

REPORT OF THE WORKING GROUP ON

AGRICULTURE STATISTICS

FOR THE TENTH FIVE YEAR PLAN



**GOVERNMENT OF INDIA
PLANNING COMMISSION
New Delhi**

June 2001

REPORT OF THE WORKING GROUP ON AGRICULTURE STATISTICS FOR THE TENTH FIVE YEAR PLAN

Contents

EXECUTIVE SUMMARY	i-iv
I. INTRODUCTION	1-4
1.1 Genesis	
1.2 Terms of Reference	
1.3 Composition	
1.4 The Approach	
II. THE SYSTEM AND ONGOING SCHEMES - AN OVERVIEW	5-9
2.1 The Coverage	
2.2 The system	
2.3 The Plan Schemes	
2.4 National Statistical Commission (NSC)	
2.5 Review by Planning Commission	
III. STRATEGIES FOR TENTH PLAN	10-32
3.1 The Strategy Framework for 10 th Plan	
3.2 Institutional	
3.3 Crop Calendar	
3.4 Crop Statistics	
3.5 Horticulture Statistics	
3.6 Crop Statistics and NAIS	
3.7 Crop Forecasting, Applications of Remote Sensing and Use of IT	
3.8 Agriculture Census	
3.9 Estimation of Cost of Cultivation of Crops	
3.10 Agricultural Market Intelligence	
IV. ANNEXURE	33-62

EXECUTIVE SUMMARY

The Working Group on Agriculture Statistics for the formulation of Tenth Five Year Plan, set up by the Planning Commission reviewed the present system of agricultural statistics, various ongoing Central schemes, methodologies thereof, institutional aspects and new initiatives taken in the recent past to suggest the strategies for the Tenth Plan. The Working Group coincided with the comprehensive review of the Indian Statistical System including that of agricultural statistics made by National Statistical Commission (NSC). Hence, the strategies suggested by the Working Group have taken the crucial input from the recommendations made by NSC in its Interim Report.

The salient recommendations made by the Working Group are summarized as under:

- On the issue of convergence of the scheme the Working Group inferred that when the schemes are on mutually exclusive domains and/or have different objectives, then their convergence may not be feasible. However, the schemes with broader similarity of purpose can be put under one umbrella scheme. This umbrella scheme can be a comprehensive one with different components of existing schemes and their respective objectives, domain and budgetary outlays. (para 3.1.4)
- The Working Group realized the importance of addressing institutional issues for effective coordination and monitoring of agriculture statistics system which is decentralised and is built around federal structure of governance. It is necessary for the DES to have the proper set up of Statistical professional with appropriate senior level composition for discharging its role as the nodal agency for Agricultural Statistics for the country. (para 3.2.1 to 3.2.4).
- The Working Group acknowledged the contribution of NSSO for undertaking the exercise of providing an up-to-date calendar on all aspects of Agricultural Operations at disaggregated level. (para 3.3.2).
- The Working Group acknowledged the importance of TRS and EARAS schemes. However, it was noted that the TRS Scheme is not functioning properly in several States. Huge workload of Patwari has been one of the factors responsible for this state of affairs. There is a need for administrative toning so that there is accountability for work at various levels for authenticity and timely data reporting as envisaged in TRS. (para 3.4.2 and 3.4.3)
- The crop coverage under TRS estimation programme may have to be made broad based. (para 3.4.6).
- NSC has recommended that TRS may be made as a scheme of National importance to streamline the operational aspects and derive full benefits from the Scheme. NSC expects a properly implemented TRS can even form the basis of official estimates of crop area. The Working Group deliberated on these issues and while endorsing their recommendations, it was felt that the issue needs to be taken up with the States so that TRS is given due importance and implemented with adequate support. However, it was noted that it might not be feasible to provide honorarium to Patwaris for doing TRS work since the Girdawari is his normal duty. (para 3.4.7).
- The scope of TRS may need to be expanded with the component of training of primary workers and their supervision. The sensitisation of primary workers through training and

- orientation workshops may be in built in the framework of the scheme. The training and supervision of primary workers may need to be augmented in the EARAS scheme as well. (para 3.4.8)
- The Working Group also realized the inadequacy of basic computational facilities at the grass root level. The TRS may at least cover the provision of pocket calculators to the primary workers to facilitate aggregation and area consolidation in time. (para 3.4.9)
 - The Working Group is in broad agreement with the recommendations of the Expert Group set up by NSC for strengthening of ICS scheme and modification of survey design. The basic objective of the re-oriented ICS programme should be to provide additional inputs to the State Governments through the system of correction terms to calibrate the State estimates of crop area and production so as to improve the quality and timeliness of the official estimates. However, the Working Group recognizes the need to discuss these recommendations with the State Governments before implementation of the scheme. (para 3.4.13)
 - The Working Group strongly feels that in the North Eastern Region the technique of Remote Sensing, as envisaged in the proposed Phased implementation of FASAL, could be profitably experimented for obtaining estimates of area under crops. (para 3.4.14)
 - The Working Group emphasized the crucial role of harmoniously organised supervision function for ensuring adoption of uniform concepts and methods used in decentralized operations in the realm of Agriculture Statistics. The mechanism similar to ICS should be inbuilt in all the Central Plan Schemes of data generation. It is important that the money earmarked for the schemes should serve the desired purpose and both Planning Commission and Ministry of Agriculture have vital roles to play in this regard. (para 3.4.15)
 - It was observed that there are inherent lacunae in the sampling frame from TRS used in the GCES and this aspect needs attention by States, NSSO and DES to ensure that the system of working out yield estimates is on scientific lines. (para 3.4.16)
 - The Working acknowledged that the horticulture statistics is a weak link in the agricultural statistics system. It was also noted that during the 9th Plan, the crop estimation surveys for fruits and vegetables (CES FV) scheme was proposed to be implemented with full coverage, but its operation remained truncated due to non availability of resources. The scheme also lacked the provision of central supervision; as a result monitoring arrangements were inadequate. The methodological and institutional arrangements are required to be examined in detail. In this context, the Working Group felt that a sample survey of Horticulture Crops may have to be conducted in all the States at the earliest adopting the approach of farmers' appraisal instead of the traditional method of obtaining the area under crops and multiplying area estimates with yield rates to get the estimated production. The Working Group has emphasized that the Pilot Survey which has been in existence for several years during the 8th & 9th plan in 11 States has not yielded the desired results to obtain estimates of area and production under Horticulture Crops at India level and therefore, there is a need to immediately launch a survey programme aiming at obtaining India estimates on scientific basis. To cross validate such data collected through farmers' appraisal, it would be desirable to take into account the market arrival data as also Export/Import statistics and NSS consumption data in respect of Horticulture Crops. . Till such time the new methodology is perfected the present scheme may continue in the 11 states where it is currently operated and thereafter the existing scheme should be merged with the proposed scheme. (para 3.5.1 to 3.5.7)

- The Working Group endorsed the recommendations of NSC regarding de-linking of crop cutting experiments (CCE) conducted for National Agriculture Insurance Scheme (NAIS) and that of General Crop Estimation Surveys (GCES) to guard the estimates from the bias of insurance stakeholders. It is noted that the Ministry of Agriculture & Cooperation as recently decided to adopt the method of small area approach through farmers appraisal survey for the purpose of estimation of yield for NAIS. A pilot study involving the procedure of sealing down district estimates to gram panchayat level has been taken up. The working group endorsed the small area approach for insurance and noted that the methods may be finalized early in consultation with states. It may be necessary to have suitable budgetary provision in the 10th Plan to meet the expenditure under NAIS in view of the proposal to adopt small area estimation for NAIS. (para 3.6.1 to 3.6.7)
- In view of the recommendations to develop alternate methodology and not to have Crop Cutting Experiments for purpose of NAIS, the Working Group recommends that it is necessary to have a re-look on the size of crop cutting experiments for various crops in the States so as to arrive at the minimum sample size required for estimation of yield rates at district level under the GCES programme. The Working Group considers that the reduction in the size of the crop cutting experiments will improve the quality of estimates of yield rates with reduction in the non sampling errors in the conduct of un-manageable crop cutting experiments in several States and without having adequate trained primary workers for doing the crop cuts. (para 3.6.6)
- The Scheme for setting up the National Crop Forecasting Centre in the Ministry of Agriculture (NCFC) had commenced from December 1998 but the posts for small professional contingent as per approved SFC have not yet been created. As a result, NCFC has only been able to discharge bare minimum functions and has not been able to create linkages with State nodal points. The Working Group recommends that the required professional contingent for NCFC should be provided so that data organisation, its analysis and use of state of art computational tools and skills are done to keep methodological development and its adoption resulting in objective forecasting procedures. The States should be assisted by the Centre in adopting the objective techniques in consonance with the operations of NCFC. (para 3.7.1 to 3.7.3)
- The Working Group recognizes the critical role of space applications in agricultural statistics and the proposed scheme of Forecasting Agricultural output using Space, Agro-meteorology and Land based Observations (FASAL) in improving Crop Statistics with the use of Remote Sensing Technology and, therefore, recommends that the scheme should be put in operation during the 10th Plan. (para 3.7.4) .
- The Working Group observes that FAO had been advocating use of remote sensing images in making area sampling frames, which can be used in the conduct of ground based Crop Estimation Surveys. Based on the experience of the Pilot Study conducted by NSSO and SAC, Ahmedabad and keeping in view the FAO's suggestions, the Working Group recommends that development of such area sampling frames using remote sensing images should form an integral part of the scheme of FASAL. (para 3.7.5)
- The Working Group recommends the concerted efforts for human resource development for use of IT applications at various levels and appropriate augmentation of resources in the Central Nodal Agency as well as at the State nodes. (para 3.7.7)

- Regarding integration of agricultural census and livestock census operations and taken together in a 20% sample of villages a limited pilot investigation may be carried out to firm up the procedures of integration. The Working Group is also of the view that the pilot study should be taken up before undertaking the agricultural census with reference year 2005-06 which will fall in the period covered by the 10th Plan. The Group recommends that the pilot study may be organized in the first year of 10th Plan itself so that its findings could be used for the planning of 2005-06 Census. (para 3.8.5)
- Since the preparatory work for launching the Agricultural Census with reference year 2000-01 has already been completed hence the Agricultural Census with reference year 2000-01 will have to be on the same basis as in the past. (para 3.8.5)
- The Working Group also noted that there are certain organizational weaknesses with regard to conduct of Agricultural Census like absence of a proper statistical set up in the Ministry for this large exercise and endorsed the recommendation of NSC for restoring the post of Agriculture Census Commissioner to be manned by a Senior Statistician considering the technical aspects of the exercise, the level of operations, liaison with the States and the responsibility to steer the agricultural census smoothly. (para 3.8.5)
- To streamlining the existing arrangement for Cost of Cultivation Surveys, it is suggested that the comprehensive review on Cost of Cultivation of Crops should be undertaken by DES with the help of Expert Bodies like IASRI & NSSO and streamline the organization and management of these studies in the 10th Plan. (para 3.9.4)
- Regarding the Plan scheme of Market Intelligence Units (MIUs) provides for 14 MIUs furnishing reports on market arrivals, off-take, stocks, crop prospects and outlook of market prices. It is recommended that the functions and staff requirements of MIUs should be re-evaluated and appropriate measures taken to streamline the Scheme. (para 3.10.2)
- Acknowledging the initiative taken by the Directorate of Marketing and Inspection for integrating various markets in the data network for easy accessibility of prices and market arrival data it is recommended that the Statistical Wing in Directorate of Marketing and Inspection therefore may need to be strengthened for this purpose. (para 3.10.3)
- The working Group also looked into the mechanism of Government Intervention in the market and the data thereof and expected that the strengthening of the system of market information would therefore benefit these data as well. (para 3.10.4)

I. INTRODUCTION

1.1 Genesis

The complexity of any statistical system depends upon the diversity in its domain, multiplicity of parameter and inter-linkages between and within the organisational organs engaged in its generations, collation and dissemination. The Indian Agricultural Statistical System owns such complexities. Yet the redeeming feature of Indian agricultural statistics system is its wide coverage. Further, in spite of its inbuilt rigidities, it had in the past responded to the emerging needs of different periods.

1.1.2 The States mainly undertake the generation of basic agricultural statistics because the subject of agriculture is in the State list of constitution. However, the subject of Statistics is under the concurrent list of the Constitution of India and this enables the Central Government to take initiatives in this regard in the national perspective. The initiative of the Central government to operate important schemes for generation and improvement of agricultural statistics becomes inevitable to facilitate the availability of these statistics at national level, desegregated in the desired administrative hierarchy in a harmonious manner, adopting unified concepts and methodology which otherwise is not convenient in the highly decentralised federal structure in which the agriculture sector is placed. Various schemes with this broad perspective have been operated during the 9th plan and in the earlier plans. The derivatives of these schemes however are required to be reviewed and synchronised with the contemporary needs. Accordingly, the Planning Commission constituted vide its order no. M-12043/4/2000-Agr. Dated 13th November 2000 (Annexure I) a Working Group on Agriculture Statistics for formulation of the 10th Five Year Plan (2002-07) with following terms and reference:

1.2 Terms of Reference

1. To review the present system of Reporting of agricultural statistics, identify and adopt uniform set-up of concepts and definitions for reporting of data on Agriculture statistics by different agencies under Union Government and State Agriculture Statistical Authorities (SASA).

2. To study the existing system of methodology of collection of agricultural statistics and evolve a systematic approach towards Crop Forecasting and Advance Estimates of various agricultural crops including horticultural crops.
3. To suggest ways and means for evolving appropriate Crop Calendar and improve the methodology for area estimates, yield estimates and production estimates.
4. To identify the extent of divergence and inconsistencies between different sets of data for agriculture, collected by the various agencies such as Agriculture Census, Land and Livestock Holdings Survey etc. and suggest appropriate remedial measures.
5. The question of collecting reliable information on Tenancy, both open and concealed in the form of share cropping arrangements, as a part of the Agricultural Census may be examined and suitable measures may be suggested.
6. To study existing status of cost of cultivation studies, collection of data of prices, procurement of food grains and other crops under Price Support Operation/Market Intervention Scheme (MIS) and livestock etc at the level of mandi, wholesale markets, retail markets, primary marketing center etc. and suggest corrective measures, if necessary.
7. To critically review the ongoing Central Sector and Centrally Sponsored Schemes relating to Agriculture Statistics and National Centre for Crop Forecasting and suggest measures for appropriate modifications/introduction of the schemes for strengthening of data base.
8. To identify the training needs of the statistics officials/investigators, identify the gaps in their competence and suggest suitable package for training methodology.
9. To identify the area of Agriculture Statistics, where appropriate use of information Technology could be put into operation.

1.3 Composition

1.3.1 The composition of the Working Group was as follows:

- | | | |
|--|---|----------|
| i. Dr. N. S. Sastry,
DG & CEO, National Sample Survey Organisation,
Sardar Patel Bhawan, New Delhi | - | Chairman |
| ii. Dr. Ahmed Masood
Advisor (PAMD), Planning Commission, New Delhi | - | Member |

- | | | | |
|-------|---|---|-------------------|
| iii. | Shri D. K. Trehan,
Economic and Statistics Advisor
Directorate of Economics & Statistics
Department of Agriculture & Cooperation, Krishi Bhawan, New Delhi | - | Member |
| iv. | Shri. M. Neelakantan,
Deputy Director General,
National Sample Survey Organisation
(Field Operations Division), New Delhi-110062 | - | Member |
| v. | Horticulture Commissioner
Department of Agriculture & Cooperation
Krishi Bhawan, New Delhi | - | Member |
| vi. | Animal Husbandry Commissioner
Department of Agriculture & Cooperation,
Krishi Bhawan, New Delhi | - | Member |
| vii. | Fishery Development Commissioner
Department of Animal Husbandry & Dairying,
Krishi Bhawan, New Delhi | - | Member |
| viii. | Shri M. Lall,
Joint Advisor (Agri.), Planning Commission,
New Delhi | - | Member |
| xi | Dr. S. D. Sharma,
Director,
Indian Agricultural Statistics Research Institute, New Delhi | - | Member |
| x. | Shri R. S. Kanade
Director (Agri.), Planning Commission, New Delhi | - | Member |
| xi. | Dr. Rajiv Mehta,
Additional Statistical Advisor
National Crop Forecasting Centre, Krishi Bhawan, New Delhi | | -Member Secretary |

1.3.2 During the deliberations, the Working Group had also consulted various expert and special invitees (Annexure II).

1.4 The Approach

1.4.1 The Working Group made a comprehensive review of the system and the schemes which have been operated during the ninth plan. The task before the Working Group was also focussed on the recommendations of National Statistical Commission (NSC), the interim report of which became available during its tenure. Therefore, the Working Group took stock of the objectives and operational frame work of the ongoing schemes and synthesised it in the context of NSC recommendations.

1.4.2 Working Group had five meetings on 31st January 2001, 18th April 2001, 27th April 2001, 23rd May 2001 and 19th June 2001. The Working Group was expected to submit its report by 31st March 2001. The work of the Working Group coincided with the submission of the interim report of National Statistical Commission in February 2001 and the Working Group had referred various recommendations on Agricultural Statistics in its deliberations. Hence, the Working Group was granted three months extension to submit the report by 30th June 2001.

1.4.3 During the second meeting, the State Agricultural Statistics Authorities (SASAs) of some of the States were also invited to apprise the Working Group about the salient features of the system prevalent in the States particularly in the context of Centrally sponsored / Central sectors schemes relating to Agricultural Statistics. The States of Kerala, Andhra Pradesh, Karnataka and Madhya Pradesh, participated in the discussions.

1.4.4 While deliberating on the terms of reference (TOR) in the context of statistics relating to animal husbandry, Working Group noted that there is a Sub-Group on Livestock Statistics of the Working Group set up for Animal Husbandry, which would be dealing with livestock statistics and fisheries statistics. Hence the Working Group on Agricultural Statistics has not covered these issues.

1.4.5 This report has been endorsed by all the Members and the Chairman except Dr. Ahmad Masood, Adviser, PAMD, Planning Commission. Dr. Masood, endorsed this report subject to his observations, communicated vide his d.o. letter No.M-12016/2/2001-PAMD dated June 27, 2001 (Appendix).

II. THE SYSTEM AND ONGOING SCHEMES - AN OVERVIEW

2.1 The Coverage

2.1.1 The subject of Agricultural Statistics revolves around crop statistics with crop area, production and yield as its main parameters. Since agriculture is a land based economic activity, the Land Use Statistics (LUS) has a primacy in the agricultural statistics. LUS is a comprehensive and systematic account of natural endowment of land spanning over 328 million hectares of geographic space of the country, adopting the uniform concept of nine fold land use classification. Crop area statistics is the major segment of LUS. Crop statistics assimilates the diverse agro climatically influenced crop acreage and production details of numerous crops, grown over 142 million hectares net sown area with about 135 percent cropping intensity.

2.1.2 The area statistics broadly covers the utilisation pattern of land with detailed statistics relating to land put to agricultural uses. This includes the area sown under different crops in different seasons. On the other hand, yield statistics deal with productivity of land, in respect of various crops. The estimates of crop production are derived from the product of crop area and the crop yield estimates.

2.1.3 The domain of agricultural statistics also covers social and economic aspects of the activities such as land holding pattern, cost of cultivation, whole sale and retail prices and market intelligence. Since the agricultural activities are dependent on the agro-climatic conditions and for a large country like India, these conditions are divergent across its length and the breadth, the collection of data requires large scale sample surveys, assimilating the diversities in its coverage.

2.1.4 The distinctive feature of crop area and production statistics is that it matured over the past couple of centuries as a part of land revenue record system in most part of the country. It also became the basis for many other ventures for data generation and decision support. It was augmented and supported in the planning process to meet the emerging needs and to ensure its statistical credibility.

2.1.5 In recent years, the demand for reliable statistics and forecasts of crop prospects has increased for management of agriculture and food security. The system for forecasting and early warning mechanism for the agricultural scenario using newer technologies such as Remote Sensing and Agro – Meteorology gained importance, particularly in the context of time utility of the forecasts in decision making. The objective assessments so derived using rational and scientific approach also guards the statistics from possible non sampling errors due to human bias, non response and other such factors.

2.2 The system

2.2.1 The system of area statistics and yield statistics in India is generally dovetailed with a well-established land revenue system having systematic record of each field (survey number) based on periodically updated cadastral survey of the villages. The statistics of land utilization and crop area statistics flow chiefly as a by-product of the land records prepared for different seasons, annually by the revenue agencies on field to field enumeration basis in all States except Kerala, Orissa and West Bengal where these statistics are based on the method of random sample surveys. The primary reporter of the Revenue Department generally known as Patwari maintains for each village a basic register called the Khasra (Record) register, which gives information for each survey number (Field) regarding total area, name of the owner and operator, tenure and tenancy rights, area under different land-uses, and in case the land is cultivated, area under different crops, fruit orchards, irrigated areas under crops, sources of irrigation etc. After the entries in the basic village register are completed for a season, the primary reporter prepares a village-wise crop abstract giving area under different crops for every season. Annual abstracts of different land uses and of area irrigated from different sources are also prepared. The village totals are aggregated to obtain the figures for successive administrative levels like tehsils, districts, States and for the country as a whole.

2.2.2 In order to bridge the data gaps in the North-Eastern States, the initiative of expanding the coverage of EARAS was taken in the Eight Plan and the EARAS scheme proposal for the Ninth Plan had included four North-Eastern States, namely, Arunachal Pradesh, Nagaland, Sikkim & Tripura.

2.2.3 The Directorate of Economics & Statistics (DES) in the Department of Agriculture & Co-operation is the nodal official agency for collection, compilation and publication of major agricultural statistics. On the basis of data received from the States, the consolidated all India estimates are generated by the DES and made available to various user ministries/departments of the Government of India as well as States. The estimates are up-dated/revised on regular interval on the basis of data received from the States. Hence the DES has the crucial responsibility of coordination, monitoring and liaison with the federal States for ensuring quality, timeliness, concepts and coverage of agricultural statistics and accordingly, majority of the plan schemes on these aspects are operated through DES. The livestock census is one of the oldest statistics generation exercise in the country and is also coordinated by the DES. The market intelligence generally flow as the by product of agricultural marketing system and is coordinated by DES as well as Directorate of Marketing and Inspection (DMI).

2.2.4 The Agricultural Census, providing details of land holding parameters and input statistics is conducted quinquennially under the aegis of Department of Agriculture and Cooperation in collaboration with States.

2.3 The Plan Schemes

2.3.1 Though Agriculture is a state subject, the statistics is in concurrent list. This enables both Central Government as well as the State Governments to formulate and implement the schemes on Statistics to meet the respective needs of planning and decision making.

2.3.2 Various Central Sector/ Centrally Sponsored Schemes for agricultural statistics during 9th Plan are listed below :

- i) Timely Reporting Scheme (TRS)
- ii) Establishment of an Agency for Reporting Agricultural Statistics (EARAS)
- iii) Improvement of Crop Statistics (ICS)
- iv) Strengthening of Agricultural Statistics and Policy Formulation
- v) Crop Estimation surveys on Fruits and Vegetables (CES FV)
- vi) Crop Acreage and Production Estimation (CAPE)

- vii) Special Data Dissemination Standards (SDDS)
- viii) National Centre for Crop Forecasting (NCCF)
- ix) Live Stock Census
- x) Estimation of Cost of Cultivation
- xi) Agriculture Census
- xii) Early Warning System
- xiii) Market Intelligence

2.3.3 The Working Group reviewed the scope and coverage of the existing schemes, their strengths and weaknesses.

2.4 Review by Planning Commission

2.4.1 In a meeting held on 15th November 2000, under the Chairmanship of Principal Advisor (Agriculture), Planning Commission, various issues concerning the agriculture statistics schemes were discussed. The important issues brought out of this review (Annexure II) are summarised as under :

- Adherence of the time schedule in the TRS scheme
- Response mechanism to the findings of the scheme of Improvement of Crop Statistics
- Attaching higher priority to the scheme of TRS
- Addressing operational and conceptual issues of crop estimation surveys for fruits and vegetables and streamlining the scheme to bridge the data gap of this vital sub sector of Agriculture sector.

2.5 National Statistical Commission (NSC)

2.5.1 Acknowledging the growing concern about the credibility, adequacy, quality and timeliness of official statistics, the Government of India decided to have a critical examination of the present statistical system with a view to suggest remedial action. Accordingly, the National Statistical Commission, first of its kind, was set up under the Chairmanship of Dr. C. Rangarajan Hon'ble Governor of Andhra Pradesh. The Commission reviewed the Indian Statistical System including the system for Agricultural Statistics and submitted its interim report in February 2001. The NSC took note of the findings and recommendations of various committees and important bodies set up in the past and interaction with the different organisations associated with agricultural statistics.

Accordingly the Commission made a comprehensive review of the entire Agricultural Statistics System, identified its weaknesses and have made far reaching recommendations to bring lasting improvement. These recommendations are in 16 broad aspects of agricultural statistics as under:

1. Crop Area Statistics
2. Crop Production
3. Crop Forecast
4. Horticulture Crops
5. Official vs Trade Estimates of Production
6. Land Use
7. Irrigation Statistics
8. Landholding and Agricultural Surveys
9. Agricultural Prices
10. Agricultural Market Intelligence
11. Cost of Cultivation of Principal Crops
12. Fisheries Statistics
13. Forestry Statistics
14. Livestock numbers
15. Integration of Livestock and Agricultural Census
16. Livestock Products

2.5.2 In addition to the above, NSC had covered five additional issues as under:

- i) Marketing Surplus and Post harvest losses
- (ii) Market Research Surveys
- (iii) Index Numbers in Agriculture
- (iv) Recording of area under mixed crops and
- (v) Inputs statistics

2.5.3 The recommendations of the commission on agricultural statistics are at Annexure-III. The interim report of NSC has also provided the status of different subject areas and the methodology besides highlighting the major deficiencies and recommendations for improvement. Hence, in the present report the status of subjects dealt under agricultural statistics have not been elaborated, as it would have duplicated the exhaustive task already accomplished by the NSC. The interim report of the NSC can be accessed at web site : http://www.nic.in/stat/stat_comm0.htm.

III. STRATEGIES FOR TENTH PLAN

3.1 The Strategy Framework for 10th Plan

3.1.1 The evolution of all the ongoing plan schemes for the agricultural statistics is need based, though, the derivatives of some of the schemes had been constrained due to institutional, financial and / or methodological factors. these issues need to be addressed with urgency.

3.1.2 The Working Group greatly benefited from the comprehensive review of the Agricultural Statistics System made by the NSC and the issues focussed by the Planning Commission on the current system, in formulating the strategies for the 10th five year Plan.

3.1.3 During the 9th Plan Planning Commission had emphasised that the criteria of convergence may be considered while formulating the new schemes and / or reviewing the on going schemes. Accordingly, it was suggested that the schemes running simultaneously and having some common objectives should be modified or integrated in such a way that their objectives are covered as the components under a single scheme. The purpose of this convergence was to facilitate the easy consideration, appraisal and monitoring of various activities contained in the Plan schemes, which in turn reduces the procedural formalities.

3.1.4 After detailed deliberations the Working Group felt that the following points need to be kept in view while considering the issue of convergence of schemes :

- a) When the schemes are on mutually exclusive domains and/or have different objectives, then their convergence may not be feasible.
- b) However, the schemes with broader similarity of purpose can be put under one umbrella scheme. This umbrella scheme can be a comprehensive one with different components of existing schemes and their respective objectives, domain and budgetary outlays.

- c) The components should be categorically devised and specified that there is no diversion of money possible from one component to another.
- d) If it is felt that the scope of any component needs augmentation, the Planning Commission, would consider the provision for extra resources.
- e) The working group noted that Planning Commission has recently agreed that it would not be proper to consider ICS Scheme at par with TRS and EARAS as the objectives of ICS are totally different and it works as a watch dog on the system of crop statistics and in particular on TRS and EARAS. Therefore, at best one could consider TRS and EARAS, which are Centrally Sponsored Schemes, to be two mutually exclusive components of an umbrella scheme.
- f) The Crop Estimation Survey for Fruits & Vegetables is a distinct scheme with its own design and methodology for generating primary estimates. Further, this is a Central Sector Scheme.
- g) The scheme of SDDS and NCFC are also distinct with no State participation. Hence, these also cannot be put under the umbrella.
- h) Same is the case with CAPE and FASAL (Forecasting Agricultural Output using Space, Agro-meteorology and Land based observations) which are based on entirely different technology of space applications. However, the CAPE will merge with FASAL on its implementation. It was accordingly noted that the question of having an umbrella type scheme has its own limitations.

3.1.5 To analyse the issue of convergence of four major plan schemes viz. TRS, EARAS, ICS & CESF&V, the matrix giving the objective, coverage, methodologies and resources deployed for this scheme are given in Annexure-IV.

3.2 Institutional Issues

3.2.1 The Working Group acknowledged that agricultural statistics system is decentralised and is built around federal structure of governance. A large part of statistics originate as a by-product of land record system. This system is reported to be under stress due to numerous factors such as inadequate manpower, multifarious functions of primary workers and lack of priority for statistics at grass root. These issues can not be addressed without effective coordination and monitoring. This necessitates a crucial role

by the Directorate of Economics and Statistics (DES) in the Ministry of Agriculture and Cooperation to pro-actively deal with the States on statistical concepts, methodology and perception. For coordination, DES organizes annual National Workshops of SASAs. But this alone is not adequate to improve the system at grass root level

3.2.2 It is necessary for the DES to have the proper set up of Statistical professional with appropriate senior level composition for discharging its role as the nodal agency for Agricultural Statistics for the country. Working Group however noted that the absence of appropriate representation of statistical professionals at senior levels in DES as one of the major institutional constraint due to which the issues of coordination and monitoring are not adequately addressed.

3.2.3 An effective forum to deliberate the issues of methodologies, quality and timeliness of agricultural statistics, beside ensuring the uniformity in concepts used by the respective States is provided by the High Level Coordination Committees (HLCC) on Agricultural Statistics in the States. Very senior officers of the States chair these committees and DES and NSSO are invariably the members from Central Government. The representation by DES at senior level is therefore essential to attract due attention of the appropriate State authorities to the pertinent statistical issues.

3.2.4 The absence of senior statistical professionals in DES and its effect on Agricultural Statistics System was in-fact recognised by the Committee set up by the Department of Agriculture and Cooperation (DAC) for Improvement in the functioning of DES under the Chairmanship of Shri J. N. L. Srivastava, the then Special Secretary DAC and currently Secretary (Agriculture and Cooperation). This committee recommended (Annexure V) an appropriate structure of professional composition of Advisers from the stream of Statistics. These recommendations require urgent attention for implementation.

3.3 Crop Calendar

3.3.1 Indian Crop calendar was first prepared and published by Ministry of Agriculture in 1966-77. The Working Group was informed that due to changes in agricultural practices and cropping pattern, the need for revising the Crop Calendar on priority was felt.

Accordingly, the Agricultural Statistics wing of NSSO (FOD) took up the task of updating the Indian Crop Calendar in consultation with State Agricultural Statistics Authorities (SASAs). Considering the heavy quantum of work, the task was undertaken in two phases :

Phase I Providing information at State level, relating to the periods of different agricultural operations namely sowing, harvesting and marketing of principal crops.

Phase II Providing information on :

- District wise periods of sowing, harvesting and marketing of principal crops for different Agro- Climatic Zones in a State.
- Month wise different agricultural operations in the State like preparation of soils, sowing and transplanting, growing & maturing , harvesting and thrashing.
- Crop wise agricultural operations in a State
- Crop seasons and rotations
- Ancillary information regarding use of various equipments, technology, source of irrigation, agencies for providing financial assistance etc.

3.3.2 The Working Group was further informed that Crop Calendar Phase I has already been published in the November 1998 and Crop calendar Phase II is under print and would be released shortly. The Working Group noted these developments and complimented NSSO for undertaking this very useful exercise and provide an up-to-date calendar on all aspects of Agricultural Operations at disaggregated level.

3.4 Crop Statistics

3.4.1 The scope of Crop Statistics covers crop area and production statistics both for agriculture and horticulture crops. Since the system for these statistics is akin to the system of LUS, the issues pertaining to crop statistics may need to be dealt in conjunction with LUS. NSC has made the specific recommendations on these issues under the

subject heads of crop area statistics, crop production, horticulture crops, land use and irrigation statistics.

3.4.2 The NSC had not only acknowledged the importance of TRS and EARAS schemes but also had laid emphasis on their greater utility and role. However, it has been widely held based on the conclusions from ICS programme carried out by NSSO that the TRS Scheme is not functioning properly in several States. The basic objective of the scheme of Priority Crop Inspection by the Patwari as per the prescribed time schedule has not been achieved which has also adversely affected the other objective of obtaining an updated sampling frame for conducting GCES.

3.4.3 Huge workload of Patwari has been one of the factors responsible for this state of affairs. The States do not address, in spite of repeated inferences in the ICS Reports, the issue of workload of primary workers. Thus, there is a need for administrative toning so that there is accountability for work at various levels for authenticity and timely data reporting as envisaged in TRS.

3.4.4 Working Group deliberated these issues and following conclusions have emerged:

3.4.5 It was observed that the current level of operation of TRS and its financial outlay is too meagre to meet the requirements placed in the NSC's recommendations. Though the TRS activity involves the grass root operations on crop area reporting in 20% villages of land record States by the primary workers, by giving priority to a segment of his normal duties of Girdawari, the operational domain of TRS as plan scheme and the resource mobilization thereof at best reaches to the district level to facilitate quick tabulation, consolidation and area estimation at district and State level. Thus the TRS plan scheme does not address the primary data generation.

3.4.6 The area reporting by the primary workers in respect of TRS villages, like in the normal girdawari operation, is in respect of all the crops as per Land Record Manual. However, the quick tabulation and estimation of crop area as per TRS sample plan, under the TRS scheme does not cover all the reported crops but is often limited to lesser

number of crops. This crop coverage varies from State to State. Therefore, the crop coverage under TRS estimation programme may have to be made broad based. This would not be having any impact on workload of primary workers and functional augmentation would be required under the scheme of TRS.

3.4.7 NSC has recommended that TRS may be made as a scheme of National importance to streamline the operational aspects and derive full benefits from the Scheme. NSC expects a properly implemented TRS can even form the basis of official estimates of crop area. The Working Group deliberated on these issues and while endorsing their recommendations, it was felt that the issue needs to be taken up with the States so that TRS is given due importance and implemented with adequate support. However, it was noted that it may not be feasible to provide honorarium to Patwaries for doing TRS work since the Girdawari is his normal duty.

3.4.8 The NSC recommendations have also laid emphasis on training & supervision of primary workers. These aspects are at present not in the framework of TRS. Therefore, the scope of TRS may need to be expanded with the component of training of primary workers and their supervision. The sensitisation of primary workers through training and orientation workshops may be in built in the framework of the scheme. The training and supervision of primary workers may need to be augmented in the EARAS scheme as well.

3.4.9 The Working Group also realized the inadequacy of basic computational facilities at the grass root level. In the era of computers and IT, the primary workers do not have simple pocket calculators. The TRS may at least cover the provision of pocket calculators to the primary workers to facilitate aggregation and area consolidation in time.

3.4.10 The NSC has recommended that the scheme of ICS should be strengthened and the survey design modified with a view to provide alternative All India estimates of crop area and yield rates. This will also facilitate useful cross check on the official series of estimates compiled from the State reports. The NSC had also set up an Expert Group under the Chairmanship of Prof. Arijit Choudhury with representatives from IASRI and

NSSO to examine these aspects. It was also noted that proposed strengthening of the ICS Scheme would also strengthen the supervision of primary work done by the State agencies. Working Group is in agreement with these recommendations.

3.4.11 The Expert Group in the Draft recommendations have redefined the objectives of ICS as under in addition to the existing objective of locating the lacunae in the State Agricultural Statistics System:

- i) Providing estimates of area under principal crops based on the sample observations as early as possible after the Girdawari is over.
- ii) Providing estimates of area and production for Kharif and Rabi crops separately broadly corresponding to the timings of preparation of the 2nd and 4th advance estimates of production released by Ministry of Agriculture, Government of India.

3.4.12 In order to achieve the objective of generating alternate estimates of production the Expert Group also recommended certain modifications in the sampling design in respect of sample check on area enumeration. The suggested modified sampling design has advantage over the existing sampling design. The sample size has been fixed to provide area estimates at State level with 5% standard error. This is expected to result in an increase in the number of villages to be surveyed under ICS for area check from the present level of 10,000 villages. The principal crops for this work are Paddy, Wheat, Bajra, Maize, Groundnut, Rape & Mustered, Jowar, Coconut, Soyabean, Cotton, Sugarcane, Onions and Potatoes. As regards supervision of crop cutting experiments, the modifications in existing sampling design is not required.

3.4.13 The Working Group is in broad agreement with the recommendations of the Expert Group. The basic objective of the re-oriented ICS programme should be to provide additional inputs to the State Governments through the system of correction terms to calibrate the State estimates of crop area and production so as to improve the quality and timeliness of the official estimates. However, the Working Group recognizes the need to

discuss these recommendations with the State Governments before implementation of the scheme.

3.4.14 Working Group noted with concern the lack of reliable area and production statistics for the North Eastern States mainly due to absence of objective system of area reporting. Even in Assam where TRS is implemented, as it is a land record State, the area statistics suffer from both quality and timeliness. The Working Group strongly feels that in the North Eastern Region the technique of Remote Sensing, as envisaged in the proposed Phased implementation of FASAL, could be profitably experimented for obtaining estimates of area under crops.

3.4.15 The supervision for monitoring timeliness and quality of data collected under various schemes needs no emphasis. Acknowledging this importance of supervision in large scale data collection endeavours, the Working Group also emphasized the crucial role of harmoniously organised supervision function for ensuring adoption of uniform concepts and methods used in decentralized operations in the realm of Agriculture Statistics. This role has been effectively discharged in respect of TRS and EARAS schemes, where ICS scheme provides an effective mechanism unified supervision for highly decentralised statistical operations. Similar mechanism should be inbuilt in all the Central Plan Schemes of data generation. It is important that the money earmarked for the schemes should serve the desired purpose and both Planning Commission and Ministry of Agriculture have vital roles to play in this regard.

3.4.16 Regarding production estimates, it was noted that most of the operations for crop cutting experiments under GCES are outside the purview of existing central schemes in land record States. However, it was observed that there are inherent lacunae in the sampling frame from TRS used in the GCES and this aspect needs attention by States, NSSO and DES to ensure that the system of working out yield estimates is on scientific lines.

3.4.17 While reviewing the current status of Irrigation Statistics, the NSC observed that there is a large variation between the statistics of area irrigated published by DES and the

irrigation potential utilised as published by the Ministry of Water Resources. Further, both data series are available with considerable time lag. The NSC accordingly recommended that the State Governments should make an attempt to explain and reduce the divergence between the two data sets to the extent possible through mutual consultation between the two agencies engaged in the data collection at local levels. Further it was suggested by the NSC that SSBs should be made the nodal agencies in respect of Irrigation Statistics and they should establish direct links with the States and Central agencies concerned to secure speedy data flow. It was recommended by the NSC that the CSO should designate a senior level officer to interact with concerned agencies to promote an efficient system of Water Resource Statistics. The Working Group agrees with the recommendations of NSC and hope that all agencies concerned will take appropriate measures for bringing out improvements in regards to Irrigation Statistics.

3.4.18 Though the crop forecast are also linked to crop statistics, the methodologies and techniques are more diversified and involves different agencies, hence in the present report the issue concerning the crop forecast are dealt separately.

3.5 Horticulture Statistics

3.5.1 Horticulture crops contribute about 25% of agricultural GDP from 7% share in crop area, yet Horticulture Statistics are found to be the weak link in the agricultural statistics system. Reviewing the status of crop estimation surveys for fruits and vegetables (CES FV), NSC had observed that though the present methodology of CES FV is sound yet it is cumbersome and hence there are problems in its operations. The NSC had recommended that an alternative methodology may be evolved for which an Expert Group may be set up.

3.5.2 The main constraint in horticulture statistics is inadequacy of area statistics in the existing system of crop area statistics since the Patwaries in the village record generally report vegetables without their details. Further, the vegetables are also grown in the marginal lands as well as in the homestead land and no account is maintained.

3.5.3 It was also noted that during the 9th Plan, the CES FV scheme was proposed to be implemented with full coverage, but its operation remained truncated due to non availability of resources. The scheme also lacked the provision of central supervision; as a result monitoring arrangements were inadequate. This aspect may need to be given consideration.

3.5.4 The data demand is increasing for more detailed coverage and crops like floriculture, medicinal plants, honey etc. which are not significant from the point of view of area but in value terms and value adding potential, these crops are important.

3.5.5 A detailed review of the existing system therefore, brought out the weaknesses in the system of arriving at estimates of area and production of Horticulture Crops. The Working Group noted that there is perhaps no scientific basis for the estimates of area under the Horticulture Crops and it was recognised that urgent efforts are needed to improve the situation. In this context, the Working Group felt that a sample survey of Horticulture Crops may have to be conducted in all the States at the earliest adopting the approach of farmers' appraisal instead of the traditional method of obtaining the area under crops and multiplying area estimates with yield rates to get the estimated production. IASRI may be requested to provide a suitable sampling design for the purpose. The Working Group has emphasized that the Pilot Survey which has been in existence for several years during the 8th & 9th plan in 11 States has not yielded the desired results to obtain estimates of area and production under Horticulture Crops at India level and therefore, there is a need to immediately launch a survey programme aiming at obtaining India estimates on scientific basis. To cross validate such data collected through farmers' appraisal, it would be desirable to take into account the market arrival data as also Export/Import statistics and NSS consumption data in respect of Horticulture Crops to cross validate the estimates of production. .

3.5.6 As regards the Organizational aspects, the Working Group is of the view that at State level, the Directorate of Economics & Statistics may be given the responsibility of nodal agency for conduct of the survey in coordination with the State Horticulture Department, Agriculture Department and Revenue Department. To the extent possible

and feasible the land utilization statistics from the Patwari records could be utilized for the sampling frame for the proposed survey. Provision should also be made for supervision of the work by Central and State agencies themselves but with built in provision for ensuring uniformity in the concepts and definitions followed.

3.5.7 Till such time the new methodology is perfected the present scheme may continue in the 11 states where it is currently operated and thereafter the existing scheme should be merged with the proposed scheme.

3.6 Crop Statistics and NAIS

3.6.1 The Working Group strongly endorsed the recommendations of NSC regarding de-linking of crop cutting experiments (CCE) conducted for National Agriculture Insurance Scheme (NAIS) and that of General Crop Estimation Surveys (GCES). The GCES is the basis for official estimates and hence the NSC recommendation is meant to guard the estimates from the bias of insurance stakeholders.

3.6.2 However, the Working Group was informed that in several States like Karnataka, Maharashtra, etc., perhaps no such de-linking of the two sets of crop cutting experiments is being done now. Since the commencement of Comprehensive Crop Insurance Scheme (CCIS), the forerunner of NAIS, in mid-eighties, the number of CCEs in the country have increased manifold. These increases are confined to select States and it is not known on what basis such huge expansion in the CCEs was affected.

3.6.3 Further, the increases have been in selected crops, which were covered under CCIS. The Working Group took note of these aberrations such as about 60,000 CCEs in Orissa, 40,000 CCEs in Kerala and about 85,000 CCEs in Maharashtra and about 65,000 CCEs in Uttar Pradesh during 1998-99. It was noted with concern that adequate trained manpower is not provided in these states to carry out such very large number of crop cutting experiments and this is bound to affect the quality of estimates of yield rates under GCES since delinking of GCES, crop cutting experiments & NAIS. Crop Cutting Experiments has not taken place in these states.

3.6.4 The Working Group was further informed that considering the serious objection from the National Sample Survey Organisation initially and the interim recommendations of the NSC, Ministry of Agriculture and Cooperation has recently decided to adopt the method of small area approach through farmers appraisal survey for the purpose of estimation of yield rate in NAIS. A Pilot Study has already been designed by the Ministry in consultation with IASRI, NSSO and GIC to test this methodology. The procedure involves scaling down the yield estimates from GCES at District/Block level to Gram Panchayat level for insurance purposes. Ministry of Agriculture and Cooperation is currently finalizing the details of this Pilot Study which is proposed to be taken up in one district in every participating State during Agriculture Year 2001-02. The Working Group endorsed the small area approach for insurance purposes and noted that the method of small area estimation may be finalized early in consultation with States. It is also necessary that State Governments take special care for preparation of the frame of survey numbers/cultivators for the purpose of drawing the sample of farmers for farmers appraisal survey and field staff is engaged for the work after necessary training. The Working Group was further informed that NSSO has been approached by the Ministry of Agriculture for carrying out supervision work in respect of farmers appraisal survey and suitable proposal has been submitted by the NSSO to the Ministry in this regard which is awaiting clearance. The Working Group noted that this is a step in the right direction, as supervision by an independent agency would ensure the necessary credibility for the work programme being formulated under NAIS.

3.6.5 It was also noted by the Working Group that it may be necessary to have suitable budgetary provision in the 10th Plan to meet the expenditure under NAIS in view of the proposal to adopt small area estimation for NAIS which is to be piloted through the help of IASRI and NSSO who may be taking up supervision work. Since, the full details of operationalisation of this scheme through GIC are not yet decided upon, it may be advisable to keep certain token provision for this scheme for meeting the expenditure by central agencies as also the State Governments.

3.6.6 In view of the positions stated in para 3.6.3 and 3.6.4 regarding the proposal to develop alternate methodology to arrive at estimates of yield rates for use in NAIS and

not to have crop cutting experiments for the purpose, the Working Group recommends that it is necessary to have a re-look on the size of crop cutting experiments for various crops in the States so as to arrive at the minimum sample size required for estimation of yield rates at district level under the GCES programme. The Working Group considers that the reduction in the size of the crop cutting experiments will improve the quality of estimates of yield rates with reduction in the non sampling errors in the conduct of unmanageable crop cutting experiments in several States and without having adequate trained primary workers for doing the crop cuts.

3.6.7 It was also brought to the notice of Working Group that while considering the non price recommendations made in the report of the Commission for Agricultural Costs and Prices on Price Policy for Rabi Crops of 2000-2001, the Cabinet Committee on Economic Affairs had decided that an Expert Group may look into the issue of effecting improvements in the quality of work with regard to the conduct of crop cutting experiments in the States. The Working Group endorses this suggestion and recommends that an Expert Group may be set up by the Ministry of Statistics and Programme Implementation to look into all these technical aspects and arrive at appropriate sampling design for the conduct of crop cutting experiments on various crops in the States to provide timely estimates of yield rates under crops.

3.7 Crop Forecasting , Applications of Remote Sensing and use of IT

3.7.1 Crop forecasting as an important tool of management of agriculture sector got due recognition with the commencement of the Scheme for setting up the National Crop Forecasting Centre in the Ministry of Agriculture (NCFC). The Working Group was also informed that the genesis of NCFC was based on the recommendations of Expert Group on Crop Forecasting, which submitted its report in 1997 and provided a broad framework for setting up a crop forecasting system. The NCFC as a Plan Scheme had commenced from December 1998 but the posts for small professional contingent as per approved SFC have not yet been created. As a result, NCFC has only been able to discharge bare minimum functions and has not been able to create linkages with State nodal points.

3.7.2 The NSC has recommended that the objective method of forecasting the production of crops should be immediately put in place and NCFC should be adequately strengthened with professional statisticians and experts in the related fields.

3.7.3 The Working Group reviewed the methodology followed on forecasting of crop production being currently adopted as a part of the activities of NCFC, as also the work done by IASRI with regard to forecasting. The Working Group recommends that the required professional contingent for NCFC should be provided so that data organisation, its analysis and use of state of art computational tools and skills are done to keep methodological development and its adoption resulting in objective forecasting procedures. The States should be assisted by the Centre in adopting the objective techniques in consonance with the operations of NCFC.

3.7.4 The Working Group took note of the developments, which have been taken place in operating the scheme of Crop Acreage and Production Estimation (CAPE) by the Ministry of Agriculture in collaboration with Department of Space wherein the focus is on use of Remote Sensing Techniques. Based on this experience, a scheme of Forecasting Agricultural output using Space, Agro-meteorology and Land based Observations (FASAL) has been jointly conceived by Department of Space and Department of Agriculture and Cooperation (DES). The Working Group was informed that this scheme has been concurred by the Committee of Secretaries for institutionalising the Space Applications as an Umbrella Scheme for Crop Inventory and other agricultural uses. The outputs of FASAL are expected to provide important inputs in the work of NCFC. The NSC has recommended that the programme of FASAL should be actively pursued. The Working Group recognizes the critical role of FASAL in improving Crop Statistics with the use of Remote Sensing Technology and, therefore, recommends that the scheme should be put in operation during the 10th Plan.

3.7.5 The Working Group was informed that at the instance of National Advisory Board on Statistics (NABS), an Expert Group consisting of NSSO, DES, Space Application Centre, Ahmedabad and IASRI had looked into the possibility of integration of Remote Sensing Technology and Crop Surveys of NSSO. Towards this objective, a pilot study

was carried out by NSSO and SAC, Ahmedabad in Haryana, Madhya Pradesh and Rajasthan. The study revealed that the interface of Remote Sensing Technology and land-based observations through surveys of NSSO will be able to estimate area under major crops e.g. Wheat as a proportion of geographical area even at village level. The Working Group observes that FAO had been advocating use of remote sensing images in making area sampling frames, which can be used in the conduct of ground based Crop Estimation Surveys. Based on the experience of the Pilot Study conducted by NSSO and SAC, Ahmedabad and keeping in view the FAO's suggestions, the Working Group recommends that development of such area sampling frames using remote sensing images should form an integral part of the scheme of FASAL. Aerial sampling frames based on remote sensing images have the potential for launching Crop Estimation Surveys to provide objective and timely forecasts.

3.7.6 The Working Group was informed that during the 9th Plan the Department of Agriculture and Cooperation formulated a scheme of Early Warning System (EWS) as a stand alone alternative system to facilitate the management of Agricultural Sector. The objectives of the EWS are supervision and monitoring of Agricultural situation in India. The project was assigned to a Non-Government agency to carry out close and regular monitoring on agricultural sector on ground level covering nine crops viz. Wheat, Paddy, Pulses, Potato, Onion, Oilseeds, Groundnut, Sugarcane and Cotton, on real time basis. The Agency was required to provide feedback in an on-going basis with respect to status of selected 9 crops and develop software modules for forecasting of Agricultural parameters. However, as per latest review done by the Ministry the Working Group was informed that the project did not proceed to the satisfaction of the user and accordingly, the Ministry has recently decided to close down this project. While noting all these developments with concern, the Working Group felt that the FASAL programme needs to be modified by the Ministry of Agriculture and Cooperation as suggested above. The Working Group also recommends that professional statistical inputs at higher management level need to be provided in the FASAL programme and appropriate coordination mechanism is to be in place since FASAL involves several Departments and agencies in the Government like Department of Space, Department of Agriculture and Cooperation, IASRI, Directorate of Economics & Statistics, NSSO, State Governments

etc. There should be adequate coordination between NCFC, FASAL and CAPE to avoid duplication of efforts and to derive optimum results.

3.7.7 The applications of remote sensing ushers the era of advanced IT applications. In the context of crop forecasting, where the speed and accuracy of data flow and its inference is important, the advanced I.T tools are essential. The agriculture statistics system should also take care the wider applications of information technology for data analysis and data flow. The Working Group recommends the concerted efforts for human resource development for use of these methods at various levels and appropriate augmentation of resources in the Central Nodal Agency as well as at the State nodes.

3.7.8 The Working Group also noted that several States have taken initiatives to computerise their land records. It was informed that there is a scheme of Ministry of Rural Development for this objective. The process of computerisation of land record will indeed benefit the agriculture statistics. The State and Central nodal agencies for Agricultural Statistics should take steps to integrate their data system with this process of computerisation.

3.8 Agriculture Census

3.8.1 The Agriculture census as a part of the World Census of Agriculture (WCA) has been conducted quinquennially since 1970-71. The periodicity of the Census is as recommended by the National Commission on Agriculture keeping in view the requirements for the planning process. The operational plan of the agricultural census is in three distinct phases i.e.

- Phase-I: Preparation of List of Holdings in 100% villages
- Phase-II: Making a detailed re-tabulation based upon land records in 20% villages
- Phase-III: Conducting input survey in selected holdings in 7% villages

3.8.2 In non-land records States, even in Phase-I and Phase-II it is conducted as a sample survey.

3.8.3 Though the scheme including the sampling design etc., is well conceived to make use of existing records and hence is cost-effective, it has of late been criticized for delays in making results available as also for quality. The reliability of the data generated from census is questioned primarily on the ground that it is based on land records maintained by the Patwaries, which are often not up to date and complete and suffers in quality due to overburdening of primary agency. For these reasons, the NSC has recommended that Agriculture Census should henceforth be carried out in a 20% sample of villages.

3.8.4 Differences at aggregate level have also been found between the data generated from the agricultural census and the land holding surveys of the NSS. The divergence of estimates based on two approaches have been looked into by a different Technical Groups and main reason for the divergence has been found to be difference in the approach, the Census using land records and the NSS adopting the household enquiry.

3.8.5 The NSC has also recommended integration of agricultural census and livestock census operations and taken together in a 20% sample of villages. This will provide scope for several cross tabulations including distribution of livestock and farm population by size of the land holdings. It would also reduce the overall workload of the field agency and help in early availability of results of both the Censuses. At the same time, the NSC has recommended that before effecting the integration of the two censuses, a limited pilot investigation may be carried out to firm up the procedures of integration. The Working Group is also of the considered view that the pilot study recommended by NSC should be taken up before undertaking the agricultural census with reference year 2005-06 which will fall in the period covered by the 10th Plan. The Group recommends that the pilot study may be organized in the first year of 10th Plan itself so that its findings could be used for the planning of 2005-06 Census.

3.8.6 On the issue of data on tenancy, the Working Group was apprised that the agricultural census provides for recording tenancy as per the records in the land record states and as per enquiry in non land record states. These tenancies are reported for various types such as for fixed money, fixed produce, share of produce and usufructuary mortgage. In the land record states, the present approach covers only open tenancy. The

concealed tenancy can be known through the enquiry approach. The revised plan of agricultural Census for the reference period of Tenth Plan may look into this aspect while adopting revisions in its design.

3.8.6 The Working Group took note of the fact that most of the preparatory work for launching the Agricultural Census with reference year 2000-01 has already been completed. In view of this, the Agricultural Census with reference year 2000-01 will have to be on the same basis as in the past.

3.8.7 The Working Group also noted that there are certain organizational weaknesses with regard to conduct of Agricultural Census like absence of a proper statistical set up in the Ministry for this large exercise. In this context, it is seen that the NSC has already recommended for restoring the post of Agriculture Census Commissioner to be manned by a Senior Statistician. Considering the technical aspects of the exercise, the level of operations, liaison with the States and the responsibility to steer the agricultural census smoothly, the Working Group agrees with the recommendation of NSC in this regard.

3.9 Estimation of Cost of Cultivation of crops

3.9.1 The importance of timely and reliable estimates of cost of cultivation and cost of production of relevant crops cannot be over emphasized in order to pursue a stable price support policy by the Government. For this purpose, a comprehensive scheme for estimating the cost of cultivation of crops as a 100% Central Sector Scheme was initiated in 1970-71 on the recommendations made by a Standing Technical Committee on Indices of Input Costs. The technical details of the scheme were worked out by IASRI. The survey is in operation in 16 States and covers 29 crops and DES is overall in-charge of the survey programme as nodal agency at the Centre. The survey programme is implemented through Agricultural Universities in 13 States and Central Universities in 3 States for which 100% financial assistance is given by the Centre.

3.9.2 While reviewing the survey on cost of crops, the NSC had noted that implementation of the scheme by Agriculture Universities has not been satisfactory on the one hand and the CACP also has not been getting timely and sufficient inputs from these

studies in fixing minimum prices. Further, the requirements of National Accounts Division of CSO are also not met adequately. There has also been the problems of manpower and processing facilities in the DES in its Central Analytical Unit due to which there have been delays in availability of final results. The NSC has recommended that the present programme of Cost of Cultivation studies should be continued in view of its importance in price administration of agricultural commodities. It has also recommended that a review should be undertaken for the number of centres, methodology, sample size, etc., of the Cost of Cultivation Survey and DES should minimize the delay in bringing out results of these studies. To meet these objectives focussed attention should be given to proper organization and management of these studies.

3.9.3. The Working Group was informed that the Department of Expenditure has recently approved the EFC memorandum of the plan scheme of the Cost of Cultivation of Crops for the 9th Plan by switching over to financing of the scheme on block grant basis from the existing arrangement of release of funds and that the changed procedure may be experimented and periodical review may be made.

3.9.4 On the basic issue of streamlining the existing arrangement for Cost of Cultivation Surveys, the Working Group is in broad agreement with the recommendations of the NSC and would suggest that the comprehensive review as suggested by NSC on Cost of Cultivation of Crops should be undertaken by DES with the help of Expert Bodies like IASRI & NSSO and streamline the organization and management of these studies in the 10th Plan.

3. 10 Agricultural Market Intelligence

3.10.1 The source of agriculture market intelligence (prices and market arrivals) is the agricultural produce markets. The DES is responsible for collection of price data of agricultural commodities. These data are collected in terms of weekly and daily wholesale prices for 140 agricultural commodities from 126 markets, retail prices of essential commodities on a weekly basis from 83 market centres for 88 commodities and farm harvest prices for 31 commodities. For collection and flow of these data, DES

depends on State agencies and the market agencies. As a result, the data suffers from timeliness and completeness

3.10.2 The Plan scheme of Market Intelligence Units (MIUs) provides for 14 MIUs furnishing reports on market arrivals, off-take, stocks, crop prospects and outlook of market prices. However, over the years these units have ceased to be effective in discharging their functions mainly due to lack of proper direction and control of their activities as also reduction in the staff strength of MIUs. As a result their potential role has weakened. The NSC has recommended that the functions and staff requirements of MIUs should be re-evaluated and appropriate measures taken to streamline the Scheme. The Working Group agrees with these recommendations.

3.10.3 The Working Group was also apprised about the initiative taken by the Directorate of Marketing and Inspection for integrating various markets in the data network for easy accessibility of prices and market arrival data. The NSC had identified the weaknesses of data collation and analysis mainly due to the absence of statistical professionals. The Statistical Wing in Directorate of Marketing and Inspection therefore may need to be strengthened for this purpose.

3.10.4 The working Group also looked into the mechanism of Government Intervention in the market and the data thereof. At present, the procurement is mostly centralised through Food Corporation of India or its designated agencies for Food Grains and for other crops like oilseeds, through NAFED and its State subsidiaries. It was informed that the Government has in its agenda to decentralisation of the procurement system as part of its food management policy. Since the process of procurement takes place within the scope of market regulations, the data on quantity of procurement are generated as the part of the exercise on market intelligence. The strengthening of the system of market information would therefore benefit these data as well.

.....

**New Delhi
29th June 2001**

N. S. Sastry
(Dr. N.S. Sastry)

CHAIRMAN

Subject & my observations in Do. No.
11-12/2014/272001/1000 & 21.6.2014.

D.K. TREHAN

Ahmed Masood
DR. AHMED MASOOD

M. Neelakantan
M. NEELAKANTAN

DR. S. D. SHARMA

H.P. Singh
DR. H.P. SINGH

M. Lall
M. LALL

R.S. Kanade
R.S. KANADE

Dr. Rajiv Mehta
DR. RAJIV MEHTA
MEMBER SECRETARY

**(Dr. N.S. Sastry)
CHAIRMAN**

D.K. TREHAN

DR. AHMED MASOOD

M. NEELAKANTAN

DR. S. D. SHARMA

DR. H.P. SINGH

DR. M. LALL

R.S. KANADE

**DR. RAJIV MEHTA
MEMBER SECRETARY**

List of Annexures

1. Annexure I : Order regarding the constitution of a Working Group on Agriculture Statistics for formulation of the Tenth Five Year Plan (2002-2007).
2. Annexure II : List of special invitees for the Working Group
3. Annexure III: Recommendations of the National Statistical Commission on Agricultural Statistics.
4. Annexure IV : Minutes of the meeting held on 15th November, 2000 to consider issues concerning Agricultural Statistics schemes.
5. Annexure V : Agricultural Statistics Schemes-Comparison Matrix.
6. Annexure VI : Minutes of the Committee for improving the Performance of Directorate of Economics & Statistics (DES) in the Ministry of Agriculture.
7. Appendix

**No.M-12043/4/2000-Agri
Government of India
Planning Commission
(Agriculture Division)**

**Yojana Bhavan, Parliament Street,
New Delhi, the November, 13, 2000**

ORDER

Sub: Constitution of a Working Group on Agriculture Statistics for formulation of the Tenth Five Year Plan (2002-07).

It has been decided to constitute a Working Group on Agriculture Statistics in the context of the formulation of the Tenth Five Year Plan (2002-07). The Composition and Terms of reference of the working Group will be as follows:

(A) Composition

- | | | | |
|-----|---|---|----------|
| i | Dr. N. S. Sastry,
DG & CEO, National Sample Survey Organisation,
Sardar Patel Bhawan, New Delhi | - | Chairman |
| ii | Dr. Ahmed Masood
Advisor (PAMD), Planning Commission, New Delhi | - | Member |
| iii | Shri D. K. Trehan,
Economic and Statistics Advisor
Directorate of Economics & Statistics
Department of Agriculture & Cooperation, Krishi Bhawan, New Delhi | - | Member |
| Iv | Shri. M. Neelakantan,
Deputy Director General,
National Sample Survey Organisation
(Field Operations Division), New Delhi-110062 | - | Member |
| v | Horticulture Commissioner
Department of Agriculture & Cooperation
Krishi Bhawan, New Delhi | - | Member |
| vi. | Animal Husbandry Commissioner | - | Member |

Department of Agriculture & Cooperation,
Krishi Bhawan, New Delhi

- | | | | |
|-------|--|---|------------------|
| vii. | Fishery Development Commissioner
Department of Animal Husbandry & Dairying,
Krishi Bhawan, New Delhi | - | Member |
| viii. | Shri M. Lall,
Joint Advisor (Agri.), Planning Commission,
New Delhi | - | Member |
| xi | Dr. S. D. Sharma,
Director,
Indian Agricultural Statistics Research Institute, New Delhi | - | Member |
| x. | Shri R. S. Kanade
Director (Agri.), Planning Commission, New Delhi | - | Member |
| xi. | Dr. Rajiv Mehta,
Additional Statistical Advisor
National Crop Forecasting Centre, Krishi Bhawan, New Delhi | - | Member Secretary |

B. Terms of Reference

1. To review the present system of Reporting of agricultural statistics, identify and adopt uniform set up of concepts and definitions for reporting of data on Agriculture statistics by different agencies under Union Government and State Agriculture Statistical Authorities (SASA).
2. To study the existing system of methodology of collection of agricultural statistics and evolve a systematic approach towards Crop Forecasting and Advance Estimates of various agricultural crops including horticultural crops.
3. To suggest ways and means for evolving appropriate Crop Calendar and improve the methodology for area estimates, yield estimates and production estimates.
4. To identify the extent of divergence and inconsistencies between different sets of data for agriculture, collected by the various agencies such as Agriculture Census, Land and Livestock Holdings Survey etc. and suggest appropriate remedial measures.
5. The question of collecting reliable information on Tenancy, both open and concealed in the form of share cropping arrangements, as a part of the

Agricultural Census may be examined and suitable measures may be suggested.

6. To study existing status of cost of cultivation studies, collection data of prices, procurement of food grains and other crops under Price Support Operation/Market Intervention Scheme (MIS) and livestock etc at the level of mandi, wholesale markets, retail markets, primary marketing center etc. and suggest corrective measures, if necessary.
 7. To critically review the ongoing Central Sector and Centrally Sponsored Schemes relating to Agriculture Statistics and National Centre for Crop Forecasting and suggest measures for appropriate modifications/introduction of the schemes for strengthening data base.
 8. To identify the training needs of the statistics officials/investigators, identify the gaps in their competence and suggest suitable package for training methodology.
 9. To identify the area of Agriculture Statistics, where appropriate use of information Technology could be put into operation.
2. In order to assist the Working Group in its task, separate Sub-Groups on specific aspects may be formed by the Chairman of Working Group. These Sub-Groups will furnish their reports to the Working Group.
 3. The Chairman of the Working Group may co-opt experts as he considers necessary.
 4. The Working group will submit its report to the Planning Commission latest by 31st March, 2001.
 5. Non-officials shall be entitled to TA/DA as permissible to Grade-I officers of Government of India and the expenditure will be borne by Planning Commission. The TA/DA of Government and Public Sector officials will be borne by their respective organizations.

(T.R.Meena)
Deputy Secretary (Admn.)

- i) Chairman, Working Group
- ii) Member-Secretary of the Working Group

Copy to : All Members of the Working Group.

(T.R.Meena)
Deputy Secretary (Admn.)

Copy for information to:

1. PS to Deputy Chairman
2. PS to member (SP)
3. Sr. PPS to Secretary
4. All Head of Divisions
5. S.O. Admn. I Branch/Accounts/Branch
6. P.C. Division (2 copies)
7. P.A. to Dy. Secy. (Admn.)

(T.R.Meena)
Deputy Secretary (Admn.)

ANNEXURE II

List of Special Invitees for the Working Group on Agriculture Statistics for formulation of tenth five year plan

1. Dr. A.K. Srivastava,
Head, Sample Survey Division,
IASRI.
2. Sh. Balram,
Adviser,
DES, DAC
3. Sh. A. Meerasahib,
Director, DES
Kerala.
4. Sh. S. Subareddy,
Jt. Director,

DES Govt. of AP.

5. Sh. V. K. Srivastava,
Addl. Statistical Adviser,
DES, DAC
6. Sh. A. K. Srivastava,
Jt. Director, NSSO,
Agriculture Statistics Wing.
7. Sh. A. K. Vishandass,
Addl. Statistical Adviser,
DES, DAC.
8. Dr. M.K. Srivastava,
Director, Agriculture Census,
DAC.
9. Sh. A. S. Tundele,
Dy. Commissioner, Office of CLR,
Gwalior, MP.
10. Sh. R.S. Sharma,
Sr. Statistical Officer,
Office of CLR, Gwalior, M.P.
11. Sh. S.K. Mahajan
Joint Adviser (PAMD)
Planning Commission
New Delhi.
12. Shri Harcharan Singh,
Additional Statistical Adviser
DES, DAC
13. Dr. G.R. Bhatia,
Joint Marketing Adviser,
DMI, DAC
14. Dr. (Mrs.) Sunita Chitkara,
Deputy Director,
NCFC, DAC
15. Shri R.K. Kamra,
Deputy Director,
NCFC, DAC

National Statistical Commission

Recommendations on Agricultural Statistics

Crop & Land Use Statistics

- (i) Crop area forecasts and final area estimates issued by the Ministry of Agriculture should be based on the results of the TRS in the temporarily settled states. In the permanently settled states EARAS should continue to be the basis for crop area estimates (both TRS and EARAS are carried out in a twenty per cent random sample of villages). In the case of North Eastern States, Remote Sensing methodology may be used for this purpose after testing its viability.
- (ii) The *patwari* and the supervisors above him should be mandated to accord highest priority to the work of the *girdawari* and the *patwari* spared, if necessary, from other duties during the period of *girdawari*.
- (iii) The *patwari* and the primary staff employed in EARAS should be imparted systematic and periodic training and the fieldwork should be subjected to intensive supervision by the higher-level revenue officials as well as by the technical staff.
- (iv) The supervisory staff should be made accountable for proper conduct of the *girdawari* in time.
- (v) TRS and EARAS should be regarded as programmes of national importance and the Government of India at the highest level should prevail upon the State Governments to give due priority to them, deploy adequate resources and ensure proper conduct of field operations in time.

2.3 Crop Production

- (i) In view of the importance of reliable estimates of crop production, the State should take all necessary measures to ensure that the crop cutting surveys under the GCES are carried out strictly according to the prescribed programme.
- (ii) Efforts should be made to reduce the diversity of agencies involved in the field work and use as far as possible agricultural and statistical personnel for better control of field operations.
- (iii) The scheme of ICS should be strengthened and its survey design modified with a view to providing alternative all India estimates of crop area and production.
- (iv) The two series of experiments conducted under NAIS and GCES should not be combined for deriving estimates of production as the objectives of the two series are different and their merger will affect the quality of general crop estimates.
- (v) Crop estimates below the level of district are required to meet several needs including those of NAIS. Special studies should be taken up immediately to develop appropriate “small area estimation” techniques for this purpose.

2.4 Crop Forecasts

- (i) The Ministry of Agriculture and the NCFC should soon put in place an objective method of forecasting the production of crops.
- (ii) The NCFC should be adequately strengthened with professional statisticians and experts in other related fields.
- (iii) The programme of FASAL should be actively pursued.
- (iv) The States should be assisted by the centre in adopting the objective techniques to be developed by the NCFC.

2.5 Production of Horticultural Crops

- (i) The methodology adopted in the pilot scheme of “Crop Estimation Survey on Fruits and Vegetables” should be reviewed and an alternative methodology for estimation of production of horticultural crops should be developed taking into account information flowing from all sources including market arrivals, exports and growers associations.
- (ii) Special studies required to establish the feasibility of such a methodology should be taken up by a team comprising representatives from IASRI, DES, NSSO (FOD) and one or two major States growing horticultural crops. The alternative methodology should be tried out on pilot basis before actually implementing it on a large scale.
- (iii) Suitable methodology for estimation of production of crops such as mushroom, herbs and floriculture needs to be developed and this too should be entrusted to the expert team indicated above.

2.6 Official vs Trade Estimates of Production

- (i) The nine-fold classification of land use should be slightly enlarged to cover two or three more categories such as social forestry, marshy and water logged land and land under still waters, which are of common interest to the centre and States, and which can be easily identified by the *patwari* through visual observation.
- (ii) A review should be undertaken of the village records/reports with the help of a senior level land records officer who should hold consultation with the concerned state officials and suggest changes with a view to bring about, as far as possible, a common set of records, procedures of compilation and reporting.
- (iii) State governments should ensure that computerisation of land records is completed expeditiously.

2.8 Irrigation Statistics

- (i) In view of wide variation between the irrigated area generated by the Ministry of Agriculture and the Ministry of Water Resources, the State governments should make an attempt to explain and reduce the divergence to the extent possible through mutual consultation between the two agencies engaged in the data collection at the local level.

- (ii) The SSBs should be made the nodal agencies in respect of irrigation statistics and they should establish direct links with the State and Central agencies concerned to secure speedy data flow.
- (iii) Statistical monitoring and evaluation cells with trained statistical personnel should be created in the field offices of the Central Water Commission (CWC) in order to generate a variety of statistics relating to water use.
- (iv) The Central Statistical Organization (CSO) should designate a senior level officer to interact with the central and state irrigation authorities in order to promote an efficient system of water resources statistics and oversee its activities.

2.9 Land Holdings and Agricultural Census

- (i) Agricultural census should henceforth be on a sample basis and the same should be conducted in a 20 per cent sample of villages.
- (ii) There should be an element of household enquiry (besides re-tabulation) in the temporarily settled states.
- (iii) Computerisation of land records should be expedited to facilitate the census operations.
- (iv) There should be adequate provision for effective administrative supervision over the fieldwork and also a technical check on the quality of data with the help of the State statistical agency.
- (v) The post of Agricultural Census Commissioner of India at the centre should be restored and should be of the level of Additional Secretary to be able to interact effectively with the State governments. Further, this post should be earmarked for a senior statistician.
- (vi) The Census Monitoring Board should be revived to oversee the census operations.

2.10 Agricultural Prices

- (i) The Ministry of Agriculture should prepare a well-documented manual of instructions on collection of wholesale prices.
- (ii) The price collectors should be given thorough training on concepts and definitions and the methods of data collection and the training courses repeated periodically.
- (iii) Workshops and training courses should be made an integral part of quality improvement. The quality of data should be determined on the basis of systematic analysis of the price data both by the centre and the States.
- (iv) Latest tools of communication technology like e-mail, should be availed to ensure timely data flow.
- (v) A system should be developed to secure simultaneous data flow from lower levels to the State as well as the centre.
- (vi) The state agencies at the district level and below should follow up cases of chronic non-response.

(vii) The number of essential commodities should be reduced to absolute minimum, especially the non-food crops, in consultation with Ministry of Consumer Affairs/Cabinet Committee on Prices.

(viii) The centres of price collection should, as far as possible, be the same for the essential commodities as those for wholesale prices.

2.11 Agricultural Market Intelligence

(i) The functions and activities and staff requirements of Agricultural Market Intelligence Units should be re-evaluated and appropriate measures taken to streamline the units.

2.12 Cost of Cultivation of Principal Crops

(i) In view of the importance of the cost of cultivation studies in the price administration of agricultural commodities and several studies relating to farm economy, the present programme should continue.

(ii) Focused attention should be paid to the proper organisation and management of the cost of cultivation studies.

(iii) A review of the number of centres, methodology, sample size, the existing schedule/questionnaire etc., of the cost of cultivation survey should be undertaken.

(iv) The Directorate of Economics and Statistics (DES) should minimise the delay in bringing out the results of these studies.

2.13 Livestock Numbers

(i) The quinquennial livestock census should henceforth be taken in a 20 per cent sample of villages instead of a cent per cent coverage.

(ii) The census should include some minimum information about the household (size, occupation etc.) in addition to the head count for more meaningful analysis of census data.

(iii) There should be a concerted effort towards better organisation and management of the census operation through comprehensive training of the field staff and regular supervision over their work by both administrative and technical personnel.

(iv) Information Technology tools should be used at various levels for rapid processing and preparation of the final reports as well as improving the quality of the data.

2.14 Integration of Livestock and Agricultural Censuses

a) The basic unit of enumeration in the agricultural census is an “operational holding” whereas in the livestock census it is a “household”.

b) The reference period for the agricultural census is one year whereas it is a specific date for the count of numbers in the livestock census.

c) Agricultural census is conducted through a dual programme of census and sample survey whereas livestock census is based on cent per cent coverage of all households in the country (urban and rural).

d) Different field agencies are used for the two censuses, the *patwari* agency for the agricultural census and the field staff of the State Department of Animal Husbandry for the livestock census.

(i) The livestock and agricultural censuses should be integrated and taken together in a 20 per cent sample of villages.

(ii) Before effecting the integration a limited pilot investigation be undertaken to firm up the procedures of integration.

(iii) The periodical NSSO survey on land and livestock holdings be synchronised with agricultural and livestock censuses in order to supplement as well as help cross check of information from the two sources.

2.15 Livestock Products

(i) The Integrated Sample Surveys should be continued and efforts should be made to fill up the existing data gaps.

(ii) The IASRI should be entrusted with the task of developing appropriate methodologies for filling up the remaining data gaps relating to estimates of mutton, pork, poultry meat, and meat by-products.

2.16 Fisheries Statistics

(i) The survey design for estimating production of marine fisheries should be modified taking into account the current distribution of landing sites and the volume of catch at different sites. The field staff engaged in collection of data should be imparted regular training and their work should be adequately supervised.

(ii) The survey methodology for estimating production of inland fisheries especially with regard to running water sources (rivers and canals) should receive urgent attention and IASRI along with CIFRI should be provided with adequate support to develop this programme on a priority basis.

(iii) The states should improve the recording of area under still water by appropriate modification of land use statistics.

(iv) The discrepancies between the two sources of data namely livestock census and state reports with regard to data on fishermen, fishing craft and gear should be reconciled by adoption of uniform concepts and definitions and review of these statistics at district and state levels.

2.17 Forestry Statistics

(i) Remote Sensing techniques should be extensively used to improve and develop forest statistics.

- (ii) The state forest departments should be adequately supported by the establishment of appropriate statistical units to oversee the collection and compilation of forest statistics from diverse sources on forest products including timber and non-timber forest products.
- (iii) Arrangements should be made for storage and speedy transmission of data through IT devices.
- (iv) In view of the un-avoidable nature of the divergence between statistics from the two sources - land records and state forest departments - because of different coverage and concepts, the two series should continue to exist; but the reasons for divergence should be clearly indicated to help data users in interpreting forest statistics.
- (v) A Statistics Division in the Ministry of Environment and Forests with adequate statistical manpower should be created for rationalisation and development of proper forest statistical database.

ANNEXURE IV

Planning Commission
(Agriculture Division)

Subject: Minutes of the meeting held on 15th November, 2000 to consider issues concerning Agricultural Statistics Schemes.

In order to consider some of the basic issues concerning schemes related to agricultural statistics implemented by the Department of Agriculture and Cooperation (Directorate of Economics and Statistics), Pr. Adviser (Agri.) chaired a meeting at 11 AM on 15th November, 2000. A list containing names of officers who attended the meeting is enclosed as **Annexure**.

2. At the outset, the Chairman conveyed that the present meeting relates to examination of issues relating to different aspects of agricultural statistics. He highlighted the importance of timely availability of area information under the TRS scheme as a step in assessment of crop production. According to original scheme of TRS. The area sown under a crop was to be made available within two months of crop sowing. Chairman sought confirmation from ESA with regard to the time schedule under the TRS by referring to original set of instructions/guidelines. He pointed out that it will be useful to have the original guidelines dug up and circulated for appreciation by all concerned.

(Action : ESA)

3. To a query from the Chairman regarding the variance in the data collected under the ICS by the States and the Centre, DDG(FOD), NSSO conveyed that on comparison, common inferences have been observed. The issues regarding errors observed, timely completion and other shortcomings noticed in the implementation of the ICS are discussed in the senior level meetings. He added that the concerned officers are told about these shortcomings and also about appropriate corrective measures.
4. DG. NSSO stressed that the TRS should be declared as a scheme of national importance and all lacunae associated with the scheme should be removed so that it can serve as an effective tool in crop estimation.
5. It was agreed that there are methodological issues which have to be tackled first in arriving at reliable estimates of production of fruits and vegetables. This is in spite of the fact the CES has been implemented in about 10 States for as many crops for the last 18 years. The crops covered under CES in different States are different. Perhaps market arrivals in chosen mandis could become basis of crop estimations. ESA agreed that the scheme could be modified wherein majority of the staff under the scheme doing enumeration job could be replaced by contract workers bringing out sizeable reduction in cost. ESA would examine the implications of this proposal.

(Action : ESA)

6. In his concluding remarks, Chairman wanted the following actions to be taken:
 - (i) horticulture Commissioner would prepare a calender of major horticulture (both fruits and vegetables) crops for each State.

(Action: Horticulture Commissioner, DAC)
 - (ii) CES would be replaced by a regular scheme in respect of identified crops of horticulture (both fruits and vegetables) if need be, short term/long term studies would be conducted for improving the estimation methodology.

(Action: ESA)
 - (iii) If in two months time after the crop is sown area information under TRS is not made available. The purpose of having such a scheme is defeated. Hence emphasis on this aspect should be conveyed to all the States. This should be reflected in the letters to be addressed to the States during the Rabi season.

(Action: Agriculture Commissioner, DAC)
 - (iv) The clarifications/comments sought on various points concerning Agricultural Statistics Schemes, indicated in para 11 of the Note, forwarded earlier should be provided at an early date.

(Action: ESA)

The meeting ended with vote of thanks to the Chair.

Meeting held on 15.11.2000 to discuss basis issues concerning schemes related to Agricultural Statistics implemented by Department of Agricultural Cooperation.

List of Participants

Sl. No.	Name & Designation	
1.	Shri M.D. Asthana, Pr. Adviser(Agri),	Planning Commission
2.	Dr. N.s. Sastry, DG&CEO, NSSO	Dept. of Statistics
3.	Shri D. K. Trehan, ESA	Directorate of E & S, DAC
4.	Shri M. Neelakantan, DDG(FOD)	Dept. of Statistics
5.	Shri S. K. mahajan, Jt. Adviser (PAMD)	Planning Commission
6.	Shri P.D. Mayee, Jt. Adviser (APS)	
7.	Shri M. Lall, Jt. Adviser (Agri.)	
8.	Shri R. Viswanathan, Director (Agri.)	
9.	Shri R.S. Kanade, Director (Agri.)	
10.	Shri Vinod Kumar, Director (Agri.)	
11.	Mrs. Sushma, SRO(Agri.)	
12.	Shri D.K. Joshi, RO	Directorate of E & S, DAC

Agricultural Statistics Schemes- Comparison Matrix

TRS	EARAS	ICS
1. Commencement Scheme started in 1968-69	Scheme started in 1975-76	Scheme started in 1973-74
2. Coverage Covers temporarily settled States where revenue agencies maintain records of land utilisation statistics namely, Andhra Pradesh, Assam, Bihar, Gujrat, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Tamilnadu, Uttar Pradesh, Pondicherry and Delhi	Covers permanently settled states of Kerala, Orissa , West-Bengal and few N-E States namely, Arunachal Pradesh, Nagaland, Sikkim and Tripura.	This is a supervisory scheme and is implemented in the States of Andhr Pradesh, Assam, Bihar, Gujrat, Haryana Himachal Pradesh, Jammu & Kashmir Karnataka, Madhya Pradesh, Maharashtra Rajasthan, Tamilnadu, Uttar Pradesh and Pondicherry i.e. TRS States.
3. Pattern of assistance GOI : States = 50:50 (100% by GOI in case of Pondicherry and Delhi)	GOI : States = 50:50	GOI : States = 50:50 (100% by GOI in case of Pondicherry)
Budget for 2000-2001 Rs. 400.00 lakh	Rs. 940.00 lakh	Rs. 258.00 lakh

4. Regular Manpower						
Statistical staff	:602	Supervisory Staff	: 52	Supervisory Staff	: 23	Sup
Secretarial Assistance	: 47	Field Staff	: 2499	Field Staff	: 320	Fiel
Peons	: 69	Secretarial Assistance	: 127	Secretarial Assistance	: 40	Sec
Total	:718	Peons	: 70	Peons	: 79	Peo
		Total	: 2748	Total	: 462	Tot
Andhra Pr.	57	Kerala	860	Andhra Pr.	43	An
Assam	50	Orissa	1553	Assam	10	Gu
Bihar	65	West-Bengal	254	Bihar	62	Him
Gujrat	41	Arunachal Pr.	19	Gujrat	29	Ka
Haryana	21	Nagaland	16	Haryana	18	Ma
Himachal Pr.	22	Tripura	43	Himachal Pr.	14	Or
J & K	37	Sikkim	3	J & K	15	Pu
Karnataka	106		+ (138 on honorarium)	Karnataka	10	Ra
Madhya Pr.	79			Madhya Pr.	74	Ta
Maharashtra	61			Maharashtra	22	Ha
Rajasthan	54			Rajasthan	22	Utt
Tamilnadu	39			Tamilnadu	22	
Uttar Pr.	77			Uttar Pr.	119	
Delhi	6			Pondicherry	2	
Pondicherry	3					
5. Main Objective						
To obtain reliable and timely estimates of area under principal crops in each season with break up area under irrigated/unirrigated, traditional and high yielding varieties of crops and also land utilization statistics which is used for designing of crop estimation survey by conducting priority Girdwari in 20% selected villages every year. This scheme is implemented in the States those are cadastrally surveyed.		To generate estimates of area and production of principal crops through surveys in 20% selected villages in every season through special staff. In the sample village crop area is to be reported based on complete enumeration of all fields/survey numbers. Surveys are specially required as no agency in these States is engaged in updating of land use statistics.		The objective of this scheme is to bring improvement in crop statistics by conducting spot supervision of: a) area enumeration, b) area aggregation, and c) crop cutting experiments in 10,000 villages. Supervision is carried out by Central and State equally (5,000 villages by central agency NSSO and 5,000 villages by State machinery).		To of pro and usi me of

<p>6. Data collection at Grass-root level</p> <p>The scheme of TRS as funded by Government of India does not cover primary data collection by Patwari. It takes care of sampling design of TRS for priority data collection in prevalent land record system, timely completion of consolidation and Organisation at district and State level.</p>	<p>Focus of EARAS is primary data collection and its supervision. Revenue Inspectors under Directorate of Land Records in West-Bengal and staff engaged under the EARAS scheme in other States does the primary work of data collection. The same staff also does supervision of work and consolidation.</p>	<ol style="list-style-type: none"> 1) Central agency – NSSO (we do not provide funds) 2) State – Supervisory Staff engaged by States under the Scheme.
<p>7. Need for Scheme</p> <p>Land Record Manual in different States contain instructions on period of crop enumeration and procedure for compilation of crop area at village and successive higher levels. The time schedule is also prepared. The expectation is that crop abstract will become available by the time the final forecast for different crops become due. Experience has shown that this does not happen and there has been considerable time lag in the availability of reliable and correct statistics of area sown under different crops. This has greatly handicapped in meeting the demand for planning and policy administration. TRS provide for consolidation of area statistics through advance enumeration of substantial number (20%) of villages selected at random.</p>	<p>In the non-land record States, the State agencies do not up date land utilisation record and therefore there has been gap in the data. The scheme provide for setting up a whole time agency to cover a sample of 20% of the villages every year to generate basic land use statistics. In the sample village the crop areas are reported on the basis of complete enumeration. Supervision is in built in the scheme.</p>	<p>In India, estimates of area under crops are obtained by the method of complete enumeration based on field to field inspection done by the village revenue agencies in all land record States and the sample surveys in the States where land utilisation record is not maintained. The estimates of yield of principal crops are based on random sampling, crop cutting experiments conducted under the general crop estimates surveys. The whole exercise is of large scale data generation in a decentralized set up hence the quality and timeliness is susceptible to several factors. The scheme is needed to locate, through the joint efforts of the Central and State authorities., lacuna, if any, in the State system of collection of agricultural statistics and suggest measures to effect lasting improvements in this system. The joint effort take the form of sample check on (I) area enumeration, (ii) page totaling of khasara registers (iii) and crop cutting experiments.</p>

<p>8.Methodology/ Procedure</p> <p>The basic approach of the scheme is to organise selection of 20% villages and of requiring the primary workers to complete the crop area enumeration in selected villages in tune with the sowing of different crops in the season and by suitably advancing the same, when needed. The early crop enumeration organized through TRS facilitates the frame for Crop Estimation Surveys. The special emphasis on timeliness and accuracy of crop area enumeration in a large sample of villages bring about and over all improvement in the system of collection and compilation of statistics of area under crops over a period of five years.</p>	<p>In Kerala, for collection of area statistics, the State is divided into 811 investigator zone. A sample of 100 key plots are selected from each investigator zone. With respect to each key plot a cluster consisting of 5 sub survey division numbers is formed and land utilisation statistics are collected from these 100 clusters of 5 sub survey division numbers each.</p> <p>In West Bengal and Orissa, the crop wise area enumeration work is done in all Mouzas/Villages selected under EARAS. Besides area statistics, EARAS provides basis for estimation of yield statistics.</p>	<p>The check on area enumeration consist of selecting and locating a sample of 20 survey/ sub-survey numbers within each selected village with the help of Khasara register and village maps and recording the actual utilisation through which the survey/ sub-survey number are put during each season as observed by the supervisor. The entries made by the primary workers in the Khasara register in respect of these survey/sub-survey numbers are also obtained and recorded. The results of check are filled in a specially designed schedule.</p> <p>The sample check of preparation of crop abstract consists of checking of page wise totals of area figures recorded under crops and utilisation in the khasara register and recording the totals of crop areas and utilisation.</p> <p>Inspection of crop cutting experiments at harvest stage under the scheme covers specified major crops and consist of examining whether the State primary worker conducts the experiments conforming to the procedure laid down under the general crop estimation surveys of the State. The aspect of check include the selection of survey numbers/sub-survey numbers, fields, random coordinates, marking of plots, harvesting and weighing of produce. The observations of supervisory staff on these aspects are filled in a specially designed schedule.</p>
--	---	---

***REPORT OF THE COMMITTEE FOR IMPROVING THE PERFORMANCE OF
DIRECTORATE OF ECONOMICS & STATISTICS (DES) IN THE DEPARTMENT OF
AGRICULTURE & COOPERATION, MINISTRY OF AGRICULTURE***

RECOMMENDATIONS

The Committee reviewed the functions and composition of the professionals in the DES for improving its performance. The recommendations of the Committee are as under:

- i) Keeping in view the functional requirement of DAC and the functional justification in DES, the Committee observed that there exists an imbalance in the professional composition of ISS & IES in DES, and hence it is recommended that there is need to create additional posts, particularly for statistical functions at various levels especially at SAG level.
- ii) For enabling the proper coordination, monitoring and control of the functions and units having dominant statistical activities such as Agriculture Statistic Division, Livestock Census Division and Improvement of Agricultural Statistics Division should be supervised and controlled by statistical professionals at SAG level.
- iii) Thus, the Committee recommends that the composition of six SAG posts in DES should be four from IES and two from ISS. This is to be achieved by converting two posts of SAG from IES cadre into ISS cadre. The two posts of SAG which are vacant at present may be encadred in ISS and filled from the cadre of ISS.
- (iv) The committee also observed that the cadre strength in 1988-89 of IES was 47 i.e. 14-JAG, 19-STS and 14-JTS posts. The cadre strength of ISS was 16 posts i.e. 4-JAG, 5-STS and 4-JTS posts. A number of temporary posts from both cadre lapsed/abolished during late 80s/early 90s mainly due to non-filling up of vacant posts. These posts could not be filled up by the cadre authorities due to court cases/delay in conducting DPC, etc. As per norms of the Ministry of Finance, these posts were abolished on account of remaining vacant for more than a year. The number of posts which got lapsed in the process were more than 10%, a level desired by the Ministry of Finance in the past. During this period, on the other hand, functions of the DES have increased in view of new economic policies initiated in 1990s. The committee recommended that some of the abolished/lapsed posts might be revived.
- (v) Acknowledging the role of market intelligence units (MIUs) for collection, consolidation and quick dissemination of market data for decision making and policy exercise, and also to interact with the States on related matters, it is recommended that the precarious position of staff in the MIUs may be improved urgently and these units may be restored with the strength of at least one Assistant Director, one Inspector, one LDC and one Peon.

- (vi) With regard to existing ex-cadre posts in the DES, the committee recommended the posts of Deputy Director (System Analyst) and one post of Research Officer (NCA) may be en-cadred into ISS cadre. 7 posts of Research Officers and 3 posts of Inspectors for MIUs need to be created. The posts of Research Officers can be in the Statistical Service. 1 post, each, of Research Officer and at the JAG level, need to be created for strengthening the cost of cultivation division. These posts can also be created in Statistical Service.
- (vii) The committee is of the view that mere strengthening of manpower would not help in effectively improving the functions of the DES. Computers have dominant role in processing and analysis of data. Therefore, there is need to computerize the whole data system in the DES. All the divisions in the DES should be provided PCs and terminals along with printers.
- (viii) For quick flow of data, there is urgent need to step up use of modern information technology for improving flow of information from field MIUs and States. The committee recommends for modernization of data management and dissemination system for enabling rapid data flow from its field as well as State counterparts. For this, the DES should acquire electronic data flow connectivity preferably on dedicated lines with FAX and modem facilities.
- (ix) Training is one of the essential elements for improving the performance. The officials as well as staff of DES and also in the field and States should be provided extensive training and exposure to field realities. The upgradation of skill and human resource development for methodologies and system of data collection and processing of Central and State agencies associated with agricultural statistics, thus, should be coordinated by the DES.
- (x) The DES depends for its primary data on field units and States. Unless these units/States are adequately equipped and strengthened, no long term and effective improvement in functioning can be expected in the DES. Therefore, the committee recommends that schemes should be prepared and implemented for strengthening the field units/States agencies.

(J.N.L. Srivastava)
Special Secretary
& Chairman

(K.S.Bhoria)
Joint Secretary (Admn.)
DAC

(S.N.Kaul)
Sr. Adviser
Min. of Fin.

(D.K.Trehan)
ESA , Dt. of E & S
DAC

(R.L.Narsimhan)
Dy. DG, CSO

(D.C.Gupta)
Director Ag. St.
Uttar Pradesh

(T.Bhaskaran)
Director DES .
Tamil Nadu

Dr. Ahmad Masood
Adviser (PAMD)
Tel: 3710474

GOVERNMENT OF INDIA
PLANNING COMMISSION
YOJANA BHAWAN
NEW DELHI-11001

D.O. No. M-12016/2/2001-PAMD

June 27,2001

Dear Dr. Shastri,

This is regarding the Report of the Working Group on Agricultural Statistics, which has been finalized in the meeting held on June 19, 2001. I feel that the issue of convergence of various Plan schemes of Agricultural statistics has not been adequately dealt with on pages 11 and 12 of the report. I would like to elaborate my views on this issue as follows:

- a) The basic objective of TRS/EARAS is to estimate area under principal crops on priority basis for timely reporting so that sampling frame for GCES implemented by the States could be properly designed. The only difference between TRS and EARAS seems to be provision of primary reporting workers in Orissa and Kerala as the revenue agencies in these two States do not collect data on crop acreage. The yield rate of various crops is estimated by GCES scheme being implemented by respective State Governments on their own except for crop cutting experiments for fruits and vegetables for which yield estimation is also reportedly being undertaken by the staff deployed on CES (F&V). Nearly 5 lakh Crop Cutting Experiments (CCEs) are reportedly being conducted annually adopting multistage stratified random sampling design covering 51 food crops and 15 non-food crops in different States. Production of any crop is thus determined by multiplying the area estimated (on complete enumeration basis in TRS States and through sample surveys in EARAS States) with the yield rates determined through GCES. I think list of food and non-food crops covered under GCES and the manpower deployed in various States/UTs should be annexed in the Working Group report to further clarify the matter in this regard.
- b) The objective of ICS scheme on the other hand is to carry out sample check on area and yield estimation done by State agencies jointly by NSSO and SASAs. The cost incurred by NSSO in carrying out sample checks in TRS and EARAS States is not financed from ICS scheme of DES; only the cost incurred by State Governments in TRS States alone is being financed by GOI and State Governments on 50:50 sharing pattern. Only the principal crops are covered under the sample check scheme of ICS.
- c) It is understood that though West Bengal is a non-Land Record State, agricultural statistics at village level is being collected in that State by Revenue Inspectors with the help of Amins and Bhumi Sahayaks. Such work is being carried out though VLWs in other EARAS States such as Nagaland, Tripura, Arunachal Pradesh and Sikkim. Primary reporting workers are being provided only in Kerala and Orissa, which would explain why manpower of 860 persons has been provided in a smaller State of Kerala compared to just 254 persons in a comparatively bigger State of West Bengal.

- d) The TRS/EARAS and CES (F&V) schemes have been in operation for more than 20 years but only the EARAS scheme implemented in Kerala, West Bengal and Orissa has been evaluated recently only after this lacuna in implementation of the scheme was pointed out by Planning Commission.
- e) Perusal of Evaluation Report on EARAS scheme being implemented in Kerala shows that besides area estimation of principal crops like rice, jowar, ragi etc., area estimation under certain fruit and vegetable crops like coconut, areca nut, cashew nut, pepper, tapioca, cocoa, plantain, sesame, jackfruit etc. is also being conducted under EARAS scheme for the last 20 years.
- f) The Evaluation Report on EARAS scheme in Kerala and Orissa have not dwelt on the issue of timeliness, accuracy, reliability, comprehensiveness and comparability of data generated in different States. No information has been furnished about the cropwise calendar plan for Girdawari being followed in these States and the actual time when the result of these exercises were reported to SASAs/DAC each year since the time of the scheme has been in operation. As the deficiencies in the statistics produced have not been discussed, the evaluation studies are not comprehensive and their usefulness is limited.
- g) In the National Conference on Agriculture Research Statisticians held in 1998 several papers have highlighted the deficiencies in the operation of TRS, EARAS as well as GCES scheme based on sample check conducted under ICS scheme at the Central level (NSSO). Some of these deficiencies are:
- i. Glaring anomalies have been observed in the estimate of agricultural production when compared with auxiliary information like data on exports, procurement and findings of ICS scheme. Exports of cashew nut, coffee, and black pepper are found to be more than 100% of the recorded output of these commodities in value term. Even in quantitative terms, the exports of coffee and black pepper constitute 73% and 178% respectively of domestic output.
 - ii. ICS sample checks show that area estimates given for even principal crops like rice and wheat reported under TRS and EARAS are under estimated by more than 10% and the quality of statistics has deteriorated over time. Estimates of crop yield on the other hand are overestimated by 5 to 10%. Wide variations in under reporting of area and over reporting of yield are observed from year to year.
 - iii. The basic objective of TRS/EARAS scheme of making area estimates under various crops available on priority for 20% of villages in a State (within 2 months after the crops have been sown) for dovetailing these results into the design of GCES is not being realized in practice resulting in increased menace of non sampling errors in the conduct of crop cutting experiments on the basis of which the yield rates of various crops are determined.
 - iv. Though the system of crop acreage statistics is decentralized, the State Governments have not paid due attention to safeguard the qualitative aspects of such statistics.
 - v. Going by the data of ICS on implementation of TRS/EARAS the basic operation of Girdawari is either not done as required or is done untimely. This could be due to (a) overload of primary workers and (b) lack of motivation among them.
- h) Precise details about the activities concerning estimation of crop yield and production carried out by various State governments and the gaps in the work carried out by them have not been brought out in the Working Group report on the premise that NSC has made its recommendations after examining the deficiencies in the data generated by TRS/EARAS, CES (F&V), ICS and GCES. However, the report should have brought out the deficiencies in coverage of crops and yield estimation Statewise indicating the agencies involved and manpower deployed for the important activity of GCES and the number of CCEs carried out in each State. This is important since adoption of uniform set of concepts and definitions for collection of data is

included in the terms of reference. It is to be noted that yield estimation for fruits and vegetables is reportedly being carried out by State agencies through 100% Central assistance, even though staff of only 278 persons under the scheme is mainly deployed at district level in 11 States. In case field level data is being collected under the scheme, the possibility of getting this work done through State agencies on contractual basis would need to be looked into instead of deploying full time employees to be paid through Central funds.

- i) The need for deploying such a large contingent of manpower of 4206 persons (excluding NSSO personnel) for the four schemes of TRS, EARAS, ICS and CES-F&V has, however, not been justified in terms of actual workload of employees deployed under the schemes throughout the year since much of these activities would be seasonal only and that too mainly for tabulation of data at district level especially under TRS (718 persons), though village level data collection is carried out under EARAS, the situation in regard to CES (F&V), however is not clear. With the availability of sizeable computer power both in DAC and all its wings as well as in the Agriculture Departments in the States, which are also on the NIC network, the need for continued deployment of large manpower for all the four schemes of DES would need to be justified.
- j) There is also a need to evolve methodologies, which integrate and complement data obtained from satellites/remote sensing applications but this aspect has not been discussed in the Working Group report even though evaluation of methodologies was one of the terms of reference.
- k) Methodological issues need to be tackled first in arriving at reliable estimates of production of fruits and vegetables and the scheme would need to be modified. It was also agreed that the possibility of deploying contract workers for doing enumeration job for achieving substantial reduction in the cost of collection of data would also be examined. DES had also agreed that Girdawari schedules finalized at the time when the area enumeration schemes were sanctioned would be circulated to all concerned since it was agreed that in case the information under TRS/EARAS were not made available within 2 months of a crop being sown, the very purpose of these schemes gets defeated. However, till this date action taken by DES in this regard has not been communicated.

2. In view of above I feel that convergence of TRS/EARAS and CES (F&V) is indeed feasible. Methodological issues relate more to GCES scheme implemented by States on their own. Methodological differences in crop estimation for various crops alone should not come in the way of convergence of area estimation schemes, especially since DES itself is implementing combined scheme on fruits and vegetables despite obvious methodological differences in estimation of fruits (mainly tree crops with multiple pickings) and vegetables which are short duration perishable crops with varied durations and multiple pickings. There is a need to develop a comprehensive scheme for agricultural statistics rationalizing the manpower deployment and making full use of satellite imagery/remote sensing and information technology to ensure timeliness, uniformity, reliability, comprehensiveness and comparability of agricultural data across States. It is thus imperative that the schemes on agricultural statistics are modified so as to improve both the coverage of crops to close the data gap on 3rd and 4th crops grown in some States, production of fruits and vegetables, especially mushrooms, cut and dried flowers, medicinal herbs and other high valued commercial crops and also improve the quality of data generated.

It needs to be emphasized that any exercise on convergence of schemes related to agricultural statistics must achieve the following objectives:

- a) Merger of all statistics related schemes into one
- b) Uniformity of methodologies all over the country
- c) Identifying methodologies wherever not yet established
- d) Identifying the crops to be reported in each State in respect of food crops and vegetable and horticulture crops (including tree fruit crops)

- e) Fixing the upper time limit for reporting in respect of each crop separately for area enumeration and crop estimation in respect of each State (to be incorporated in an MOU)

There should be an inbuilt independent check on non sampling errors for all crops to be reported in all States.

Planning Commission would insist upon such a sweeping convergence as otherwise the wastage of manpower/resources will continue and agricultural statistics will be the casualty. To achieve the above objective an umbrella scheme could be considered under which State specific schemes could be sanctioned by an Empowered Committee consisting of:

- a) Secretary (DAC)
- b) DG, NSSO
- c) FA, DAC
- d) ESA, DAC
- e) Representative of Planning Commission
- f) Representative of Department of Expenditure

3. In regard to institutional issues discussed in the Working Group report on pages 12-13 I feel the DES needs to be restructured with proper professional balance, especially at senior levels but I am not in favour of creation of additional posts as recommended by Srivastava Committee. In fact the strength of DES staff may have to be reduced in case the convergence exercise is carried out in right earnest.

With regards,

Yours sincerely,

(Ahmad Masood)

Dr. N.S. Sastry,
Chairman, Working Group on Agricultural Statistics, DG & CEO, National Sample Survey Organisation,
Sardar Patel Bhawan
New Delhi-110001