# EARAS

# (Establishment of an Agency for Reporting Agricultural Statistics)

The Centrally sponsored scheme "Establishment of an Agency for Reporting Agricultural Statistics" (EARAS) is in operation in the state through the Directorate of Economics & Statistics, Orissa since 1976-77. With a view to cover all revenue villages of the state within a period of five years, 20% villages are covered in each agricultural year with effect from 1981-82 on non-overlapping basis. Under the scheme Land Utilisation Survey (LUS) and Yield Estimation Survey (YES) are carried out in each crop season of an agricultural year.

### **OBJECTIVES OF THE SCHEME**

- i. Formulation of estimates of area, yield rate and production of paddy at block, district and state level and of 13 important minor crops viz: wheat, Maize, Ragi, Mung (Green-gram), Biri (Black-gram), Kulthi (Horse-gram), Til, Groundnut, Mustard, Nizer (w.e.f.2002-03), Jute, Potato and Sugarcane at District and State level in three crop seasons for the purpose of General Crop Estimation Survey (GCES)
- ii. Formulation of Estimation of area according to various types of land uses at Block, District and State level
- iii. Formulation of advance estimates of area, yield rate and production in respect of programmed crops under the scheme EARAS prior to release of final estimates for the state.

#### ANCILLARY OBJECTIVES

- i. Formulation of estimates of cropped area irrigated (both crop wise & source wise)
- ii. Formulation of estimates of area & yield rate of Paddy, Wheat & Maize separately for high yielding & Local varieties.
- iii. Formulation of estimates of yield rate of different crops separately for irrigated & un-irrigated conditions (for paddy at district & 13 important minor crops at state level.)
- iv. Formulation of yield estimates of different crops separately from different types of soil (for paddy at district & 13 important minor crops at state level)

v. Formulation of yield estimates of different crops separately for with & without application of fertilizer and with & without application of manure (for paddy at district & 13 important minor crops at state level)

# SCOPE and COVERAGE

All revenue villages of each CD. block constitute the sampling frame at the Stratum level i.e. CD Block. The areas covered under irrigation projects, submerged under sea/ river/ lakes, transferred to developmental projects, transferred to Forest Department, Reserved land area under military regiments. Etc. are excluded from/the scope of the survey.

# COVERAGE OF CROPS

For area enumeration

Paddy (HYV & Local), Wheat (HYV & Local), Maize (HYV & Local), Ragi, Other Cereals
Mung, Biri, Kulthi, Other Pulses
Til, Groundnut, Mustard, Nizer (w.e.f2002-03), Other Oilseeds
Jute, Potato, Sugarcane, Others

For conducting crop cutting experiments

For the purpose of formulation of yield estimates, Paddy and 13 minor crops i.e. Wheat, Maize, Ragi, Mung (Greengram), Biri (Blackgram), Kulthi (Horse gram), Til, Groundnut, Mustard, Jute, Potato and Sugarcane were covered as programmed crops. Niger crop has also been included w.e.f. 2002-03.

#### PERIOD OF SURVEY

For the purpose of sample surveys under this scheme, an agriculture year has been divided into three crop seasons i.e. Autumn, Winter & Summer, keeping in view the harvesting period of different crops. Autumn season extends from July to October, Winter season from November to February & Summer season from March to June.

## DESIGN OF THE SURVEY

The multi stage sampling procedure is adopted for selection of sample villages to be covered in an agricultural year. Each C.D. block of the state is taken as a stratum and from each stratum a sample of 20% villages is drawn by the method of Simple Random Sampling without Replacement.

#### **FIELD OPERATION**

The field operation is conducted during three crop seasons i.e. Autumn (July to October), Winter (November to February) and Summer (March to June). The field operation under is broadly divided into two parts.

- i. Land Utilization Survey
- ii. Yield Estimation Survey

#### LAND UTILIZATION SURVEY

Land utilization / Area enumeration is done by visiting each survey no./ plot of each sample village with the help of maps & R.O.Rs during each crop season (Autumn, Winter and Summer) of an agricultural year in order to collect primary data on area under different crops and other types of land uses pertaining to the same agricultural year. In case of un-surveyed villages for which maps and R.O.Rs are not available, area enumerations is conducted on the basis of household enquiry methods along with their particulars on land possessed / land cultivated.

#### **YIELD ESTIMATION SURVEY**

Under Yield Estimation Survey, crop cutting experiments on paddy and 13 minor crops i.e. wheat, maize, ragi, mung, biri, kulthi, til, groundnut, mustard, nizer, jute, potato and sugarcane are conducted.

#### **PUBLICATIONS:**

Estimated Area, Yield & Production of Programmed crops under EARAS & Advance Estimates are submitted to DAFW, New Delhi, GoI for GCES purpose during each agricultural year.

Estimates of Land Use Survey (Nine-fold Classifications) & Crop Estimation Survey (CES) Report is submitted to NSO, MoSPI, Gol in each agricultural year.

For Official Use, the detail results of estimates of each agricultural year is published in "Technical Report on EARAS" by this Directorate.

# Improvement of Crop Statistics (ICS)

The scheme "Improvement of Crop Statistics" has been introduced to find out the deficiencies in collection of primary data under the scheme EARAS through sample checks and to suggest remedial measures. The Scheme is in operation in the State since 1976-77 along with EARAS. The main objective of the Scheme is to locate through the joint efforts of the central (NSSO) and state (SASA) authorities, the deficiency in the system of collection of primary data under the scheme EARAS through sample check by higher supervisory officers /staff of Central (NSSO) and State (SASA) authorities and to suggest remedial measures both on area enumeration & yields estimation.

# Scope and Coverage

### Sample check on Area enumeration

220 villages each for Central & State samples are selected on matching basis for sample check on area enumeration.

# Supervision on Crop cutting experiments (CCEs).

830 crop cutting experiments for Autumn, Winter & Summer season in total are planned each for Central and State samples on matching basis for Supervision on crop cutting experiments. Hence for the state, 1660 CCEs are inspected by the Supervisory Officers under the scheme ICS. At the time of supervision of crop cutting experiments, the supervisory staff takes up following check according to procedures contained in the guidelines of EARAS.

- (a) Selection and identification of selected Plots.
- (b) Location of experimental field inside the selected Plot.
- (c) Harvesting procedure.
- (d) Use of survey equipment supplied by the office.

#### Sample Check on Area Aggregation:

The Statistical Field Surveyors, under the scheme EARAS, transcript crop and noncrop area figures from From-1 (Field Register) to Form-2, Form-2 (A) for different seasons and Form -3 (Annual). Then he takes up totalling of each page. The Supervisory staff for state samples check the transcript and totalling figures for the selected villages and record their findings in scheduleAS-1.1.

- For Transcription and Area Aggregation the villages to be covered as per the following principles: -
- i) Autumn- 40%
- ii) Winter & Summer-30% each.

Schedules Used for Sample Check:

- Following 3 types of schedules are used for ICS, Scheme: -
- i) AS-1.0 (For Area Enumeration).
- ii) AS-2.0 (For recording Crop cutting Results).
- iii) AS-1.1 (Transcription & Area Aggregation).

# Methodology

NSSO (FOD), MoSPI is responsible for all activities including survey design, field operations, data processing and preparation of reports under the ICS scheme.

# **Design & Sample selection**

The design adopted for the selection of villages for sample check on area enumeration is one of stratified random sample, where a tehsil/taluka/subdivision or a group of them is taken as a stratum in the land records states. For Odisha, a block or a group of blocks with geographical contiguity constitutes a stratum. The total number of villages allotted to each state is first distributed among the districts and then among the strata in proportion to the gross cropped area ensuring at least two villages for a stratum. The selection of villages for check on area enumeration and crop cutting experiments is made jointly by SASA and the region NSSO in such a way that the two sets of supervision villages (one for NSSO and the other for the SASA) are non-over lapping. For a selected sample village, 20 plots (in 4 clusters and each cluster comprising 5 plots) are selected on random basis out of total number of plots of the villages.

The villages to be taken up for sample on area enumeration during an agricultural year are selected at Regional office of National Sample Survey Organization out of the crop cutting villages selected under the scheme EARAS. ICS Sample Villages (Statement-2) including additional villages (Statement-2(A))

for crop cutting experiments, Crops and number of experiments to be Supervised during each season of an Agricultural year are planned by National Sample Survey Organization.

All villages selected for sample check on area enumeration are covered during three seasons for the purpose of check on transcription totalling different crop seasons (40%, 30%& 30%, of the total villages during Autumn, Winter & Summer Seasons respectively). The villages for each crop season are decided by NSSO.

## **Procedure for Selection of Cluster**

For Check on Area Enumeration, Maximum 20 plots will be covered for Area Enumeration survey in 04 clusters (each cluster consist of maximum 5 Plots) selected as per the given procedure.

- a) Ascertain the total highest survey numbers of the village (Original Plots + Bata Plots – Chute Plots).
- b) Adjust it to higher Number which will be the multiple of 5.
- c) Divide the Adjusted Number / 4 & the quotient which will be the Interval.
- d) Select a Random Number range 1 to the adjusted number from the Random Column allotted by taking the stratum number & order of selection for LUS which gives Random Start i.e. Cluster No-1.
- Add the Interval with Random start to get Cluster No-2 and so on to get other 2 Clusters.
- f) During addition, if the number exceeds the adjusted numbers then deduct the highest adjusted number from it to get the required cluster.