



GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE
NATIONAL COMMISSION ON FARMERS

SERVING FARMERS AND SAVING FARMING

Fifth and Final Report, 4 October 2006

Jai Kisan : Revised Draft National Policy for Farmers

The first draft of this policy was presented to the Union Minister for Agriculture and Food on 13 April 2006. Since then, the draft policy has been discussed widely throughout the country with the principal stakeholders. Based on their inputs, the present revised draft has been prepared. NCF requests that this draft, after being examined by the Government of India, may be put up, with such changes as deemed appropriate, to the National Development Council (NDC) for consideration and adoption. After obtaining the NDC concurrence, the draft policy may be placed before the Parliament for consideration. The final policy statement may be adopted on August 15, 2007 which marks the 60th anniversary of what Jawaharlal Nehru said, "India's Tryst with Destiny". We are confident that if our hardworking farm women and men are assisted on the lines proposed in this draft policy statement, they will ensure a glorious destiny for the country in the field of agriculture and food security.

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JAI KISAN

REVISED NATIONAL POLICY FOR FARMERS*

1.1 Why a National Policy for Farmers?

To those who are hungry, God is Bread – Mahatma Gandhi, 1946

Everything else can wait, but not agriculture – Jawaharlal Nehru, 1947

A majority of the hungry live in rural India and also depend on agriculture for their livelihood; accelerated agricultural progress is therefore essential for their income and their food. The two statements above hence constitute the guiding principles of this policy

1.1.1 Many steps have been taken since 1947 to strengthen agricultural research, education and extension as well as to produce essential inputs like seeds, fertilizer and electricity. Also, both mega and minor irrigation projects have been developed. An integrated programme of agricultural development was initiated in the early 1960s to help farmers benefit from irrigation facilities. Nevertheless food shortages continued partly because of a fast growth in population arising from advances in preventive and curative medicine. Import of foodgrains increased year after year and touched a level of 10 million tonnes in 1966, largely under the PL 480 programme of the United States of America. Fortunately, our scientists, with the help of international partners, developed high- yielding varieties / hybrids of wheat, rice, maize, *jowar* and *bajra*. These were introduced to farmers through the High Yielding Varieties Programme in 1966. A major breakthrough in productivity and production occurred in wheat in 1968 and resulted in a special stamp titled, “Wheat Revolution” being released by then Prime Minister, Smt Indira Gandhi. Since then the progress of agricultural production was steady and the growth rate in food production remained above the level of population growth. This came to be known as the “Green Revolution Era”. This era was characterized by synergy among technology, services, public policy and farmers’ enthusiasm and hence was

* First draft was submitted to Government on April 13, 2006. It has been widely discussed throughout the country since and the revised draft is based on extensive consultations and comments

christened “Green Revolution Symphony”. Unfortunately during the past ten years, production and productivity have remained stagnant or even tended to go down. The reasons for this situation are well known and there is now considerable effort to reverse the decline and get our agriculture moving forward once again.

1.1.2 Several policies for agriculture have been developed by the Government of India from time to time, the last one being in the year 2002. The decline in the growth of agriculture has now led to a climate of despair among farmer families, policy makers and the general public. Some areas in the States of Maharashtra, Andhra, Karnataka and Kerala have been affected by a serious agrarian crisis, leading occasionally to farmers’ suicides. **The time has therefore come when we should focus more on the economic well-being of the women and men feeding the nation than just on production.** It is clear that the human dimension must be the principal determinant of agricultural policies and not just production in physical terms. The aim of this Policy is to stimulate attitudes and action which will result in assessing agricultural progress in terms of the net income of farm families rather than just in million tonnes of farm commodities produced, and which will help to place faces before figures.

1.2 Silver lining in the Dark Cloud

1.2.1 Fortunately, several significant initiatives have been taken during the last 2 years to reverse the downward trend in agricultural production and to find permanent solutions to the agrarian crisis. Some of the important new initiatives are:

- i) Bharat Nirman or a New Deal for Rural India
- ii) National Rural Employment Guarantee Programme
- iii) National Horticulture Mission
- iv) Expansion of agricultural credit
- v) Lowering of interest rates
- vi) National Rainfed Area Authority
- vii) National Fisheries Development Board
- viii) Changes in the Agriculture Produce Marketing Committee (APMC) Act, to make it farmer-friendly

- ix) Integrated Food Law
- x) Warehouse Receipt Act, making warehouse receipts a negotiable instrument, thereby helping to prevent distress sales
- xi) Knowledge connectivity through 100,000 rural Common Service Centres (CSC)

1.2.2 The above programmes will make a positive impact on the well-being of farmer families if they are given a pro-nature, pro-poor, pro-women and pro-livelihood orientation.

1.2.3 **The time is therefore opportune for revitalizing our agricultural progress by making agrarian prosperity and food security and sovereignty the bottom line for government policies and priorities in agriculture and rural development.** Given adequate investment and pro-small farmer public policies, we can reverse the decline and restore confidence in our agricultural capability. During the VI Five Year Plan (1980-85), the growth rate in agriculture was 5.7% as against a GDP growth rate of 5.5%. This was partly because of the allocation of 12.5% of the VI Plan budget for irrigation.

1.2.4 The growth rate of agriculture was about 2% during the IX Plan period and is slated to decline to 1.8% per annum during the X Plan¹. The consequent declining share of agriculture in the total GDP without adequate shift of population dependent on agriculture has worsened the already adverse per capita farm income to per capita non-farm income ratio. A major problem confronting the rural areas is the lack of employment opportunities. During 1993-94 – 1999-2000, the growth of jobs in the farm sector was only 0.2%. While all efforts are needed to increase jobs in the farm sector by switching over to more labour intensive crops and practices to the extent feasible, and increased investment in irrigation, watershed development, wasteland development, land reclamation etc, greater focus has to be for accelerated development of the rural non-farm sector and development of clusters around towns/market centres. A growing farm sector, better rural infrastructure particularly rural connectivity, power, regular bus service, easy availability of credit and availability of trained manpower could help in development of rural non-farm sector and creation of more job opportunities.

¹ Approach Paper to XI Five Year Plan.

Ten Major Goals

- To improve the economic viability of farming by ensuring that farmers earn a “**minimum net income**”, and ensure that agricultural progress is measured, by the advance made in improving that income.
- To mainstream the human and gender dimension in all farm policies and programmes and give explicit attention to sustainable rural livelihoods.
- To complete the unfinished agenda in land reforms and to initiate comprehensive asset and aquarian reforms.
- To develop and introduce a social security system and support services for farmers.
- To protect and improve the land, water, biodiversity and climate resources essential for sustained advances in the productivity, profitability and stability of major farming systems by creating an economic stake in conservation.
- To foster community-centred food, water and energy security systems in rural India and to ensure nutrition security at the level of every child, woman and man.
- To introduce measures which can help to attract and retain youth in farming by making it both intellectually stimulating and economically rewarding, by conferring the power and economy of scale to small and marginal farmers both in the production and post-harvest phases of farming.
- To strengthen the biosecurity of crops, farm animals, fish and forest trees for safeguarding both the work and income security of farmer families, and the health and trade security of the nation.
- To restructure agricultural curriculum and pedagogic methodologies for enabling every farm and home science graduate to become an entrepreneur and to make agricultural education gender sensitive.
- To make India a global outsourcing hub in the production and supply of the inputs needed for sustainable agriculture, and products and processes developed through biotechnology and Information and Communication Technology.

² For the purpose of this Policy, the definition of Farmer indicated in this draft has been used

1.3.1 Definition

For the purpose of this Policy, the term “farmers” will refer to both men and women, and include landless agricultural labourers, sharecroppers, tenants, small, marginal and sub-marginal cultivators, farmers with larger holdings, fishers, livestock and poultry rearers, pastoralists, small plantation farmers, as well as rural and tribal families engaged in a wide variety of farming related occupations such as apiculture, sericulture and vermiculture. The term will include tribal families sometimes engaged in shifting cultivation and in the collection and use of non-timber forest products. Farm and Home Science Graduates earning their livelihoods from crop and animal husbandry, fisheries and agro-forestry will have their rightful place in the world of farmers and farming. The gender-specific needs of women in each category will also be recognized.

1.4 Asset Reform

1.4.1 The purpose of asset reform is to ensure that every man and woman in villages either possesses or has access to a productive asset like land, livestock, fishpond, homestead farm or income through an enterprise, or a market driven skill, so that household nutrition security is safeguarded, and children are able to go to school.

1.4.2 Land

1.4.2.1 The ownership of land is highly skewed with over 60% of the rural households owning less than one hectare. Farmers owning over one hectare comprise about 28% of rural families. The landless population amounts to 11.24% of rural households. These data relate to 1991-92 and it is obvious that by now there would have been further fragmentation of holdings leading to a much larger incidence of very small operational holdings.

1.4.2.2 The first and foremost task of the National Policy for Farmers would be in the area of land reform with particular reference to tenancy laws, land leasing, distribution of ceiling surplus land and wasteland, providing adequate access to common property and

wasteland resources, and the consolidation of holdings. The Mohan Dharia Committee recommendations on Wasteland Development should be implemented since it will be more appropriate to refer to wastelands as wasted lands. Following the conferment of land rights to women under the Hindu Succession Amendment Act (2005), the provision of appropriate support services to women farmers has become urgent. *Joint Pattas* for both houses and agricultural land are essential for women to get access to credit with alternative collateral till the *pattas* are issued. The Land Acquisition Act needs review and revision, with particular reference to the formula for calculating compensation.

1.4.2.3 Prime farmland must be conserved for agriculture and should not be diverted for non-agricultural purposes and for programmes like the Special Economic Zone. Such special programmes should be assigned wastelands and/or land affected by salinity and other abiotic stresses that reduce the biological potential of land for the purpose of farming. Every State should constitute a Land Zonation Team consisting of soil scientists, agronomists and remote sensing specialists to earmark soils with a low biological potential for farming such as wastelands, lands affected by salinity, acidity, etc., for industrial activities and construction. It is in our national interest that agriculture and industry both prosper in a mutually reinforcing manner.

Land for the Landless

1.4.2.4 The ownership of a small plot of land will help the family improve household income and nutrition security. Wherever feasible, landless labour households should be provided with at least 1 acre per household, which will give them space for home gardens and animal rearing. The allotment of such land should be in the name of the woman or in the joint names of both husband and wife. Tamil Nadu's recent example of allocation of land to the landless deserves to be studied and emulated throughout the country.

1.4.3 Water

1.4.3.1 Water is a public good and social resource and not private property. Priority should be given to evolving just and equitable mechanisms to give access to water and to include local people in management of water resources. Women must have a significant

role in both access and management, as water users and managers. Irrigation water at the right time and in adequate quantities is now becoming a serious constraint in achieving both higher productivity and stability of farming in many parts of the country. *Jal Swaraj or self-sufficiency in irrigation water availability is the need of the hour.* Though the total rainfall in our country is satisfactory, its distribution is highly skewed, with most of the rainfall occurring in 100 hours in a year. It is also important to note that the majority of farmers depend on groundwater for irrigating their crops. This resource, in which farmers have invested their hard-earned savings, is today increasingly depleted with groundwater tables declining. Therefore rainwater harvesting and aquifer recharge have become essential for ensuring the stability of supply. A nationally debated and accepted strategy for bringing 10 million hectares of new area under irrigation under the Bharat Nirman programme should be developed. Only dialogue and consensus building can reconcile different viewpoints regarding the development of large-scale water projects.

1.4.3.2 There is considerable scope for improving the efficiency of water use. It has been calculated that even a 10% increase in the present level of water use efficiency in irrigated projects may help to provide crop life saving irrigation in large areas. Higher efficiency can be achieved by generating synergy among water, variety, nutrients (macro and micro) and farm implements. The concept of maximizing yield and income per unit of water should become internalized in all crop production programmes.

1.4.3.3 Water quality also needs attention since water often gets polluted at source with fertilizers, pesticide residues and toxic chemicals. For example, the problem of arsenic poisoning in ground water continues because people residing in regions blessed with abundant surface water such as West Bengal increasingly depend on the groundwater for drinking and irrigation purposes. This dependency can be removed by making available other safe drinking water options. Effective management of surface water including rivers, canals, water bodies, lakes, ponds and rainwater can reduce groundwater dependency.

1.4.3.4 Besides problems relating to adequacy and quality, there are serious issues concerning equity in water distribution. The privatization of water supply distribution is fraught with dangers and could lead to water conflicts in local communities.

1.4.3.5 **The following steps are needed for supply augmentation and demand management:**

- i) Rainwater harvesting and aquifer recharge should be mandatory and farmers must be provided with financial assistance to invest in the replenishment of their renewable resource. This is the imperative need for conservation farming.
- ii) All existing wells and ponds should be renovated.
- iii) Demand management through improved irrigation practices, including sprinkler and drip irrigation, should receive priority attention.
- iv) A Water Literacy movement should be launched and regulations should be developed for the sustainable use of ground water.
- v) The conjunctive use of rain, river, ground, sea, and treated sewage water should become the principal method for the effective use of available water resources and for increasing income per every drop of water.
- vi) In water scarce areas, the land use system should place emphasis on the cultivation of high value – low water requiring crops, such as pulses and oilseeds.
- vii) **A Pani Panchayat** in every village can help in getting the available water distributed on an equitable basis.
- viii) Where large scale dislocation of families living in the areas which will be submerged as a result of the construction of large dams or linking of rivers is likely, the Gram Sabhas of the affected villages should be involved in the preparation of rehabilitation plans. This should be done at the time the large dam or other steps like the interlinking of rivers are on the drawing board.

1.4.3.6 Water Users' Associations may be encouraged to gain expertise in maximizing the benefits of the available water. The National Rainfed Area Authority could help in promoting scientific water harvesting, sustainable and equitable use and the introduction of efficient methods of water use. There should be symbiotic interaction between the National Rainfed Area Authority, the National Horticulture Mission, the Technology Missions in oilseeds and pulses and the National Rural Employment Guarantee Programme.

1.4.3.7 Monsoon behaviour is often erratic. In drought prone areas, a **Drought Code** may be introduced which details the action needed to minimize the impact of an adverse monsoon and maximize the benefits of a good season. Similarly, in areas prone to heavy rainfall, a **Flood Code** may be introduced which will again mitigate distress and help convert the flood-free season into a major agricultural production period. In the arid areas of Rajasthan, a **Good Weather Code** may be introduced for taking advantage of occasional heavy rainfall for strengthening the ecological infrastructure essential for sustainable livestock production, drinking water security and sand dune stabilization. The National Rainfed Area Authority could provide technical leadership in the integrated preparation and application of Drought, Flood and Good Weather Codes.

1.4.4 Livestock

1.4.4.1 Livestock, including poultry, is the second major land-based livelihood, contributing 26% of the agricultural GDP in 2004-05. **It is clear that livestock and livelihoods are very intimately related in our country and that crop-livestock integrated farming is the pathway to farmers' well being.**

1.4.4.2 The ownership of livestock is much more egalitarian since resource poor farmer families own a majority of cattle, buffalo, sheep and goats. Women play a critical role in the care and management of livestock, but may not have ownership rights, and hence the cooperative model of production should be encouraged. The major constraints experienced by such families relate to fodder, feed, healthcare and remunerative price. There is an urgent need for establishing **Livestock Feed and Fodder Corporations at the State Level** for ensuring availability of quality fodder and feed. Such a Corporation

should be a facilitating body for providing seeds and planting material of improved varieties to Self-help Groups (SHGs) for local level production. The productivity of our livestock is low and can be easily improved through better nutrition and healthcare. Agri-clinics operated by veterinary and farm science graduates will be very helpful to enhance the income of livestock owners through higher productivity. At the same time, crop-livestock integrated farming systems should be promoted since this will not only help improve income and household nutritional security, but also facilitate organic farming. Livestock insurance also needs revamping and should be made accessible to small livestock owners.

1.4.4.3 A **National Livestock Development Council** may be established to give integrated attention to all aspects of this important sector, such as breeding policy, feed and fodder, healthcare through Para-veterinary professionals, marketing, value addition, biomass utilization (skin, bones and blood) and efficient use of animal energy, for example, through improved bullock carts.

1.4.4.4 In the case of poultry, the following steps are needed:

- i) **Quarantine and testing facilities at all ports of entry should be established and strengthened** as such safeguards are absolutely necessary for the health and survival of the poultry industry and for the protection of lives and livelihoods.
- ii) A 100% quarantine of all imported birds for a minimum period of six weeks should be enforced as done in other countries.
- iii) Testing for safety and efficacy of imported poultry vaccines before they are allowed to be marketed as is done in the case of human vaccines, should be made compulsory.
- iv) Poultry rearing should be recognized as an agricultural activity and appropriate support should be provided to backyard poultry farmers to establish Small Holders' Poultry Estates.

1.4.5 Fisheries

1.4.5.1 Both coastal and inland fisheries provide employment and livelihoods to millions of families. There is considerable scope for improving the income of fisher families on an environmentally sustainable basis by introducing Integrated Coastal Zone Management and scientific fish rearing, harvesting and processing. In the area of public policy, there is need for well-planned **Aquarian Reforms** in order to provide landless labour families access to village ponds and other water bodies in the public domain for aquaculture.

1.4.5.2 The establishment of a **National Fisheries Development Board** (NFDB) is a welcome step. The guiding principles for the NFDB should be ecology, economics, gender equity and employment generation. Such a Board should have representatives of fisher communities engaged in the capture and culture aspects of fish farming. It should set up an interdisciplinary Task Force for preparing guidelines for aquarian reforms. In addition, resolution of conflicts in areas such as the following deserves urgent attention from the NFDB:

- i) Conflicts between mechanized and artesinal fishing enterprises.
- ii) Conflicts between aquaculturists and agriculturists as well as local population over salt water entering into the aquifer, and pollution caused by intensive systems of aquaculture.
- iii) Lack of well-defined policies for the allocation of ponds and reservoirs to landless labour and *dalit* families for practising modern aquaculture based on composite fish farming.
- iv) Concerns of environmentalists in the areas of sea weed farming and introduction of exotic carps and other alien invasive species.

1.4.5.3 Aquarian reforms should enable resource poor fisher and labour families to earn their livelihood from capture and culture fisheries in a sustainable manner. Other aspects of policy that need attention are:

- i) **“Fish for All Training and Capacity Building Centres”** which can impart training to fisher families in all aspects of the capture/culture–consumption chain.
- ii) Quality literacy to safeguard the harvested fish from *Salmonella* and other infections capable of producing mycotoxins.
- iii) Mother Ships, which can ensure hygienic handling of the catch in mid-ocean.
- iv) Small-size dredgers for ensuring the efficiency of fish landing centres.
- v) Centralized services to support the decentralized capture and culture fisheries sectors.
- vi) Special attention to the training needs of fisher women who handle the harvested catch.
- vii) Inland aquaculture, including the culture of ornamental fish and air breathing fish, for additional income by providing necessary space in ponds and reservoirs.
- viii) Artificial coral reefs to compensate for the loss of natural coral reefs to revive the fish catch.
- ix) Integrated Coastal Zone Management Policy should pay concurrent attention to the management of about 10 km of land surface and 10 km of sea surface from the shoreline to ensure that land-based occupations do not cause damage to ocean fisheries as a result of release of effluents and other pollutants.
- x) The coastal communities can also be enabled to raise bioshields comprising mangroves, *casuarina*, *salicornia*, *atriplex* and other halophytic plants, to safeguard the lives and livelihoods of coastal fisher and farm families in the event of cyclonic storms and seawater inundation, as for example like the one caused by **tsunami of December 26, 2004**.
- xi) The National Aquaculture Authority and the NFDB should work together, so that capture fisheries and aquaculture become mutually reinforcing in improving the economic well-being of fisher families and the nutritional well-

being of consumers. In all structures, the special needs and concerns of women should be included and they be given representation.

- xii) Fisher families can be trained to take up additional income-earning activities like poultry farming, fish pickle preparation, agar production, pearl oyster culture and other enterprises.

1.4.5.4 There is also need for a dynamic policy for the management and economic use of the Exclusive Economics Zone (EEZ) extending to nearly 2 million sq km of sea surface, which amounts to two-thirds of the land surface available to India. This can be a priority task of the NFDB.

1.4.6 Bioresources

1.4.6.1 Bioresources refer to the abundant wealth of flora and fauna including soil microflora and microfauna, which after land and water forms the third important natural resource available to farmers. The aim of the policy is to conserve as well as enhance these resources, to provide equitable access and lead to sustainable use with equitable sharing of benefits. Two major legislations are now in place to achieve some of the above aims.

1.4.6.2 The Plant Variety Protection and Farmers' Rights Act (PVPFR) was enacted in 2001. The Act recognizes the multiple roles of farmers as cultivators, conservers and breeders. Detailed guidelines should be developed for ensuring that the rights of farmers in their various roles are safeguarded. For example, most farmers who are cultivators are entitled to "Plant Back Rights". This implies that they can keep their own seeds and also enter into limited exchange in their vicinity. Farmers as breeders have the same rights as professional breeders and they can enter their varieties for registration and protection. Farmers as conservers are entitled to recognition and reward from both the National Gene Fund and the National Biodiversity Fund. Quite often, the conserved material of great value is the contribution of a community and not an individual. **Therefore the procedures adopted should be such that community contributions can be recognized and suitably rewarded.** The Gene and Biodiversity Funds should be used exclusively

for recognizing and rewarding the contributions of tribal and rural women and men and for supporting the revitalization of the *in situ* on-farm conservation traditions of such communities.

1.4.6.3 Breeders should be required to indicate in the pedigree of the variety for which they are seeking protection, the names of the landraces and the areas from where they were collected, while submitting their application for registration.

1.4.6.4 The provisions in the Biodiversity Act (2002) for prior informed consent and benefit sharing are equally important for tribal and rural women and men. Invariably, much of the conservation work has been and is being done by women. Therefore the recognition procedures should take into account gender roles in the conservation and enhancement of bioresources. The gender mainstreaming of the implementation procedures of both the Acts is important. A gender audit provision may be introduced in the operation of both the Gene and Biodiversity Funds.

1.4.6.5 The following should be promoted:

- i) Documentation of Traditional Knowledge (TK) should be done through Community Biodiversity Registers with the involvement of women, who hold much of this knowledge.
- ii) Tribal and rural women and men should get support in revitalising their *in situ* on-farm conservation traditions.
- iii) Participatory breeding procedures involving scientists and local conservers would be particularly helpful in improving the productivity of landraces.
- iv) Genetic engineers working in public good institutions should perform the role of pre-breeding, i.e., development of novel genetic combinations for important economic traits, such as resistance to biotic and abiotic stresses. They should then work with farmers in participatory breeding programmes, so that genetic efficiency and genetic diversity can be integrated in an effective manner.

- v) Genetic homogeneity enhances genetic vulnerability to pests and diseases, so the integration of pre-breeding and participatory breeding would help insulate small farmers from the risks of pest epidemics.
- vi) A **genetic and legal literacy** movement must be launched in areas rich in agro biodiversity such as the North East, Western and Eastern Ghats and the Arid Zone.
- vii) **Genome Clubs** can be organized in rural schools and colleges for imparting an understanding of the importance of genetic resources conservation.
- viii) Legal literacy would help tribal and rural families understand the provisions of the PVPFR and Biodiversity Acts with reference to their entitlements.
- ix) Farm and tribal families should be trained in methods of preventing gene erosion.
- x) Coastal biodiversity, including coral reefs and sea grass beds is also in urgent need of conservation.
- xi) Traditional methods of conservation like Sacred Groves need to be supported and encouraged.
- xii) Herbal Biovalleys can be organized in the Western Ghats, Eastern Ghats, Vindhyas and Himalayan region for the conservation and sustainable use of medicinal plants. In such Biovalleys, young farm women and men could be assisted through a form of venture capital and other support to take to the conservation, selection and multiplication of medicinal plants of value to health security.
- xiii) A nationwide programme needs to be launched for the *ex situ* and *in situ* conservation of plant genetic resources at the field/farmer level. Farmer level Gene/Seed banks need to be set up in areas where traditional varieties are in danger of extinction. Some State Governments are promoting a “Seed Exchange Programme” under which farmers are given hybrid rice in exchange for their traditional rice varieties. There is need to ensure that in this process, the traditional rice gene pool is not lost. Participatory management of National Parks, Biosphere Reserves and Gene Sanctuaries should be promoted.

1.4.7 Animal Genetic Resources

1.4.7.1 The burden of conservation of genetic resources cannot be allowed to fall on the largely impoverished communities which maintain animal genetic diversity. A system of rewards and incentives must be developed to enable and motivate people to conserve their breeds under the Biodiversity Act. The Biodiversity Fund should be used for such purposes. Livestock keepers' inherent rights to continue to use and develop their own breeding stock and breeding practices should be acknowledged. The government must recognise these rights, acknowledge livestock keepers' contribution to the national economy, and adapt its policies and legal frameworks accordingly. This is particularly important to pre-empt attempts to use the intellectual property system to obtain control over animal resources which are an important component of the country's food and livelihood security systems.

1.4.7.2 Apart from conserving genetic diversity and acknowledging the vital role of livestock keepers, there is a need to document the indigenous knowledge of pastoral communities about animal maintenance and breeding. Community-based conservation and development of indigenous livestock breeds and species should be encouraged, with a special focus on both hot and cold arid and semiarid areas where the genetic diversity and associated indigenous knowledge are particularly well developed. State Farms could be used to promote *in situ* conservation of animal breeds, even those that are amenable to *ex situ* conservation. Grazing lands must be earmarked to enable the conservation of animal genetic resources. Documentation of special traits should be done in the context of the new biology and new nutritional needs or for other economic traits like hide/ leather quality. Offshore Quarantine Centres should be developed for screening germplasm for resistance to serious diseases like the H5N1 strain of avian influenza virus.

1.4.7.3 In Brazil and other Latin American countries as well as in Africa, there is a demand for Indian breeds of cattle and buffaloes. Animal Science Graduates and SHGs may be encouraged to maintain pedigree animals of these breeds for the purpose of developing export opportunities. However, export of all biological material including animals should be done in strict accordance with the provisions of the Biodiversity Act.

1.5 Support Services

1.5.1 Science and Technology

1.5.1.1 Science and Technology are the drivers of change in farm operations and output. New technologies, which can help enhance productivity per unit of land and water, are needed for overcoming the prevailing technology fatigue. Frontier technologies like biotechnology, information and communication technology (ICT), renewable energy technologies, space applications and nanotechnology provide opportunities for launching an “evergreen revolution” capable of improving productivity in perpetuity without ecological harm. Similarly, the use of remote sensing technology can help identify borewell sites on farmers’ fields. In order to ensure social inclusion in access to new technologies, public investment in socially relevant agricultural research should be stepped up under the umbrella of the National Agricultural Research System (NARS), which comprises large numbers of ICAR institutions, State Agricultural Universities, All India Coordinated Research Projects and National Bureaus. NGO and private sector R & D institutions should also be included under the NARS umbrella.

1.5.1.2 The research strategy should be pro-nature and pro-small farmer. For example, in the case of Bt cotton, public good institutions should concentrate on developing varieties rather than hybrids, so that farmers can keep their own seeds. Even now 80% of the seeds used in agriculture come from farmer-seed systems. Community managed Seed Villages and Seed Technology Training Centres are needed, with women playing the major role because of their traditional knowledge of seeds and seed management, especially in tribal communities. Scientific literacy and removing doubts and fears about the risks and benefits associated with biotechnology and other new technologies can be done by one woman and man selected by each Panchayat and trained with the help of agricultural / animal sciences universities. They will serve as Farm Science Managers in their respective villages.

1.5.1.3 The safe and responsible use of recombinant DNA technology or genetic engineering will need credible and capable regulatory mechanisms. A National Biotechnology Regulatory Authority should be set up for this purpose, with farmers’

representatives on it. It should be autonomous and professionally-led so that risks and benefits can be assessed objectively. **The bottom line for any biotechnology regulatory policy should be:**

- i) The safety of the environment
- ii) The well-being of farming families
- iii) The ecological and economic sustainability of farming systems
- iv) The health and nutrition security of consumers
- v) Safeguarding of home and external trade, and
- vi) The biosecurity of the nation.

1.5.1.4 There is urgent need for stepping up breeding crop varieties, particularly fruits and vegetables, for processing quality. Also, research on breeding crops for high yield in an environmentally safe manner needs strengthening.

1.5.1.5 Organic farming requires greater scientific inputs than chemical farming. Hence, this area of research needs high-level multidisciplinary attention. Farmers feel the need for technological guidance, but research work based on careful field experiments is currently inadequate. Crop-livestock-cum-fish integrated production systems offer scope for the adoption of the principles and methods of organic farming.

1.5.1.6 In intensively cultivated mono-crop areas, crop diversification may be beneficial from the points of view of ecology, economics and employment generation. **However, steps to ensure effective market support for the alternative crops must accompany any advice on crop diversification.** In planning for crop diversification, particularly from food to non-food crops, such as for the production of biofuels, the food security of the nation should be kept in view.

1.5.1.7 Intellectual Property Rights (IPR) policies should make provision for compulsory licensing of rights in the cases of research products and processes of value to

resource-poor farming families. In all cases of health and food security, social inclusion should be the guiding factor in the development of IPR.

1.5.2 Agricultural Biosecurity

1.5.2.1 Agricultural Biosecurity covering crops, trees and farm and aquatic animals is of great importance since it relates both to the work and income security of 70% of the population, and food and trade security of the nation. The **National Agricultural Biosecurity System (NABS)** should have the following aims:

- i) Safeguard the income and livelihood security of farmer families, as well as the food, health and trade security of the nation, through effective and integrated surveillance, vigilance, prevention and control mechanisms designed to protect the productivity and safety of crops, farm animals, fishes and forest trees.
- ii) Enhance national and local level capacity in initiating proactive measures in the areas of monitoring, early warning, education, research, control and international co-operation
- iii) Introduce an integrated biosecurity package comprising regulatory measures, education, improved sanitary and phytosanitary measures and social mobilization.
- iv) Organize a coordinated **National Agricultural Biosecurity Programme** on a hub and spokes model, with effective home and regional quarantine facilities capable of insulating the major agro-ecological and farming systems zones of the country from invasive alien species of pests, pathogens and weeds as well as from the introduction and release of GMOs.

1.5.2.2 The NABS should have the following three mutually reinforcing components:

- i) **National Agricultural Biosecurity Council (NABC)**, chaired by the Union Minister for Agriculture, to serve as the apex policymaking and coordinating body

- ii) **National Centre for Agricultural Biosecurity (NCAB)**, with four wings dealing with crops, farm animals, living aquatic resources and agriculturally important micro-organisms. It should be concerned with analysis, aversion and management of risks, as well as the operation of an early warning system. The NCAB will provide the Secretariat for the NABC.
- iii) **National Agricultural Biosecurity Network (NABN)**: The NCAB will also serve as the coordinating and facilitating center for a National Agricultural Biosecurity Network designed to facilitate scientific partnerships among the existing institutions in the public, private, academic and civil society sectors engaged in biomonitoring, biosafety, quarantine and other biosecurity programmes to maximize the benefits available to scientific expertise and institutional strengths.

1.5.3 **Agro-meteorology**

1.5.3.1 The national capacity in short, medium and long-term weather forecasting is quite considerable. Generic information about weather has to be turned into location-specific land use advice, based on cropping patterns and water availability. Panchayat level Farm Science Managers, trained to give appropriate land use suggestions, can use the Agro-meteorological Advisories issued by Indian Agromet Advisory Service Centre, Pune. There should be a **National Land Use Advisory Service** that gives proactive advice to help farm families plan their sowing based on anticipated meteorological and marketing factors. In the case of marine fisheries, data available on wave heights and location of fish shoals should be transmitted to the fishermen before they move into the sea. An integrated internet-FM or HAM radio service would be very helpful to fishermen on the high seas.

1.5.4 **Climate Change**

1.5.4.1 Climate change leading to adverse changes in temperature, precipitation and sea level is no longer just a theoretical possibility. Most experts agree that we are already beginning to experience the impact of global warming as evident from the melting of glaciers and Antarctic and Arctic ice caps. Coastal storms and cyclones are also

increasing in frequency and intensity. Droughts and floods are likely to be more frequent. Although climate change is a product of the unsustainable consumption of non-renewable forms of energy by industrialized countries, the harmful impact of climate change will be felt more by poor nations, and the poor in all nations, due to their limited coping capacity. Proactive measures to reduce the vulnerability to climate change have to be developed. Based on computer simulation models, contingency plans and alternative land and water use strategies will have to be developed for each major agro-climatic zone. In drought and flood prone areas, experienced farm women and men can be trained as “Climate Managers”, in the art of managing drought, flood and aberrant monsoons.

1.5.5 Inputs and Services

- i) **Seeds:** Good quality seeds and disease free planting material, including in vitro cultured propagules, are essential for crop productivity and security. Hybrids are now becoming available in many crops. Women SHGs can produce hybrid seeds on contract for seed companies, with proper technical guidance and training in seed technology. In the case of new varieties, foundation seeds could be provided to SHGs. Mutually beneficial farmer-seed company partnerships can be fostered. Agricultural Universities should organize courses on Seed Technology and Business and mainstream business principles in all applied courses.
- ii) **Soil Health: Soil Health Enhancement holds the key to raising small farm productivity.** Every farm family should be issued with a Soil Health Passbook, which contains integrated information on the physics, chemistry and microbiology of the soils on their farm. More laboratories to detect specific micronutrient deficiencies in soils are urgently needed. Soil organic matter control will have to be increased by incorporating crop residues in the soil. Proper technical advice on the reclamation of wastelands and on improving their biological potential should be available. Pricing policies should promote a balanced and efficient use of fertilizers.

- iii) **Pesticides:** The triple alliance of pests, pathogens and weeds causes crop losses ranging from 10 to 30 per cent every year. The development, introduction and diffusion of environmentally safe and effective pesticides should be given priority. There is need for incorporating the use of chemical pesticides in an Integrated Pest Management (IPM) system. Farmers need training in crop care and IPM. Suitable quality control, safety evaluation and other regulatory systems should be strengthened. The sale of spurious and substandard pesticides should be prevented. Botanic pesticides should be promoted. In each block, breeders, farmers, pesticide manufacturers and extension personnel could form a Crop Care Consortium.
- iv) **Implements:** Small farmers need implements for timely sowing, management of weeds and improved post-harvest technology. This need is particularly great in hill areas. Women especially need women-friendly implements / tools which can reduce drudgery, save time and enhance output and can be handled comfortably. Farm graduates can provide tractors and other larger farm implements on a custom-hire basis by organizing Agri-business Centres.
- v) **Vaccines and Sero-diagnostics:** Major gaps in the facilities presently available will have to be filled in the case of important animal diseases. Biotechnology research in the area of vaccine development needs to be stepped up. Public-private partnerships should be encouraged in this area.
- vi) **Fish Seed and Feed:** Good quality and disease-free fish seed holds the key to successful inland aquaculture. SHGs could be trained in induced breeding and fish seed production. Feed at affordable prices is another requirement. Fish farmers' cooperatives could organize the production of both feed and seed, with technical assistance from the National Fisheries Development Board.
- vii) **Animal Feed:** Inadequate nutrition is the primary cause of low milk yield in dairy animals; where both under-nutrition and malnutrition can be seen. Annual milk production in the country can reach over hundred million tonnes if the nutritional requirements of cows and buffaloes are met. Here both conventional and non-conventional approaches are needed. Many of the

cellulosic wastes can be converted into good animal feed through appropriate treatment and enrichment. Planting of nutrition rich fodder plants should receive high priority. Established technologies such as baling and ensiling, need to be disseminated widely.

- viii) Other essential support services needed for higher farm animal productivity are: establishing genetic evaluation systems for indigenous breeds as well as crosses, so that selection can lead to genetic improvement of production characteristics; upgrading of breed through artificial insemination; cross breeding suited to the farmers' resources; and improved processing and marketing. The livestock sector has to become sanitary and phytosanitary compliant. A cadre of Para-veterinarians will have to be trained. They will help promote early detection and treatment of diseases and other veterinary services.
- ix) The Wildlife Protection Act, 1972, should permit the right of farmers to protect their crops by killing wild boars and *nilgai*, whenever there is no other option for saving crops.
- x) Free grazing of cattle during the *rabi* season is a major bottleneck to farmers for the taking of a second crop and should be curtailed by the Gram Panchayat.
- xi) **Support Services for Women:** Women suffer from a multiple burden on their time due to their home making, child rearing, and income earning responsibilities. When they work the whole day in fields and forests, they need appropriate support services like crèches and child care centres. Adequate nutrition is also important. A **Gram Panchayat Mahila Fund** should be established to enable SHGs and other women's groups to undertake community activities that help to meet essential gender-specific needs. The feminisation of agriculture, due to male out-migration, needs specific attention with reference to gender-sensitive farm and credit policies. All research, development and extension programmes in agriculture, and all services must be engendered

1.5.6 Credit and Insurance

1.5.6.1 The need is to improve the outreach and efficiency of the rural banking system. The financial services must reach all its users effectively; the credit must be in time, in required quantities and at appropriate interest rate. The interest rate should be as low as possible. It should be possible to bring about a reduction in transaction cost by eliminating all forms of waste and inefficiency in the operation of the banking system. The inefficiencies of the delivery system should not be loaded on the interest charged. The delivery system has to be proactive and should respond to the financial needs of clients in the rural areas. The banking system needs to explore the large unmet credit potential needed to raise agriculture to higher thresholds, and for the growth of rural and agri-business enterprises and employment.

1.5.6.2 The State has a responsibility towards improving the credit absorptive capacity of the farmers and to support the banking system by creating favourable environment for expanding and deepening of financial services.

1.5.6.3 NABARD as the leader of agriculture and rural credit should ensure, convergence between credit availability and credit absorptive capacity of the farmers and other rural borrowers, and an efficient credit delivery system. NABARD should actively involve itself in institution building and provide backup support through research and development initiatives. NABARD should function like a National Bank for Farmers. There is a need for a fresh look at its mandate, role and business model after about 25 years of its establishment and vastly changed circumstances.

1.5.6.4 The Reserve Bank and Government of India have to broadly assign the roles and responsibilities to different agencies in the multi-agency system and ensure implementation of their policies and programmes. There is a **need for an Agriculture Credit Policy**. The credit cooperatives have an important position in the rural financial system and priority should be given to the implementation of the recommendations of the Vaidyanathan Committee.

1.5.6.5 Agriculture is a high-risk economic activity. Credit without insurance is an added risk factor. Farmers need user-friendly insurance instruments covering production, right from sowing to post-harvest operations and also to cover the market risks for all crops throughout the country, in order to insulate them from financial distress and in the process make agriculture financially viable. Satellite imagery and agro-climatic analyses can play a significant role in evaluating the extent of crop losses and thus speed up the process of settling claims.

1.5.6.6 There is a need for both credit and insurance literacy in villages. *Gyan Chaupals* can help in this task.

1.5.6.7 Women need special attention because of their lack of land title/collateral. Kisan Credit Cards should be issued to women speedily with joint *pattas* to house / agricultural land as collateral. Till then, indemnity bonds/guarantees should be accepted from husband, male relatives and prominent local figures.

1.5.6.8 Drought prone areas should have a 4-5 year repayment cycle for crop loans, taking into account the management of risk.

1.5.7 Cooperatives

1.5.7.1 Besides their role in production, cooperatives have an important role to play in banking, marketing, agro-processing and other agri-businesses, to protect the farmers from the vagaries of existing imperfections in the supply of inputs, production, value addition and marketing. Cooperatives are basically economic enterprises [not an extended arm of the State]. They require entrepreneurial approach, gather competitive edge through suitable enterprise focus and form suitable strategic alliances with private and public sector units. The need is to find means and measures by which farmers can obtain greater control of the market channels and improve their chances of profit.

1.5.7.2 The policy and legal framework under which cooperatives are functioning need to be reviewed so as to create an enabling environment for them to attain autonomy and run their operations in business-like fashion without rigid controls and regulations

imposed by the State laws. They have to become voluntary, member-driven, autonomous and largely self-regulating organisations working on the principles of self-help. The management of the cooperatives needs to be professionalized with clear demarcation of functions of the elected members and the professional managers. The audit and accounting systems have to be improved and made transparent so as to give greater confidence to all those who are associated with them.

1.5.7.3 With economic liberalization and market competitiveness, cooperatives would require much larger capital and other financial resources. The changes in legal framework and regulatory system would help gain greater access to capital/financial resources.

1.5.8 Extension, Training and Knowledge Connectivity

1.5.8.1 There is a growing gap between scientific know-how and field level do-how. This knowledge deficit should be overcome speedily in order to enhance the productivity and profitability of small farms and launch a Small Farm Management Revolution. Post-harvest technology wings must be added to Krishi Vigyan Kendras urgently and lab to land demonstrations in the area of post-harvest technology, agro-processing and value addition to primary products must be taken up to provide skilled jobs in villages to landless labour families. In addition to the retraining and retooling of existing extension personnel, there is a need to promote farmer to farmer learning. For this purpose, Farm Schools may be established in the fields of outstanding farmers and awardees of nationally recognized awards for farmers. Farmer-to-farmer learning can speed up the process of technological upgrading of crop and animal husbandry, fisheries and agro-forestry. Farm Schools can also be set up in the fields of eminent horticulturists including those who are raising organic vegetables and fruits and tissue culture propagated planting material.

1.5.8.2 The help of ICT should be harnessed by establishing a *Gyan Chaupal* in every village. The Common Service Centre (CSC) programme of the Department of Information Technology (DIT), Government of India, should aim at social inclusion in the use of this important technology. The structure of the ICT based knowledge system will be as follows:

- i) **Block level:** Village Resource Centre (VRC) established with the help of the Indian Space Research Organisation.
- ii) **Village level:** *Gyan Chaupals* established with the help of the CSC Programme of the D I T.
- iii) **Last mile and the last person connectivity:** This can be accomplished through either internet – community radio or internet – mobile phone synergy.

1.5.8.3 Empowering rural women and men with the right information at the right time and place is essential for improving the efficiency and economics of small scale agriculture. Mass media, particularly the radio, television and local language newspapers, have an important role to play in this area.

1.5.9 Social Security

1.5.9.1 Coverage of farmers, particularly small and marginal farmers and landless agricultural workers, under a comprehensive National Social Security Scheme is essential for ensuring livelihood security. Such a scheme should take care of expenses upto a ceiling for hospitalization in case of illness of a family member, maternity, life insurance and old age pension. This should also include protection from occupational hazards. In addition, the subsistence allowance for fisher families during the “closed season” period should be at least Rs.1500 per month. The Government should take necessary action to have such a comprehensive scheme in place for the farmers in unorganized sector in order to ensure the livelihood security of farm families. At the very minimum, the recommendations of the Arjun Sengupta Commission for Enterprises in the Unorganised Sector may be suitably adapted to the needs of farmer families.

1.5.10 Assured and Remunerative Marketing Opportunities

1.5.10.1 Assured and remunerative marketing opportunities hold the key to continued progress in enhancing farm productivity and profitability. The Union Ministry of Agriculture has already initiated several significant market reforms. The State Governments will have to undertake such reforms speedily in order to provide more options to the farmers for selling their produce, allowing the private sector, including the

cooperatives, to develop markets, promote direct sales to consumers and remove bottlenecks and scope for corruption and harassment. What farmers seek is greater protection from market fluctuations. Important steps needed are:

- i) The Minimum Support Price (MSP) mechanism has to be developed, protected and implemented effectively across the country. MSP of crops needs to keep pace with the rising input costs.
- ii) The Market Intervention Scheme (MIS) should respond speedily to exigencies especially in the case of sensitive crops in the rainfed areas.
- iii) The establishment of Community Foodgrain Banks would help in the marketing of underutilized crops and thereby generate an economic stake in the conservation of agro-biodiversity.
- iv) Indian farmers can produce a wide range of health foods and herbal medicines and market them under strict quality control and certification procedures.
- v) The Public Distribution System (PDS) **should be universal** and should undertake the task of enlarging the food security basket by storing and selling nutritious millets and other underutilized crops.

1.5.10.2 Farmers require authentic advice based on meteorological, marketing and management information for land use decisions and investments. Restructured Land Use Boards supported by a team of technical experts/agencies should render this service. Infrastructure support has to be put in place to minimize post-harvest losses and enable agro-processing and value addition at the village level itself to increase jobs and income. The collective strength of farmers has to be built up by encouraging farmers' organizations and other entities like cooperatives and small farmers' estates so that they can get a fair deal and enjoy the economies and power of scale. Farmers, particularly the small and marginal ones, need pledge loans to be able to avoid distress sale and sell their produce when the price is favourable. Constraints in improving the negotiability of warehouse receipts also need to be removed.

1.5.10.3 There is need for an Indian Trade Organisation (ITO), that will safeguard the interests of farmer families by establishing a Livelihood Security Box to ensure fair trade. The Livelihood Security Box should have provision to impose quantitative restrictions on imports and or/increases in import tariffs, under conditions where imports of certain commodities will be detrimental to the work and income security of large numbers of farming families. It should be emphasized that **there is no level playing field between the capital, subsidy and technology driven mass production agriculture** of the industrialized countries, and the “**production by masses**” agriculture of India characterized by weak support services, heavy debt and “resource and technology poverty”. An **Indian Single Market** will also help to promote farmer-friendly home markets. The bottom line of our trade policies in agriculture should be the economic well-being and livelihood security of agricultural families. Nothing should be done that will destroy job opportunities in rural India.

1.5.10.4 In relation to commodities that are exported, it will be essential to conform to WTO regulations. At present, such commodities constitute about 7% of total agricultural production in the country. Quality and trade literacy programmes have to be launched across the country.

1.5.10.5 Farmers’ Associations and SHGs should be helped to export on competitive terms by spreading awareness of the opportunities available for external agricultural trade. The agri-export zones should be further strengthened and should become places where farmers will get the best possible price for their produce. The future of Indian agriculture will depend upon the efficiency and seriousness with which pro-farmer marketing systems are put in place.

1.5.10.6 The twin goals of ensuring justice to farmers in terms of a remunerative price for their produce, and to consumers in terms of a fair and affordable price for staples (65% of consumers are also farmers) can be achieved through the following integrated strategy:

- i) The MSP and procurement operations are two separate initiatives and should be operated as such. The Government needs to ensure that both the farmers

(who also constitute the majority of consumers) and the urban consumers get a fair deal. Due care should be taken of the cost escalation after the announcement of the MSP in its operationalisation. The Government should procure the staple grains needed for the PDS at the price private traders are willing to pay to farmers. Thus, the procurement prices could be higher than the MSP and would reflect market conditions. The MSP needs to be protected in all the regions across the country.

- ii) The food security basket should be widened to include the crops of the dry farming areas like *bajra, jowar, ragi, minor millets* and **pulses**. The PDS should include **these nutritious cereals and pulses purchased at a reasonable MSP**. This will be a win-win situation both for the dryland farmer and the consumer. **We will witness neither a second green revolution nor much progress in dryland farming unless farmers get assured and remunerative prices for their produce.**
- iii) Both universal PDS and enforcing MSP throughout the country for the selected crops are essential for imparting dynamism to agriculture.

1.5.10.7 The Commission on Agricultural Costs and Prices (CACP) should be an autonomous statutory organization with its primary mandate being the recommendation of remunerative prices for the principal agricultural commodities of both dry-farming and irrigated areas. The MSP should be at least 50% more than the weighted average cost of production. The “net take home income” of farmers should be comparable to those of civil servants. The CACP should become an important policy instrument for safeguarding the survival of farmers and farming. Suggestions for crop diversification should be preceded by assured market linkages. The Membership of the CACP should include a few practising farm women and men. The terms of reference and status of the CACP need review and appropriate revision.

1.6 Curriculum Reform

1.6.1 Agricultural / Animal Sciences Universities

1.6.1.1 The goal of these universities should be “**every scholar an entrepreneur**”. This will call for integrating business management principles with major applied courses. Also, the Farm Universities should engender their curricula in a manner that the relative roles of women and men in farming are recognized and they are equally empowered technologically. The Home Science Colleges of Universities should be restructured as **College of Human Sciences** with both male and female scholars mastering disciplines like nutrition and post-harvest technology. A network of **Regional Institutes on Food Safety and Security** needs to be set up to promote safe handling of food and a quality literacy movement in villages. This will also help to strengthen our capacity to deal with sanitary and phytosanitary measures and Codex Alimentarius standards of food safety.

1.6.1.2 A system for according recognition to Farm Graduates to provide extension and other services by recognizing them as **Registered Farm Practitioners** should be developed. An **All India Agricultural Council** on the model of the Medical and Veterinary Councils is required to give such accreditation, which will also be an oversight mechanism to ensure the quality and credibility of the services provided by farm practitioners. A few **Centres of Excellence in Agriculture** (Crop and Animal Husbandry, Fishery and Forestry) on the model of the IITs and IIMs, should be established to enhance competitiveness of the graduates. Taking into account the new opportunities opened up by ICT, new **pedagogic methodologies** should be introduced for promoting a learning revolution among our students. University centres should also establish employment and business advisory services and a special **one-stop window** for generating awareness on self-employment opportunities.

1.7 Special Categories of Farmers

1.7.1 Tribal Farmers

1.7.1.1 Scheduled Tribes account for 8.6% of the total population of the country. A majority of tribal communities across the country are dependent on forests and animal

husbandry for their livelihoods. These include cultivation (shifting cultivation in many cases), collection of fuel, fodder and a range of non-timber forest produce. Tribal farmers are among the most disadvantaged category of farmers.

1.7.1.2 These communities have customary norms for ownership of the forest areas and also have community-based mechanisms for protection and rejuvenation. At the same time, the responsibility for the protection and conservation of forests area has been under the control and administration of the State Forest Departments. There has been no systematic effort to demarcate areas that are used and managed by forest dwelling communities, or to provide legal rights and titles to these communities. The relation between the Forest Department and forest dwelling communities has largely been one of conflict and confrontation, with the latter being labelled 'encroachers'. Forest communities are often forced to eke out their livelihoods through a pattern of bribes and fines. Attempts towards Joint Forest Management have been successful in some States but are dispersed and have not generally been gender sensitive.

1.7.1.3 Large development projects, including dams and mines, have encroached upon vast tracts of forest areas and displaced several thousand forest dwelling communities who are still struggling to survive in the absence of human-centred rehabilitation efforts. In most instances, in the absence of land titles, their very existence is not acknowledged.

1.7.1.4 Management of forest areas in the country will have to balance the demands for ecological conservation with protecting the livelihoods of forest dwelling communities. The following steps will be helpful in this respect:

- i) A clear statement of rights relating to what has traditionally been the domain of forest dwellers (both tribal and non-tribal) including lands traditionally occupied and resources traditionally used.
- ii) A clear process by which legitimate land rightholders can be identified and recorded, and conversely, by which recent encroachers, and others who have

been taking advantage of forest dwellers for vested interest, can be identified and removed.

- iii) Explicit provisions to ensure conservation, including priority to provisions of wildlife/biodiversity/forest laws which are meant to ensure conservation, with special focus on protected areas and threatened species.
- iv) Strengthening changes in institutional structures to enable more participatory processes in decision-making.
- v) Explicit provisions that enable forest-dwelling communities to say 'no' to, or seek changes in, 'development' projects that are impinging on their lands and resources.
- vi) Provisions for regular and open processes of dialogue, consultation, and sharing of information, involving communities, NGOs, officials, and others.
- vii) Clear monitoring provisions that enable a constant check on whether the rights are being honoured or not, as also whether the exercise of rights is respecting conservation parameters.

1.7.1.5 An important area of conflict between people and protected areas is the problem of compensation for damage caused to livestock, crop or life by animals. States must review the provisions and procedures for compensation for human life, livestock and crop damage. Compensation must be paid to affected families who continue to live within the reserves also. The joint forest management programme in the vicinity of the reserves must be revamped so that people living on the fringes can be given management decisions and rights over the produce of forests; this will help to enhance the productivity of the resources as well.

1.7.1.6 Other issues are:

- i) Vesting of land in the community, absence of alienable rights with the farmers and the problems in creation of charge/mortgage on land in certain tribal areas constrain flow of institutional credit. The need is to develop innovative

methods of collateral substitution and documentation procedures to overcome the difficulties.

- ii) Tribal families have conserved rich agro-biodiversity. Many traditional crops are now disappearing. Both dying crops and dying wisdom will have to be saved by creating an economic stake in conservation.

1.7.2 Pastoralists

1.7.2.1 The Draft Scheduled Tribes (Recognition of Forest Rights) Bill, 2005 envisages, “rights of use or entitlements such as grazing in forests and traditional seasonal resource access of nomadic or pastoralist communities”. This Act is yet to be passed by Parliament. Many of the Joint Forest Management Committees are designed to provide opportunities to tribal families and pastoralists for access to non-timber forest products. The following steps are needed to ensure the livelihood rights of pastoralists:

- i) Restoration of traditional grazing rights and camping rights in forest areas including wildlife sanctuaries and national parks, and also those areas earmarked for grazing purpose in village common lands.
- ii) Formalizing entitlements (including issue of permanent grazing cards) for traditional pastoralists / herders maintaining native animal breeds to enable free access to notified or demarcated grazing sites and migration routes.
- iii) Whenever a tree planting programme is to be implemented, alternative grazing land and drinking water resources for animals should be allotted by the concerned authorities. It should be mandatory for the implementing agency before initiating afforestation to seek prior consent from forest dependent communities including pastoralists. Rotational system of grazing should be encouraged instead of complete closing of forest zones for tree plantation purpose.
- iv) In-depth documentation and characterization of indigenous livestock breeds should be carried out to recognize and protect the IPR of the local communities / individuals conserving these livestock breeds.

- v) Pastoralists should be involved in all local natural resource management programmes, including village forest committees.
- vi) Common land assigned to Forest Departments and unutilized or encroached land should be retrieved and brought under the control of village level committees or grassroots institutions for pasture development.

1.7.3 Other Categories:

1.7.3.1 Besides the above two groups, there are several small groups with distinct and special needs such as small plantation farmers, island farmers and urban farmers.

Plantation Labour

1.7.3.2 A large number of small farmers are engaged in the cultivation of plantation crops like tea, coffee, rubber, cardamom, pepper and vanilla. Price fluctuation and competition from products imported from abroad are among the major problems facing them. A Price Stabilization Fund will help insulate them from the vagaries of the market.

Island Farmers

1.7.3.3 The farming and fisher families in Andaman and Nicobar Islands and the Lakshadweep group of Islands need special attention including technology, training, techno-infrastructure and trade. Island agriculture also has the problem of transport costs, particularly for perishable commodities like fish which may have to be sold in the main land. Ancient tribes in the Andaman and Nicobar Islands have rich traditional knowledge and wisdom. Steps should be taken to recognize and reward their indigenous knowledge in the areas of biodiversity conservation and traditional healthcare. The islands are also ideal for horticulture including coconut plantation, but have special health problems. Therefore both the National Horticulture Mission and National Rural Health Mission should pay particular attention to the needs of island farmers and fishermen. The creation

of mangrove and non-mangrove based bioshields should be initiated to safeguard the lives and livelihoods of island populations in the event of sea level rise due to global warming and calamities like tsunami.

Urban Farmers

1.7.3.4 Urban home gardens could make a substantial contribution to improving nutrition security through the cultivation and consumption of vegetables and fruits. Home nutrition gardens could be designed for low income groups in such a manner as to provide horticultural remedies to major nutritional maladies. Support services in the form of good seeds and planting material and safe plant protection techniques will be needed. Urban slums need particular attention from the point of view of combating malnutrition through nutrition gardens.

1.8 Special Categories of Farming

1.8.1 Organic Farming

The organic farming movement in India suffers from lack of adequate institutional support in the areas of research, extension and marketing. Organic farming requires more scientific support than chemical farming. Krishi Vigyan Kendras should be equipped to provide training in organic agriculture. Internationally accepted certification procedures also need strengthening and must be farmer-friendly and affordable. Organic farming zones could be identified, like some of the hill areas and islands where currently chemical fertilizer use is very low, and for medicinal plants where the use of chemical pesticides and fertilizers is not advisable. Food safety and quality specifications should conform to the Codex Alimentarius standards since there are occasional reports of heavy metals being present in organic foods. Subsidies or loans similar to those given to farmers to buy chemical fertilizers / pesticides should be available for organic manures like farm yard manure, compost and biofertilizers and biopesticides also. Farmers engaged in organic farming should be linked to niche markets where they will obtain a premium price, in order to compensate for any loss in yield.

Farm graduates may be supported for establishing agri-clinics and agribusiness centres for organic farming.

1.8.2 Green Agriculture

Green Agriculture involving integrated pest management, integrated nutrient supply, scientific water management, integrated natural resources management and improved post harvest technology, is the pathway to an “Evergreen Revolution”. Unlike in organic farming, green agriculture permits the safe and minimal use of mineral fertilizers and chemical pesticides as well as crop varieties developed by genetic modification. Green agriculture products also should have distinct labelling as in the case of organic farming.

1.8.2 Genetically Modified (GM) crops

The establishment of a professionally-led National Biotechnology Regulatory Authority will help the assessment of risk and benefits associated with GM crops in a credible and transparent manner. It is important that priority is given in genetic modification to the incorporation of genes, which can help impart resistance to drought, salinity and other stresses. Water use efficiency as well as improvement of both nutritive and processing quality should also be accorded priority in the research agenda. The village-level Farm Science Managers to be trained in each Panchayat could be introduced to the agronomic management procedures in respect of GM crop varieties, such as the cultivation of a refuge of the old variety in order to prevent the loss of resistance in the GM variety caused by mutations in the pests and pathogens.

1.8.4 Protected (Greenhouse) Agriculture

With the rapid growth of horticulture, there is opportunity for green house cultivation of vegetables, fruits and flowers supported by economic methods of water and fertilizer use such as fertigation. Support may be given to farm and home science graduates to take to green house horticulture under the agribusiness programme and the National Horticulture Mission. Low cost green houses along with micro-irrigation and fertigation techniques may be popularized in areas where evaporation exceeds

precipitation during several months in a year. Suitable support should be given for such technologies, which can help to increase income in water deficit areas.

1.9 Special Regions

1.9.1 Distress Hotspots

Several steps have already been taken to mitigate agrarian distress and it is important that special attention is paid to such areas from the point of view of spreading low risk and low external input sustainable agricultural practices. Opportunity for remunerative marketing is a must. It is also important that in such areas, knowledge connectivity and social support systems are strengthened.

1.9.2 Megabiodiversity areas

Biodiversity rich areas occur in Western and Eastern Ghats and the eastern Himalayan region. Local communities should be involved in the conservation of megabiodiversity areas and their contributions should be appropriately recognized and rewarded. Steps should also be taken to enable local communities in megabiodiversity areas to convert bioresources into economic wealth in a sustainable manner. A movement for 'Biodiversity for Biohappiness', may be launched with the help of local research and educational institutions.

1.9.3 Islands

The Andaman and Nicobar Islands and the Lakshadweep Group of Islands offer great potential for improving the income of farmer families. Greater attention is needed to plantation crops and coconut, rainwater harvesting and agro-processing facilities. The coastal ecosystems rich in mangroves and coral reefs should be protected. The youth in such islands can be trained in the science and art of natural resources conservation and enhancement. Mixed cropping and crop-livestock integrated farming systems are ideal for such islands. The Lakshadweep group of islands can also be the home for offshore quarantine facilities.

1.10 Farmers of the future

1.10.1 The slow growth of opportunities in the non-farm employment sector has led to the proliferation of tiny and economically non-viable holdings. **Increase in small farm productivity and creating multiple livelihood opportunities through crop-livestock integrated farming systems as well as agro-processing and value addition to biomass have become urgent tasks for increasing farmers' income.** Methods of providing the power of scale to small farmers will have to be developed and popularized on a win-win basis for all concerned to enhance yield and income. Women can participate in such group activities only if they are given dignity of recognition as owners and farmers. The following are some of the methods that small and marginal farmers could consider for gaining in efficiency and economy:

- i) **Cooperative Farming and Service Cooperatives** – In the early 5-year Plan periods, there was much emphasis on cooperative farming. This did not take off due to both socio-cultural and policy hurdles. It is clear that small farm families will benefit from cooperation, even if they do not form cooperative societies. Service cooperatives have been successful in the case of the dairy industry. Marketing cooperatives are generally successful since members cooperate on the basis of enlightened self-interest. Other forms of service cooperatives are slowly emerging, but the pace needs to be accelerated. For example, there is scope for Irrigation Water Cooperatives which can operate community tube-wells and lift irrigation. Cooperative farming will be ideal for small and marginal farmers since the cooperative can provide centralized services like tractors and other farm equipment as well as threshing and drying machines, to support small scale decentralized production. This will bring down the cost of production and enhance the quality of produce and thereby of income. Instead of denying small farmers the many opportunities provided by cooperatives, the emphasis should be on the introduction of appropriate reforms to make cooperatives small farmer-friendly and efficient.
- ii) **Group Farming by Self-help Groups** – So far, SHGs have been mainly organized for supporting micro-enterprises operated by women with the help

of microcredit. With the growing diminution in the size of operational holdings, it will be useful to promote the SHGs at the production end of the farming enterprise by encouraging groups to lease farmland. This will be particularly helpful in the case of “Green Agriculture”. The SHGs will, however, become sustainable only if they have backward linkages with technology and credit and forward linkages with processing and marketing organizations. Also microcredit banks operated by the SHGs should be helped to become Sustainable Livelihood Banks.

- iii) **Small Holders’ Estates** – The formation of Small Holders’ Estates, for example in cotton, horticulture, medicinal plants, poultry and aquaculture will help promote group cooperation among farmers living in a village or watershed or the command area of an irrigation project. Improving productivity, reducing the cost of production and entering into marketing contracts with textile mills, food processing industries, pharmaceutical companies, and fish marketing agencies will be some of the advantages. Such Small Farmers’ Estates can also manufacture products under brand names and enhance income security so that group insurance becomes feasible. Agri-clinics and Agribusiness Centres could be linked to such Estates.
- iv) **Contract Farming** – Symbiotic contracts which confer benefits to both producers and purchasers, will be ideal for ensuring assured and remunerative marketing opportunities. At the moment, the Central and State Governments through organizations like Food Corporation of India (FCI), National Agricultural Cooperative Marketing Federation of India (NAFED, etc., ensure the operation of the MSP announced by the Government. Contract cultivation based on a well-defined Code of Conduct will be helpful to small producers in getting good quality input, a fair price and prompt payment for their produce. A **Code of Conduct for Contract Farming** will have to be developed for major groups of farm commodities such as vegetables, fruits, flowers, medicinal plants, tuber crops, pulses, oilseeds, sugarcane, cereals and cotton. A farmer should not be alienated from his/her land under any circumstance. **Available evidence indicates that direct contract between the producer**

and purchaser with the government, as third party for intervention in the case of legal disputes is more advantageous to small farmers than indirect contract through intermediary agencies. At the State level, a Monitoring Committee comprising farmers and appropriate officials may be set up to ensure the spread of a non-exploitative pattern of contract cultivation.

- v) **Farmers' Companies** – Private Limited Companies, registered under the Companies (Amendment) Act, 2002, are now coming into existence in the area of seed production and the production of biofertilizers, biopesticides and other forms of biological software essential for sustainable agriculture. Small farmers and SHGs should be associated in such companies as stakeholders and not just as shareholders.
- vi) **State Farms** – In the 1950s, there was considerable emphasis on the development of large State Farms on the model of the farms promoted by the former Soviet Union. Most such farms are now being used for purposes other than the production of food crops. The land available with State Farms could be made available to women SHGs for the production of say, hybrid and improved seeds of crop and fodder plants, vegetables, fruits and flowers. Also, State Farms could be used for developing **Living Heritage Gene Banks** of the germplasm of local breeds of cattle, sheep and poultry in order to preserve our animal genetic wealth.

1.11 Attracting Youth

Youth will be attracted to take to farming as a profession only if farming becomes economically rewarding and intellectually stimulating. This is where new technologies like biotechnology, information and communication technology, renewable energy technologies, space technology etc., can help. Educated youth should be helped through a form of Venture Capital Fund, low interest loans and allotment of wasteland for setting up agri-clinics and production-cum-processing centres to undertake outsourcing jobs both from within and outside the country, enabling India to emerge as a major agricultural outsourcing hub. Eco-agriculture is knowledge intensive and hence

there is need to ensure that large numbers of educated young men and women take to farming and farm related enterprises as their vocation. This is an area where symbiotic partnerships between young entrepreneurs and the private sector will be beneficial.

1.12 Public Policies for Sustainable Livelihoods

1.12.1 The following policies will ensure **well-being and livelihood security of all included under the category of “farmers”**:

- i) A **National Land Use Advisory Service** should be immediately established and linked to State and Block Level Land Use Advisory Services on a hub and spokes model. These can be virtual organisations with the capacity to link land use decisions with ecological, meteorological and marketing factors on a location and season specific basis. They should provide proactive advice to farmers on land use. Land use decisions are also water use decisions and hence it is important that the proactive advice is based on both an estimate of likely water availability and the opportunities available for enhancing income per unit of water.
- ii) The scope of the MSP programme should be expanded to cover all crops of importance to food and income security for small farmers. Arrangements should be made to ensure MSP at the right time and at the right place, particularly in the areas coming within the scope of the National Rainfed Area Authority. **Also, advice to farmers on crop diversification should be linked to the assurance of MSP. Small farm families should not be exposed to administrative and academic experiments and gambles in the market.**
- iii) A Market **Price Stabilisation Fund** should be established jointly by Central and State Governments and financial institutions to protect farmers during periods of violent fluctuations in prices; as, for example, in the case of perishable commodities like onion, potato, tomato.
- iv) An **Agriculture Risk Fund** should be set up to insulate farmers from risks arising from recurrent droughts and other weather aberrations.

- v) The scope of Agricultural Insurance Policies should become wider and should also cover health insurance, as envisaged under the **Parivar Bima Policy**. Seed Companies should provide insurance in the case of GM crops.
- vi) A **Food Guarantee Act** should be formulated and enacted. Farmers, who are also the largest consumer group, will produce more if there is greater consumption and consequently greater demand for farm produce and products. Such an Act that combines the principal features of Food for Work programmes and the National Employment Guarantee Programme would help make food serve the role of currency. Such a procedure will help improve household nutrition security as well as farmers' income.
- vii) A **well-defined, pro-farmer and pro-resource poor consumer Food Security Policy is an urgent necessity**. Food security with home grown foodgrains can alone eradicate widespread rural poverty and malnutrition, since farming is the backbone of the livelihood security system in rural India. This will enable the **Government to remain at the commanding height of the national food security system**. Building a food security system and containing price rise with imported foodgrains may sometimes be a short term necessity, but will be a long term disaster to our farmers and farming.
- viii) The time has come for the Government to set up a multi-stakeholder **National Food Security and Sovereignty Board** chaired by the Prime Minister with its membership including the Minister for Agriculture and Food and other concerned Ministers of GoI, the Deputy Chairman of the Planning Commission as well as a few Chief Ministers of food surplus and deficit States, leaders of all national political parties, a few experts including specialists in the gender dimension of agriculture and food security, and mass media representatives. We are confronted with the need to conserve prime farmland and to safeguard the food security requirements of both resource poor farmers and resource poor consumers. The bulk of such resource poor consumers are small or marginal farmers and landless agricultural labour in unirrigated areas. It is these linkages which need to be understood and

attended to. The proposed National Food Security and Sovereignty Board can attend to these complex linkages in a holistic manner and provide policy guidelines for developing and implementing a socially and economically sustainable food security programme catering to the interests of all regions of the country and all sections of our population.

- ix) Farm families should also be protected from becoming victims of HIV/AIDS and tuberculosis (TB). Anti-retroviral drugs should be made available in villages free of cost. Also the approach to the treatment of HIV/AIDS and TB in villages should be a food cum drug based one. Nutrition support to rural families affected by HIV/AIDS, TB, malaria and leprosy is needed to assist in recovery and restoration to a productive life. There is evidence to suggest that a pure drug based approach alone is not adequate to help economically underprivileged rural women and men recover from diseases involving prolonged treatment. The foodgrains allotted to such a programme can be distributed through the normal channels on the production of a Food Coupon issued by the appropriate government agencies. For example in the case of HIV/AIDS, the National AIDS Control Organisation (NACO) would be the appropriate agency for the issue of food coupon to children, women and men affected by this debilitating and killing disease. The Food-cum-Drug based approach to healthcare should become an integral part of the National Rural Health Mission.
- x) There is need for a **Rural Non-Farm Livelihood Initiative** for rural areas. The initiative could have as its core a more market oriented and professionalised KVIC and a restructured and financially strengthened SFAC and bring all rural non-farm employment programmes together in order to generate convergence and synergy among them. The initiative should be integrated with on-farm employment generation through a pan-GoI programme to establish 'Rural Business Hubs' on the lines of China's Township and Village Enterprise (TVE) programme. A consortium approach involving the different agencies concerned is needed.

- xii) An **Indian Trade Organisation** (ITO) should be established to help the Government to operate a Livelihood Security Box and link global policies with local action in a manner beneficial to farmers.
- xiii) Since agriculture is a State subject, every State Government should set up a **State Farmers' Commission** with an eminent farmer as Chairperson. The membership of the Commission should include all the principal stakeholders in the farming enterprise. Such Commissions should submit an Annual Report to be placed before the respective State Legislature for discussion and decision.
- xiv) Agricultural progress should be measured by the growth in the net income of farm families. Along with production growth rates, income growth rates should also be measured and published by the Economics and Statistics Directorate of the Union Ministry of Agriculture.
- xv) Article 243 G of the 11th Schedule of the Constitution (73rd Amendment) Act, 1992 entrusts Panchayats **with responsibility for agriculture including agricultural extension**. They will have to be empowered with the needed information, training and tools for discharging this responsibility. At the moment there are about 2,25,000 panchayats in the country. The problems facing Indian farmers are generally dealt with in an aggregated manner – i.e., taking into consideration the problems of over 100 million farming families as a whole which make them appear formidable. **However, if such problems are disaggregated and dealt with by Gram Sabhas and Panchayats, location-specific problems can be attended to speedily and effectively.** Therefore it is time that the provisions of Article 243 G are implemented, both in letter and spirit.
- xvi) There are nearly 1.2 million elected women members in panchayats throughout the country. They can play a pivotal role in improving the quality of life in villages and in areas like sanitation, drinking water, child care, early childhood education and nutrition security. They should be empowered to take up such leadership roles in rural transformation through appropriate training and

capacity building opportunities. An earmarked Gram Mahila Fund should be available to them for meeting gender-specific needs.

- xvi) Mass media (conventional, electronic and the internet) constitute an important pillar of our democratic system of governance. Serious famines do not occur in countries with independent mass media, since they play the role of an early warning system. The green revolution of the 1960s would not have happened, but for the enthusiastic support of the media, particularly radio and language newspapers, which not only spread a message of hope, but also took the latest information on the new technologies to villages. This aroused enormous enthusiasm among farmers resulting in a small Government programme becoming a mass movement. There is need now for spreading messages of hope and information on the agricultural bright spots of the country. In order to assist the mass media with timely and scientifically accurate information on issues relating to agriculture, food security and farmers' welfare, it will be useful to establish a few **Regional Media Resource Centres**, in whose management farmers, media representatives and scientists including extension personnel should play an important part.
- xvii) The Ministry and Departments of Agriculture both in the Centre and States may be restructured to become **Ministry / Department of Agriculture and Farmers' Welfare** in order to highlight their critical role in ensuring the income and work security of over 600 million members of India's population. The change of name should be accompanied by structural changes which permit the induction of active farm women and men in senior positions in Government for specific periods and specific tasks.
- xviii) We urge the Central and State Governments to consider seriously the question of including Agriculture under the Concurrent List in Schedule VII, Article 246 of the Constitution. Important policy decisions like those relating to prices, credit and trade, are taken by the Government of India (GoI). Also, several pieces of legislation including the Protection of Plant Varieties and Farmers Rights Act, the Biodiversity Act, the Food Bill, etc., are administered

by the GoI. GoI provides substantial funds for rural infrastructure development including irrigation, village roads and markets. By placing agriculture on the Concurrent List, serving farmers and saving farming becomes a joint responsibility of the Centre and States, i.e. a truly national endeavour in raising the morale, prestige and economic well being of our farm women and men.

1.13 Matching National Policy with Local Diversity

Indian agriculture is rich in diversity of soils, climate, farming systems, and resource endowments. Hence, a broad national policy will have to be tailored to suit different agro-climatic, socio-economic and socio-cultural factors. The framework for a **National Policy for Farmers** presented in this Report will have to be suitably adapted and elaborated to suit local realities in different parts of the country, particularly with reference to priorities in action points. State level policies can aim to convert national goals into local action. The State Farmers' Commissions could be entrusted with the task of preparing an operational plan for implementing the National Policy for Farmers on a location-specific basis.

1.14 Jai Kisan

Mahatma Gandhi preferred to be known as a farmer, while signing the Visitor's Book of the National Dairy Research Institute at Bangalore in 1927. Let us prove worthy of his trust that India will care for its farmers.

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