smoky fuels with poor ventilation according to a study in Ahmedabad. (Towards Equality The Unfinished Agenda Status of Women in India - 2002).

Exhaustion and dehydration, especially in hot summers are also caused by the cooking environment in hot, cramped and poorly ventilated kitchens. As the conventional 'chulha' (wood stove) is built at ground level, the flame easily catches on to clothing and women and children often suffer burn injuries. Even in kitchens with kerosene and gas stoves, women wearing synthetic clothes that are also inflammable become victims of many preventable deaths. Burns figure as the second commonest cause of death in the reproductive age group according to the Registrar General of India. Injuries from stove bursts are also common due to poor designing of cheap Kerosene stoves. Other appliances like stoves, pressure cookers, mixies, ovens etc. which can provide a safe working environment in the kitchens are beyond the reach of most rural households.

In brief, women and children in farming are subjected to a multitude of risk factors of health and safety. A variety of agro-chemicals, pesticides, farm machinery and environmental hazards contribute to aggravate the risk factors. The situation demands extensive awareness and training of farm-women to enable them to recognise the hazards of the workplaces.

Environment in the work place assumes special significance for women with their growing work participation. The occupational health and safety of women in work place has special aspects, which deserve to be repetitively studied and monitored. The Report of the National Commission on Self-employed Women and Women in The Informal Sector - "Shramshakti" - (1987), has extensively gone into the working environment of women including their health problems in vocations in the informal sector. The health hazards of women flowing from the work place environment in some of the occupations in which they are engaged in large numbers are given in Annexure 8.

## **The National Task Force on Technological Empowerment**

---

Several development projects have been taken up by the Government in the context of environment protection as well as reversal of environment degradation. While these projects may by themselves yield beneficial results, they need not necessarily mean beneficial impacts on women. There could be, in fact, side effects adversely affecting them unless implementation has a holistic approach.

This has been brought out in the analysis of the results of a watershed management programme implemented for reversing the process of ecological degradation in certain Shiwalik foothill villages of Northern India. The specific objective of the programme was to conserve natural resources, optimizing farm and forest production and reducing drudgery of farm-women. The activities undertaken were rainwater harvesting, recycling of stored water, land levelling and land shaping, introduction of improved agronomic processes etc. There were indeed several beneficial results. The cropping intensity had increased; supplemental irrigation brought in increased agricultural productivity; linkages with protection of adjoining forests could be established due to increased availability of fodder under the project; and institutional innovation could be brought about by involving the villagers in Hill Resource Management Societies. But at the same time, the work load of farm women increased - by 148% in the case of farm work, 127% in the case of transporting of fodder, and 194% on animal husbandary activities other than grazing - though, or course, there was significant reduction in time spent on grazing animals, collecting fuel wood and fetching water. The gender-development index, however, improved, but without full elimination of gender inequalities. "... the gendered impacts of environmental change suggest that project design methods will have to focus on a number of interconnected sub-systems, i.e., social, cultural, economic, legal, institutional and technological which impinge upon gender relations in rural societies. For, in the final analysis, the environment is not the natural concern of women per se, but a social construct whose management is dependent on the organization of society." (Swarn Lata Arya, J.S. Samra and S.P. Mittal : Central Soil and Water Conservation Research and Training Institute, Research Centre, Chandigarh; "Rural Women and Conservation of Natural Resources, Traps and Opportunities.")

Environment has vital implications for the status of women as it is closely related to their physical as well as economic well being. Women are involved in every stage of food production. "On the eve of the 21st century rural women in developing countries hold the key to the future of the Earth's agricultural systems and to food and livelihood security through their roles in the selection of seed, the management of small livestock and the conservation and sustainable use of plant and animal diversity. Rural women's key role as food providers and food producers links them directly to the management of genetic resources for food and agriculture and has given them a unique knowledge and decision making role about local

---

## Major Areas of Technological Empowerment

species, eco-systems and use acquired over centuries of practical experiences... Despite this increased recognition at international levels, little has yet been done to clarify the nature of the relationship between agro-biological diversity and the activities, responsibilities and right of men and women. In fact, women's key roles, responsibilities and management practices for the conservation and improvement of animal and plant genetic resources and their intimate knowledge of plants and animals remain 'invisible' to the agricultural, forestry and environmental technicians as well as the planners and policy makers". (Women-users, preservers, and managers of agro-biodiversity; Women and Population Division, Sustainable Development Department, Food and Agriculture Organization). Violence to environment in terms of deforestation and degradation of land resources, pollution of land, water and air are all factors which have created serious disabilities not merely in regard to women's economic participation but in respect of even their survival activities. These factors have also adversely impacted on their health and productivity.

The gender dimensions of environment protection have been indeed a subject matter of scrutiny and debate at the international and national levels for quite sometime now. The Stockholm Conference on Environment (1972), the Nairobi Forward Looking Strategies adopted in 1985, the United Nations Conference on Environment and Development (1992), The Beijing Declaration and Platform for Action (1995) and the World Food Summit (1996) emphasized the link between advancement of women and environment. Whether it is for women or men, environmental mismanagement as such has adverse consequences on health and productivity.

### **4.4 Policy and Legislation Including Credit**

#### **4.4.1 Policy and Legislation**

In spite of the fact that agricultural workers have such numerical strength, they are extremely vulnerable to exploitation. This is due to low levels of literacy, lack of awareness, persistent social backwardness and absence of unionisation and other forms of viable organisation. The avenues of stable and durable employment for them have been limited leading to inter-district and inter-state migration. While moving on in search of better avenues of employment and wages there is a lot of dislocation of family life, dislocation of education of children and numerous other handicaps.

Several measures have been taken to protect the interests of the working class and uplift the condition of agricultural workers. The very first legislation, the Minimum Wages Act, 1948 was applied to the agricultural sector also. Subsequently, the Plantation Labour Act, 1951 was enacted to provide certain basic facilities to plantation workers. Many other existing labour laws are applicable or have direct bearing on agricultural labour (Labour Laws - Annexure

**The National Task Force on Technological Empowerment**

---

9) Laws under this category are Payment of Wages Act, Minimum Wages Act, Contract Labour (Regulation and Abolition) Act, Equal Remuneration Act, Inter-State Migrant Workers (Regulation of Employment and Conditions of Service) Act and Child Labour (Prohibition and Regulation) Act. Labour being a concurrent subject, implementation of these laws falls within the respective areas of jurisdiction of the Central and State Governments. A Women's Cell has been created under the Ministry of Labour to deal with matters relating to the implementation of the law. The Central Government coordinates with the State Governments in monitoring implementation by calling for returns on inspections of establishments, detection of violations of the law, prosecutions launched, convictions obtained etc. The statistical data available in the Ministry of Labour indicate that in a substantial number of cases of violation of law prosecutions are rather slow. Presentation of returns by the State Governments is also often found quite slow. In addition, cases of paying lower wages than men to women agricultural labourers are prevalent in a very large measure.

Some of the serious problems encountered in the implementation of these laws are reluctance on the part of the workers themselves in invoking legal provisions to secure protection in the face of violation of laws, gross inadequacy of the inspection machinery, inadequate support facilities for the inspecting staff. Under many laws, there are very weak penalty provisions, which do not have any deterrent effect etc.

The problems of agricultural labourers have been sought to be tackled through Multi-dimensional course of action viz., improvement of infrastructural facilities, diversification to non-farm activities, skill improvement programmes, financial assistance to promote self-employment, optimising the use of land resources etc., through a variety of rural development, employment generation and poverty alleviation programmes. To meet the expenditure for various welfare measures there is provision for constitution of an Agricultural Workers' Welfare Fund at the district level to be financed by employers' contribution and contribution by the workers. The proposal is at the stage of consideration at various levels in the Government. Not all these efforts have been able to adequately protect the interests of agricultural workers. This is partly because of lack of bargaining power. Keeping in view this broad perspective, the Ministry of Labour is contemplating to bring a comprehensive legislation to safeguard the interests of agricultural workers.

The proposed legislation (Agriculture Workers Bill - Annexure 10) would provide for regulation of the service conditions of agricultural workers and provides for certain welfare measures which include financial assistance in case of death and injury, payment of group insurance premia, health, maternity benefits, old age pension, housing assistance and educational assistance to the children of agricultural workers.

---

## Major Areas of Technological Empowerment

Special provision/welfare schemes are also provided in the proposed legislation for women workers prohibiting

- their employment after sunset,
- rest shelter with employment of 20 and above female agricultural workers for use of children under the age of six,
- ensuring payment of equal wages to men and women for same and similar nature of work as required under Equal Remuneration Act,
- maternity benefits etc.

The demand for a comprehensive central legislation for agricultural workers has been on the agenda of political parties for a long time. Due to strong opposition from the powerful farmers lobby and some resistance from the State governments, this bill has been shelved for a long time. It is mainly rural women workers who face discrimination in wage payments apart from denial of welfare measures like maternity benefits, health care and education facilities for their children. Certain states like Kerala and Tripura have appropriate legislation in regulating the working conditions and providing for welfare of agricultural workers. It is to be hoped that the envisaged Agriculture Workers Bill will be enforced without further delay.

The NCW should take up separately the issue of the need to have a comprehensive legislation and to evolve structural guidelines for a national debate and finalisation of such legislation.

### 4.4.2 Credit

It has been truly and well truly and acknowledged that credit is a crucial input for increasing agricultural production and productivity. A multi-agency network consisting of commercial banks, regional rural banks, co-operative network and the farming community is in position notwithstanding its true efficacy. In terms of network coverage and outreach, the cooperatives account for 46 percent share in rural credit flow for agriculture, 31 percent in rural deposits and the small farmers constitute 42 percent of their total membership. To expand the facilities trained women should be given loans on preferential terms and conditions for acquiring approved equipment and agro-processing units. There however has to be a clear demarcation between the wage earners and the entrepreneur women. For wage earners, perhaps no credit will be required except for consumption purposes, and tools improvement will be carried out by the employer. The lead bank concept and the liberal term loans must be monitored to ensure regular and adequate credit access to farm-women.

## **The National Task Force on Technological Empowerment**

---

Under INTEGRATED RURAL DEVELOPMENT PROGRAMME (IRDP) loans are given to women beneficiaries. As of now under IRDP about 30 percent loans are earmarked for women beneficiaries. However, this can be taken up in a more planned manner in certain pockets where there is potential for various economic activities.

The **Rashtriya Mahila Kosh**, RMK is a national level mechanism to meet the micro credit needs of the poor and asset less women in the informal sector. From inception in 1993 until February 2001, total credit worth Rs. 100 crore was sanctioned to benefit more than 4 lakh women through 827 NGOs spread over the country. RMK has a very creditable recovery rate of 90-95 percent. It has also ventured to develop an institutional base at grass-roots level with the establishment of SHGs for expanding its credit services. Directed interventions to benefit farm-women in a substantial manner would be appropriate.

### **4.4.3 Co-operatives**

With the overall objective of bringing women in the cooperative fold from grass root levels by informal approach and to revitalise and develop women participation in group activities and to improve the socio-economic condition of women in selected blocks, National Cooperative Union of India (NCUI) is running four exclusive women development projects. These are located at Shimoga (Karnataka), Behrampur (Orissa), Imphal (Manipur) and Bhopal (MP) under the special scheme of the intensification of cooperative education in the co-operatively underdeveloped states. Four exclusive women development projects have formed more than 382 self-help groups. Besides each field project has got a special women development component. Women in the self-help groups are helped to develop thrift habits. They are given training to undertaking income-generating activities with the help of their own resources or by borrowing from cooperatives. The project personnel help them in marketing their produce in the local market and by organising melas/exhibitions.

The Government of India is providing financial assistance to the State Governments for promotion of women cooperative societies under Macro Management mode as per the State Work Plan of agriculture. The proposed National Policy on cooperatives provides for preferential treatment to the development of women cooperative societies. There exist large scope for greater role for co-operatives in agriculture sector for the benefit of women. This must be attempted in a time bound framework, for the present efforts are only symbolic.

### **4.4.4 Self-Help Groups (SHGs) - Bank Linkage Programme**

With a view to evolving location specific approaches to address the problems and aspirations of the poor, a supplementary credit delivery system in the form of self-help groups

---

### **Major Areas of Technological Empowerment**

has been introduced. NABARD launched a pilot project linking of SHGs to obtain membership of the cooperatives to provide encouragement of the SHGs. As on March 2000 as many as 40 commercial banks, 152 regional rural banks and 58 cooperative banks have participated in the programme.

This is being implemented and more than 25,000 groups have been linked with bank branches, out of which 84 percent or more are exclusive women groups. This schemes has proved useful for both beneficiaries as well as the banks. NABARD can help in providing linkages with the bank branches and in capacity building of the workers of the group. NGOs can be involved in this work for providing support in organising SHGs as well as capacity building. It is time that we replace the “pilot project” regime with full fledged exhaustive schemes for women for they are “credit worthy”.

## CHAPTER 5

# CONCLUSIONS AND RECOMMENDATIONS

### 5.1 General

Agriculture Sector employs 4/5th of all economically active women in the country. 48% of India's self-employed farmers are women. There are 75 million women engaged in animal husbandry as compared to 1.5 million men. Despite such significant contributions of women in crop and animal husbandry, fisheries, forestry and post-harvest technology, those engaged in formulating packages of technologies, services and public policies for rural areas have often tended to ignore the productive role of women. However, a significant shift in approach towards well being of women from "Welfare during Fifties", to "Development during Seventies" to "Empowerment during Nineties" and to "Participation during Two Thousand" is a most welcome trend. The National Agriculture Policy has recognised incorporation of gender issues in the agricultural development agenda in view of women's role as farmers and producers of crop and livestock, as users of technology, as active agents in marketing, processing and storage of food and as agricultural labourers.

Technological advances in agriculture should in fairness benefit all, regardless of sex and social status. Unfortunately, this does not happen. The role of women, both as users and beneficiaries of technology is widely influenced by various factors like religious, cultural, economic and ecology. Therefore, women in agriculture have not benefited from new technology and their work on the farm continues to be full of drudgery.

The recommendations made in this report have highlighted the need for introduction of agricultural tools and equipment, which can reduce drudgery. Modifying available equipment to suit the ergonomic needs of women, testing them in different locations, producing them in bulk, is urgently required. Providing women with the skill, and training them in the use of equipment is the most important need of the hour. The consequences of new technologies on women specific occupations and the constraints responsible for their transfer have to be separately studied in detail so that technological packages can be gender friendly, socially sound and can be coupled with appropriate packages of services and government policies. Non-government women's organisations can help in ensuring the flow of benefits from these technological packages. Reorientation of agricultural curricula at the undergraduate level with

## **The National Task Force on Technological Empowerment**

---

a view to sensitising students on women's issues will go a long way in ensuring that modern agricultural technology reaches rural women.

It would be appropriate if the NCW could take suitable steps to involve related agencies in evaluating the new technologies.

It bears reiteration that agriculture is one sector in which highest number of women work and most of which, is unorganized. A little dent in the quality of their life will make the investment in this sector worthwhile. It should be ensured that technologies are accessible, income generating, poverty reducing, women friendly and drudgery eliminating, both for pre and post-harvest operations.

The need of the hour is a people oriented; especially women oriented policy, and a sound strategy to implement it through a practical programme of work with the involvement of women. It is important to recognise that women's empowerment through technologies can raise their status only through a meaningful stimulation. There is therefore, needed to have the participation of women at every level in decision making, programme formulation and implementation.

It has been seen time and again that whenever a new technology is introduced; an operation that was traditionally performed by women is taken over by men. With the modernisation of agriculture - introduction of high yielding variety seeds, mechanisation of farm operations, use of chemical fertilizers, insecticides, pesticides, weedicides, herbicides, hormone - accelerators etc. the traditional role and status of women has changed. Introduction of modern marketing systems has also affected women's contribution in terms of post harvest operations, home made consumer goods and decision making in agriculture.

**Careful studies on the impact of new technologies should be undertaken in selected farm areas.** Families with and without assets should be considered separately for measuring the impact of new technologies. Within the family, the impact on women with reference to both employment and income should be studied separately so that data can be analysed on the impact of new technologies on women. As migration is taking place from rural areas to urban areas due to their employment potentials, the villages are going to be mostly inhabited by old men and women. Therefore, the responsibility of managing agriculture would be mostly on women. There is an urgent need to review the methods of promoting agricultural involvement of women.

**Specific steps must be taken to provide women** with managerial and organisational skills so that they themselves can utilise new technologies such as those relating to bio-fertilizers, seed production, pest surveillance, bio-mass utilisation, crop livestock and fish

---

## Conclusions and Recommendations

integrated production systems. Targeting women for training in technology would also benefit the entire family in terms of better health, nutrition and an improved home environment.

Women of poor rural households need to have greater control over productive resources and over the products of their labour. Only then can this section of society harness the results of technological change. It has been found that producers' cooperatives have helped to alleviate conditions of poverty among rural households. A greater effort will be required perhaps with the involvement of women's NGOs.

**It is only the concerted action of the agricultural research system and policy makers that can lead to meaningful research on issues concerning women.** Many of the current problems stem from the differing perceptions of men and women. The answer lies in a two pronged strategy involving first the social education of men and second the promotion of institutional structures. To summarise :

- Technological empowerment of women in agriculture, is not simply a research or extension issue. There are issues, which involve policies, which require support for taking those technologies to the field. Hence, one must look at the issues in a holistic manner.
- To obtain the correct perception of priorities, there is need for direct interaction between scientists and women farmers and labourers. In the development of technology, the process of involving people right from the beginning needs to be followed.
- Industrial houses/enterprises/corporate bodies may be encouraged/persuaded to adopt a few villages for agricultural development. This can be done by establishing value addition centres, promoting custom hiring and organising training programme for women in upgradation of their technical skills for income and employment generation. Such investment should be exempted from income tax.
- Women friendly innovative and creative technologies need to be developed. The smokeless chulla which is a common example of a liberating and empowering technology was clearly not successful because it was developed without women's participation and the period of adaptation did not involve adequate support system.
- The country is rich in traditional technologies, which need to be better understood. Development research must ensure the participation of actual users. There is a greater need to improve the land to lab and people to lab effort.
- Care must be taken not to impose non-viable technology e.g. indiscriminate use of toxic pesticides, which have resulted in high levels of contamination of water bodies.

## **The National Task Force on Technological Empowerment**

---

The heavy use of chemical fertilizers have driven over 35 percent of prime land out of cultivation due to salinity and exhausts the organic matter in our soil.

- Education of women is important beginning from the girl child.
- Raising of income levels through
  - (a) Liberating technology especially for women who form nearly 70 percent of the rural labour force.
  - (b) Legislation for equal ownership rights on land and property.
  - (c) Developmental loans to be given preferably to women ensuring they comprehend their responsibilities. In such case evidence, shows that women's loan recovery rates are between 90-100 percent. The ratio for men is lower.
- Need to develop and use more of water conservation, water technology and water protection technologies. Women walk many kilometers to bring water from ponds and lakes, which are drying up due to ecological damage. The water level in tubewells is dropping for want of proper conservation and lack of sub-soil water protection policy.
- Need a technology policy for energy conservation and increased use of renewable energy because women walk many kilometers to collect wood fuel.
- Need to have a safe and sustainable technology to save food that perishes from the field. There is a need to have a good post harvest technology.

The National Workshop on the Technological Empowerment of Women in Agriculture held at MS Swaminathan Research Foundation in December 1997 recommended, inter-alia, an Agenda for Action. The National Task Force on Technological Empowerment of Women in Agriculture constituted by the NCW endorsed these recommendations and reiterated the suggestions for speedy implementation. (Details in Annexure 11)

### **5.2 Drudgery in Farm Operations**

- In order to have effective implementation of programmes, there should be integrated women's development programme for removal of drudgery in farm operations through technological empowerment. The Central/State Government should reflect this through specific allocation of funds for this activity.
- Large scale demonstration programmes on proven equipment which will remove drudgery and empower women workers with technical skills should be started by the Government

---

## Conclusions and Recommendations

of India and State Governments. They should interact with ICAR institutes and SAUs for identification of suitable technology. The State Governments should also fix targets for popularising of equipment amongst women workers by involving SAUs and ICAR institutes located in the states. Incentives/subsidies should be provided on this equipment. Women entrepreneurs should also be encouraged to provide custom servicing of agricultural machines.

- CIAE, (Central Institute of Agricultural Engineering), Bhopal, CIPHET, (Central Institute of Post-Harvest Engineering and Technology), Ludhiana and all centres of AICRP (All India Coordinated Research Project) on post harvest technology should establish agro processing centres in rural areas involving local people, for operation by rural women. The ICAR should provide funds for equipment and technical guidance.
- State departments of agriculture, agricultural engineering, horticulture, animal husbandry, fisheries, rural and tribal development etc. should coordinate and create activities directed to removal of drudgery for women and economic empowerment of rural women through entrepreneurship development.
- Trainers Training Centres (TTCs) and Krishi Vigyan Kendras (KVKs) of ICAR should organise specialised training programmes for rural women to upgrade their skill in operation, repair and maintenance of agricultural machinery for removal of drudgery, income and employment generation.
- All KVKs and TTCs should be provided in a planned manner, with a set of proven equipment to be operated by rural women, for creating awareness through actual demonstrations.
- KVKs should be strengthened by tying up with voluntary bodies/panchayats.
- There is a good scope for establishment of Farm Women Training Centres in each State for organising programmes related to removal of drudgery in farm operations.
- Video films on operation of farm equipment for reducing drudgery may be prepared and provided to extension agencies for creating awareness among farm women.
- A directory of commercialised and newly developed equipment for women giving their specifications and source of availability should be prepared for popularisation in different regions and made available to State Governments and other organisations.
- For newly developed equipment, CIAE Bhopal and other Prototype Workshop Centres may arrange for the multiplication of the prototypes for demonstration after getting

**The National Task Force on Technological Empowerment**

---

demands from State/Central Government organisations. A network of prototype manufacturing workshops with the revolving fund scheme should be strengthened for multiplication of prototypes.

- Presently farm technology (machinery/tools) development is not oriented towards women workers - their anthropometry, ergonomics, etc. CIAE, Bhopal, CIPHET, Ludhiana and the centres of AICRP have taken some initiatives. However, these are not satisfactory in terms of the dimension of the problem.
- The technologies that are reducing drudgery of women must be publicised through the media, as an extension activity. However all such technologies must be appropriately assessed, for health and safety considerations.
- The State Government should assess the requirement of improved agricultural machinery advance, similar to seeds and fertilizers, procure this equipment and make them available in the area where they are to be demonstrated. For this, adequate funds should be made available.
- Collection of anthropometric data of male and female agricultural workers from different regions for design of suitable equipment for those regions.
- Modification of equipment for operation by women workers based on ergonomic and safety considerations.
- Micromachines should be women friendly and manuals in simple language.
- Multilocation testing and evaluation of proven equipment in different regions followed by refinements based on feedback of farm-women.
- The technologies generated should be tested, assessed and refined. There is a continuum between technology generation and transfer through assessment and refinement.
- There is also need for educating the women relating to comparative advantages of using improved implements etc.
- The facilities of Trainers' Training Centre at Bhopal should be further strengthened and linked with the efforts of Krishi Vigyan Kendras and other functionaries at the District and Taluka/Panchayat levels.
- The users perspective should be incorporated in designing the equipment and a careful study of traditional technology should be made.

---

## Conclusions and Recommendations

- Energy audit and removal of drudgery in home management (cooking, fetching water, heating water, procuring fuel wood etc.) and agro-processing, Stand Alone Power Packs utilising renewable energy should be identified/developed for promotion.
- In agro-processing, it would be useful to involve the Ministry of Commerce also because they deal with large plantation crops like tea, cardamom, cashew, etc. where basic issues of human drudgery are involved and they have also done a number of studies on this subject.

### 5.3 Reorientation of Course Curricula

One of the ways to bring about gender equity in agriculture is to introduce a detailed course on gender in agriculture. Such a course would focus on the relationship between men and women, their roles, access to and control over resources and division of labour. The importance of this course becomes evident when one sees that gender relations determine household security, well being of the family, agricultural production and many other aspects of rural life. Failure to take into account gender relationship leads to unsuccessful extension activities and the marginalisation of disadvantaged sections of society which includes a major part of the agricultural work force. There is greater need to encourage girls to join agricultural colleges so that more extension workers are available for developmental activities. While setting priorities, both women's as well as men's agricultural enterprises should be considered.

Current gender specific research has been organised into 12 categories -

- Germ plasm enhancement and breeding
- Crops and cropping systems
- livestock and livestock systems
- trees and trees systems
- fish and aquatic systems
- the environment
- conservation of bio-diversity
- improving policy
- improving training
- improving documentation
- improving counselling
- improving networking

## **The National Task Force on Technological Empowerment**

---

In view of the fact that major operations in agriculture are being carried out by farm women, there is a need to bring them into the mainstream by sensitising all concerned about their role in bio-diversity, ecology, medicinal plants, seed production, sustainability, food processing, kitchen gardening etc. These aspects should be covered in detail in the course on gender issues. In the introductory course, the role of women in development as a whole needs to be stressed. In the curriculum, there is also a need to address institutional strength, and the role of Panchayati Raj in the empowerment of women. Gender issues in rural development and household nutrition, time use patterns and occupational and environmental health hazards need to be emphasised and included in the curriculum. In short, the two broad areas that require attention are

- Internationalisation of gender issues in the agricultural curricula
- Empowerment of women

It is recommended that the gender issues in curricula be introduced by developing multi media packages on the subject as a pedagogical tool. Orientation programmes for teachers handling the curriculum be organised and for this, the Deans of State Agricultural Universities should provide the leadership. The approach to providing new course curricula should not burden the students with additional content and should follow a new process based pedagogy. It should use strategies for participatory learning and have a practical orientation so that students can understand the day-to-day realities of rural life. Women farmers, women's organisations, gender specialists, women's studies specialists such as Universities, Women Study Centres, State Commissions for Women, NGOs and grass root workers should all be consulted before designing the curriculum. As far as actual content is concerned, it should aim more to strengthen the human element rather than the technical aspects of agriculture. The framework for the course on Women in Agriculture/Gender in Agriculture could be designed on the basis of :

- Gender Roles in Agriculture
- Gender in time and labour use
- Gender in knowledge/skills
- Gender and resource management
- Impact of gender related systems
- Trends in development and their gender impact
- Gender discrimination in agriculture
- Agenda for future

---

## Conclusions and Recommendations

The detailed syllabus with reference to educational qualifications of the students and region specific formulations will need to be attached by an expert study group. Suggested details of the course are in Annexure 12.

### 5.4 Occupational Health Hazards and Environment

- Since toxicity has been noticed amongst workers in agriculture sector, many studies have recommended that employers need to adopt safety measures at the work sites and that there is an immediate need for legislation to enforce these measures strictly and make employers comply with certain minimal facilities.
- Since women come in direct contact with unsafe level of pesticides (far more than men) it is necessary to
  - (a) Educate all members particularly women regarding dangers of pesticides.
  - (b) Enable rural communities to empower themselves to take steps towards organic sustainable agriculture models and cultivation practices.
- The NIOH studies should have gender segregated data which they do not have presently. In addition, a quick review of available studies including the related aspects of legislation, technological changes and awareness creation should be undertaken.
- Sensitisation and awareness programmes on occupation health hazards and remedies thereof should be organised in rural areas.
- The Block Development Offices, KVK's and other extension agencies should take initiatives to develop programmes for training on health and safety at different levels.
- Farm-women should be associated in preventing environmental degradation measures and in promoting healthy standards.
- Specific analysis of the factors and problems faced by women workers as given in annexure 8 and such other studies/reports must be undertaken and strategies evolved to counter such health hazards in occupations, especially women in agriculture.
- Doordarshan may develop more women specific programmes for showing on Krishi Darshan Programmes and should address issues of occupational health related to agriculture.
- The Ministry of Health may set up a Special Cell on Women's Occupational Health in order to give a permanent structure for taking up the various concerns proposed by the sub-group.

## **The National Task Force on Technological Empowerment**

---

- The Ministry of Agriculture should consider the important issue of women's health in the deliberations of their Women's Cell.
- The problems of migrant labourers should be examined in detail by the Ministry of Agriculture.

### **5.5 Credit Policy including Legislation**

- Women should be recognised as cultivators in their own right. In case of women headed households, they should be classified as cultivators. This will enable women farmers to get loans and to become active partners in acquisition of farm equipment and management of their farm. This will also provide economic security to farm-women. All this may require reformation of land records.
- The condition of mortgaging land for agricultural loans should be waived. Bank loans should be made available to women farmers/farm workers for purchase or agricultural machinery/establishment of agro industrial units/starting of custom hiring of agricultural machinery by hypothecation of the equipment.
- Women entrepreneurs and women's cooperatives may be encouraged for custom servicing of agricultural machinery and post harvest equipment. The government should provide incentives and loans at subsidized rates to women entrepreneurs through special programmes applicable to cultivators and landless women workers.
- Women operated model of agro-processing should be established by the Government at least one in each block. Bank loans and financial incentives including working capital, should be made available to the women on lower rates of interest. The nationalised banks should be given a fixed target for distribution of loan to women entrepreneurs for activities related to agricultural production and processing.
- Examination of the existing laws for women in the enforcement sector, i.e. agriculture sector and review the effectiveness or counter productivity of these legislations/laws for women in agriculture.
- Strategies should be developed for effective enforcement of these laws. A monitoring cell at District and State levels needs to be established which should include representatives of women's organisations working in the area to check implementation of both minimum and equal wages.
- Women work force is not aware of laws in force and facilities supposed to be provided by employers. Awareness programmes should, therefore, be organized regularly.

---

## Conclusions and Recommendations

Methodology should be evolved appropriately to ensure that laws are implemented and improved upon.

- All the existing legislations should be analysed before enacting new legislations. As an initial step, identification of specific areas where large numbers of women are involved needs to be undertaken. Thereafter, there has to be a prioritisation as to which of the operations in agriculture should receive immediate attention.
- Thus, the need for a comprehensive legislation is undisputed. The NCW should take steps to emphasise the need for having a comprehensive legislation and evolve structured guidelines for a national debate and finalisation of such legislation.
- The proposed Agricultural Workers Bill, 1997 (Annexure 10) needs to be more gender sensitive and should include provision for maternity entitlement and child care services for women agricultural labourers.
- State policy on women in agriculture needs to be clearer.
- The National Commission for Women can coordinate with the banks for getting credit for women beneficiaries.
- Publications giving details of credit for women should be in simple and in local dialects.
- The creation of Self-Help Group may be tried and should be publicised.

### REFERENCES

1. Annual Report 2000-2001 Department of Agriculture Research and Education, Ministry of Agriculture, Government of India.
2. Annual Report 2001-2002 Department of Agriculture Research and Education, Ministry of Agriculture, Government of India.
3. Approach Paper, Tenth Five-Year Plan 2002-2007, Planning Commission, Government of India.
4. Annual Report, 2001-2002 Ministry of Labour, Government of India.
5. Annual Report, 2000-2001, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India.
6. Annual Report, 2001-2002 Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India.
7. Economic Survey 2001-2002, Government of India.

**The National Task Force on Technological Empowerment** 

---

8. Women in agriculture at a glance, Directorate of Extension, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India.
9. Action Plan on Recommendations of the Committee on Women in Agriculture, Government of India.
10. Economic and Political Weekly, June 28, 1997.
11. Towards Equality The Unfinished Agenda Status of Women in India - 2001, Padmini Swaminathan in Reproductive Health in India's Primary Health Care, Centre of Social/Medicine and Community Health, School of Social Sciences Jawaharlal Nehru University, New Delhi.
12. Pandey et al, Farm Machinery Research Digest. Technical Bulletin No. CIAE/97/60. Central Institute of Agricultural Engineering, Bhopal.

**Web site addresses :**

1. [http://planningcommission.nic.in/wrkgr\\_5.htm](http://planningcommission.nic.in/wrkgr_5.htm)
2. <http://agricoop.nic.in//agbud.htm>
3. <http://www.worldbank.org/html/extdr/extme/1292.htm>
4. <http://agricoop.nic.in/statistics/pop1.htm>
5. <http://pib.nic.in/welcome.html>
6. <http://www.tn.gov.in/policy2002-03/agri2002-03.htm>
7. <http://www.labourfile.org/agri/document.htm>
8. <http://www.angrau.net/homescience.htm>
9. [http://www.censusindia.net/cgi-bin/census/census\\_report](http://www.censusindia.net/cgi-bin/census/census_report)

# **ANNEXURES**

**Annexure 1**

No. 16/17/96-NCW

**NATIONAL COMMISSION FOR WOMEN**4, Deen Dayal Upadhyaya Marg,  
New Delhi-110002

July 29, 1998

**OFFICE ORDER**

In pursuance Section 8 of the National Commission for Women Act, 1990, a Committee of Experts on 'Technology Empowerment of Women in Agriculture' is hereby constituted. A list of task force is as under :

- |    |  |               |
|----|--|---------------|
| 1. | Chairperson<br>National Commission for Women<br>4, Deen Dayal Upadhyaya Marg,<br>New Delhi-110002                            | Chairman      |
| 2. | Dr. R.S. Paroda<br>Vice-Chairman<br>Director-General, ICAR and<br>Secretary, DARE,<br>Krishi Bhawan,<br>New Delhi-110001     | Vice-Chairman |
| 3. | Dr. (Mrs.) Indira Basavaraj<br>Member,<br>National Commission for Women<br>4, Deen Dayal Upadhyaya Marg,<br>New Delhi-110002 | Member        |
| 4. | Mrs. Binoo Sen<br>Member Secretary,<br>National Commission for Women<br>4, Deen Dayal Upadhyaya Marg,<br>New Delhi-110002    | Member        |

**The National Task Force on Technological Empowerment**

---

- |     |  |        |
|-----|--|--------|
| 5.  | Dr. (Mrs.) Sathi Nair<br>Additional Secretary,<br>Ministry of Agriculture,<br>Department of Women Extension,<br>Krishi Bhawan,<br>New Delhi-110001     | Member |
| 6.  | Dr. M.S. Swaminathan<br>President,<br>Dr. M.S. Swaminathan Research Foundation,<br>3rd Cross Street,<br>Taramani Institutional Area,<br>Chennai-600113 | Member |
| 7.  | Sh. K. Viswanathan<br>Director,<br>Mitraniketan P.O.<br>Vellanad-695543<br>Trivandrum, Kerala  | Member |
| 8.  | Dr. Menosinakoi<br>Bajaj Award for TOT,<br>Bijapur District,<br>Karnataka  | Member |
| 9.  | Sh. N.C. Mehta<br>Advocate,<br>Supreme Court of India,<br>(Environmental Lawyer)<br>New Delhi  | Member |
| 10. | Sh. H.B. Purpia<br>Former Director, CFTRI<br>Hinkal,<br>Mysore District,<br>Karnataka  | Member |

---

**Annexures**

- |     |   |        |
|-----|---|--------|
| 11. | Dr. B.N. Choudhary<br>Assistant Director General,<br>Indian Council of Agricultural Research,<br>Krishi Bhawan,<br>New Delhi-110001                   | Member |
| 12. | Dr. (Mrs.) Tej Verma<br>Assistant Director General<br>Indian Council of Agricultural Research,<br>Krishi Anusandhan Bhawan, Pusa,<br>New Delhi-110001 | Member |
| 13. | Joint Secretary (DWCRA)<br>Department of Rural Employment<br>Ministry of Urban Development & Employment,<br>New Delhi                                 | Member |
| 14. | Sh. J.R. Sarangal<br>General Manager,<br>NABARD<br>10, Bahadurshah Zafar Marg,<br>Express Building,<br>New Delhi-110002                               | Member |
| 15. | Sh. N. Ramji<br>Director General,<br>CAPART,<br>India Habitat Centre,<br>Lodi Road,<br>New Delhi-110002   | Member |
| 16. | Dr. (Mrs.) Indira Mishra<br>Executive Director,<br>Rashtriya Mahila Kosh,<br>ICCW Building,<br>4, Deen Dayal Upadhyaya Marg,<br>New Delhi-110002      | Member |

**The National Task Force on Technological Empowerment** \_\_\_\_\_

17. Dr. M. Mahadevappa Member  
Vice Chancellor,  
Dharwad University of  
Agricultural Sciences,  
Dharwad-580005  
Karnataka

2. The Members of the Committee shall be entitled to receive such allowances for attending the meeting of the Committee as are admissible under the rules of the Commission.
3. The Committee shall evolve its own procedure for conduct of business.

(Binoo Sen)  
Member Secretary

**Copy to :**

1. All Members of the Committee.
2. All Members of the Commission.
3. PS to CP
4. PS to MS
5. C (KN)
6. DDO/PAO
7. Deputy Secretary
8. Guard file

**Annexure 2**

No. 16/17/96-NCW  
Government of India  
**NATIONAL COMMISSION FOR WOMEN**  
4, Deen Dayal Upadhyaya Marg,  
New Delhi-110002

October 29, 1998

**OFFICE ORDER**

Consequent upon decision of the National Task Force on "Technological Empowerment of Women in Agriculture" of the National Commission for Women, the following four sub-groups are constituted for preparation of base paper on subject mentioned against each and presentation in the next meeting of the Task Force :

- (1) Reorientation of Course Curricula : In order to develop appreciation for Women in Agriculture, it was decided to introduce a course at graduate level on Women in Agriculture. This may be worked out by a Committee with Dr. S.L. Mehta, DDG (Education) as Chairman; Mrs. Mina Swaminathan; Dr. (Mrs.) Geervani, and Dr. M.S. Mahadevapa as Members and Dr. (Mrs.) Tej Verma, ADG (Home Sciences) as Member-Secretary.
- (2) Drudgery of Women in Farm Operation (Tools, Training and Extension Services for Women): The Committee shall consist of Dr. P. Das, DDG (Agriculture Extension), Chairman; Dr. Anwar Alam, DDG (Agricultural Engineering) and Mrs. Sneh Wadhwa and Shri Vishwanathan as Members and Dr. (Mrs.) Indira Basavaraj as Member-Secretary.
- (3) Policy and Legislation including Credit : Shri M.C. Mehta, Chairman; Mrs. Mina Swaminathan; Dr. (Mrs.) Indira Basavaraj; Mrs. Binoo Sen; Dr. (Mrs.) Indira Mishra; Members and Mrs. Padma Seth; Member-Secretary.
- (4) Occupational Health Hazards and Environment : Dr. (Mrs.) Pankaam Sundaram as Chairman; Dr. Mina Swaminathan and Dr. (Mrs.) Indira Basavaraj as Members and Mrs. Binoo Sen as Member-Secretary.

The Members of the Sub-Group shall be paid TA/DA and sitting allowance, as per rules of the NCW. The Member-Secretary of each Sub-group shall convene the meeting of the sub-

**The National Task Force on Technological Empowerment** 

---

group in consultation with Chairperson/Chairman. Efforts may be made to finalise base paper in one or two meetings only so that the same is presented in the next meeting of the task force scheduled to be held in middle of December 1998.

(R. Bhama)  
Deputy Secretary

Copy for information and necessary action to :

1. Dr. S.L. Mehta, DDG (Education), I.C.A.R., Krishi Anusandhan Bhavan, Pusa, New Delhi-110012.
2. Dr. (Mrs.) Mina Swaminathan, Hony. Director, Gendeavour, M.S. Swaminathan Research Foundation, 3rd Cross Street, Taramani Institutional Area, Chennai-600113
3. Dr. (Mrs.) P. Geervani, Former Vice-Chancellor, Shri Padmavathi Mahila Vishwavidhyalaya, Dreamland Apartments, Road No. 3, Banjara Hills, Hyderabad-500034
4. Dr. M.S. Mahadevappa, Vice-Chancellor, University of Agricultural Sciences, Dharwad-580005, Karnataka
5. Dr. P. Das, DDG (Agriculture Extension), I.C.A.R., Krishi Anusandhan Bhavan, Pusa, New Delhi-110012.
6. Dr. Anwar Alam, DDG (Agriculture Engineering) I.C.A.R., Krishi Bhavan, New Delhi-110001
7. Mrs. Sneha Wadhwa, Joint Director (Women Problems) Deptt. of Agri. & Crops, Pusa, New Delhi-110012
8. Shri K. Viswanathan, Director, Mitraniketan, Mitraniketan P.O., Vellanad-695543, Kerala

**Annexure 3****Extracts from the National Commission for Women Act, 1990**

The National Commission for Women Act, 1990 received the assent of the President on 30.8.1990 and came into force on 31.1.1992. Under Section 10 of the Act the functions of the Commission are :

- (1) The Commission shall perform all or any of the following functions namely :
  - a) Investigate and examine all matters relating to the safeguards provided for women under the Constitution and other laws.
  - b) Present the Central Government annually and at such other times as the Commission may deem fit, reports upon the working of these safeguards.
  - c) Make in such reports recommendations for the effective implementation of those safeguards for improving the conditions of women by the Union or any State.
  - d) Review, from time to time, the existing provisions of the Constitution and other laws affecting women and recommend amendments thereto so as to suggest remedial legislative measures to meet any lacunae, inadequacies or shortcomings in such legislation.
  - e) Take up the cases of violation of the provisions of the Constitution and of other laws relating to women with the appropriate authorities.
  - f) Look into complaints and take suo moto notice of matters relating to :
    - (i) Deprivation of women's right;
    - (ii) Non-implementation of laws enacted to provide protection to women and to achieve the objective of equality and development;
    - (iii) Non-compliance of policy decisions, guidelines or instructions aimed at mitigating hardships and assuring welfare and providing relief to women and take up the issues arising out of such matters with appropriate authorities.
  - g) Call for special studies or investigations into specific problems or situations arising out of discrimination and atrocities against women and identify the constraints to recommend strategies for their removal.
  - h) Undertake promotional and educational research so as to suggest ways of ensuring due representation of women in all spheres and identify factors responsible for

**The National Task Force on Technological Empowerment**

---

impeding their advancement, such as, lack of access to housing and basic services, inadequate support services and technologies for reducing drudgery and occupational health hazards and for increasing their productivity.

- i) Participate and advice on the planning process of socio-economic development of women;
  - j) Evaluate the progress of the development of women under the Union and any State.
  - k) Inspect or cause to inspect a jail, remand home, women's institution or other place of custody where women are kept as prisoners or otherwise and take up with the concerned authorities for remedial action, if found necessary.
  - l) Fund litigation involving issues affecting a large body of women.
  - m) Make periodical reports to the Government on any matter pertaining to women and in particular various difficulties under which women toil.
  - n) Any other matter which may be referred to it by Central Government.
- (2) The Central Government shall cause all the reports referred to in clause (b) of subsection (1) to be laid before each House of Parliament along with a memorandum explaining the action taken or proposed to be taken on the recommendations relating to the Union and the reasons for non-acceptance if any of any of such recommendations.
- (3) Where any such report or any part thereof relates to any matter which any State Government who shall forward a copy of such report or part to such State Government who shall cause it to be laid before the Legislature of the State along with a memorandum explaining the action taken or proposed to be taken on the recommendations relating to the State and the reasons for the non-acceptance, if any of such recommendations.

## Annexure 4

**Action Plan on Recommendations of the Expert Committee  
on Women in Agriculture**

Recognising the need for a standing mechanism for reviewing the content and scope of the ongoing programmes meant for enhancing the levels and quality for participation by women therein, an Expert Committee on Women in Agriculture was constituted in the Department of Agriculture and Cooperation (DOAC) on the eve of formulation of the ninth plan to analyse the various policies and strategies and suggest ways to make agricultural policies **gender friendly**.

The recommendations of the Expert Committee were processed in the Department for formulating Action Plan in the directions of '**empowerment of women**'. The details are :

(Recommendations in bold print and action points in italics)

- **Group approach methodology of extension should be promoted.**

Farm women's groups to be organised in each village. Wherever such groups are existing under any other programmes, they may be optionally utilised rather than forming new groups.

- **DOAC may endeavor to organise 22.3 million women cultivators and 28 million women agricultural labourers into women groups.**

Channelise all agricultural development programmes through the network of these groups. Conversion of these groups on selective basis and in a phased manner into cooperative societies.

- **Central Sector Scheme of 'Assistance to Women Cooperatives' may be extended to all States.**

Formulation of project proposal for the extension of the scheme during the IXth plan.

- **List of Cooperatives already formed to be circulated to all Divisions/related Departments.**

Circulation of the list of existing Cooperatives to all Divisions to channelise programmes through these channels.

- **Training of Women Farmers in horticulture programmes should be promoted to enhance self-employment opportunities for them.**

## The National Task Force on Technological Empowerment

---

Concrete programmes should be drawn up. Regular/periodic training could be provided to the women groups formulated/identified under various schemes. Either a separate programme to be drawn up on an annual basis or specific targets to be given under different programmes.

- **DOAC to take steps to collect statistics of activities, social forestry, nursery plantation, bio-organic farming separately.**

All Divisions should document the gender-wise beneficiaries of their schemes/programmes so that State-wise information can be compiled and monitored at the National level.

- **Ensure women's integral role in these activities in future programmes.**

Women Cell should prepare a consolidated information base with regard to the physical and financial allocation for women farmers as beneficiaries under the various schemes of DOAC during the IXth Plan period.

- **Implementing Agencies to document the number of women beneficiaries involved in all the schemes and flow of funds to them.**

Draw up programmes integrating women in agriculture in major agriculture and allied activities.

- **Assets created and provided under the Central Sector Scheme of 'National Welfare Scheme for Fishermen' be created/provided either on joint ownership basis or exclusively in the name of fisher women.**

Revision of the scheme as per the recommendation.

- **More incentives/subsidies under different programmes may be provided to motivate farmers to transfer their productive assets in the name of farm women.**

Appropriate amendments may be made in all DOAC schemes.

- **The Central Sector Scheme of Women in Agriculture be extended in a phased manner to cover all the States/Districts. External funding agencies may also be approached to launch similar projects wherever possible.**

A proposal for extension of the scheme in IXth plan is being done. External funding agencies are being approached.

- **Extend training and extension projects for women in agriculture in North-Eastern States.**

Proposal formulated for launching projects in the IXth Plan.

- **Set up a separate research cell to study, document and disseminate the appropriate practices, equipment, hand tools etc. for women farmers.**

Collection, compilation, refinement and development of appropriate technology, equipment and tools for farmwomen.

- **Evolving a joint system for monitoring this aspect of technology and provide suitable support for quality control and dissemination of technology.**

Construction of a Standing Mechanism for popularisation/dissemination of such technologies tools implements to extension workers, farmers and farmwomen.

- **Induct more female agriculture graduates in general extension system.**

Efforts to be made to fill the vacant posts by women agriculture graduate.

- **The feasibility of reviving the scheme of 'setting up of polytechnics' in rural areas may be examined.**

The comments of the State Government may be sought for the revival of these centres.

- **A 'women cell' should be constituted in each KVK to provide focused attention to the trading needs of farmwomen in agriculture and allied areas.**

To set up the National and State Level Research Extension, Coordination Committees for monitoring and reviving the progress of the development and TOT of women specific technologies.

- **Examination and revision of existing extension training literature and manuals to make them more gender friendly.**

The extension literature manuals brought out by DOE may be examined to make them more gender friendly, suitable revisions may be done if required. Necessary instructions may be issued to all Divisions of DOAC as well as States/UTs Departments of Agriculture to provide appropriate information for women farmers in all extension literature/training manuals in future. Emphasis may also be laid on preparing extension literature/training manual on the activities, which are predominantly done by farmwomen.

- **A Perspective Action Plan for women farmers.**

Preparation of Perspective Action Plan.

## The National Task Force on Technological Empowerment

---

- **Strengthening of the Women Cell**

Determining of specific requirements for effective functioning, provision of necessary facilities, services and support.

- **Reservation to the tune of 10 percent for women beneficiaries in all programmes which have components like distribution of agricultural inputs; subsidies on inputs, training and extension etc. may be made. Impact studies to be undertaken to ascertain viability of the programmes and accordingly work out the future strategies.**

Blanket reservations need not be done. Women headed households need to be assisted.

- **Necessary amendment may be made to the existing Cooperative Society Act to permit registration of more Women Cooperative Societies.**

Formal cooperative structures alone need not be contemplated, it should be a registered society.

- **Reservation upto 40 percent for women farmers as beneficiaries in all horticulture programmes and 50 percent reservation for mushroom and bee keeping programmes should be permitted.**

Effective marketing arrangements/intervention may be insured.

- **Reservation of 20-30 percent seats for girls in agriculture universities. Regional/ Department level vocational training centres may be revived to provide Diplomas/ Certificate courses in various agro based entrepreneurial activities for rural youth.**

Would need examination and reservation should not exceed 50 percent in all.

**Annexure 5****Terms of Reference of the Committee on 'Women in Agriculture' in the  
Ministry of Agriculture, Department of Agriculture and Cooperation**

The terms of reference of the Committee are to :

- examine and evaluate the various projects and schemes meant for women farmers administered by the Department of Agriculture and Cooperation and assess their usefulness in reaching the target beneficiaries.
- review and assess the impact of the various on-going programmes and activities of the Department of Agriculture and Cooperation on issues relating to women and make recommendations on appropriate improvement in their design;
- suggest for the consideration of the Government studies for identifying the technological and input needs of women farmers.
- identify 'Trust Areas' for the programme "Women in Agriculture" and prepare "A Plan of Action" for the five years 1997-2002; and
- review existing laws and other Government decisions/measures relating to basic productive resources-public and private - such as land, water, forests etc. To examine women's access to and control over these basic resources and recommend necessary changes to protect farm women's right to livelihood.

The committee will meet at least once in six months and often as necessary.

## Commodity-wise involvement of Women in Agriculture Operations

	Ploughing	Land Development	Sowing/Nursery	Seeding Transplanting	Weeding	Interculture	Manuring	Irrigation	Harvesting	Trashing	Winnowing	Cleaning	Drying	Grading	Loading/Packing	Storing
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Paddy				X	X	X			X	X	X	X	X			X
Wheat & Coarse Cereals			X		X	X			X			X				
Pulses					X	X			X			X				
Ground Nut			X		X	X	X	X		X	X					
Sesame & Mustard			X		X	X	X		X	X	X	X	X			
Sun Flower																
Tomato, Chillies		X	X	X	X	X	X	X	X			X	X	X	X	
Dora, Egg Plant, Peas		X	X	X	X	X	X	X	X			X	X	X	X	
Onions and Potatoes		X			X	X		X	X							
Cabbage/Cauliflower		X	X	X	X	X			X							
Tamarind												X	X	X		
Banana								X								
Apples and Oranges									X					X	X	
Grapes									X					X	X	
Pepper					X				X	X	X	X	X	X		
Turmeric and Ginger			X		X	X	X						X			
Cardamom			X	X	X	X	X	X	X			X	X	X		X
Tea			X	X	X	X		X	X							
Coffee			X	X	X			X	X		X	X		X		
Cocoa																
Cashew-nut			X	X					X				X	X		

Source : "Women and Employment in India" Sarala Gopalan, 1995, Har-Anand Publications.

## Annexure 7

**List of Manually Operated Farm Implements and Machinery for Reducing Drudgery**

(Source : Pandey et. al., 1997)

<b>S. No.</b>	<b>Name of Equipment</b>	<b>Place where developed</b>	<b>Brief information about the equipment</b>
<b>1. Equipment for seed bed preparation :</b>			
1.	Manual Tool Carrier	ICAR Research Complex for North Eastern Hilly Region, Barapani	It is a multipurpose tool suitable for tillage, interculture and sowing of rice, maize and oilseeds in light soils and hilly terrain. It saves 80% labour and operating time compared to traditional country plough. It weighs only 20 kg with all attachments. One or two persons are required to operate it.
<b>2. Sowing and planning equipment :</b>			
1.	Manually operated mustard drill	Punjab Agricultural University, Ludhiana. Modified at NEH, Barapani Centre for planting bold seeds like groundnut and maize	Used for sowing rapeseed and mustard. By changing the fluted roller, other crops like wheat and green gram can also be sown. It saves 50% cost. Can be used in hilly areas provided the land is terraced and row marker is used prior to sowing. Its weight is just 9 kg. Two persons are required to operate it.
2.	Naveen dibbler	Central Institute of Agricultural Engineering, Bhopal. Later adopted by Bihar Agricultural University, Ranchi	Suitable for sowing pea, sorghum, and maize in small plots or hilly terrains in all types of soils with good land preparation. It weighs 4 kg.
3.	Rotary dibbler	Central Institute of Agricultural Engineering, Bhopal	Used for dibbling maize, soybean, sorghum, pigeonpea and Bengalgram. Well prepared seed bed is required for its operation. It saves 57% labour. Weighs 4 kg and can be operated by a single person
4.	Low land manual rice seeder	Tamil Nadu Agricultural University, Coimbatore	Used for sowing pre-germinated paddy in puddled fields. It saves 91% labour and 63% operating time compared to manual transplanting. Two persons are required to operate it. It weighs around 15.5 kg.

**The National Task Force on Technological Empowerment**


---

<b>S. No.</b>	<b>Name of Equipment</b>	<b>Place where developed</b>	<b>Brief information about the equipment</b>
5.	Adjustable row marker	ICAR Research Complex for North Eastern Hilly Region, Barapani	It is a marker suitable for marking rows at different spacings according to crop, for sowing seeds. One person can drag it on the field
<b>3. Equipment for rice transplanting :</b>			
1.	Manually operated 5-row rice transplanter	Tamil Nadu Agricultural University, Coimbatore	Suitable for transplanting mat type rice seedling in puddled soil in rows. It saves 65% labour and operating time and results in 5-10% increase in yield compared to hand transplanting. One person can operate it and it weighs 25 kg.
2.	Manually operated 6-row rice transplanter	Punjab Agricultural University, Ludhiana	Suitable for transplanting mat type rice seedling in puddled soil in rows. It saves 65% labour and operating time and results in 5-10% increase in yield compared to hand transplanting. One person can operate it. It weighs 20 kg.
<b>4. Equipment for fertilizer application :</b>			
1.	Manually operated fertilizer applicator	Punjab Agricultural University, Ludhiana	Suitable for broadcasting granular fertilizers like urea and DAP. It saves 60% labour and operating time. Uniformity of distribution of granules is very good. One person can operate it.
2.	RPS marker-cum-USG dispenser	Mahatma Phule Krishi Vidyapeet, Pune	Helps in marking hill spacing and row spacing for placement of paddy seedlings. Also useful for proper placement of urea super granules. It saves 14% labour. It weighs just 3 kg and one person can operate it.
3.	TNAU Urea super granule applicator	Tamil Nadu Agricultural University, Coimbatore	It is a float type implement, suitable for placement of urea super granules in root zone of low land paddy crop. It saves 25% labour. One person is required to operate it.
<b>5. Weeding Equipment :</b>			
1.	Grubber	Central Institute of Agricultural Engineering, Bhopal	It is a pull type implement suitable for weeding and interculture of unland row crops in black soil regions. It weighs 1.8 kg. One person can operate it.

## Annexures

<b>S. No.</b>	<b>Name of Equipment</b>	<b>Place where developed</b>	<b>Brief information about the equipment</b>
2.	Peg type dryland weeder	Tamil Nadu Agricultural University, Coimbatore	Suitable for interculture and weeding operations in black cotton soil and is of push-pull type. Saves 38% labour and operating time. It weighs 4.5 kg and one person can operate it.
3.	Peg type dryland weeder	Central Institute of Agricultural Engineering, Bhopal	It is a push-pull type weeder suitable for weeding and mulching in row crops like groundnut, sunflower, safflower, soybean and sorghum. Saves 5% labour and operating time. Weighs 10 kg and one person can operate it.
4.	Twin wheel hoc	Central Institute of Agricultural Engineering, Bhopal	It is a push-pull type weeder used for cutting weeds in upland row crops. It saves 59% labour and operating time. Weighs 4.3 kg and one person can operate it.
5.	Single wheel hoc	Central Institute of Agricultural Engineering, Bhopal	Suitable for weeding between row crops like sorghum, soybean, maize and pigeon pea. Weighs 9.5 kg and one or two persons are required to operate it.
6.	Wheel hand hoc	Punjab Agricultural University, Ludhiana	Saves 75% labour and operating time. It weighs 7 kg and one person can operate it.
7.	Star weeder	Tamil Nadu Agricultural University, Coimbatore	Can be used for weeding in row crops in rainfed and garden lands. Performs well in plain fields where weeds are shallow rooted and where there is not thick infestation of weeds. One person can operate this unit which weighs 3.4 kg
8.	Star weeder	Andhra Pradesh Agricultural University, Rajendranagar	It saves 37% labour and operating time and weighs 3.5 kg. One person can operate it
<b>6. Harvesting equipment :</b>			
1.	Naveen sickle	Central Institute of Agricultural Engineering, Bhopal	It is serrated blade sickle used for harvesting wheat, rice and grasses. The wooden handle has a bend at the rear for better grip and to avoid hand injury during operation. It saves 26% labour and operating time compared to local sickle. It weighs 0.257 kg.
2.	Punjab sickle	Punjab Agricultural University, Ludhiana	This modified sickle has self-sharpening blade and saves 25% labour and operating time. It weighs 0.25 kg.

**The National Task Force on Technological Empowerment**


---

<b>S. No.</b>	<b>Name of Equipment</b>	<b>Place where developed</b>	<b>Brief information about the equipment</b>
3.	Vaibhav sickle	Konkan Krishi Vidyapeeth, Dapoli	Used for harvesting wheat, rice and grasses. It weighs just 0.175 kg.
<b>7. Threshing equipment :</b>			
1.	Tubular maize sheller	Central Institute of Agricultural Engineering, Bhopal	Used for shelling maize from dehusked cobs. Shelling is done by holding the sheller in left hand and gradually inserting the cob into the sheller by right hand with little forward and backward twist. It saves 66% labour and operating time. It weighs just 0.22 kg.
2.	Pedal operated thresher	Indian Institute of Technology, Kharagpur, based on IRRI design	It has a wire-loop type threshing cylinder operated by foot pedal. Suitable for threshing rice. It saves 20% labour and 40% operating time compared to conventional method of hand beating on a wooden platform. Two persons are required to operate it.
3.	Groundnut stripper (Drum type)	Tamil Nadu Agricultural University, Coimbatore	It has a revolving drum with axial rubber tubes mounted on a frame. Stripping is done by holding the plants and beating the pod portion over the drum manually. Suitable for detaching or stripping the pods from semi-dry groundnut vines. Saves 52% labour and operating time. Stripping efficiency is 100% and the output capacity is 18 kg/h.
4.	Ground stripper (Comb type)	Tamil Nadu Agricultural University, Coimbatore	Has a square frame with wire loops on top edges. Stripping is done by holding the plants and pulling the pod portion over the loops manually. Four persons can work at a time. Saves 20% labour and operating time. Stripping efficiency is 100% and four persons can strip 40kg/h.
5.	Phule sunflower thresher	Mahatma Phule Krishi Vidyapeet, Pune	It is pedal operated and is suitable for separating seeds from sunflower heads. Consists of a threshing wheel having spokes and a blower fan operated by foot pedal. Saves 50% labour and operating time compared to manual beating. Threshing efficiency is 100% and there are no broken.
6.	Groundnut decorticator	Tamil Nadu Agricultural University, Coimbatore	It has an oscillating type beater and is suitable for decorticating groundnut pods to separate kernels. It saves 96% labour and operating time. Shelling efficiency is 98%.

## Annexures

<b>S. No.</b>	<b>Name of Equipment</b>	<b>Place where developed</b>	<b>Brief information about the equipment</b>
7.	Groundnut cum castor decorticator	Central Institute of Agricultural Engineering, Bhopal	Separate concaves are provided for decorticating groundnut and castor pods to separate their kernals. It saves 98% labour and operating time compared to hand shelling.
8.	Lac sheller (Peg type)	Bihar Agricultural University, Ranchi	It has one stationary and one movable disc. Suitable for removing resine from all types of lac sticks. It is 2.5 times faster than conventional method of manual scrapping with a special knife.
<b>8. Other equipment :</b>			
1.	Seed treating drum	Andhra Pradesh Agricultural University, Coimbatore	Used for thorough mixing of chemicals like Agrosan and Sirason with seeds before sowing. Saves 33% labour and operating time. Safer compared to manual mixing with hand.
2.	Acid delinter	Haryana Agricultural University, Hisar	Used to remove fuzz from cotton seeds. Seed and concentrated sulphuric acid are mixed inside a drum with agitators, until the cotton fuzz is burnt off. Saves 50% labour and operating time.
<b>II. Manually Operated Post-Harvest Equipment</b>			
<b>1. Cleaners and Graders</b>			
1.	Hand operated double screen grain cleaner	Central Institute of Agricultural Engineering, Bhopal	Used for cleaning cereals and pulses from impurities like stubbles, chaff etc. Grains are cleaned in batches of 5-10 kg. The screens are interchangeable as per need. One person can operate it. The unit is hung from an elevated point using four ropes.
2.	Pedal operated air screen cleaner	Central Institute of Agricultural Engineering, Bhopal	Used for cleaning food grains and oilseeds except groundnut. Two persons are required to operate it, one for pedalling and the other for loading the grains.
3.	Hand operated batch type grain cleaner	Indian Grain Storage Institute, Hapur	Used for cleaning wheat and soybean. One person is required to operate it and it weighs 23 kg. Consists of two rotary drums with perforations which remove the impurities. It is inclined and rotated manually.
4.	Destoner/ grader for soyabean	Central Institute of Agricultural Engineering, Bhopal	To separate mud and stone particles from soybean. Two persons can operate it.

**The National Task Force on Technological Empowerment** \_\_\_\_\_

<b>S. No.</b>	<b>Name of Equipment</b>	<b>Place where developed</b>	<b>Brief information about the equipment</b>
<b>2. Dryers :</b>			
1.	Solar cabinet dryer	Central Institute of Agricultural Engineering, Bhopal	Used for drying chillies, potato chips, potato cubes, cauliflower and leafy vegetables. It takes 4-7 days to dry one batch of 30-50 kg.
2.	Solar dryer	Central Plantation Crop Research Institute, Kasargod	Used for drying coconut, black pepper, arecanut and cardamom
3.	Low cost poly-solar dryer	Central Plantation Crop Research Institute, Kasargod	Used for drying coconut, black peeper, fish, papad etc. on a small scale.
4.	Solar fish dryer	Central Institute of Fisheries Technology, Cochin	Used to dry all types of fish. Has 1 hp electric motor.
<b>3. Milling machinery :</b>			
1.	Soyabean dehuller	Central Institute of Agricultural Engineering, Bhopal	Used for dehulling soybean. Two persons are required to operate it.
2.	Wet dehuller for soyabean	Central Institute of Agricultural Engineering, Bhopal	Used for dehulling blanched soybean. One person can operate it.
<b>4. Miscellaneous units :</b>			
1.	Tomato seed extractor	Indian Agricultural Research Institute, New Delhi	Used for extracting seed from ripe tomato fruits. Two persons are required to operate it.
2.	Rice puffing machine	Indian Institute of Technology, Kharagpur	Used for roasting food grains for preparing puffed products. One person can operate this.
3.	Grass seed collector	Indian Grass and Fodder Research Institute, Jhansi	To collect ripened grass seed. It weighs 28 kg and one person can operate it. The machine collects mature grass seed from field with the help of rubber padded reel blades into a box.

## Annexure 8

## Known Health Hazards of Some Occupations

Occupational and casual factors	Health Problems
<p>1. Manual Agricultural Workers (Postural problems exposure to dusts and chemicals; unguarded implements; working barefoot)</p>	<p><b>General</b> Generalised body ache; aches in calves, hips, back, legs and shoulders; nasal catarrh irritating coughs; irritation of respiratory system; respiratory tract infections, tightness of chest; chest capacities; pneumoconiosis; cutaneous allergies; skin irritation; paddy keratitis; helminthisis-schistosomiasis, ankylostomiasis; paronocia; fungal infection in feet, eczeme, osteomyelitis of fingers.</p> <p><b>Injuries</b> High rate if thresher accidents, especially while crushing sugarcane and ginning cotton; also serious physical injuries occur from the cutting edges of implements, such as sickle's and machetes; for lack of first aid facilities, small injuries become serious and often lead to tetanus.</p> <p><b>Toxicities</b> Pesticides poisoning; intestinal respiratory and neurological disorders; nausea, vomiting; abdominal cramps; diarrhea; cough; headaches, vertigo; blurred vision, muscular twitching, convulsions; loss of reflexes; loss of sphincter control; disturbance of equilibrium; jaundice; coma, and ultimately death may result by respiratory arrest.</p>
<p>2. All workers involved in manual labour (Lifting heavy weights; postural problems; heavy workload, continuous heavy work from childhood through illness, pregnancy and in the postpartum period to old age; nutritional deficiency)</p>	<p>Disturbance of blood circulation in the pelvic organs and lower limbs, menstrual disorders; prolapsed of uterus; miscarriage or still birth; flat and narrow pelvis, if carrying weight from early age; risk of injury to spinal column and adjacent muscles, especially in the lumbar region; circulatory organs may be affected; deformities; callosities; neutric pains; paralysis</p>

**The National Task Force on Technological Empowerment** \_\_\_\_\_

**Principal Health and Productivity Consequences of  
Environment Mismanagement**

<b>Environmental problem</b>	<b>Effect on Health</b>	<b>Effect on Productivity</b>
Water pollution and water scarcity	More than 2 million deaths and billions of illnesses a year attributable to pollution; poor household hygiene and added health risks caused by water scarcity.	Declining fisheries; rural household time and municipal costs of providing safe water; aquifer depletion leading to irreversible compaction; constraint on economic activity because of water shortages.
Air pollution	Many acute and chronic health impacts: excessive urban particulate matter levels are responsible for 300,000-700,000 premature deaths annually and for half of childhood chronic coughing; 400 million-700 million people, mainly women and children in poor rural areas, affected by smoky indoor air.	Restrictions on vehicle and industry; activity during critical episodes; effect of acid rain on forests and water bodies
Solid and hazardous wastes	Diseases spread by rotting garbage and blocked drains. Risks from hazardous wastes typically local but often acute.	Pollution of groundwater resources
Solid degradation	Reduced nutrition for poor farmers on depleted soils; greater susceptibility to drought	Field productivity losses in range of 0.5-1.5 percent of gross national product (GNP) common on tropical soils; offsite siltation of reservoirs, river transport channels, and other hydrologic investments.
Deforestation	Localized flooding, leading to death and disease.	Loss of sustainable logging potential and of erosion prevention, watershed stability, and carbon sequestration provided by forests.

**Principal Health and Productivity Consequences of  
Environment Mismanagement**

<b>Environmental problem</b>	<b>Effect on Health</b>	<b>Effect on Productivity</b>
Loss of biodiversity	Potential loss of new drugs	Reduction of ecosystem adaptability and loss of genetic resources.
Atmospheric changes	Possible shifts in vector-borne diseases; risks from climatic natural disasters; diseases attributable to ozone depletion (perhaps 300,000 additional cases of skin cancer a year worldwide; 1.7 million cases of cataracts).	Sea-rise damage to coastal investments, regional changes in agricultural productivity; disruption of marine food chain.

Quoted from Towards Equality : The Unfinished Agenda - Status of Women in India-2001, National Commission for Women.

Padmini Swaminathan in Reproductive health in India's Primary Health Care, Centre of Social/ Medicine and Community Health, School of Social Sciences, Jawaharlal Nehru University, New Delhi.

**Annexure 9****Legislations on Occupational Health Hazards and Environment for Women Workers in Agriculture**

Relevant provisions of 'The Directive Principles of State Policy' and Fundamental Rights under the Constitution - particularly those relating to the prohibition of discrimination on grounds of race, caste, sex etc. make it the obligation of the State to ensure health and strength of workers, men, women and children as also the necessity to have just and humane conditions of work. There is, therefore, no justification for denying the benefits of any Act to women. Only certain clauses in the bare Acts relate to women in particular. Since the other portions relate, in general, to all workers, these have also been summarised below. There are in fact only four Central Acts, which refer to the safety of employees. These are :

- The Factories Act;
- The Mines Act;
- The Plantations Labour Act; and
- The Building and Construction Workers Act.

However, only those Acts that relate to health, safety, environment and welfare of women workers are enumerated below. The task of enforcement of the Acts lies with the States.

**1. Maternity Benefit Act, 1961**

This Act\* applies to

- ❑ Women in organisations employing 10 or more persons (mines, plantations, factories)
- ❑ A woman is entitled to an additional period of leave with wages upto a maximum of one month if she is suffering from illnesses arising out of pregnancy, delivery, premature birth or miscarriage.
- ❑ She gets 12 weeks leave, 6 weeks leave full pay before delivery and 6 weeks leave with full pay after delivery or she may take the entire 12 weeks after delivery.
- ❑ The employer cannot make her do any heavy work in the last working month of her pregnancy. She can refuse to do any

work which is physically tiring or which involves standing for long hours, carrying heavy loads, etc. or any kind of work which can endanger the proper growth of the child.

- ❑ If she has a miscarriage she can get 6 weeks leave with full pay after the miscarriage.
- ❑ Two nursing breaks of 15 minutes duration are provided in the course of a mother's working day. This assumes that she has access to a crèche or some facility near enough for her to avail of nursing breaks.
- ❑ Daily wageworkers are entitled to benefits of maternity leave, pay and allowances.

\* To get these benefits a worker must have worked in that employment for a minimum of 80 days in the 12 months before her delivery.

2. **The Equal Remuneration Act, 1976** The Act provides for the payment of equal remuneration to men and women workers and for prevention of discrimination on the grounds of sex against women in the matter of employment and for matters connected therewith and incidental thereto. There cannot be any discrimination against them in the matter of promotions, training, transfers, etc. after recruitment. The Act provides for constitution of Advisory Committees with a view to providing increasing employment opportunities of women. The law was amended in 1987 making penalties for violation of the provisions more stringent.

3. **Minimum Wages Act, 1948** This is with reference to remuneration of workers in those industries where the level of wages was substantially low and the labour was vulnerable to exploitation. The central government is responsible for fixation and revision of minimum wages for unskilled

## The National Task Force on Technological Empowerment

---

workers covered by the Schedule to the Act. The minimum rate of wages also includes special allowance linked to Consumer Price Index Number twice a year. The range of wages is fixed/revised by various state governments.

### 4. **The Child Labour (Prohibition and Regulatory) Act, 1986**

This provides the statutory backing against employment of children in factories and mines and regulates working conditions of children in other hazardous employment. The implementation of the regulatory provisions of the Act requires each State to formulate an Act-specific set of rules and regulations. The Act prohibits employment of children below 14 years of age, except in the process of family based work or recognised school based activities, children are not permitted to work in occupations concerned with -

- Passenger, goods or mail transport by railway
- Carpet weaving
- Cinder picking, cleaning of ash pits
- Cement manufacturing
- Building operation construction
- Cloth printing
- Dyeing, weaving
- \* Manufacturing of matches, explosives, fireworks

\* They can be employed in the process of packing but packing should be done in an area away from the place of manufacture, but not to work relating to selling of crackers and fire works in shops with temporary licenses.

- Catering establishments in railways or port premises
- Beedi making

---

**Annexures**

- Mica, cutting, splitting
- Abattoirs/slaughter houses
- Hazardous processes and dangerous operations as defined, notified in Section 2(cb) and Section 87 of the Factories Act, 1948 respectively
- Wool cleaning, tanning
- Slate pencil manufacture and packing
- Printing as defined in section 2(k) of the Factories Act, 1948
- Cashew and cashewnut descaling and processing
- Soldering process in electronic industries

In the occupations and process other than the above mentioned, work\* by children is permissible only for 6 hours between 8.00 a.m. and 7.00 p.m. with one day's weekly rest and no child will work overtime. No child shall be permitted to work in any establishment on any day on which he has already been working in another establishment.

\* The period of work on each day shall be fixed such that no period shall exceed 3 hours and that there should be an interval of rest for at least 1 hour before the child works for another 3 hours.

Occupier of the establishment employing children is to give notice to local inspector and maintain prescribed register giving details of name, date of birth, hours of work, period of rest, nature of work etc.

Rules must be made by the government for health and safety of children. Rules may provide for all or any of the following matters namely :

- ★ Cleanliness in place of work and freedom from nuisance

## The National Task Force on Technological Empowerment

---

- ★ Disposal of wastes and effluents
- ★ Ventilation and temperature
- ★ Dust and fumes
- ★ Artificial humidification
- ★ Lighting
- ★ Drinking water
- ★ Latrines and urinals
- ★ Spittoons
- ★ Fencing machinery
- ★ Work at or near machinery in motion
- ★ Employment of children on dangerous machines
- ★ Protection of eyes
- ★ Precautions in case of fire
- ★ Safety of buildings and machinery
- ★ Explosive or inflammable dust, gas etc.
- ★ Instructors training and supervision in relation to employment of children on dangerous machines
- ★ Excessive weights

5. **Interstate Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979**

This Act protects the interests of migrant workmen where there is provision for suitable residential accommodation, medical facilities and protective clothing (wherever there are 5 or more migrant workers). There is a statutory provision for a crèche if 30 or more women are employed.

6. **The Contract Labour (Regulation and Abolition) Act, 1970**

This Act\* has provided for

- Provision of separate rest rooms, with proper ventilation and light, first aid, wholesome drinking water, sufficient latrines and urinals and washing facilities

- provision of a crèche is a statutory requirement wherever there are 30 or more women (at least two rooms for children under 6 years, one for playing, the other for sleeping)
- establishment of canteens if the work is likely to continue for 6 months or if there are 100 or more contract workers.

\* Act is applicable where there are 20 or more workers.

7. **Environmental Protection Act, 1986** Following the gas tragedy at Bhopal this Act was enacted and the Central Government has responsibilities for deciding standards, restricting industrial sites, laying down procedures and safeguards for accident prevention and to regulate the handling of hazardous waste and toxic chemicals. This Act is not directly connected with work place safety.
8. **The National Environment Tribunal Act, 1995** This Act provides for strict liability for damages arising out of any accident occurring while handling any hazardous substance and provides for effective and expeditious disposal of cases arising from such accident with a view to giving relief and compensation for damages to persons in case of death, or injury to a person and damage to property and environment and for matters connected therewith. Injury includes permanent total or permanent partial disability or sickness.
- \* Does not include an accident by reason of only war/radioactivity.
- \* Handling means manufacture, processing, treatment, package, storage, transportation by vehicle, use, collection, destruction, conversion, offering for sale, transfer or the like of such substance that is hazardous in nature.
9. **The Plantation Labour Act, 1951** Some of the salient features of the Act are as follows :
- Children/adolescents are allowed to work 27 hours a week.

## The National Task Force on Technological Empowerment

---

- ❑ State Governments may make rules requiring that in every plantation employers shall provide workers with umbrella, blanket, raincoats or other amenities for protection of workers from rain/cold.
- ❑ No night work for women and children except with the permission of the State Government.
- ❑ Sickness and maternity benefits will be provided as regulated by rules of the State.
- ❑ Rest period will be between 10 hrs. of work for a minimum half an hour.
- ❑ Separate toilets should be provided for males and females so situated as to be convenient and accessible to workers.
- ❑ All latrines and urinals should be maintained in a clean and sanitary condition.
- ❑ Effective arrangement will be made by the employer to provide and maintain sufficient supply of wholesome drinking water.
- ❑ Medical facilities will be provided and maintained by the employer to be readily available to the workers.
- ❑ Canteens shall be provided where 150 workers are employed.
- ❑ Where 50 or more women workers are employed there should be provision for a crèche or even if there are 20 or more children.

### 10. **The Insecticides Act, 1968 and Insecticides Rules, 1971**

Does not apply to workers in the agricultural sector who use it for application. Pesticides being toxic by nature is hazardous to human beings and environment. The residues of

pesticides also enter the food chain and are harmful to human and animal health. Keeping this in view, the Government has regulated their manufacture, sale, transport, use and import/export under the Insecticides Act, 1968. This Act has been amended during 2000 to deal with offenders effectively and to ensure supply of quality pesticides.

**11. The Dangerous Machines (Regulations) Act, 1983**

This Act provides for the regulation of trade and commerce in production, supply, distribution and use of products of any industry producing dangerous machines with a view to securing the welfare of labourers operating such machines and for payment of compensation for the death or body injury suffered by any farmer/labourer who operates such instruments. The Act is :

- Intended to be used in agricultural and rural sectors.
- Intended to prevent the maiming of farm hands by farm implements such as threshers, scalpors and chaff cutters.
- Presently only the power thresher used in agriculture production has been brought under the purview of the Act.
- The provisions of this Central Act have to be implemented by the State governments.

**REFERENCES**

1. Hindu Business Line May 2, 2000, Farm labour to seek workplace safety.
2. Hindu Business Line January 6, 2000, Child labour in beedi industry.
3. Hindu, October 3, 1999, Head loads and heart break.
4. Important Central Acts, NIC.
5. NHRC News Letter, June 1999.

**The National Task Force on Technological Empowerment** 

---

6. The Legislation, Urban India, NIC.
7. The National Environment Tribunal Act, 1995, NIC.
8. International Institute for Labour Studies. Organised labour and economic liberalisation in India : Past Present and Future by Debashis Bhattacharya.
9. Breast-feeding, the working and the law-Mina Swaminathan.

**Websites :**

1. <http://labournic/inDGLW>
2. [www.hrw.org/reports1999india](http://www.hrw.org/reports1999india)
3. [www.supremecourtonline.com/xsubject.htm](http://www.supremecourtonline.com/xsubject.htm)
4. [www.isi.org/uk/indiaosh.shtml](http://www.isi.org/uk/indiaosh.shtml)
5. [www.indianembassy.org/policy/child-labor/annex2.html](http://www.indianembassy.org/policy/child-labor/annex2.html)
6. [www.hsph.harvard.edu/grhf/Sasia/forums/girlchild/caseshtml](http://www.hsph.harvard.edu/grhf/Sasia/forums/girlchild/caseshtml)
7. [www.ilo.org](http://www.ilo.org)
8. [www.healthlibrary.com/reading/vhai/july-aug/legis.htm](http://www.healthlibrary.com/reading/vhai/july-aug/legis.htm)
9. <http://caselaw.delhi.nic.in/incodis/>
10. <http://legal.zeenext.com>
11. [www.geocities.com/minesafety/ma\\_1952htm](http://www.geocities.com/minesafety/ma_1952htm)
12. <http://labour.nic/glance/molglance>

## Annexure 10

**Extracts from the Proposed Bill on Agricultural Workers****The Agricultural Workers (Employment, Conditions of Service and Welfare Measures) Bill, 1997****A BILL**

To regulate the employment and conditions of service of agricultural workers and to provide for welfare measures and for other matters connected therewith or incidental thereto.

Be it enacted by Parliament in the Forty-eight Year of the Republic of India as follows

:

**Chapter-I****Preliminary**

- (1) This Act may be called the Agricultural Workers (Employment, Conditions of Service and Welfare Measures) Act, 1997.
- (2) It extends to the whole of India.
- (3) It shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint, and different dates may be appointed for different States.

**Chapter-IV****Agricultural Workers' Welfare Board**

14. (1) Every State Government shall, with effect from such date as it may, by notification in the Official Gazette, appoint, constitute in every district a Board to be known as ... (name of the district) Agricultural Workers' Welfare Board for the administration of the Fund and to exercise the powers conferred on, and perform the functions assigned to it under this Act.
- (4) While appointing members, the State Government shall ensure that equal numbers of such Members representing as nearly as possible, the State Government, the land-owners and the agricultural workers are appointed and at least one of such Members is **a woman**.
18. (1) The Board may -
  - (a) provide immediate assistance to the family of a beneficiary in case of death or injury to such beneficiary as may be fixed by the Board;

## The National Task Force on Technological Empowerment

---

- (b) make payment of pension to a beneficiary who has completed the age of sixty-five years;
- (c) sanction loans and advances to a beneficiary for construction of a house not exceeding such amount and on such terms as may be prescribed;
- (d) pay such amount in connection with premia for Group Insurance Scheme of the beneficiaries as it may deem fit;
- (e) give such financial assistance for the education of children of the beneficiaries as may be prescribed;
- (f) meet such medical expenses for the treatment of such major ailments of a beneficiary and his family, as may be prescribed;
- (g) **make payment of maternity benefits to the female beneficiaries;** and
- (h) make such provision for improvement of such other welfare measures and facilities as may be prescribed.

### **Chapter-V**

#### **Hours of Work, Regulation of Employment and Other Conditions of Service of Agricultural Workers.**

25. No agricultural workers shall be required or allowed to work for more than eight hours in a day with half an hour break.
26. Every land-owner shall pay to an agricultural worker employed by him such wages, which are not less than the prescribed wages and such wages shall be paid within such time as may be fixed by the appropriate Government :
- Provided that the appropriate Government may review rates of wages at such intervals as is provided under the Minimum Wages Act, 1948 or at such intervals as may be specified by the Central Government by notification in the Official Gazette, whichever is less.
27. (1) Every land-owner shall pay wages for harvesting at the rate of twenty percent higher than the prescribed wages at the threshing floor on which the threshing takes place and no portion of the produce shall be removed from the threshing floor without payment of the wages for harvesting to the agricultural worker.
28. (1) Where an agricultural worker is required by the land-owner to work for more than the hours of work fixed, he shall be entitled in respect of each hour of such over-time work to wages at the rate of twice his ordinary rate of wages for one hour.

---

**Annexures**

30. In every place wherein more than twenty **female** agricultural workers are ordinarily employed, every land-owner shall provide and maintain a suitable shelter of such specifications as may be prescribed for the use of children under the age of six years of such **female** agricultural workers.
33. **No woman** shall be required or allowed to work in any agricultural land except between 6.00 a.m. and 7.00 p.m.
34. Every land-owner shall ensure that personal protective safety equipment are provided to such agricultural workers as are required to handle machinery and agro-chemicals as are hazardous to the life and limb of such workers.
36. (1) The State Government may, by notification in the Official Gazette, make rules regarding the welfare measures to be taken for the welfare of agricultural workers in the course of their employment.
- (2) In particular and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely :
- (a) **maternity benefits that may be provided to women agricultural workers;**
  - (b) fixation of spread over on any day;
  - (c) provision and maintenance of medical facilities;
  - (d) manner of calculating the cash equivalent value of wages paid in kind;
  - (e) total number of hours of over-time in any week;
  - (f) provision and facilities for education to the children of the agricultural workers;
  - (g) **provision for engaging a woman who will have the charge of caring for the children and infants in the crèche.**

### **Chapter-VIII**

#### **Miscellaneous**

55. No land-owner shall support or encourage any unfair labour practice :
- (a) which interferes with the right of agricultural workers to enroll or continue as union members,
  - (b) which discriminates against or restrains or coerces any agricultural worker because of trade union activity, and
  - (c) victimises any agricultural worker.

**Annexure 11**

**The National Workshop on the Technological Empowerment of Women in Agriculture held at M.S. Swaminathan Research Foundation, Chennai in December 1997 recommended inter-alia Agenda for Action. Briefly it was :**

**Research**

The major gap in the available information is on the relationship between technology and the lives of the community. Grey areas, which need attention, are invisibility of women's role in agriculture, systematic documentation of women in farming systems, techno-socio-economic feasibility of existing technologies, inadequacy in integrating the livelihood opportunities of women in research

- Within these broad areas of concern, specific issues of gender-related research were identified, one of which was the creation of an accessible database on women in farming systems

**Pioneer projects** need to be initiated by the ICAR which can be cast on the Operational Research Project mode of the ICAR with special "Lab-Land" and "Land to Lab" components.

- Pioneer projects on drudgery reduction, labour diversification and income enhancement. Farm Women's Technological Empowerment projects be initiated in suitable blocks adjoining agricultural, rural and women's universities.
- Pioneer projects for Farm Women's Empowerment in new technologies. A massive effort in skill upgradation and information empowerment is needed, especially in the case of rural and tribal women. New technologies like tissue culture, hybrid seed production, aquaculture, renewable energy technologies like solar, wind, biomass and biogas need to be transferred to women in agriculture on a massive scale. Pioneer Projects may be initiated under the title "Farm Women and Frontier Technologies". Both private sector industry and women's organisations may be actively involved in the design and implementation of such projects. Technology kits should be designed and distributed in the areas covered by such frontier technology projects. Information shops could be set up in the project areas for the continuous upgrading of knowledge and information.
- Pioneer projects for eliminating the health hazards faced by women labour. A careful analysis should be undertaken in a few selected areas where large number of women are working in industries such as cashew, tobacco, coir, seri-culture and shrimp. Based

on a malady-remedy analysis, projects should be initiated to eliminate such health hazards.

- National database grid on women in agriculture may be organised to document all aspects of the contribution of women farmers and farm women.

### **Extension**

- The National Agricultural Technology Programme of ICAR should include a strong component of farm women development, based on the farming systems approach.

### **Training**

- Degree and diploma programme in agriculture relevant to the development of rural communities needs to be introduced with limited reservations for rural girls.
- KVK/Farm Science Centres need to be strengthened and their mandate be vocational/skill training and front line extension work.
- Training materials and kits in local languages should be developed. Subjects may vary from farm forestry, indigenous technology, health and environment, commercial enterprises and animal husbandry.

### **Structures for policy**

- For effective enforcement of existing legislation, the NCW and State Commissions for women should be mandated and energised to look into work related problems of women in the unorganised sector.
- Comprehensive gender sensitive social-security system for rural labour through funds from both the Centre and the State should be set up covering, health, accident, maternity, child care services, housing and old age.
- A monitoring system for effective implementation of laws.

### **Legislation and resources**

- All State Governments should be urged to go ahead with laws/schemes relating to empowerment of women in agriculture.
- To promote women's access to resources such as land water and credit all State Governments are urged to enact laws for equal inheritance and joint patta for house and land in the name of men and women.

**Course on Women in Agriculture / Gender in Agriculture****GENDER ROLES IN AGRICULTURE**

Roles in agriculture are always gender-related, but they vary over time and across space.

## 1. Roles

- a) In production processes
- b) In post-harvest processes
- c) In seed selection
- d) In maintaining bio-diversity
- e) In rural non-farm sector

## 2. Factors determining gender roles

- a) Class-size of landholding, landlessness
- b) Agrarian system-ownership, tenancy use
- c) Kinship and family patterns
- d) Sector (farming, fisheries, forestry, diarying etc.)
- e) Agro-ecological region and farming system
- f) Technological change
- g) Crop
- h) Season
- i) Patriarchal bias

## 3. Historical trends

- a) Gender roles in agriculture in pre-modern societies
- b) Green revolution
- c) Feminisation of agriculture
- d) Increased roles for women

**GENDER IN TIME AND LABOUR USE**

There are differences in both the use and the value attached to men and women's use of time and labour. Issues for study should include :

- 
1. time use patterns
  2. labour use patterns
  3. women's multiple roles
  4. paid and unpaid work and its gender connotations
  5. invisibility of women's work and reason for it
  6. time/labour accounting and national income statistics
  7. historical trends

### **GENDER IN KNOWLEDGE/SKILLS**

Knowledge and skills are also gender related, vary across time, according to role, and are subject to historical trends. Aspects to be studied are :

1. Women specific knowledge and skills are traditionally found in areas like seed selection, seed conservation and storage, bio-diversity, food processing and value addition, medicinal plants, home remedies for minor ailments, kitchen gardens etc.
2. Availability and access to training in new technology and skills is also gender specific and often gender biased.

### **GENDER AND RESOURCE MANAGEMENT**

Access to and control over resources essential for agriculture are usually biased in favour of men, for example :

1. Land - affected by unequal inheritance rights, kinship and family structure, custom, tradition, law and religion
2. Water
3. Common property resources and customary rights
4. Purchased inputs are affected by differential access to education, training, credit, market transport, etc. and by women's reduced mobility and security as compared to men.
5. Environmental degradation has differential impact on men and women.

### **IMPACT OF GENDER RELATED SYSTEMS**

To be illustrated with a large number of available case studies.

1. Economic law
  - a) Production and productivity

### **The National Task Force on Technological Empowerment**

---

- b) Bio-diversity
- c) Absorption of labour in non-farm sector
- 2. Social and cultural loss
  - a) Subordination of women in family and society
  - b) Intra-household differences in access to food, education, health care etc.
  - c) Deprivation of children and their families.
  - d) Cultural impoverishment

### **TRENDS IN DEVELOPMENT AND THEIR GENDER IMPACT**

#### Aspects for study

1. Historical development of agriculture in India
2. Development paradigms since 1947
3. Green revolution and its social impact
4. Technological change and its implications
5. Globalisation of agriculture and its implications
6. Feminisation of agriculture and its implications
7. Trends in various sectors
8. Current problems and future challenges.

### **AGENDA FOR THE FUTURE**

1. Policy changes to remove gender bias
  - a) Land rights - priority in land distribution
  - b) Inheritance rights
  - c) Access to credit and inputs
2. Support systems
  - a) Health-care
  - b) Child-care
  - c) Education
  - d) Housing

**Annexure 13****NATIONAL AGRICULTURE POLICY**

1. Agriculture is a way of life, a tradition, which, for centuries, has shaped the thought, the outlook, the culture and the economic life of the people of India. Agriculture, therefore, is and will continue to be central to all strategies for planned socio-economic development of the country. Rapid growth of agriculture is essential not only to achieve self-reliance at national level but also for household food security and to bring about equity in distribution of income and wealth resulting in rapid reduction in poverty levels.
2. Indian agriculture has, since Independence, made rapid strides. In taking the annual foodgrains production from 51 million tonnes of the early fifties to 206 million tonnes at the turn of the century, it has contributed significantly in achieving self sufficiency in food and in avoiding food shortages in our country. The pattern of growth of agriculture has, however, brought in its wake, uneven development, across regions and crops as also across different sections of farming community and is characterized by low levels of productivity and degradation of natural resources in some areas. Capital inadequacy, lack of infrastructural support and demand side constraints such as controls on movement, storage and sale of agricultural products, etc., have continued to affect the economic viability of agriculture sector. Consequently, the growth of agriculture has also tended to slacken during the nineties.
3. Agriculture has also become a relatively unrewarding profession due to generally unfavourable price regime and low value addition, causing abandoning of farming and increasing migration from rural areas. The situation is likely to be exacerbated further in the wake of integration of agricultural trade in the global system, unless immediate corrective measures are taken.
4. Over 200 million Indian farmers and farm workers have been the backbone of India's agriculture. Despite having achieved national food security the well being of the farming community continues to be a matter of grave concern for the planners and policy makers in the country. The establishment of an agrarian economy which ensures food and nutrition to India's billion people, raw materials for its expanding industrial base and surpluses for exports, a fair and equitable reward system for the farming community for the services they provide to the society will be the mainstay of reforms in the agriculture sector.

## **The National Task Force on Technological Empowerment**

---

5. The National Policy on Agriculture seeks to actualise the vast untapped growth potential of Indian agriculture, strengthen rural infrastructure to support faster agricultural development, promote value addition, accelerate the growth of agro business, create employment in rural areas, secure a fair standard of living for the farmers and agricultural workers and their families, discourage migration to urban areas and face the challenges arising out of economic liberalization and globalisation. Over the next two decades, it aims to attain:
- A growth rate in excess of 4 percent per annum in the agriculture sector;
  - Growth that is based on efficient use of resources and conserves our soil, water and bio-diversity;
  - Growth with equity, i.e. growth which is widespread across regions and farmers;
  - Growth that is demand-driven and caters to domestic markets and maximises benefits from exports of agricultural products in the face of the challenges arising from economic liberalization and globalisation;
  - Growth that is sustainable technologically, environmentally and economically.

### **Sustainable Agriculture**

6. The policy will seek to promote technically sound, economically viable, environmentally non-degrading, and socially acceptable use of country's natural resources - land, water and genetic endowment to promote sustainable development of agriculture. Measures will be taken to contain biotic pressures on land and to control indiscriminate diversion of agricultural lands for non-agricultural purposes. The unutilized wastelands will be put to use for agriculture and afforestation. Particular attention will be given for increasing cropping intensity through multiple-cropping and inter-cropping.
7. The Government accords abiding importance to improving the quality of the country's land and soil resources. Reclamation of degraded and fallow lands as well as problem soils will be given high priority to optimize their productive use. Special emphasis will be laid on conserving soils and enriching their fertility. Management of land resources on watershed basis will receive special attention. Areas of shifting cultivation will also receive particular attention for their sustainable development. Integrated and holistic development of rainfed areas will be promoted by conservation of rain water by vegetative measures on watershed basis and augmentation of biomass production through agro and farm forestry with the involvement of the watershed community. All spatial components of a watershed, i.e. arable land, non-arable and drainage lines will be treated as one

- geo-hydrological entity. Management of grazing land will receive greater attention for augmenting availability of animal feed and fodder. A long-term perspective plan for sustainable rainfed agriculture through watershed approach will be vigorously pursued for development of two-thirds of India's cropped area which is dependent on rains.
8. Rational utilization and conservation of the country's abundant water resources will be promoted. Conjunctive use of surface and ground water will receive highest priority. Special attention will be focused on water quality and the problem of receding ground-water levels in certain areas as a result of over-exploitation of underground aquifers. Proper on-farm management of water resources for the optimum use of irrigation potential will be promoted. Use of in situ moisture management techniques such as mulching and use of micro overhead pressured irrigation systems like drip and sprinkler and green house technology will be encouraged for greater water use efficiency and improving productivity, particularly of horticulture crops. Emphasis will be placed on promotion of water harvesting structures and suitable water conveyance systems in the hilly and high rainfall areas for rectification of regional imbalances. Participatory community irrigation management will be encouraged.
  9. Erosion and narrowing of the base of India's plant and animal genetic resources in the last few decades has been affecting the food security of the country. Survey and evaluation of genetic resources and safe conservation of both indigenous and exogenously introduced genetic variability in crop plants, animals and their wild relatives will receive particular attention. The use of bio-technologies will be promoted for evolving plants which consume less water, are drought resistant, pest resistant, contain more nutrition, give higher yields and are environmentally safe. Conservation of bio-resources through their ex situ preservation in Gene Banks, as also in situ conservation in their natural habitats through bio-diversity parks, etc., will receive a high priority to prevent their extinction. Specific measures will also be taken to conserve indigenous breeds facing extinction. There will be a time bound programme to list, catalogue and classify country's vast agro bio-diversity.
  10. Sensitization of the farming community with the environmental concerns will receive high priority. Balanced and conjunctive use of bio-mass, organic and inorganic fertilizers and controlled use of agro chemicals through integrated nutrients and pest management (INM & IPM) will be promoted to achieve the sustainable increases in agricultural production. A nation-wide programme for utilization of rural and urban garbage, farm residues and organic waste for organic matter repletion and pollution control will be worked out.

**The National Task Force on Technological Empowerment**

---

11. Agro forestry and social forestry are prime requisites for maintenance of ecological balance and augmentation of bio-mass production in the agricultural systems. Agro-forestry will receive a major thrust for efficient nutrition cycling, nitrogen fixation, organic matter addition and for improving drainage. Farmers will be encouraged to take up farm/agro-forestry for higher income generation by evolving technology, extension and credit support packages and removing constraints to development of agro and farm forestry. Involvement of farmers and landless labourers will be sought in the development of pastures/forestry programmes on public wastelands by giving financial incentives and entitlements to the usufructs of trees and pastures.
12. The history and traditional knowledge of agriculture, particularly of tribal communities, relating to organic farming and preservation and processing of food for nutritional and medicinal purposes is one of the oldest in the world. Concerted efforts will be made to pool, distill and evaluate traditional practices, knowledge and wisdom and to harness them for sustainable agricultural growth.

**Food and Nutritional Security**

13. Special efforts will be made to raise the productivity and production of crops to meet the increasing demand for food generated by unabated demographic pressures and raw materials for expanding agro-based industries. A regionally differentiated strategy will be pursued, taking into account the agronomic, climatic and environmental conditions to realize the full growth potential of every region. Special attention will be given to development of new crop varieties, particularly of food crops, with higher nutritional value through adoption of bio-technology particularly, genetic modification, while addressing bio-safety concerns.
14. A major thrust will be given to development of rainfed and irrigated horticulture, floriculture, roots and tubers, plantation crops, aromatic and medicinal plants, bee-keeping and sericulture, for augmenting food supply, exports and generating employment in the rural areas. Availability of hybrid seeds and disease-free planting materials of improved varieties, supported by network of regional nurseries, tissue culture laboratories, seed farms will be promoted to support systematic development of horticulture having emphasis on increased production, post-harvest management, precision farming, bio-control of pests and quality regulation mechanism and exports.
15. Animal husbandry and fisheries also generate wealth and employment in the agriculture sector. Development of animal husbandry, poultry, dairying and aqua-culture will receive

- a high priority in the efforts for diversifying agriculture, increasing animal protein availability in the food basket and for generating exportable surpluses. A national livestock breeding strategy will be evolved to meet the requirements of milk, meat, egg and livestock products and to enhance the role of draught animals as a source of energy for farming operations and transport. Major thrust will be on genetic upgradation of indigenous/native cattle and buffaloes using proven semen and high quality pedigreed bulls and by expanding artificial insemination network to provide services at the farmer's doorstep.
16. Generation and dissemination of appropriate technologies in the field of animal production as also health care to enhance production and productivity levels will be given greater attention. Cultivation of fodder crops and fodder trees will be encouraged to meet the feed and fodder requirements and to improve animal nutrition and welfare. Priority attention will also be given to improve the processing, marketing and transport facilities, with emphasis on modernization of abattoirs, carcass utilization and value addition thereon. Since animal disease eradication and quarantine is critical to exports, animal health system will be strengthened and disease free zones created. The involvement of cooperatives and the private sector will be encouraged for development of animal husbandry, poultry and dairy. Incentives for livestock and fisheries production activities will be brought at par with incentives for crop production.
17. An integrated approach to marine and inland fisheries, designed to promote sustainable aquaculture practices, will be adopted. Biotechnological application in the field of genetics and breeding, hormonal applications immunology and disease control will receive particular attention for increased aquaculture production. Development of sustainable technologies for fin and shell fish culture as also pearl-culture, their yield optimization, harvest and post-harvest operations, mechanization of fishing boats, strengthening of infrastructure for production of fish seed, berthing and landing facilities for fishing vessels and development of marketing infrastructure will be accorded high priority. Deep sea fishing industry will be developed to take advantage of the vast potential of country's exclusive economic zone.

### **Generation and Transfer of Technology**

18. A very high priority will be accorded to evolving new location-specific and economically viable improved varieties of agricultural and horticultural crops, livestock species and aquaculture as also conservation and judicious use of germplasm and other biodiversity resources. The regionalization of agricultural research, based on identified agro-climatic zones will be accorded high priority. Application of frontier sciences like bio-technology,

## **The National Task Force on Technological Empowerment**

---

remote sensing technologies, pre and post-harvest technologies, energy saving technologies, technology for environmental protection through national research system as well as proprietary research will be encouraged. The endeavour will be to build a well organized, efficient and result-oriented agriculture research and education system to introduce technological change in Indian agriculture. Upgradation of agricultural education and its orientation towards uniformity in education standards, women empowerment, user-orientation, vocationalization and promotion of excellence will be the hallmark of the new policy.

19. The research and extension linkages will be strengthened to improve quality and affectiveness of research and extension system. The extension system will be broad based and revitalized. Innovative and decentralized institutional changes will be introduced to make the extension system farmer-responsible and farmer-accountable. Role of Krishi Vigyan Kendras (KVKs), Non-Governmental Organization (NGOs), Farmers Organizations, Cooperatives, corporate sector and para-technicians in agricultural extension will be encouraged for organizing demand driven production systems. Development of human resources through capacity building and skill upgradation of public extension functionaries and other extension functionaries will be accorded a high priority. The Government will endeavour to move towards a regime of financial sustainability of extension services through affecting in a phased manner, a more realistic cost recovery of extension services and inputs, while simultaneously safeguarding the interests of the poor and the vulnerable groups.
20. Mainstreaming gender concerns in agriculture will receive particular attention. Appropriate structural, functional and institutional measures will be initiated to empower women and build their capabilities and improve their access to inputs, technology and other farming resources.

### **Input Management**

21. Adequate and timely supply of quality inputs such as seeds, fertilizers, plant protection chemicals, bio-pesticides, agricultural machinery and credit at reasonable rates to farmers will be the endeavour of the Government. Soil testing and quality testing of fertilisers and seeds will be ensured and supply of spurious inputs will be checked. Balanced and optimum use of fertilizers will be promoted together with use of organic manures & bio-fertilizers to optimize the efficiency of nutrient use.
22. Development, production and distribution of improved varieties of seeds and planting materials and strengthening and expansion of seed and plant certification system with

private sector participation will receive a high priority. A National Seed Grid will be established to ensure supply of seeds especially to areas affected by natural calamities. The National Seeds Corporation (NSC) and State Farms Corporation of Indis (SFCI) will be restructured for efficient utilization of investment and manpower.

23. Protection to plant varieties through a sui generis legislation, will be granted to encourage research and breeding of new varieties particularly in the private sector in line with India's obligations under TRIPS Agreement. The farmers will, however, be allowed their traditional rights to save, use, exchange, share and sell their farm saved seeds except as branded seeds of protected varieties for commercial purpose. The interests of the researchers will also be safeguarded in carrying out research on proprietary varieties to develop new varieties.
24. Integrated pest management and use of biotic agents in order to minimize the indiscriminate and injudicious use of chemical pesticides will be the cardinal principle covering plant protection. Selective and eco-friendly farm mechanization through appropriate technology will be promoted, with special reference to rainfed farming to reduce arduous work and to make agriculture efficient and competitive as also to increase crop productivity.

#### **Incentives for Agriculture**

25. The Government will endeavour to create a favourable economic environment for increasing capital formation and farmer's own investments by removal of distortions in the incentive regime for agriculture, improving the terms of trade with manufacturing sectors and bringing about external and domestic market reforms, backed by rationalization of domestic tax structure. It will seek to bestow on the agriculture sector in as many respects as possible benefits similar to those obtaining in the manufacturing sector, such as easy availability of credit and other inputs, and infrastructure facilities for development of agri-business industries and development of effective delivery systems and freeing movement of agro produce.
26. Consequent upon dismantling of Quantitative Restrictions on imports as per WTO Agreement on Agriculture, Commodity-wise strategies and arrangements for protecting the grower from adverse impact of undue price fluctuations in world markets and for promoting exports will be formulated. Apart from price competition, other aspects of marketing such as quality, choice, health and bio-safety will be promoted. Exports of horticultural produce and marine products will receive particular emphasis. A two-fold long term strategy of diversification of agricultural produce and value addition enabling

## **The National Task Force on Technological Empowerment**

---

the production system to respond to external environment and creating export demand for the commodities produced in the country will be evolved with a view to providing the farmers incremental income from export earnings. A favourable economic environment and supportive public management system will be created for promotion of agricultural exports. Quarantine, both of exports and imports, will be given particular attention so that Indian agriculture is protected from the ingress of exotic pests and diseases.

27. In order to protect the interest of farmers in context of removal of Quantitative Restrictions, continuous monitoring of international prices will be undertaken and appropriate tariffs protection will be provided. Import duties on manufactured commodities used in agriculture will be rationalized. The domestic agricultural market will be liberalized and all controls and regulations hindering increase in farmers' income will be reviewed and abolished to ensure that agriculturists receive prices commensurate with their efforts, investment. Restrictions on the movement of agricultural commodities throughout the country will be progressively dismantled.
28. The structure of taxes on foodgrains and other commercial crops will be reviewed and rationalized. Similarly, the excise duty on materials such as farm machinery and implements, fertilizers, etc., used as inputs in agricultural production, post harvest storage and processing will be reviewed. Appropriate measures will be adopted to ensure that agriculturists by and large remain outside the regulatory and tax collection systems. Farmers will be exempted from payment of capital gains tax on compulsory acquisition of agricultural land.

### **Investments in Agriculture**

29. The Agriculture sector has been starved of capital. There has been a decline in the public sector investment in the agriculture sector. Public investment for narrowing regional imbalances, accelerating development of supportive infrastructure for agriculture and rural development particularly rural connectivity will be stepped up. A time-bound strategy for rationalisation and transparent pricing of inputs will be formulated to encourage judicious input use and to generate resources for agriculture. Input subsidy reforms will be pursued as a combination of price and institutional reforms to cut down costs of these inputs for agriculture. Resource allocation regime will be reviewed with a view to rechannelizing the available resources from support measures towards asset formation in rural sector.
30. A conducive climate will be created through a favourable price and trade regime to promote farmers' own investments as also investments by industries producing inputs

for agriculture and agro based industries. Private sector investments in agriculture will also be encouraged more particularly in areas like agricultural research, human resource development, post-harvest management and marketing.

31. Rural electrification will be given a high priority as a prime mover for agricultural development. The quality and availability of electricity supply will be improved and the demand of the agriculture sector will be met adequately in a reliable and cost effective manner. The use of new and renewable sources of energy for irrigation and other agricultural purposes will also be encouraged.
32. Bridging the gap between irrigation potential created and utilized, completion of all on-going projects, restoration and modernization of irrigation infrastructure including drainage, evolving and implementing an integrated plan of augmentation and management of national water resources will receive special attention for augmenting the availability and use of irrigation water.
33. Emphasis will be laid on development of marketing infrastructure and techniques of preservation, storage and transportation with a view to reducing post-harvest losses and ensuring a better return to the grower. The weekly periodic markets under the direct control of panchayati raj institutions will be upgraded and strengthened. Direct marketing and pledge financing will be promoted. Producers markets on the lines of Ryatu Bazars will be encouraged through out the width and the breadth of the country. Storage facilities for different kinds of agricultural products will be created in the production areas or nearby places particularly in the rural areas so that the farmers can transport their produce to these places immediately after harvest in shortest possible time. The establishment of cold chains, provision of pre cooling facilities to farmers as a service and cold storage in the terminal markets and improving the retail marketing arrangements in urban areas will be given priority. Upgradation and dissemination of market intelligence will receive particular attention.
34. Setting up of agro-processing units in the producing areas to reduce wastage, especially of horticulture produce, increased value addition and creation of off-farm employment in rural areas will be encouraged. Collaboration between the producer cooperatives and the corporate sector will be encouraged to promote agro-processing industry. An inter-active coupling between technology, economy, environment and society will be promoted for speedy development of food and agro-processing industries and build up a substantial base for production of value added agro-products for domestic and export markets with a strong emphasis on food safety and quality. The Small Farmers Agro Business Consortium (SFAC) will be energized to cater to private investments in agri-business.

## **The National Task Force on Technological Empowerment**

---

### **Institutional Structure**

35. Indian agriculture is characterized by pre-dominance of small and marginal farmers. Institutional reforms will be so pursued as to channelize their energies for achieving greater productivity and production. The approach to rural development and land reforms will focus on the following areas :
- Consolidation of holdings all over the country on the pattern of north western States;
  - Redistribution of ceiling surplus lands and waste lands among the landless farmers, unemployed youth with initial start-up capital;
  - Tenancy reforms to recognize the rights of the tenants and share croppers;
  - Development of lease markets for increasing the size of the holdings by making legal provisions for giving private lands on lease for cultivation and agri business;
  - Updating and improvement of land records, computerization and issue of land pass-books to the farmers; and
  - Recognition of women's rights in land.
36. The rural poor will be increasingly involved in the implementation of land reforms with the help of Panchayati Raj Institutions, Voluntary Groups, Social Activists and Community Leaders.
37. Private sector participation will be promoted through contract farming and land leasing arrangements to allow accelerated technology transfer, capital inflow and assured markets for crop production, especially of oilseeds, cotton and horticulture crops.
38. Progressive institutionalisation of rural and farm credit will be continued for providing timely and adequate credit to farmers. The rural credit institutions will be geared to promote savings, investments and risk management. Particular attention will be paid to removal of distortions in the priority sector lending by Commercial Banks for agriculture and rural sectors. Special measures will be taken for revamping of cooperatives to remove the institutional and financial weaknesses and evolving simplified procedure for sanction and disbursement of agriculture credit. The endeavour will be to ensure distribution equity in the disbursement of credit. Micro-credit will be promoted as an effective tool for alleviating poverty. Self-Help Group - Bank linkage system, suited to Indian rural sector, will be developed as a supplementary mechanism for bringing the rural poor into the formal banking system, thereby improving banks' outreach and the credit flows to the poor in an effective and sustainable manner.

39. The basic support to agriculture has been provided by the cooperative sector assiduously built over the years. The Government will provide active support for the promotion of cooperative-form of enterprise and ensure greater autonomy and operational freedom to them to improve their functioning. The thrust will be on :
- Structural reforms for promoting greater efficiency and viability by freeing them from excessive bureaucratic control and political interference;
  - Creation of infrastructure and human resource development;
  - Improvement in financial viability and organizational sustainability of cooperatives;
  - Democratisation of management and increased professionalism in their operations; and
  - Creating a viable interface with other grass-root Organizations.
40. The Legislative and regulatory framework will be appropriately amended and strengthened to achieve these objectives.

**Risk management**

41. Despite technological and economic advancements, the condition of farmers continues to be unstable due to natural calamities and price fluctuations. National Agriculture Insurance Scheme covering all farmers and all crops throughout the country with built-in provisions for insulating farmers from financial distress caused by natural disasters and making agriculture financially viable will be made more farmer specific and effective. Endeavour will be made to provide a package insurance policy for the farmers, right from sowing of the crops to post-harvest operations, including market fluctuations in the prices of agricultural produce.
42. In order to reduce risk in agriculture and impart greater resilience to Indian agriculture against droughts and floods, efforts will be made for achieving greater flood proofing of flood prone agriculture and drought proofing of rainfed agriculture for protecting the farmers from vagaries of nature. For this purpose, contingency agriculture planning, development of drought and flood resistant crop varieties, watershed development programmes, drought prone areas and desert development programmes and rural infrastructure development programmes will receive particular attention.
43. The Central Government will continue to discharge its responsibility to ensure remunerative prices for agricultural produce through announcement of Minimum Support Prices policy for major agricultural commodities. The food, nutrition and other domestic and exports

**The National Task Force on Technological Empowerment**

---

requirements of the country will be kept in view while determining the support prices of different commodities. The price structure and trade mechanism will be continuously reviewed to ensure a favourable economic environment for the agriculture sector and to bring about an equitable balance between the rural and the urban incomes. The methodology used by the Commission on Agricultural Costs & Prices (CACP) in arriving at estimates of costs of production will be periodically reviewed. The price structure of both inputs and outputs will be monitored to ensure higher returns to the farmers and using about cost effectiveness throughout the economy. Domestic market prices will be closely monitored to prevent distress sales by the farmers. Public and cooperative agencies undertaking marketing operations will be strengthened.

44. The Government will enlarge the coverage of future markets to minimize the wide fluctuations in commodity prices as also for hedging their risks. The endeavour will be to cover all important agricultural products under futures' trading in course of time.

**Management Reforms**

45. Effective implementation of policy initiatives will call for comprehensive reforms in the management of agriculture by the Central and the State Governments. The Central Government will supplement/complement the State Governments' efforts through regionally differentiated Work Plans, comprising crop/area/target group specific interventions, formulated in an inter-active mode and implemented in a spirit of partnership with the States. The Central Government will move away from schematic approach to Macro-Management mode and assume a role of advocacy, articulation and facilitation to help the States in their efforts towards achieving accelerated agricultural development.
46. The Government will focus on quality aspects at all stages of farm operations from sowing to primary processing. The quality of input and other support services to farmers will be improved. Quality consciousness amongst farmers and agro processors will be created. Grading and standardization of agricultural products will be promoted for export enhancement. Application of science and technology in agriculture will be promoted through a regular system of interface between S&T institutions and the user, potential users, to make the sector globally competitive.
47. The database for the agriculture sector will be strengthened to ensure greater reliability of estimates and forecasting which will help in the process of planning and policy making. Efforts will be made to significantly improve and harness latest remote sensing and information technology to capture data, collate it, add value and disseminate it to

---

**Annexures**

appropriate destinations for managing the risk and in accelerating the growth process. The objective will be to engage in a meaningful continuous dialogue with the external environment in the changing scenario and to have on-line and real time system of 'Agriculture on line' capacity to recognize the signals emanating from the farms and the markets for the benefit of the farmers.

48. The Government of India trust that this Statement of National Agriculture Policy will receive the fullest support of all sections of the people and lead to sustainable development of agriculture, create gainful employment on a self sustaining basis in rural areas raise standards of living for the farming communities, preserve environment and serve as a vehicle for building a reargent national economy.

**Extracts from National Policy for the Empowerment of Women (2001)****Introduction**

- 1.1 The principle of gender equality is enshrined in the Indian Constitution in its Preamble, Fundamental Rights, Fundamental Duties and Directive Principles. The Constitution not only grants equality to women, but also empowers the State to adopt measures of positive discrimination in favour of women.
- 1.2 Within the framework of a democratic policy, our laws, development policies, plans and programs have aimed at women's advancement in different spheres. From the Fifth Five Year Plan (1974-78) onwards there has been a marked shift in the approach to women's issues from welfare to development. In the recent years, the empowerment of women has been recognized as the Central issue in determining the status of women. The National Commission for Women was set up by an Act of Parliament in 1992 to safeguard the rights and legal entitlements of women. The 73rd and 74th Amendments (1993) to the Constitution of India have provided for reservation of seats in the local bodies of Panchayats and Municipalities for women, laying a strong foundation for their participation in decision making at the local levels.
- 1.3 India has also ratified various international conventions and human rights instruments committing to secure equal rights of women. Key among them is the ratification of the Convention of Elimination of All Forms of Discrimination against Women (CEDAW) in 1993.
- 1.4 The Mexico Plan of Action (1975), the Nairobi Forward Looking Strategies (1985), the Beijing Declaration as well as the Platform for action (1995) and the Outcome Document adopted by the UNGA Session on Gender Equality and Development & Peace for the 21st century, titled "Further action and initiatives to implement the Beijing Declaration and the Platform for Action" have been unreservedly endorsed by India for appropriate follow up.
- 1.5 The policy also takes note of the commitments of the Ninth Five Year Plan and the other Sectoral Policies relating to empowerment of women.
- 1.6 The women's movement and a wide-spread network of Non-Government Organisations which have strong grass-roots presence and deep insight into women's concerns have contributed in inspiring initiatives for the empowerment of women.

- 
- 1.7 However, there still exists a wide gap between the goals enunciated in the Constitution, legislation, policies, plans, programs, and related mechanisms on the one hand and the situational reality of the status of women in India, on the other. This has been analyzed extensively in the Report of the Committee on the Status of Women in India, "Towards Equality", 1974 and highlighted in the National Perspective Plan for Women, 1988-2000, the Shramshakti Report, 1988 and the Platform for Action, Five Years - An assessment".
- 1.8 Gender disparity manifests itself in various forms, the most obvious being the trend of continuously declining female ratio in the population in the last few decades. Social stereotyping and violence at the domestic and societal levels are some of the other manifestations. Discrimination against girl children, adolescent girls and women persists in parts of the country.
- 1.9 The underlying causes of gender inequality are related to social and economic structure, which is based on informal and formal norms and practices.
- 1.10 Consequently, the access of women particularly those belonging to weaker sections including Scheduled Castes/Scheduled Tribes/Other backward Classes and minorities, majority of whom are in the rural areas and in the informal, unorganized sector - to education, health and productive resources, among others, is inadequate. Therefore, they remain largely marginalized, poor and socially excluded.

### **Goal and Objectives**

- 1.11 The goal of this Policy is to bring about the advancement, development and empowerment of women. The Policy will be widely disseminated to encourage active participation of all stakeholders for achieving its goals. Specifically, the objectives of this Policy include :
- (i) Creating an environment through positive economic and social policies for full development of women to enable them to realize their full potential.
  - (ii) The de-jure and de-facto enjoyment of all human rights and fundamental freedom by women on equal basis with men in all spheres - political, economic, social, cultural and civil.
  - (iii) Equal access to participation and decision making of women in social, political and economic life of the nation.
  - (iv) Equal access to women to health care, quality education at all levels, career and vocational guidance, employment, equal remuneration, occupational health and safety, social security and public office etc.

## **The National Task Force on Technological Empowerment**

---

- (v) Strengthening legal systems aimed at elimination of all forms of discrimination against women.
  - (vi) Changing societal attitudes and community practices by active participation and involvement of both men and women.
  - (vii) Mainstreaming a gender perspective in the development process.
  - (viii) Elimination of discrimination and all forms of violence against women and the girl child; and
- (ix) Building and strengthening partnership with civil society, particularly women's organizations.

### **Policy Prescriptions**

#### **Micro Credit**

In order to enhance women's access to credit for consumption and production, the establishment of new, and strengthening of existing micro-credit mechanisms and micro-finance institution will be undertaken so that the outreach of credit is enhanced. Other supportive measures would be taken to ensure adequate flow of credit through extant financial institutions and banks, so that all women below poverty line have easy access to credit.

#### **Women and Agriculture**

In view of the critical role of women in the agriculture and allied sectors as producers, concentrated efforts will be made to ensure that benefits of training, extension and various programs will reach them in proportion to their numbers. The programs for training women in soil conservation, social forestry, dairy development and other occupations allied to agriculture like horticulture, livestock including small animal husbandry, poultry, fisheries etc. will be expanded to benefit women workers in the agriculture sector.

#### **Environment**

Women will be involved and their perspective reflected in the policies and programs for environment, conservation and restoration. Considering the impact of environmental factors on their livelihoods, women's participation will be ensured in the conservation of the environment and control of environmental degradation. The vast majority of rural women still depend on the locally available non-commercial sources of energy such as animal dung, crop waste and fuel wood. In order to ensure the efficient use of these energy resources in an environmental friendly manner, the Policy will aim at promoting the programs of non-conventional energy resources. Women will be involved in spreading the use of solar energy, biogas, smokeless

chulahs and other rural application so as to have a visible impact of these measures in influencing eco system and in changing the life styles of rural women.

### **Science and Technology**

Programs will be strengthened to bring about a greater involvement of women in science and technology. These will include measures to motivate girls to take up science and technology for higher education and ensure that development projects with scientific and technical inputs involve women fully. Efforts to develop a scientific temper and awareness will also be stepped up. Special measures would be taken for their training in areas where they have special skills like communication and information technology. Efforts to develop appropriate technologies suited to women's needs as well as to reduce their drudgery will be given a special focus too.

### **Operational Strategies**

#### **Action Plans**

All Central and State Ministries will draw up time bound Action Plans for translating the Policy into a set of concrete actions, through a participatory process of consultation with Centre/State Departments of Women and Child Development and **National/State Commissions for Women**. The Plans will specifically including the following :

- (i) Measurable goals to be achieved by 2010.
- (ii) Identification and commitment of resources.
- (iii) Responsibilities for implementation of action points.
- (iv) Structures and mechanisms to ensure efficient monitoring review and gender impact assessment of action points and policies.
- (v) Introduction of a gender perspective in the budgeting process.

In order to support better planning, program formulation and adequate allocation of resources, Gender Development Indices (GDI) will be developed by networking with specialized agencies. These could be analyzed and studied in depth. Gender auditing and development of evaluation mechanisms will be undertaken alongside.

Collection of gender desegregated data by all primary data collecting agencies of the Central and State Governments as well as Research and Academic Institutions in the Public and Private Sectors will be undertaken. Data and information gaps in vital areas reflecting the

## **The National Task Force on Technological Empowerment**

---

status of women will be sought to be filled in by these immediately. All Ministries/Corporations/Banks and financial institutions etc. will be advised to collect, collate, disseminate and maintain/publish data related to programs and benefits on a gender disaggregated basis. This will help in meaningful planning and evaluation of policies.

### **Institutional Mechanisms**

Institutional Mechanisms, to promote the advancement of women, which exist at the Central and State levels, will be strengthened. These will be through interventions as may be appropriate and will relate to, amongst others, provision of adequate resources, training and advocacy skills to effectively influence macro-policies, legislation, programs etc. to achieve the empowerment of women.

National and State Councils will be formed to oversee the operationalisation of the Policy on a regular basis. The National Council will be headed by the Prime Minister and the State Councils by the Chief Ministers and be broad in composition having representatives from the concerned Departments/Ministries, National and State Commissions for Women, Social Welfare Boards, representatives of Non-Government Organizations, Women's Organisations, Corporate Sector, Trade Unions, financial institutions, academics, experts and social activists etc. These bodies will review the progress made in implementing the Policy twice a year. The National Development Council will also be informed of the progress of the program undertaken under the policy from time to time for advice and comments.

National and State Resource Centres on women will be established with mandates for collection and dissemination of information, undertaking research work, conducting surveys, implementing training and awareness generation programs, etc. These Centres will link up with Women's Studies Centres and other research and academic institutions through suitable information networking systems.

While institutions at the district level will be strengthened, at the grass roots, women will be helped by Government through its programs to organize and strengthen into Self-Help Groups (SHGs) at the Anganwadi/Village/Town level. The women's groups will be helped to institutionalize themselves into registered societies and to federate at the Panchayat/Municipal level. These societies will bring about synergistic implementation of all the social and economic development programs by drawing resources made available through Government and Non-Government channels, including banks and financial institutions and by establishing a close Interface with the Panchayats/Municipalities.

## **Resource Management**

Availability to adequate financial, human and market resources to implement the Policy will be managed by concerned Departments, financial credit institutions and banks, private sector, civil society and other connected institutions. This process will include :

- (a) Assessment of benefits flowing to women and resource allocations to the programs relating to them through an exercise of gender budgeting. Appropriate changes in policies will be made to optimize benefits to women under these schemes;
- (b) Adequate resource allocation to develop and promote the policy outlined earlier based on (a) above by concerned Departments.
- (c) Developing synergy between personnel of Health, Rural Development, Education and Women & Child Development Departments at field level and other village level functionaries.
- (d) Meeting credit needs by banks and financial credit institutions through suitable policy initiatives and development of new institution in coordination with the Department of Women & Child Development.

The strategy of Women's Component Plan adopted in the Ninth Plan of ensuring that not less than 30% of benefits/funds flow to women from all Ministries and Departments will be implemented effectively so that the needs and interests of women and girls are addressed by all concerned sectors. The Department of Women and Child Development being the nodal Ministry will monitor and review the progress of the implementation of the Component Plan from time to time, in terms of both quality and quantity in collaboration with the Planning Commission.

Efforts will be made to channelize private sector investments too, to support programs and projects for advancement of women.

## **Legislation**

The existing legislative structure will be reviewed and additional legislative measures taken by identified departments to implement the Policy. This will also involve a review of all existing laws including personal, customary laws, subordinate legislation, related rules as well as executive and administrative regulations to eliminate all gender discriminatory references. The process will be planned over a time 2000-2003. The specific measures required would be evolved through a consultation process involving civil society, National Commission for Women and Department of Women and Child Development. In appropriate cases, the consultation process would be widened to include other stakeholders too.

## **The National Task Force on Technological Empowerment**

---

Effective implementation of legislation would be promoted by involving civil society and community. Appropriate changes in legislation will be undertaken, if necessary.

In addition, following other specific measures will be taken to implement the legislation effectively.

- (a) Strict enforcement of all relevant legal provisions and speedy redressal of grievances will be ensured, with a special focus on violence and gender related atrocities.
- (b) Measures to prevent and punish sexual harassment at the place of work, protection for women workers in the organized/unorganized sector and strict enforcement of relevant laws such as Equal Remuneration Act and Minimum Wages Act will be undertaken.
- (c) Crimes against women, their incidence, prevention, investigation, detection and prosecution will be regularly reviewed at the Crime Review fora and Conferences at the Central, State and District levels. Recognised, local, voluntary organizations will be authorized to lodge Complaints and facilitate registration, investigations and legal proceedings related to violence and atrocities against girls and women.
- (d) Women's Cells in Police Stations, Encourage Women Police Stations, Family Courts, Mahila Courts, Counselling Centres, Legal Aid Centres and Nyaya Panchayats will be strengthened and expanded to eliminate violence and atrocities against women.
- (e) Widespread dissemination of information on all aspects of legal rights, human rights and other entitlements of women, through specially designed legal literacy programs and rights information programs will be done.

### **Gender Sensitization**

Training of personnel of executive, legislative and judicial wings of the State, with a special focus on policy and program framers, implementation and development agencies, law enforcement machinery and the judiciary, as well as non-governmental organizations will be undertaken. Other measures will include :

- (a) Promoting societal awareness to gender issues and women's human rights.
- (b) Review of curriculum and educational materials to include gender education and human rights issues.
- (c) Removal of all references derogatory to the dignity of women from all public documents and legal instruments.
- (d) Use of different forms of mass media to communicate social messages relating to women's equality and empowerment.

**Panchayati Raj Institutions**

The 73rd and 74th Amendments (1993) to the Indian Constitution have served as a breakthrough towards ensuring equal access and increased participation in political power structure for women. The PRIs will play a central role in the process of enhancing women's participation in public life. The PRIs and the local self Governments will be actively involved in the implementation and execution of the National Policy for Women at the grass root level.

**Partnership with the voluntary sector organizations**

The involvement of voluntary organizations, associations, federations, trade unions, non-governmental organizations, women's organizations, as well as institutions dealing with education, training and research will be ensured in the formulation, implementation, monitoring and review of all policies and programs affecting women. Towards this end, they will be provided with appropriate support related to resources and capacity building and facilitated to participate actively in the process of the empowerment of women.

**Report of**  
**The National Task Force**  
**on**  
**Technological Empowerment**  
**of**  
**Women in Agriculture**



**NATIONAL COMMISSION FOR WOMEN**  
**NEW DELHI**  
**2004**

**Project Team**

**Dr. P. S. K. Menon**

**Mrs. Vidya Seshadri**

## **CONTENTS**

Sl.No.	Chapters	Page No.
	Foreword	(i)
	Preface	(iii)
	Acknowledgement	(v)
1.	Introduction	1
2.	Profile of Women in Agriculture	3
3.	Policies and Programmes for Women in Agriculture	13
4.	Major Areas of Technological Empowerment	21
5.	Conclusions and Recommendations	33
	<b>ANNEXURES</b>	
1.	Office orders of the NCW constituting the Task Force	47
2.	Office orders of the NCW constituting the Sub-groups	51
3.	Extracts from National Commission for Women Act (1990)	53
4.	Action Plan on Recommendations of the Expert Committee on Women in Agriculture	55
5.	Terms of Reference of the Expert Committee on Women in Agriculture	59
6.	Commodity-wise involvement of women in agricultural operations	60
7.	List of Manually Operated Farm Implements and Machinery for Reducing Drudgery	61

8.	Known Health Hazards of Some Occupations	67
9.	Legislation on Occupational Health Hazards and Environment for Women Workers	70
10.	Proposed Agricultural Workers' Bill	79
11.	Recommendations of the National Workshop on Technological Empowerment of Women in Agriculture, held at M. S. Swaminathan Research Foundation, Chennai, 1997	82
12.	Course on Women in Agriculture/Gender in Agriculture	84
13.	National Agriculture Policy	87
14.	National Policy for the Empowerment of Women (2001)	100

शरद पवार  
SHARAD PAWAR



कृषि उपभोक्ता मामले, खाद्य और  
सार्वजनिक वितरण मंत्री  
भारत सरकार  
MINISTER OF AGRICULTURE  
& CONSUMER AFFAIRS,  
FOOD AND PUBLIC DISTRIBUTION  
GOVERNMENT OF INDIA

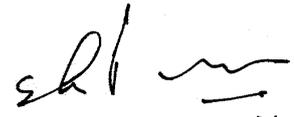
## FOREWORD

Agriculture as a way of life and as a tradition has shaped the thought, the outlook, the culture and the economic life of the people of India and will continue to play an important role in the lives of all whether rural or urban. Therefore all strategies for planned socio-economic development of the country will have to take into consideration the requirements of the agriculture sector. With this in mind we must realise that in India 75 million women are engaged in agricultural activities as compared to 1 million men.

I sincerely congratulate NCW who has done a monumental effort to reach out to this section of the women who has contributed to the country's economy. Women face several barriers in attaining economic autonomy and sustainable livelihood for themselves and their dependents due to legal and customary obstacles to ownership of land or access to land, natural resources, capital, credit, technology and other means of production.

This report gives us an insight of the need for a policy which is people oriented, especially women-oriented and a sound strategy to implement it and reiterate the need to have the participation of women at every level in decision making, programme formulation and implementation.

I also hope that this report will mark the beginning for a concerted action of agricultural research systems and policy makers that can lead to a meaningful research on issues to ensure that technologies are accessible, income generating, poverty reducing, women friendly and drudgery eliminating both for pre and post harvest operations. I convey my best wishes to NCW in its committed endeavour to ceaselessly work for the socio-economic upliftment of women from all sections of the society.

  
(SHARAD PAWAR)

## PREFACE

Women have always played a vital role in agriculture since its early days. However, their contributions are largely unrecognised and mostly under-valued whether it be in pre or post harvest technology, animal husbandry, poultry farming or fisheries. Besides, not enough effort has been made either to reduce the drudgery of women in various farm operations or to improve their health and economic status.

Realising the importance of agriculture vis-a-vis women's participation in economic activity, the National Task Force on Technological Empowerment of Women in Agriculture was constituted by the National Commission for Women to look into the problems of women in agriculture and make recommendations on related issues. This report highlights the recommendations of the Task Force with emphasis on (i) Reduction of Drudgery of women in Farm Operations; (ii) Reorientation of Course Curricula; (iii) Policy and Legislation including Credit; and (iv) Occupational Health Hazards and Environment.



The National Commission for Women would consider its efforts rewarded if these recommendations lead to the formulation of suitable projects on development and adoption of technology suited to the specific needs of women in agriculture with a view to enhancing their capabilities, increasing productivity, reducing drudgery and hazards and improving their socio-economic conditions.

The National Commission for Women would endeavour to see that such project programmes are taken up for the good of the country in general and the empowerment of women in particular.

A handwritten signature in black ink that reads "P. Advani". Below the signature is a horizontal line with an arrow pointing to the right.

**Dr. Poornima Advani**  
Chairperson

National Commission for Women

New Delhi  
05.06.2004

## **ACKNOWLEDGEMENT**

The National Commission for Women would like to express its deep gratitude to all the Members of the National Task Force on the Technological Empowerment of Women in Agriculture for their valuable suggestions and expert advice in formulating recommendations on the various issues which concern women in agriculture.

In particular we extend our sincere thanks to Dr. R. S. Paroda, the then Secretary DARE and DG, ICAR, Dr. M. S. Swaminathan, Mrs. Mina Swaminath, and the M. S. Swaminathan Research Foundation, Chennai and all the Chairpersons and Members of the Various sub-groups for their cooperation and assistance and scholarly inputs in making the Task Force deliberations effective in suggesting appropriate formulations to improve the status of women in agriculture. The help rendered by Dr. B. N. Choudhary, ADG, ICAR and Dr. H. N. Saiyed, Director, National Institute of Occupational Health, Ahmedabad has been invaluable in the finalisation of this report.