

EXECUTIVE SUMMARY

CHAPTER 1 - FROM CRISIS TO CONFIDENCE

Our agriculture is in a state of serious crisis. The rate of growth in food production has fallen below population growth rate. To achieve a 4% growth rate in agriculture, we must aim at a 8% growth rate in horticulture and animal husbandry. This calls for higher investment in irrigation, animal husbandry, fisheries, post-harvest technology, rural energy supply and communication. The investment in agriculture has stagnated at 1.3% of GNP during the last three Five Year Plans. **If we place faces behind figures, over 400 million children, women and men belonging to families with small and marginal holdings, as well as landless labour families are in deep distress.**

2. **Several solutions offered in our first report** on implementing a Million Wells Recharge Programme, establishing a network of advanced soil testing laboratories, setting up Farm Schools in the fields of farmer achievers, strengthening the post-harvest technology and quality literacy wings of KVKs, organizing Small Holders Horticulture Estates and Cotton Estates to harness the economies of scale, large scale demonstrations to initiate a productivity revolution in pulses, setting up a Livestock Feed Corporation of India, convergence of appropriate Technology Missions around a Watershed or the command area of an irrigation project, need to be implemented without further delay.

3. **Enhancement of small farm productivity coupled with assured and remunerative marketing opportunities is the most effective means of reducing rural poverty.** Among the immediate steps needed to prevent farmers' suicides are - credit reform to enhance the total amount available for farm loans, a reduction in interest rates, linkages with technology and market and reduction in dependence on the informal sector for loans; a corpus (on the line of calamity funds) for assisting farmers affected by crop losses; expansion of crop insurance to cover the entire country and all crops; Cultivation of water intensive cash crops in "dark and grey zones" should be regulated; there should be appropriate legislation to regulate and deter the sale

of spurious seeds and chemicals; implementation of MSP for coarse cereals and pulses, which are the primary crops in rainfed drylands across the country;

5. It would be prudent to introduce a **Farmers' Livelihood Security Compact**, consisting of the following integrated package of measures:

i) Set up **State level Farmers' Commission** for the purpose of ensuring dynamic government response to farmers' problems.

ii) Conduct **Census of Suicides** to have a proper understanding, assessment of reasons and count of suicides

iii) Initiate a **Paradigm shift from Micro-finance to Livelihood Finance**

iv) **Debt survey** to take into account newer forms of credit and indebtedness and newer forms of bondage

v) Decide on cut-off for **Debt waiver** in consultation with Panchayats and farmers' representatives in the distress hotspot areas.

vi) Examine **revival of lapsed insurance policies**; there are provisions in the insurance laws that allow LIC to revive them.

vii) The integrated family insurance policy (**Parivar Bima**) recommended by NCF in its first report deserves to be examined and introduced to begin with, in dry farming areas.

viii) Revision in import policies, measures to expand farm exports and conduct of quality literacy programmes.

ix) Swift action to overhaul the **rythu bazars** or farmers' markets. **Most of these are presently controlled not by farmers but by traders, from whose control they must be released.** There is also need for introducing focused Market Intervention Schemes (MIS) in the case of life-saving crops such as cumin in arid areas.

x) **Agricultural and Animal Sciences Universities could form Hope Generation Teams (like NSS) of young male and female students who could stay in the distress villages during vacations and extend both technical and psychological support.**

xi) There is need for establishing Village Knowledge Centres (VKCs) in the farmers' distress hotspots operated to the extent feasible by the wives or children of the farmers who had unfortunately taken their lives. These VKCs could be linked to a Block level Village Resource

Centre (VRC) with the help of the Indian Space Research Organisation (ISRO). The VRC-VKC grid could provide dynamic and demand driven information on all aspects of agricultural and non-farm livelihoods.

6. The NCF supported Travelling Workshop for **Agronomic Rehabilitation of Tsunami affected coastal agriculture** has made detailed recommendations in the areas of Soil Health Restoration, Desirable Cropping Systems, Crop Diversification and Promotion of Multiple Livelihoods and initiation of “Beyond Tsunami” Agricultural Rehabilitation Demonstration programme. Funds for the Demonstration cum Training programme may be provided from the Tsunami Relief Allocation. This will have to be done immediately, if the problems of the tsunami affected farmers are to be solved and their livelihoods revived.

7. **Indo-US Collaboration in Agronomic Rehabilitation Strategy** - The GreenLine Group, a group of scientists, professional, and technical experts from the US has offered to work closely with scientists in India and seeks a site in Tamil Nadu where they can help to start work on 100 ha of farmland. This can become an important programme to promote sharing of knowledge and technology. The timing of this project is critical to launch at the beginning of the October monsoon season. We suggest that Rs.1 crore be allotted for this collaborative programme from the Prime Minister’s Relief Fund

8. We envisage that knowledge connectivity should be a key component of the Bharat Nirman programme designed to provide a New Deal for Rural India. The NCF proposal for **Mission 2007: Every Village a Knowledge Centre** received support in the union budget for 2005-06. We recommend that the Ministries of Rural Development and Panchayati Raj provide Rs. 50 crores each for such training and capacity building activities during 2005-06. The Union Ministry of Agriculture may also provide Rs. 50 crores annually during the next 3 years for content creation and capacity building in the areas of crop and animal husbandry, fisheries, forestry, agro-processing and marketing and for imparting quality trade and genetic literacy.

9. Several farmers’ organizations have suggested that the Ministry of Agriculture should be renamed as **Ministry of Agriculture and Farmers’ Welfare**. We recommend the serious

consideration of this suggestion since farmers' well-being should be the main goal of the Ministry.

10. We are happy that a NDC Committee on Agriculture has been set-up under the Chairmanship of Shri Sharad Pawar. We request that the suggestions contained in this Report as well as the earlier one may kindly be examined by the NDC Committee so that appropriate action can be taken concurrently at the Central and State levels.

CHAPTER 2 - FOOD FOR ALL

Medium Term Strategy for Food and Nutrition Security with a view to move towards the goal of universal food security over time.

The Mid-term appraisal of the Tenth Plan reveals that we are lagging behind in achieving the Millennium Development Goal of halving hunger by 2015. Under-nutrition and malnutrition are still widespread. Maternal and foetal under-nutrition is resulting in the birth of babies with low birth weight. This has serious consequences for the future intellectual capital of India. Therefore building a sustainable food and nutrition security system is an urgent task.

2. The current trend of a decline in per capita food grain availability and its unequal distribution have serious implications for food security in both rural and urban areas. Going by the Union Planning Commission estimate of the proportions of population below the poverty line, **a total of 260.27 million people in both rural and urban areas put together can be definitely assumed to be unable to buy sufficient food to achieve food and nutrition security.**

3. Detailed analysis of the causes of food insecurity in rural and urban India have revealed that inadequate purchasing power due to lack of job/livelihood opportunities is the primary cause of endemic or chronic hunger in the country. Further, during the 1990s, the PDS has been weakened, both by repeated increases in the issue prices of food grains and by the switch to a system of targeted PDS. We recommend that **people should be able to access grains from PDS whenever they want, wherever they want and in any quantity they want, subject to a few ground rules which will prevent purchase for hoarding and subsequent sale at high prices.**

4. Given the magnitude of the employment problem in urban India, particularly in the small towns, there is a strong case for a National Urban Employment Guarantee Programme on the lines of the proposed National Rural Employment Guarantee Programme. The National Food Guarantee Act we are proposing will address hunger in its totality – both rural and urban.

5. A Six Point Action Plan is outlined below for making India Hunger-Free:

1. Reorganise the delivery of nutrition support programmes on a life-cycle basis with the participation of Panchayats and local bodies.
2. Eliminate micronutrient deficiency induced hidden hunger through an integrated food cum fortification approach.
3. Promote the establishment of Community Food and Water Banks operated by Women Self-help Groups, based on the principle “**Store Grain and Water Everywhere**”.
4. Help small and marginal farmers to improve the productivity and quality of farm enterprises.
5. Introduce support systems to SHGs to make them economically and organizationally sustainable. Establish for this purpose SHG Capacity Building and Mentoring Centres and focus on Livelihood Finance.
6. Formulate a **National Food Guarantee Act** continuing the useful features of the Food for Work and Employment Guarantee programmes and introduce it on 15 August, 2007, which marks the 60th anniversary of our independence. The Food Guarantee Act will be a powerful tool in achieving the goal of a hunger-free India.

CHAPTER 3 - FISH FOR ALL

Fisheries sector has grown at the rate of 4.3 per cent during the Ninth Plan and represents a major opportunity for growth of the Agriculture and allied sectors in particular and the GDP in general, since it already contributes 6.2 per cent of agricultural GDP and 1.4 per cent of GDP and also contributes 21 per cent of national Agricultural Exports. India already occupies fourth position in fisheries and second position in aquaculture globally and fisheries contribute export earnings of Rs.6,800 crores. The strength of the Fisheries sector consists of large under-utilized areas of fresh water tanks/ponds, lakes and derelict bodies, reservoirs, rivers, saline and brackish water resources, Exclusive Economic Zone and a large coastline. India also has a large variety of agro-climatic zones, fish fauna, research infrastructure and processing capacity.

2. Opportunities for employment and export through exploitation of our premium varieties and mariculture /ornamental fish culture/ sewage fish culture/composite fish culture etc. can be exploited provided our weaknesses like siltation/pollution of water bodies, sub-optimal management, inadequate quality control of seed and feed, inadequate exploitation of available species, and weak infrastructure for landing and marketing as well as problems of open access/multi-user conflicts/inappropriate leasing policies could be tackled. Aquarian reforms to permit optimum exploitation at ecologically sustainable levels are needed urgently along with a review of the Marine Fisheries Regulation Act of the States.

3. Inland fisheries which is already 53 per cent of our total production can be substantially boosted through greater attention to aquaculture both in fresh, saline and brackish water. This would involve production and culture of a larger range of available species, particularly for cold-water species like trout and mahseer and air-breathing fish like magur. The large potential of reservoirs can be optimally utilized for production and employment generation through better leasing policies, appropriate stocking and management and pen culture. Capture fisheries can be promoted through control of pollution of river systems, control of weeds in flood plains/wetlands etc. While inland saline soils in over-irrigated areas can be utilized for production of scampi (prawn), brackish water areas can provide substantial additional

employment and export incomes provided aquaculture is treated at par with agriculture and sound leasing policies are adopted along with reduced duties on feed and lower power tariffs. Above all, transparent quality control of feed and seed through certification cells can boost productivity. Aqua shops/Village Knowledge Centres along with pathological laboratories for better fish/shrimp health and easy bank loans/insurance can further promote this sunrise sub-sector. Design and construction of large assembly/auction markets and small hygienic shops in cities and hygienic boxes for fish sellers particularly women are important components of an efficient marketing infrastructure.

4. Marine fisheries too can see substantial growth through proper registration of all boats, demarcation and enforcement of fishing jurisdictions, and eco-friendly fishing gears/practices greater encouragement to fishing in 90-150 m depths, encouragement to pelagic and mid-water trawling and species-specific fishing like purse seining, squid jigging etc. Introduction of mother vessels for support to artesanal fisheries can improve catches and their quality. Insistence on discharge of the catch by deep-sea vessels on Indian shores can lead to optimum utilization of our processing capacity. An ambitious programme of construction of fish landing centers with cold chains and aqua shops can lead to better value realization and fishing efficiency. Regular dredging has to be undertaken to maintain and enhance the utility of existing fish landing centres etc. Promotion of mariculture, seaweed culture, fish aggregating devices, artificial reefs, mussel culture are some other untapped areas providing employment opportunities provided technology is disseminated and facilitated and user friendly leasing policies in consultation with stakeholders are put in place. Institutionally, the potential of these initiatives can be optimized through setting up of a separate Department of Fisheries under Ministry of Agriculture, a National Fisheries Development Board to provide technical and infrastructural support to fishers, a Central Fisheries Harbour Development Authority and restructuring of Central Institute of Fisheries Education, Mumbai alongwith setting up of Fish for all training centres for capacity building to provide a fillip for human resource development to all the stakeholders in fisheries.

5. Welfare of fishers can be promoted through a substantial hike in their compensation during close season and an Endowment Scheme for fishers more than 60 years of age. Some 3600 fisher villages should be provided better infrastructure of roads, housing, drinking water,

electricity etc. in view of their precarious living conditions and hazardous occupation. Benefits of Prime Minister's Bharat Nirman should flow to these villages on priority.

7.	Additional requirements of funds up to the end of 11 th Plan	
1.	Margin money for ICAR Fisheries Institutions (Para 3.1.1.20.3)	Rs. 30 crore
2.	Fishermen' Welfare Scheme (Para 3.1.4.5)	Rs. 350 crore
3.	10 fish hatcheries (Para 3.1.11.2)	Rs. 15 crore
4.	10 Common Infrastructure Support Units for shrimp States (Para 3.1.18.18)	Rs. 50 crore
5.	20 composite fish marketing support units (Para 3.1.24.4.3)	Rs.20 crore
6.	2 mother ships (Para 3.2.9.3)	Rs.10 crore
7.	20 minor fisheries harbours (Para 3.2.12.3)	Rs.240 crore
8.	40 fish landing centres (Para 3.2.12.3)	Rs. 120 crore
9.	3 small sized Dredgers (Para 3.2.12.4)	Rs. 30 crore
10.	34 Village Knowledge Centres (Para 3.2.18.3)	Rs. 17 crore
	Sub-total:	<u>Rs. 882 crores</u>

Note: A sum of Rs.3500 crores would be needed for the National Fisheries Development Board, consisting of 50% grant and 50% loan, if the Board is set up.

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CHAPTER 4.1 - HILL AGRO ECOSYSTEM

The hill agro ecosystem represents the vast reservoir of fresh water, biological diversity and niche resources for hydropower and forests. It, however, suffers from inaccessibility, marginality, fragility and higher costs of services and marketing.. The development, investment and governance paths adopted in the past have often been divorced from ground realities and local communities.

2. **New Policy: Correcting the Big Mistake:** The National Policy on Agriculture should have a specific, yet integrated, policy on hill agriculture so that commensurate strategies, programmes and activities for hills–plains integration and hill agriculture development geared towards socio-economic and agro ecological synergy could be established. The hillside development policies focusing on forest cover through regulations had wrongly excluded local users across a wide range of ecological and socio-economic regimes. **Inter-disciplinary studies should be undertaken to analyse the cause-effect relationships and to test the old and new approaches to guide future efforts based on scientific facts.** Baskets of eco-technological and knowledge-based options are needed to achieve synergistic enhancement of productivity, profitability and sustainability. A **National Hill Coordinating Centre** to integrate all programmes of the Government of India on Hill Agriculture should be established. The Centre may be Chaired by the Union Minister for Agriculture and closely linked with other concerned Ministries as well as with the National Development Council. A **National Hill Agriculture and Livelihood Development Fund** should be created for judicious implementation of the Hill Policy.

3. While the population growth rate should decelerate, off-farm and non-farm employment opportunities should be created to reduce the pressure on land and other natural resources. The issues of synergy amongst all sub-sectors of agriculture, namely, crops, livestock, fisheries and forestry, inclusiveness, rights and aspiration of all hill people should be specifically addressed. The policy should provide for niche-based high-value farming and income generation, diversification, value addition, market reforms, entrepreneurship development and other

institutional supports. Accurate survey and measurement of area and use patterns of hill/mountain lands should be undertaken to ensure knowledge-based and informed allocation and deployment of natural resources.

4. **Food, Nutrition and Income Security: A Hill Farmers' Council for Sustainable Food Security** should be established to coordinate and integrate NEGS and FFW and other programmes under the proposed **National Food Guarantee Act**, adopting the whole-life cycle approach. It should promote SHGs to establish and operate **Community Food Banks (CFB)** and promote sustainable enhancement of productivity to further increase the productivity and marketable surpluses, specially of small farmers. **The Land Use Boards** should be restructured to be able to proactively advise farmers, based on congruence of agro-climatic capacity with agro-economic-ecological opportunities and market prospects. Fodder and feed availability should be ensured by promoting integrated management of grazing lands, fodder production and stall feeding, creation of **fodder and feed banks** and by establishing **Livestock Food Corporations**. The underexploited potential of fisheries sub-sector should also be harnessed.

5. Towards Jal Swaraj : Hydrological Balance and Water Security: Two complementary approaches are needed: (a) harvesting of rainwater, groundwater recharge and efficient use of water and (b) the hydrological balance in the Himalayas as dictated by the snow and glacier regimes and climate change. As regards the first component, water harvesting structures, including roof-top water harvesting, and improvement and creation of lift irrigation schemes should be ensured by involving water user associations including PRIs, NGOs and local communities. Pressurised micro irrigation (with assured quality of appliances), rehabilitation of hydrological hot-spots and water bodies, establishment of Low Water Parks, promotion of low water requiring high value crops, popularization of low-cost green houses coupled with fertigation, recharging of dead wells, reviving of the “dying wisdom”, establishment of water banks, creation of skilled manpower and human resources for managing water at various levels and, above all, fostering water literacy so that water becomes everyone’s business, constitute the essential elements of ensuring water security at the household and farm levels.

6. As regards the hydrological balance, a **National Research Centre on Glacierology** should be established for collection, storage and dissemination of information on status of seasonal/perennial snow and ice. The Centre should undertake research on understanding the interaction amongst biological processes, physical environment and the climate change and

develop early, medium and long-term warning systems and advise on trends of water availability and overall hydrological situation in the medium and long-term. Further, an iterative process of **integrated basin management** should be established with clearly defined objectives, planning process, implementation modality and monitoring and evaluation mechanisms, which would help also in accessing the proposed national plan of physically linking all the major rivers of the country.

7. **Soil Health and Bio Diversity Security:** The following sets of actions should be taken towards ensuring soil health and bio diversity security: (i) Correct soil micro nutrient deficiency (**hidden hunger**), adopt IPM and IPNS, issue **soil health card** to each farmer and establish atleast one modern soil testing laboratory in each District for micro-nutrient analysis, and launch a **community land care movement**, (ii) digitize inventory of plant, animal, fish and microbial bio diversity, ensure priority collection of endangered species and prepare and **undertake an integrated collection and conservation programme**, including the establishment of gene sanctuaries, and (iii) undertake niche-production of unique local bioresources and intensify **gene literacy** campaign to enhance participatory conservation and equitable sharing of benefits accruing through the use of genetic resources of specific locations (realization of **Farmers' Right**).

8. **Reversing the Technology Fatigue:** Each hill State should formulate/update **State Science Policy** to reorient it to be farmer-centred and geared to pursue knowledge-intensive agriculture. **Ecotechnologies** encompassing genetically improved strains, IPM and **IPNS** should be promoted through **Farmer Participatory Research and Knowledge Management System**. Greater emphasis should be placed on post-harvest management - processing, value-addition, policy and market research, skill development and retooling to strengthen the **production-consumption chain system**. Mandates of the KVKs and ATMAs should be changed to internalize the new developments and priorities in the areas of post harvest management. New extension approaches viz PPP, farmer-to-farmer (**Farm Schools**) etc. should be adopted. Timely and adequate supply of quality seed and other planting materials as well as other inputs should be ensured. **Seed Banks** should be established and preferably operated by SHGs and WSHGs to ensure regular flow of quality materials, particularly under drought and other aberrant weather

conditions. Need-based mechanization of hill agriculture and certification and market-driven and knowledge-based development of **organic farming** should be streamlined. Following the success story in Uttarakhand, **organic villages**, covering large number of farmers, should be organized with clearcut outcome in mind.

9. **Farmer-centric Market and Institutional Support and Gender Mainstreaming:** Planning for marketing should begin with planning for production. Land Use Boards should have the capacity to advise farmers on market opportunity - based production planning. Given the high marketing costs in hills and to protect farmers' income, the use of market infrastructures such as warehouses, storages, transport, etc. should be subsidized for the hill farmers. On the other hand, **MSP and MIS should be expanded and operationalised also for certain catalytic products from hills**. The NHM should give highest priority to value addition, processing, prevention of post-harvest losses and marketing and should adjust its budget allocation accordingly. Separate **Regional Master Plans for Market Development** in NER and NWR should be prepared, integrating them respectively with SE Asian and West Asian markets.

10. As regards institutional support, credit regulations and packages should be aligned with actual settings in the hills - land rights, jhuming and CPR, and the high costs of services and markets. The Government of India should assist banks in covering the undue risk in hill agriculture and sharpen its life-support assistance to the clearly identified targets. All agricultural development programmes should be engendered. Women must be given land rights and should have access to credit, water, education, health, knowledge and insurance. The indigenous and traditional knowledge uniquely possessed by female farmers should be protected and duly rewarded.

Additional resource required for the next seven years:

Item	Amount (Rs. in Crore)
Water conservation tanks with and without distribution attachments	365
Micro-irrigation, repair of degraded irrigation systems, expansion of lift irrigation, machines and implements	300
National Centre on Glacierology	50
Special credit and insurance products, transport subsidy	500
Market infrastructure development	300
Organic farming certification, model organic villages and marketing	250
Capacity building, training, strengthening and mentoring of SHGs, SFEs, etc; Soil Testing Laboratories	500
Total	2265 Crores

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CHAPTER 4.2 - ARID AGRO ECOSYSTEMS

Arid agro-ecosystems, receiving less than 450 mm annual rainfall with 40-60% coefficient of variability, covering 31.7 million ha in hot arid and 7 million ha in cold arid zones, account for 12 percent of the geographical area of the country. The arid zones are characterized by permanent water scarcity, intense aridity, fragility of natural resources and recurrent droughts.

2. **Policy Actions for Enhancing and Sustaining Livelihood Security:** The arid region should be separated out for an exclusive policy for drought proofing, land management, survival and livelihood security, and not clubbed together with semi arid regions. **Sustainable Land Management (SLM)**, and not Watershed Development, must be the focus in arid zones. Various ongoing and planned Central and State development programmes in arid agro ecosystems should be coordinated by the proposed MoA-hosted **National Authority for Dryland Farming Areas (NADFA)**. A **National Committee on Sustainable Land Management (SLM) in Arid Agro Ecosystem**, under the auspices of the NADFA, with due representation of the cold arid, should be constituted and function as a **multistakeholder consortium**. Arid zone States should constitute State level counterpart Committees.

3. Concerned Ministries and financial institutions should facilitate public-private linkages not only in infrastructure development but also in promotion of rural entrepreneurship and in establishment and strengthening of capacity of PRIs, SHGs, cooperatives, Small Farmers' Estates (SFEs), etc. to facilitate access to quality inputs and to fair markets. The Central Government should create an **Agriculture-Risk Fund** and design a **special insurance product and dispensation mechanism** to insulate farmers from risks. Fifteen percent of the development budget should be allocated to on-farm strategic research to facilitate generation, refinement and adoption of location-specific technologies.

4. **Livestock, Fodder, Feed, Food and Livelihood Security:** Establish **Livestock Food Corporation** in each State. The District LSD Consortia should ensure enhanced and sustained production of fodder and feed crops and adoption of recommended livestock management technologies. **Fodder and feed banks** should be established at strategic points. As regards food security, the adoption of proven technologies and development strategies for enhanced productivity, prevention of post harvest losses, value addition and remunerative marketing should be emphasized. **Food, grain, seed and water banks**, preferably operated by SHGs, should be established. The proposed **National Food Guarantee Act** should be operationalised. Off-farm and non-farm employment should be created for increasing income and economic access to food.

5. **Water Security: Conserving Every Drop of Water:** Water literacy should be increased to make water conservation everyone's business towards more income per drop of water. Rainwater harvesting, restoration of water bodies, reviving of "dying wisdom" and groundwater recharging should be made mandatory to everybody. The various water-related development programmes should be coordinated under one umbrella and synergised at the action site by Panchayats and other grassroot organizations under the direction of the District SLM Consortium. About 10 percent of the total investment in watersheds and soil conservation should be allocated for development and fine-tuning of SLM technologies. Location-specific integrated watershed development programmes and increased water use efficiency particularly through the development and adoption of quality microirrigation, fertigation and low cost greenhouses should be promoted. A **travelling workshop** of experts from India and from the Nile, Jordan and Imperial Valleys should be organized to formulate new strategies for water management.

6. **Soil Health and Technological Security for Sustainability:** Soil-test-based micro nutrient amendments to manage the **hidden hunger** of soil should be widely adopted. Each arid zone district should have at least one well-equipped and suitably staffed advanced soil testing laboratory. Each farmer should be issued a **Soil Health Card**. **The Land Use Boards** should be strengthened to play a proactive role in advising farmers. Selective mechanization should be

supported to enhance precision, timeliness and productivity. **Farm schools** should be established to replicate “bright spots”, particularly IPM, IPNS, and integrated crop-livestock-tree and organic farming technologies. Each KVK should be augmented with a post-harvest technology unit.

7. Conserving Genetic Heritage and Harnessing Unique Niches: The national bureaus of plant, animal and microbial genetic resources should chronicle and digitise inventories of the bioresources and associated traditional knowledge, and launch gene literacy movements to sensitise all stakeholders. The Suratgarh Farm (Rajasthan) of the Government of India should be developed as an *ex situ* **germplasm repository of arid zone livestock genetic resources**.

Production and commercialisation of off-season as well as high value crops and commodities should be strongly supported and promoted. The ICAR should establish a **cold arid regional sub-station at Ladakh** to generate technologies and develop new strategies for capturing the opportunities of the region and should work closely with the proposed National Centre on Glacierology.

9. Farmer-centred Marketing: Arid zone farmers should be insulated from price dips in “good” years with timely and effective implementation of MSP and MIS, especially for the life-line commodities. Based on market research, special arid zone commodity markets/parks/zones and periodic markets should be established. Adopting the NDDDB model, farmers’ cooperative marketing, fully equipped with grading, sorting, standardization and packaging facilities should be developed. Trade and regulatory policies, including SPS, for dairy products, wool and horticultural and other specialty products should be integrated with the development role of these commodities.

10. Financial Implications: An additional sum of Rs. 1,275 crore for the next seven years as detailed below, may be provided in the budget to cater to the above mentioned requirements.

- Agriculture-Risk Fund ---- Rs.500 crore (GOI)
- Special Insurance Products and Dispensation --- Rs. 300 crore (GOI)

- Micro-Capital Grant to support drought proofing and to assist and mentor SHGs and SFEs ---Rs. 300 crore (State Governments and GOI)
- Special Market Intervention Scheme ---Rs. 100 crore (GOI)
- Establishment of modern marketing centre --- Rs. 75 crore (GOI)

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CHAPTER 4.3 - COASTAL ZONE AGRICULTURE

1. Nearly 25% of India's population lives in coastal areas. Anthropogenic pressures on coastal ecosystems and living aquatic resources are increasing. There is urgent need for sustainable livelihoods and sustained production.
2. We recommend the establishment of **agro-aqua farms** on coastal wastelands under a **National Sea Water Farming for Coastal Area Prosperity Project** in about 50,000 ha in the States of Gujarat (Kutch), Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Orissa and West Bengal, as well as in Andaman and Nicobar and Lakshadweep Islands. **Women's Aquaculture Estates** should also be established along the coast through Women's Development Corporations and financial institutions for the purpose of assisting *dalit* and fisherwomen to take to sustainable and profitable aquaculture. The programme based on sound scientific principles of agro-forestry may be given priority in the livelihood rehabilitation programmes being sponsored under the Prime Minister's Relief Fund in tsunami affected areas.
3. **There is need for a Coastal Systems Research Programme (CSR) on the lines of Farming Systems Research Programme carried out in inland areas.** We recommend that ICAR may initiate an All India Co-ordinated Research Programme on coastal agriculture, jointly with CSIR and State Agricultural / Animal Husbandry / Fisheries Universities.
4. We suggest that a **National Board for Sea Water Farming** be set up under the Chairmanship of Minister for Agriculture and Food. The Board should have the Ministers in charge of Environment and Forests, S & T, Ocean Development, Water Resources and Commerce, and senior representatives from all the Coastal States and Islands, as Members, so that a holistic view on all aspects of seawater use and coastal agriculture management can be taken.

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CHAPTER 4.4 - MISSION FOR THE PROSPERITY OF SUGARCANE FARMERS

Sugar industry is the largest agro-based industry in rural India. The industry has enabled the country to be self-reliant in this highly sensitive essential commodity of mass consumption. In spite of the fact that sugar is probably the most distorted agricultural product in the global market, India exported about 4 million ton of sugar during the last three years. However, the growth rates in cane crushing capacity, quantity of cane crushed and sugar production has outstripped the same in terms of area under sugarcane, its yield rate and total production leading to a general shortage of sugarcane for the sugar factories. The Statutory Minimum Price [SMP] of sugarcane [declared by the Government of India] has been continuously increasing. Between 1999-2000 & 2002-03 while the sugar prices declined from 141.2 [base 1993-94] to 117.1, the sugarcane prices increased from Rs 56.10 per qtl to Rs 64.50 per qtl with 8.5% basic sugar recovery. Incidentally, the sugarcane farmers are a strong force in the major sugarcane producing States. There are practices regarding sugarcane area reservation, pricing, payment for sugarcane, supplying arrangement and the developmental role of the sugar factories, which are peculiar to this industry. With the increase in population and the anticipated increase in per capita consumption of sugar, it is estimated that the demand of sugar would reach about 24.5 million ton by 2010 from about 18 million ton in 2001-02. With the existing level of productivity and quality of sugarcane, it would need an increase in area under sugarcane from the existing 4.4 million hectare to about 5.5 million hectare, which may be extremely difficult due to claims of other crops and large water requirements.

2. The all India yield of sugarcane had been nearly stagnant for quite sometime and during the last five years it has continuously declined from 71.2 ton/ha in 1998-99 to 64.6 ton/ha in 2002-03. The need is to introduce packages of improved technology, services and public policies designed to raise productivity and quality of sugarcane crop. It is suggested that a Technical Mission on Sugarcane [TMS] be established jointly with sugarcane growers' organisations, banks, sugar factories and research organisations on the basis of a 'seed to sugar' approach to improve the All India average sugarcane productivity to at least 80 ton/ha and sugar recovery to

at least 11% in five years. India has the technical know how and do how to achieve this. There are huge gaps in yield potential and actual yield. The productivity in the sub-tropical States, which have nearly 60% of the total area under sugarcane, is substantially lower than that in the tropical States. If the levels indicated above were achieved, there would be enough sugarcane to have 25 million ton sugar per year. The TMS could have three major components: (a) Intensification of sugarcane research (b) Transfer of technology (c) Improving productivity and quality of sugarcane

3. The TMS would have to be placed under the exclusive charge of a senior knowledgeable officer of the Government of India to be declared as Mission Director. In the major sugarcane producing provinces, the State Governments may designate State level 'Mission Director' to act as 'nodal officer'. The initial assessment of the cost of the programme for a five-year time slice is Rs 900 crore. However, this would require to be firmed up on a item wise basis. The additional annual production of sugar with increased productivity and quality of sugarcane would be worth about Rs 7000 crore.

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CHAPTER 4.5 - CONSERVATION, CULTIVATION AND MARKETING OF MEDICINAL PLANTS

Medicinal and aromatic plants provide a window of opportunity to concurrently strengthen health, food, nutrition, and livelihood security of farm families and agro-ecological security of the environment. Traditional systems of medicine have been used in India over the years to address human, animal and plant health. India as one of the biodiversity rich countries with a rich heritage of traditional medicine has the potential to be a leading player in the sector.

Recommendations

2. Immediate measures are needed in the areas of **Policy, R&D, Input supply, Market, Pricing Support and Information Portal on MAPs. A National Mission on Medicinal and Aromatic Plants** may be organized to ensure that the sector receives the integrated attention it deserves. The recently approved National Horticulture Mission (NHM) includes MAPs, but given the already large number of fruit, vegetable and flower species to be addressed under the NHM, the MAPs may not receive the special attention and leadership it urgently needs. Pending the preparation of a full-fledged Mission, a distinct Mini-Mission may be organized for MAPs under the ongoing NHM. A dynamic leader in the area of medicinal plants and herbal medicine may be appointed as the coordinator of the Mini Mission for MAPs.

3. **The Mission should have a Policy Guidance Committee (PGC), an apex level body comprising the Ministers of Agriculture, Health, Environment & Forests, Commerce and Science & Technology, to give direction. The PGC could guide the restructuring of the National Medicinal Plants Board (NMPB) on the lines of NDDB.**

4. Measures to ensure supply of quality planting material, research on quality, safety and efficacy of products, standardization of products and suitable regulation, proper pricing for harvested and cultivated produce, a market oriented strategy to guide cultivation for the home

and external markets, documenting and recognition of traditional knowledge on medicinal plants, and setting up a single window information portal are the areas needing immediate attention.

5. Promotion of Public-Private Partnerships (PPP), promotion of Contract farming and appropriate codes of conduct, encouraging different Commodity Boards to promote intercropping with plantation crops, forming Medicinal Plant Growers' Association, community-based herbal gardens and enterprises and **Herbal Biovalleys** on the model of the Silicon Valley may be nurtured for providing the infrastructure needed for the conservation and sustainable use of medicinal plants.

6. The TF Report on MP had in 2000, recommended an allocation of Rs.1000crore for development the sector. It is recommended that an equivalent amount be made available to the proposed National Mission on MAPs in order to enable it to launch a dynamic programme in the areas of conservation, cultivation, scientific validation, and marketing under distinct brand names.

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CHAPTER 4.6 - ORGANIC FARMING

There is a growing interest in organic farming practices in several parts of India, partly due to an expectation of higher prices for organically produced farm commodities. It will be useful to promote organic farming for low volume, high value crops like spices, medicinal plants, fruits and vegetables. Internationally acceptable certification standards and institutional structures are urgently needed. Cost of certification also has to come down.

2. Preparation of **Organic Farming Took Kits, based on IFOAM principles**, to assist farmers on the do's and don'ts relating to the production of organic farm produce, promoting the formation of **Small Farmers' Organic Agriculture Estates and Organic Farmers' Clubs** to confer the power of scale at the production and post-harvest phases of farming to small farmers, organizing a **National Federation of Organic Farmers' Associations** on the pattern of IFOAM, and declaring **Organic Farming Zones** are some of the steps needed to give direction and support.

4. **Organic farming needs even greater research support than chemical farming.** Our National Agricultural Research System will have to develop **bio-organic farming methodologies**.

5. **It would be useful to develop a national strategy for organic farming, specifying regions, crops and seasons, ideal for raising crops through organic farming techniques.**

ENHANCING PRODUCTIVITY, PROFITABILITY, STABILITY AND SUSTAINABILITY

CHAPTER 4.7- BIOFUELS

Bio-fuels derived from plant-based resources assume importance in the context of the need to develop non-renewable sources of energy. Farmers' organizations need proper extension advice on the advisability of shifting their land use to the cultivation of crops for bio-fuel production. **A well-defined Biofuel policy based on science and economics needs to be developed jointly by the Union Planning Commission, Ministries of Agriculture, Rural Development, Petroleum, Non-Conventional Energy Sources and Science & Technology. ICAR and CSIR will have to be actively associated.** The economic and ecological sustainability of this programme should be the bottom line in decision-making.

2. A **systems approach** is necessary for ensuring that the different components of bio-diesel programme are effectively coordinated and bio-diesel becomes a cost effective alternative. There is need for convergence and synergy in Technology and Public Policy for farmers to undertake farming of crops used in ethanol and other biofuels. Necessary industrial infrastructure should be developed to process the collected biomass for production of ethanol / other biofuels and the by-product industrial wastes so generated, could be used as manure.

3. ICAR and CSIR should jointly undertake to work on developing suitable process development for biofuels from various feedstocks and for developing agronomic practices for growing crops for biofuels in wasteland in cooperation with State Agricultural Universities.

4. It is recommended that a '**National Biofuel Board**' headed by the **Member in charge of Energy in the Planning Commission**, be set up to develop a roadmap for use of biofuels in petrol and diesel engines in a time bound manner. The Board should be supported with appropriate technical and financial resources and function like the Atomic Energy Commission with specific targets, autonomy and accountability.

CHAPTER 5 - AGRICULTURAL MARKET REFORMS

An efficient marketing system is essential for the development of the agricultural sector, providing incentives to the farmers for commercialisation, increasing production and giving appropriate signals for production planning and research activities. At the time of independence, there was shortage of production against demand and the immediate concern was to save the farmers and the consumers from malpractices of traders and facilitate growth and development of an orderly marketing arrangement. Organized marketing of agricultural produce was promoted through regulated markets. The State Governments and the Union Territories passed the APMC Act and in view of the supply side constraints various other legal enactments were promulgated and orders covering specific products issued. The resultant Government monopoly in setting up agricultural produce markets under the State specific Acts virtually prevented the private sector from taking any important initiative in the development of agricultural marketing infrastructure. There is no doubt that a large network of 7418 wholesale agricultural produce markets under the regulated system has been created and there is improvement in marketed surplus-output ratio, standardization of marketing charges, improvement in quality of market information etc but the lack of basic infrastructure, inadequate development of rural periodic markets, lack of transparency in weighing, auctions, other market related matters, sale of ungraded produce, distress sale immediately after harvest, poor quality of services offered to the farmers and lack of professionalism continue to be some of the constraints.

2. The Ministry of Agriculture is playing a proactive role in bringing about a change in the mindset from trade regulation to trade promotion, establishment of rural godowns, warehouses, cold storages and amending the APMC Act by the State Governments/ Union Territories with a view to primarily enable the private and cooperative sector to establish and operate markets for agricultural commodities and offer the farmers an alternative. However, the response of some of the State Governments is inadequate. With increasing commercialisation of agriculture, market planning needs to begin before the production planning. The restructured State Land Use Boards supported by a team of technical experts/agencies could render much needed advice to the farmers based on meteorological,

marketing and management information. More storage including cold storage and warehouse capacity should be created and warehouse receipt be developed as an effective credit instrument. There is also a need to encourage setting up of farmers' markets, development of farmer's organisations under the banner of the commodity produced by them, develop farmer centric code of conduct for contract farming, improving quality concern among the producers, increasing flow of marketing credit, tightening of the supply chain, minimizing post harvest losses and improving value addition to enhance the farmer's income.

3. The various legal enactments concerning agricultural processing and marketing particularly the Essential Commodity Act need a revisit.

4. The Minimum Support Price [MSP] is the major instrument of agriculture price policy of the Government of India. There is need for much stronger protection of MSP across the country. The MSP system, which has contributed towards diversification and commercialisation of Indian agriculture and also in achieving the present level of production, needs to be continued in near foreseeable future and its implementation should be improved. Price behaviour of sensitive commodities not covered by MSP, needs to be closely monitored particularly during the glut season for need based support under the Market Intervention Scheme.

COMPOSITE FINANCIAL SUMMARY

Chapter 1 : From Crisis to Confidence

- 1 Beyond Tsunami Agricultural Rehabilitation Demonstration programme
Funds for the Demonstration cum Training programme may be provided from the Tsunami Relief Allocation at the rate of Rs. 20 lakhs per demonstration, each covering an area of 200 ha. In all about 15 such demonstrations may be organized in the affected states and in Andaman and Nicobar Islands at a cost of Rs. 3.00 crore.

Rs. 3.00 Crore

- 2 Indo-US Collaboration in Agronomic Rehabilitation Strategy: **Rs.1 crore may be allotted for this collaborative programme from the Prime Minister's Relief Fund.**

Rs.1.00 Crore

- 3 **Mission 2007: Every Village a Knowledge Centre:** We recommend that the Ministries of Rural Development and Panchayati Raj provide Rs. 50 crores each for training and capacity building activities during 2005-06.

Rs.100.00 Crore

- 4 The Union Ministry of Agriculture may also provide Rs. 50 crores annually during the next 3 years for content creation and capacity building in the areas of crop and animal husbandry, fisheries, forestry, agro-processing and marketing and for imparting quality trade and genetic literacy.

Rs.150.00 Crore

- 5 A total of about Rs.3000 crores of public investment may be needed during the next 3 years for making the 'Every Village a Knowledge Centre' concept a reality. We suggest that investment in the VKC programme should come from a variety of government sources including the USO fund and the vast resources being set apart for Bharat Nirman.

Sub-total: Rs.254.00 Crore

Chapter 2: Food for All

To be worked out

Chapter 3: Fish for All

Additional requirements of funds upto the end of 11th Plan

11. Margin money for ICAR Fisheries Institutions (Para 3.1.1.20.3)	Rs. 30 crore
12. Fishermen' Welfare Scheme (Para 3.1.4.5)	Rs. 350 crore
13. 10 fish hatcheries (Para 3.1.11.2)	Rs. 15 crore
14. 10 Common Infrastructure Support Units for shrimp States (Para 3.1.18.18)	Rs. 50 crore
15. 20 composite fish marketing support units (Para 3.1.24.4.3)	Rs.20 crore
16. 2 mother ships (Para 3.2.9.3)	Rs.10 crore
17. 20 minor fisheries harbours (Para 3.2.12.3)	Rs.240 crore
18. 40 fish landing centres (Para 3.2.12.3)	Rs. 120 crore
19. 3 small sized Dredgers (Para 3.2.12.4)	Rs. 30 crore
20. 34 Village Knowledge Centres (Para 3.2.18.3)	Rs. 17 crore

Sub-total:

Rs. 882 crores

Note : A sum of Rs. 3500 crores would be needed for the National Fisheries Development Board, consisting of 50% grant and 50% loan, if the Board is set up.

Enhancing Productivity, Profitability, Stability and Sustainability

Chapter 4.1: Hill Agro-Ecosystem

1. Water conservation tanks with and without distribution attachments	Rs. 356 crore
2. Micro-irrigation, repair of degraded irrigation systems, expansion of lift irrigation, machines and implements for agricultural mechanisation	Rs. 300 crore
3. National Centre on Glacierology	Rs. 50 crore

4.	Special credit and insurance products, transport subsidy	Rs. 500 crore
5.	Market Infrastructure development	Rs. 300 crore
6.	Organic farming certification, model organic villages and marketing	Rs. 250 crore
7.	Capacity building, training, strengthening and mentoring of SHGs, SFEs, etc; Soil Testing Laboratories	Rs. 500 crore

Sub-total: **Rs. 2256 crore**

Chapter 4.2 : Arid Agro-Ecosystem

Part A

1.	Agriculture-Risk Fund	Rs.500 crore (GOI)
2.	Special Insurance Products and Dispensation	Rs. 300 crore (GOI)
3.	Micro-Capital Grant to support drought proofing and to assist and mentor SHGs and SFEs	Rs. 300 crore (SG and GOI)*
4.	Special Market Intervention Scheme	Rs. 100 crore (GOI)
5.	Establishment of modern marketing centre	Rs. 75 crore (GOI)

Sub Total A **Rs 1275 crore**

* Rs.200 crore by the State Government (SG) and Rs. 100 crore by GOI

Part B

1.	Contingency fund	Rs. 500 crore (GOI)
2.	Strengthening horticulture-led diversification	Rs. 300 crore (NHM)
3.	Livestock <i>ex situ</i> germplasm conservation at Suratgarh Farm	Rs. 100 crore (ICAR)
4.	Augmenting water availability by promoting rainwater harvesting, groundwater recharge and water bodies restoration, development and management	Rs. 250 crore
5.	Large scale demonstrations, establishment of fodder, feed and grain banks, Farm Schools	Rs. 300 crore

- | | | |
|----|--|---------------|
| 6. | Soil health care based on soil test, including micronutrients analysis and popularization of agricultural machines and implements | Rs. 200 crore |
| 7. | Commercialization of date palm production, support to micro-irrigation, supply of quality vitroplants and other planting materials | Rs. 120 crore |

Sub-total B

Rs. 1770 crore**

**A sum of Rs. 1770 crore is to be met through redeployment of resources from existing National Horticulture Mission and other National Missions, Watershed Projects, ATMA, ICAR's KVK and other projects and by using the National Rural Employment Guarantee Scheme and the Food for Work Programme.

Chapter 4.3 : Coastal Zone Agriculture

To be worked out

Chapter 4.4 : Mission for the Prosperity of Sugarcane Farmers

Rough assessment of the outlay for the project [5 year time slice] is about Rs 900 crore as under.

- | | | |
|----|---|----------------------------|
| 1. | Intensification of research: establishing a sugarcane breeding centre, strengthening of the molecular biology and genetic engineering capacities and other research work. | Rs.125 to 150 crore |
| 2 | Technology Transfer including the seed multiplication programme and maintenance of nucleus seeds and extension work.. | Rs. 600 crore |
| 3 | Improving productivity of sugarcane: supporting establishment of Soil Testing | |

Laboratories, Tissue Culture Laboratories,

Bio-fertilizer units and service charges to NABARD

Rs. 160 crore

Sub-total:

Rs. 900 crore

Chapter 4.5 : Conservation, Cultivation and Marketing of Medicinal Plants

1 It is recommended that **Rs.1000crore** be made available to the proposed National Mission on MAPs in order to enable it to launch a dynamic programme in the areas of conservation, cultivation, scientific validation, and marketing under distinct brand names.

Rs. 1000.00 Crore

Sub-total:

Rs. 1000.00 Crore

Chapter 4.6 : Organic Farming

To be worked out

Chapter 4.7 : Bio-fuels

To be worked out

Chapter 5 : Agricultural Market Reforms

1 No specific recommendation with additional financial implication made. However, the inter-ministerial task force on Agricultural Marketing [May, 2002] has estimated investment requirements for development of marketing, storage, cold-storage infrastructure during the Xth Plan at **Rs. 12,230 crore.**

Grand Total:

Rs.8337.00 Crore

COMPOSITE ADMINISTRATIVE INITIATIVES

CHAPTER 1: FROM CRISIS TO CONFIDENCE

Immediate Steps needed to prevent farmers' suicides:

- 1 **Credit supply and reform:**
 - There should be a corpus (on the line of calamity funds) for assisting farmers affected by crop losses.
 - Rate of interest may be reduced to 4% simple with government support, instead of compound rate of interest for arrears.
 - Interest on loans in areas hit by drought and floods and for crops under heavy pest infestation, needs to be waived.
 - Introduce a moratorium on debt recovery, including loans from non-institutional sources, till reasonable profit margins are recorded; stagger debt recovery in easy installments
 - Crop insurance cover needs to be immediately expanded to cover the entire country and all crops.
 - Credit should also be available if the farmer is adopting sustainable farming practices including the upkeep of traditional breeds of cattle. NABARD could develop a suitable project for low external input sustainable agriculture and aquaculture (LEISA).
- 2 **Irrigation and Cropping Pattern:** Regulate cultivation of water intensive cash crops in “dark and grey zones”. Agronomists should present their data not just on the basis of productivity per hectare but on the basis of net income per unit of water.
- 3 **Inputs:** Introduce appropriate legislation to regulate and deter the sale of spurious seeds and chemicals; promote community-based and managed seed production and marketing units at the village level; promote integrated pest management and integrated plant nutrient management systems.

- 4 **Agriculture Marketing and Prices:** Implement MSP for coarse cereals and pulses; Create a corpus for stabilizing price fluctuations; Introduce quantitative restrictions on imports of farm commodities which constitute the backbone of the livelihood security system in dry farming areas.

Introduce a **Farmers' Livelihood Security Compact to address the above**

- **State level Farmers' Commission** could be set up for the purpose of ensuring dynamic government response to farmers' problems.
- **Initiate a Census of Suicides** to have a proper understanding, assessment of reasons and count of suicides.
- **Debt survey:** An All India Debt Survey should be undertaken, taking into account newer forms of credit and indebtedness and newer forms of bondage.
- **Debt waiver:** The amount that is to be the cut-off point could be worked out in consultation with Panchayats and farmers' representatives in the distress hotspot areas.
- **Insurance revival:** There are provisions in the insurance laws that allow LIC to revive the lapsed policies, which should be done in the distress hotspots.
- **Revising import policies:** Prevent inferior quality pepper from entering the state from Sri Lanka. Re-examine and revise import duty on cotton
- **Market Support:** There is also need for introducing focused **Market Intervention Schemes (MIS)** in the case of life-saving crops such as cumin in arid areas.
- **Extension work:** Agricultural and Animal Sciences Universities could form **Hope Generation Teams** (like NSS) of young male and female students who could stay in the distress villages during vacations and extend both technical and psychological support. The universities must be accountable to the farming community and not to private interests.
- **Basic services:** There is urgent need for both affordable health insurance, as recommended in the first report of NCF and the revitalization of primary health care centres.

- **Knowledge Empowerment:** Village Knowledge Centres (VKCs) should be established in the farmers' distress hotspots. These VKCs could be linked to a Block level Village Resource Centre (VRC) with the help of the Indian Space Research Organisation (ISRO).
- **Enlarging the export of farm commodities:** The Ministry of Agriculture and ICAR should evolve a policy for ensuring that the appellate basmati is used only for traditional fine grain aromatic rices of great antiquity and of a specific geographic origin.
- Initiate Beyond Tsunami Agricultural Rehabilitation Demonstration programme and give approval for the **Indo-US Collaboration in Agronomic Rehabilitation Strategy in Tsunami affected areas**

Mission 2007 – Every Village a Knowledge Centre

Action Point 1: The Government of India should include in the **Bharat Nirman programme** the establishment of Village Knowledge Centres (VKCs) in each of the about 237,000 Panchayats in the country and in the local bodies in the North East region.

Action Point 2: There is need for convergence and synergy among the numerous initiatives of Central and State Governments in the area of ICT for governance and development

Action Point 3: Connectivity and Content: National Digital Gateways: A Connectivity and Content Consortia involving all relevant government, academic and private sector institutions need to be set up in every district of the country.

Action Point 4: Capacity Building: The Jamsetji Tata National Virtual Academy for Rural Prosperity could be developed as the umbrella organization for capacity building. **A Consortium of Capacity Building Institutions** will have to be organized for each language of communication.

Until 2010, the aim should be the knowledge and skill empowerment of rural women and men with public funds.

The process of obtaining the RSP license should be simple and transparent. We recommend that the Ministries of Agriculture, Rural Development, Panchayati Raj, Communication and

Information Technology and Home may jointly develop a simple set of procedures for RSP license.

Change in Mindset with reference to the role of the Ministry of Agriculture, Government of India

Several farmers' organizations have suggested that the Ministry of Agriculture should be renamed as **Ministry of Agriculture and Farmers' Welfare**. We recommend the serious consideration of this suggestion since farmers' well-being should be the main goal of the Ministry. This will also help to link faces with figures.

NDC Committee on Agriculture: We are happy that a NDC Committee on Agriculture has been set-up under the Chairmanship of Shri Sharad Pawar. We request that the suggestions contained in this Report as well as the earlier one may kindly be examined by the NDC Committee so that appropriate action can be taken concurrently at the Central and State levels.

CHAPTER 2 : FOOD FOR ALL

1. **Access to PDS:** People should be able to access grains from PDS whenever they want, wherever they want and in any quantity they want, subject to a few ground rules which will prevent purchase for hoarding and subsequent sale at high prices. That is, flexibility with regard to time of purchase, place of purchase and quantity of purchase needs to be fitted in to the Public Distribution System.
2. Need for National Urban Employment Guarantee Programme on the lines of the National Rural Employment Guarantee Programme. Introduce a **National Food Guarantee Act** combining the two.
3. Set up **50 SHG capacity building and mentoring centers** in every State, to enhance the management and marketing capacities of members of the Self-help Groups (SHGs).

Such centers can be established in existing institutions like Agricultural, Rural and Womens' Universities, IITs, institutions operated by NGOs, etc.

CHAPTER 3 : FISH FOR ALL

1. State Fishery Department should have exclusive control over stocking, management, leasing, exploitation and conservation of fisheries resources in reservoirs in consultation with Irrigation Department and stakeholders. (Para 3.1.4.2)
2. Fishermen' Welfare Scheme needs enlargement particularly in terms of size of assistance through frequent consultations with stakeholders. (Para 3.1.4.5)
3. Wetlands should be developed by adopting appropriate policies for stocking of various species of fish and shellfishes. This should be done after removal of weeds etc. through Food and Work/ Employment Guarantee Programme. Village Panchayats may undertake this activity in a time bound manner. (Para 3.1.5.1)
4. Sport fisheries and tourism in the hill areas should be encouraged through large scale seed production and stocking of golden mahseer and rainbow trout. (Para 3.1.7.2)
5. The different species of exotic trout (Rainbow/ Brown/ Brook) and indigenous varieties like snow trout should be stocked in the streams in medium and higher altitudes. In lakes and other static water bodies, mirror carp should be stocked through provision of seed and other assistance in order to provide livelihood opportunities to the people living in the hills. (Para 3.1.7.4)
6. National agency for providing HRD support and training to fishers/ aquaculturists/ entrepreneurs/ corporate sector should be set up by restructuring and revitalizing Central Institute of Fisheries Education, Mumbai. (Para 3.1.9)
7. Integrated fish farming in paddy fields and in conjunction with the piggery/ poultry/ duckery should be encouraged through special incentives and by extension agencies/village knowledge centres, especially in the hilly and tribal areas. (Para 3.1.9.5)
8. A professionally managed National Fisheries Development Board should be set up on the pattern of NDDB. (Para 3.1.11)

9. Exotic species such as arctic char and lake trout should be imported for introduction in upland waters in order to provide income opportunity to people in the higher altitudes. Their impact on native biodiversity will have to be monitored. (Para 3.1.12.2)
10. Air breathing fishes should be stocked in shallow, seasonal and weed choked waters, due to the high medicinal value and consumer preference of these species. Their propagation should be encouraged through provision of good quality brood stock to seed farms and through better extension of the technology for their breeding and rearing. (Para 3.1.13.1)
11. Ornamental fish should be further encouraged in view of their export potential and in view of their amenability for production by women in villages as a Cottage industry. This could be through introduction of highly prized varieties and technology dissemination through Village Knowledge Centres. (Para 3.1.14.1)
12. Fish production as a source of family nutrition should be started as a mass movement through promotion of backyard fish farming involving air breathing species such as magur etc., Village Panchayats, Extension Agencies and Village Knowledge Centres must disseminate the required information. (Para 3.1.15.1)
13. Shrimp farming must be further encouraged for global competition by reducing import duties on feed and feed ingredients, reduction in power tariff to bring it at par with Agriculture for small and marginal farmers etc. Fisheries should be treated at par with Agriculture for the purpose of loan on differential rate interest, loan for tube well, power, water rates and income tax as well as assistance for seed/feed/transport. Above all reasonable rates for insurance must be ensured. (Para 3.1.18.5)
14. There should be a national agency to ensure seed certification to ensure quality seed. There should be a registration of all hatcheries in the States and regular inspection of their brood stock and hatching practices. (Para 3.1.18.7)
15. Aquaculture Service Centres/Aqua shops should be set up with laboratory/storage/communication. (Para 3.1.18.8)
16. States Govt. should set up common effluent treatment plants, water testing and disease control laboratory and another infrastructure facilities for shrimp farm clusters. (Para 3.1.18.17)

17. Similarly, an accreditation Cell should be set up to control the quality of feed based on various parameters worked out in consultation with stakeholders and scientists. (Para 3.1.21.3)
18. Department of Animal Husbandry, Dairying and Fisheries (DAHDF) should set up a technical group to develop internationally accepted protocols, which are desirable and feasible for encouragement of organic fish farming in consultation with stakeholders (Para 3.1.23.1)
19. Considering the critical importance of small cold chains in a tropical country like India. Ice plants in the private sector should be encouraged through reduce power tariff, easy availability of credit from Banks, and other operational facilities, which would ultimately result in higher value realization by the fishers. (Para 3.1.24.2.1)
20. Large assembly/auction markets should be designed by Central Institute of Fishery Technology/National Institute of Agricultural Marketing and constructed all over the country by the States with Central assistance to reduce spoilage of fish and promote marketing of fish in hygienic environment. This would encourage greater competition and, therefore, higher prices for fishers. Institutional finance should also be attracted for the purpose. (Para 3.1.24.4.3)
21. States must encourage local bodies to set up hygienic retail fish market in all medium and large towns in the interest of the consumers as well as women who generally market the fish. They could be provided specific grants to work as seed money for drawing institutional finance. Meanwhile Municipal Committees must strictly enforce existing laws for hygienic retailing of fish. (Para 3.1.24.4.4 and 3.1.24.4.6)
22. Women and men who market fish should be provided insulated fish boxes fitted on cycles for mobile marketing of fish to reduce spoilage. (Para 3.1.26.8)
23. There is a need for comprehensive and cohesive set of Aquarian Reforms in order to foster a sustainable and equitable use of both Coastal and inland waters for capture and culture fisheries. (Para 3.1.27.1)
24. A Committee may be set up to prepare proposals for Aquarian Reforms on the lines of land reforms. (Para 3.1.27.2)

25. ICAR centres for the North-East in Barapani should undertake a major programme of seed and brood stock production for species suitable for the North-East, particularly ornamental fish. (Para 3.1.28.7)
26. A coordination council consisting of coastal states and Govt. of India should be set up to review issues relating to better exploitation of EEZ. (Para 3.2.3.1)
27. States should be assisted by Govt. of India to amend their Marine Fishing Regulation Act in a time bound manner, in tune with the latest developments in sustainable utilization of marine fisheries resources. (Para 3.2.4.2)
28. Juvenile harvest should be reduced to the maximum possible extent by introduction of appropriate fishing gear including regulation of cod end net size in line with the technology from CIFT. (Para 3.2.4.5)
29. Restriction in area for resource specific fishing, prolonged seasonal closure for conservation, protection of juvenile and spawners during breeding season should be enforced more strictly by the states in consultation with the stakeholders. (Para 3.2.4.8)
30. Small trawlers should be encouraged through incentives to fish further off shore. (Para 3.2.4.10)
31. Pelagic and mid water trawling should be encouraged through incentives. (Para 3.2.4.11)
32. Research and development efforts should be aimed at developing fuel-efficient fishing craft/gear/methods as well as energy efficient hull designs. (Para 3.2.4.12)
33. Remote sensing for dissemination of information on potential fishing grounds should be undertaken more effectively through provision of communication facilities that can provide real-time information to the small-scale fishing sector. (Para 3.2.5.1)
34. Regular stakeholders consultation should be held to discuss new policy initiatives and constrains. (Para 3.2.6.2)
35. Introduction of resource specific vessels for long lining, purse seining and squid jigging should be taken up on top priority. Mechanized vessels below 20 m. length need major improvements in design for longer voyages. (Para 3.2.8.4)
36. Modern fishing vessels of 15-19 m. OAL are needed to exploit areas between 90-150 m. depths. (Para 3.2.8.4)

37. Mother vessels for on board processing and with refrigerated holds should be introduced to permit longer voyages by fishers. (Para 3.2.9.3)
38. A time bound programme should be undertaken to improve the hygiene and infrastructure facilities at the fish landing centres and fishing harbours including establishment of Aqua shops etc. (Para 3.2.12.2)
39. New minor fishery harbours and fish landing centres should be constructed in accordance with the Master Plan to comfortably accommodate the boats in operation and also ensure hygiene standards particularly for exports. (Para 3.2.12.3)
40. A Central Fishery Harbour Development Authority for composite planning and efficient management of all fish harbours and landing centres should be set up. (Para 3.2.12.6)
41. States must liberalize their leasing policies for promoting mariculture. (Para 3.2.13.2)
42. An All India Coordinated Research Project on Mariculture should be set up for transfer of technology and demonstration to tap the eminence opportunity available in the coastal area for mariculture. (Para 3.2.13.3)
43. States must also formulate/liberalize leasing policies to encourage establishment and the use of Artificial Fish Habitats (AHD) for higher yield of oceanic tuna and Artificial Reefs to provide shelter to fish for breeding and feeding etc. (Para 3.2.15.1 and 3.2.15.2)
44. An All India Master Plan for HRD should be prepared and Fish for All training centres on the pattern of KVKs should be set up for capacity building of fishers. (Para 3.2.18.2)
45. A comprehensive legislation to regulate Indian Fishing Vessels in our EEZ should be promulgated. It should prohibit transfer of catch on high seas and provide further catch to be unloaded only on Indian soil where sufficient spare capacity exists for processing. (Para 3.2.19.1)
46. A separate Department of Fisheries under the Ministry of Agriculture should be set up in the Government of India. (Para 3.2.21.1)
47. State wise Fresh Water Aquaculture Development Plan prepared by CIFA, Bhubaneswar under ICAR, should be discussed with concerned states by DAHDF to identify constraints and ensure speedy implementation with appropriate inputs. (Para 3.2.22.1)

ENHANCING PRODUCTIVITY, PROFITABILITY, STABILITY AND SUSTAINABILITY

CHAPTER 4.1 : HILL AGRO-ECOSYSTEM

1. A National Hill Coordinating Centre should be established to integrate all programmes of the Govt. of India on Hill Agriculture. The Centre may be chaired by the Union Minister for Agriculture and closely linked with other concerned Ministries and the National Development Council.
2. A National Hill Agriculture and Livelihood Development Fund should be created for judicious implementation of Hill Policy.
3. The existing North Eastern Council and Western Ghat, Eastern Ghat and Deccan Plateau Development Programmes should be overhauled.
4. A Hill Farmers' Council for Sustainable Food Security should be established to coordinate various ongoing programmes related to food security.
5. The Land Use Boards should be restructured to be able to advise farmers on agro-economical, ecological and market opportunities.
6. A National Research Centre on Glacierology should be established for collection, storage and dissemination of information on status of seasonal/perennial snow and ice and for research leading to systems for early, medium and long term warnings.
7. Implement the recommendations of the Swaminathan Committee recently made for strengthening R&TD and human resources development and deployment in NER.
8. The National Horticulture Mission should allocate adequate funds to hill States to establish mother nurseries and progeny orchards of identified varieties. It should give highest priority to value addition, processing, prevention of post-harvest losses and marketing.
9. Seed Banks should be established and preferably operated by SHGs and WSHGs to ensure regular flow of quality planting material.
10. Separate Regional Master Plans for Market Development in NER and NWR should be prepared.
11. GOI should assist banks to cover undue risk in hill agriculture.

12. All agricultural development programmes should be engendered. The indigenous and traditional knowledge uniquely held by female farmers of the hills not only should be protected but also duly rewarded.

CHAPTER 4.2: ARID AGRO-ECOSYSTEMS

1. **Arid region be separated from semi arid regions of the country for an exclusive policy for drought proofing, land management and livelihood security.**
2. Various ongoing Central and State Plans in the region should be coordinated by the proposed MoA-hosted National Authority for Dryland Farming Areas (NADFA). A National Committee on Sustainable Land Management (SLM) in Arid Agro Ecosystem under NADFA should be constituted to monitor the outcome of various programmes in the region.
3. Arid Zone States should constitute State level Committees, which conjointly with the National Committee should ensure timely flow of the earmarked funds through the District Sustainable Land Management Consortium to Panchayati Raj Institutions.
4. During the next seven years, both Central and State Governments should at least double their investments in arid zones in particular and fifteen percent of the development budget should be allocated to on-farm strategic research.
5. Fodder, feed, food, grain, seed and water banks should be established at strategic points and preferably operated by SHGs.
6. Various water-related development programmes should be coordinated under one umbrella and synergised under the District SLM Consortium.
7. Each KVK should be augmented with a post-harvest technology unit and may be redesignated as Krishi and Udyog Vigyan Kendra (KUVK).
8. Suratgarh Farm (Rajasthan) should be developed as an *ex situ* arid zone livestock germplasm repository.
9. The ICAR should establish a cold arid regional sub-station at Ladakh to generate technologies and develop new strategies for capturing the opportunities of the region.

CHAPTER 4.3: COASTAL ZONE AGRICULTURE

1. Initiate Programme on “**Sea Water Farming for Coastal Area Prosperity:** Establishment of **agro-aqua farms** in about 50,000 ha in the States of Gujarat (Kutch), Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Orissa and West Bengal, as well as in Andaman and Nicobar and Lakshadweep Islands. Coastal wastelands could be identified for this purpose.
2. Establish **Women’s Aquaculture Estates** along the coast through Women’s Development Corporations and financial institutions for the purpose of assisting *dalit* and fisherwomen to take to sustainable and profitable aquaculture.
3. There is need for a **Coastal Systems Research Programme (CSR)** on the lines of Farming Systems Research Programme carried out in inland areas. We recommend that ICAR may initiate an All India Co-ordinated Research Programme on coastal agriculture jointly with CSIR.
4. A **National Board for Sea Water Farming** (agriculture will cover crop and animal husbandry, fisheries, forestry and agro-forestry) may be set up under the Chairmanship of Minister for Agriculture and Food with the Ministers in charge of Environment and Forests, Science & Technology, Ocean Development, Water Resources and Commerce and senior representatives from all the Coastal States and Andaman & Nicobar and Lakshadweep Islands as Members.

CHAPTER 4.4 : MISSION FOR THE PROSPERITY OF SUGARCANE FARMERS

1. A Technology Mission on Sugarcane (TMS) is suggested for 5 years for improving the productivity and quality of sugarcane so as to have enough sugarcane to produce annually 25 million ton of sugar without any increase in the area under the crop.

2. The TMS may be placed under the exclusive charge of a senior officer of the Govt. of India to be designated as 'Mission Director'.
3. In the major sugarcane producing States, the Governments may designate a State level 'Mission Director' to act as 'nodal officer'.
4. A High Level Committee of 15 members with representatives from the Government of India, States Government [on rotational basis] banks [rotational basis] Research Institutions, NABARD, RBI, Industry and Farmers under the Chairmanship of the Hon'ble Union Agriculture Minister to oversee the programme.
5. Similar Committees in the ten major sugarcane producing States be constituted.

CHAPTER 4.5: CONSERVATION, CULTIVATION AND MARKETING OF MEDICINAL PLANTS

1. Set up National Mission on Medicinal and Aromatic Plants. To start with, it maybe a **Mini Mission under the National Horticulture Mission**. The Mission should have a **Policy Guidance Committee (PGC)**, an apex level body comprising the Ministers of Agriculture, Health, Environment & Forests, Commerce and Science & Technology, to give direction. The PGC could guide the restructuring of the National Medicinal Plants Board (NMPB) on the lines of NDDB.
2. **Medicinal Plants Growers' Associations** each covering about 100 ha could be formed on the model of SHGs
3. **Pricing:** The Commission on Agricultural Costs and Prices (CACP) of the Ministry of Agriculture, in close consultation with the Ministry of Environment and Forests, and Department of AYUSH of the Ministry of Health, particularly the NMPB, and Ministry of Commerce, should address the problem of pricing.
4. **Herbal Biovalleys** may be developed on the model of the Silicon Valley for providing the infrastructure needed for the conservation and sustainable use of medicinal plants. A Project Design Team may be immediately constituted with members drawn from the

NMPB, NBDB, NHM, NABARD and APEDA, to prepare a Business Plan for the world's first Herbal Biovalley in Kerala as recommended by the Kerala Commission on WTO Concerns in Agriculture, and at other suitable locations in Western and Eastern Ghats, and western, central, eastern, Himalayas and in the N E Region.

CHAPTER 4.6: ORGANIC FARMING

1. Promote formation of Small Farmers' **Organic Agriculture Estates and Organic Farmers' Clubs**
2. Organize a **National Federation of Organic Farmers' Associations** on the pattern of IFOAM.
3. **Organic Farming Zones** can be promoted under the National Horticulture Mission for fruits, vegetables, tea, spices and medicinal plants, so that certification and quality control become easy.
4. Develop a national strategy for organic farming, specifying regions, crops and seasons, ideal for raising crops through organic farming techniques.

CHAPTER 4.7: BIO-FUELS

1. A well-defined **Biofuel policy** based on science and economics needs to be developed jointly by the Union Planning Commission, Ministries of Agriculture, Rural Development, Petroleum, Non-Conventional Energy Sources and Science & Technology. ICAR and CSIR will have to be actively associated.
2. **Set up a National Biofuel Board.** The Board may have the following composition:

Chairperson	:	An eminent professional in the area of biofuels
Members	:	Member (Agriculture) incharge of feedstock production
		Member (Processing and quality control)
		Member (Marketing, industry-farmer linkages through contract purchase etc.)
		Member (Centre – State coordination, linkages with private sector, global technology watch)

A Board of the above kind may function like the Atomic Energy Commission with specific targets, autonomy and accountability.

CHAPTER 5: AGRICULTURAL MARKET REFORMS

1. The APMC Act in different States/Union Territories needs to be amended on the lines of the draft of the amended. APMC Act circulated by the Government of India. It would encourage private sector investment in development of agricultural marketing.
2. Need for review of the Essential Commodity Act and other Acts/Orders concerning storing, marketing and processing etc of the agricultural commodities.
3. Improve the marketing infrastructure and bring about more transparency in auction and other marketing related matters in the regulated matters.
4. The role of the Agricultural Produce Marketing Committees and the State Agricultural Marketing Boards to change from regulation to development and promotion of markets for the local products and better marketing practices.
5. Restructure the Land Use Boards and provide technical support to them to give pro-active advice to the farmers based on meteorological, marketing and managerial information on matters concerning choice of crops/varieties/timing/marketing etc.
6. Establish commodity based farmer's organisation to develop market orientation among the farmers and articulate farmer's issues on commodity basis.
7. Develop a farmer centric 'Code of Conduct' for contract farming and encourage farmer's groups/organisations to deal with the purchaser/processor.

Reduce the post harvest losses by training, development of appropriate equipments, facilities and also tightening of the supply chain. Encourage farmer's groups/cooperative societies to involve in marketing of agricultural produce.