Reference Manual for Indian Statistical Service Probationary Training

NSSTA

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Chapter I

Introduction: Framework for ISS Induction Training

"Official statistics provide an indispensable element in the information system of a democratic society, serving the Government, the economy and the public with data about the economic, demographic, social and environmental situation. To this end, official statistics that meet the test of practical utility are to be compiled and made available on an impartial basis by official statistical agencies to honour citizens' entitlement to public information."

"Fundamental Principles of Official Statistics" adopted by United Nations

Official statistics form the cornerstone for the formulation of public policy. Good Governance critically depends on our ability to make sound, evidence-based, objective and impact-making decisions across a wide spectrum of economic social, and political activities. Government needs data to formulate, implement, and monitor policies and for policy review, analysis, synthesis and impact assessment. The public needs data for impartial understanding and assessment of Government policies. It is not just the government, but non-government institutions and people are also stakeholders in generating reliable and credible statistics for their own use as well as to have an informed debate on various aspects of society and their empowerment and responsibility in a democratic society. Thus, relevant timely data is required, end to end in the life-cycle of a policy/ government programme.

2. Keeping in tune with the above understanding, the Mission of the Indian Statistical System is to provide, "within the decentralised structure of the system, reliable, timely and credible social and economic statistics, to assist decision making within and outside the Government, stimulate research and promote informed debate relating to conditions affecting people's life". It functions within the federal structure of the Government of India. The authority and responsibility for collection of statistics relating to a particular subject field is determined by the overall responsibility for the subject under the Constitution. The Ministry of Statistics and Programme Implementation (MOSPI) plays a key role in the system. The Ministry's mandate includes making available reliable and timely statistics, undertaking regular assessment of data needs for informed decision making, catering to the emerging data needs in a dynamic socio-economic context, avoiding unnecessary duplication in data collection and publication, adopting and evolving standards and methodologies for statistics generated by various elements of the National Statistical System , steering its development for further improvement and bridging data gaps, ensuring and strengthening trust and confidence of all stake holders in the National Statistical System by maintaining confidentiality of data providers and promoting integrity and impartiality of official statistics.

3. Indian Statistical Service (ISS) was constituted in 1961 with the objective of institutionalizing a core professional capacity within the Government to undertake statistical analysis and render advice for designing and formulating development polices, strengthening delivery systems and monitoring and evaluating the public programmes. The Indian Statistical System is a decentralised system and the officers of Indian Statistical Service have

pivotal role in compiling Official Statistics at central level for use of government and non-government entities. Officers of ISS cadre having a strength of 814 sanctioned posts are serving in various Ministries and offices across the country at different levels. The list of Ministries and offices having positions of ISS is given in Annexure I. Their job profile entails a wide arena, from being technical in nature with proficient understanding of statistical methods to general administrative and managerial functions. Their responsibilities mainly involve managing survey operations and data generation operations, leading to a requirement of having high communication and organisational skills in technical as well as management areas to fulfil their responsibilities successfully. The service professionals, in their career progression hold senior positions and provide technical leadership to the respective domains of official statistics. The pertinent aspect of technical leadership is to maintain sound orientation to statistical methods and tools for generation, use and interpretation of statistics in the contemporary technological and decision support environment. Often senior level ISS officers head the office or organization. Thus, administrative skills are an absolute necessity. In nutshell, the skill, professional proficiency and managerial acumen required by ISS Officers are as diversified and wide as the areas they have to perform and lead the statistical functions. Broadly these areas are:

- Statistical proficiency
- IT skills
- Leadership qualities
- Public Administration & Managerial ability
- Communication and Presentation skills

4. ISS officers are recruited through UPSC examination. The minimum eligibility criterion is Bachelor's degree with Statistics or Mathematical Statistics or Applied Statistics as one of the subject. Like any other government service, ISS officers are put to probation for a period of two years on joining the service. For ISS, these two years of service induction are committed for their effective and relevant training so that they can have a head start in their career once they are posted after two years. Government of India has always realized this and believes in spending substantial resources in training of its officers, particularly during the induction stage. In the training policy[1], it has clearly stated that

"For transforming the civil service, it is imperative to move to a strategic human resource management system, which would look at the individual as a vital resource to be valued, motivated, developed and enabled to achieve the Ministry/Department/ Organisation's mission and objectives. Within this transformational process, it is essential to match individuals' competencies with the jobs they have to do and bridge competency gaps for current and future roles through training."

[1] National Training Policy 2012 by Department of Personnel and Training.

5. Based on the recommendation of National Statistical Commission (NSC) headed by Dr C Rangarajan the MOSPI took the decision to set up central training institute for statistical personnel in India. The excerpts regarding training from the report is quoted below:

(i) A suitable Central Training Facility for Indian Statistical Service officers and senior statistical officers of State Governments, equipped with accommodation, arrangement for food, lecture rooms, computer laboratory, and library should be constructed for trainees and visiting teachers.

(ii) There is an immediate need for extensive arrangements for training of trainers so that when availability of qualified trainers is assured, eventually the Central Training Facility could be transformed into a Training Academy.

(iii) Arrangements for training of subordinate operational staff should be decentralised and separate. The existing in-house training facilities of NSSO should be further strengthened.

(iv) It should be made mandatory for each ISS officer to undergo Refresher Training for a period of at least four weeks every two years. The training could be either in-house at the MOSPI, or at any other Institute in India or abroad. Training in respect of new practices in official statistics could be arranged in-house or through participation in training programmes arranged by professional agencies like the International Association of Survey Statisticians, the U.S. Bureau of Census, Statistics Canada, etc. For broadening knowledge of 'applicable' statistical theory, training arrangements could be made with universities in India or abroad or with reputed research and training organisations like the Indian Statistical Institute, Indian Agricultural Statistics Research Institute, etc. Study leave with financial support should be provided to promising ISS officers working for doctorate degrees in relevant subjects.

(v) Refresher Training Courses should be arranged in the following illustrative list of areas:

(a) Principles of Economics
(b) Communication skills
(c) System of National Accounts
(d) Time Series Analysis, Forecasting and Modelling
(e) Small Area Estimation
(f) Geographic Information System
(g) Management
(h) Information Technology
(i) Classificatory Analysis
(j) Market Research.

(vi) ISS officers should be eligible for Sabbatical leave for pursuing advanced studies related to their area of specialisation.

(vii) Training and deployment should be linked. The Cadre Management system should be suitably streamlined for this purpose.

(viii) The Annual Training Calendar should be announced in advance.

(ix) The content of the Junior and Senior Certificate Courses in Statistics should be reorganised into smaller modules and offered on a large scale to the supporting statistical

personnel (both from the Central and State Governments) who need training at this level. The training also should be decentralised and organised by State Directorates of Economic and Statistics. The MOSPI should organise Training of Trainers Sessions for this program.

(x) In order to achieve closer collaboration between academicians and professionals, a suitable system should be developed to enable teachers and researchers from academic institutions to work in the Ministry of Statistics and Programme Implementation, Government of India and *vice-versa*.

14.10.17 The Commission further recommends that a high-level committee should be set up by the Government of India to evolve a long-term plan for assessing and effectively meeting the training needs for the Central and State Statistical Systems, consistent with what would be expected from the system. The said committee should also be required to examine in this connection whether a Staff Training Institute is necessary and feasible, or, whether the need could be met through cooperation with existing organisations. Such a Committee could comprise as its members, amongst others, the Director of the Indian Statistical Institute as also the envisaged National Statistician besides eminent statisticians with proven academic and professional credentials."

6. National Statistical Systems Training Academy (NSSTA), then National Academy of Statistical Administration (NASA), came into being on 13th February, 2009 with a vision to be a Centre of Excellence in imparting training on Official Statistics and related disciplines and undertaking associated research activities. Its mandate includes imparting training in the field of "Official Statistics" to the statistical personnel, not only of the Central and State/UTs Governments of the country but also of the developing countries in the Asia Pacific region. One of its main target group is ISS probationary Officers.

7. After NSSTA came into existence, a Training Program Approval Committee (TPAC) was constituted with the following Terms of Reference (as per reconstitution OM dated 2nd January, 2012):

"The Committee will look into and approve the following aspects of training programmes pertaining to ISS Probationers, ISS in-service trainings, SSS Induction & in-service trainings, training programmes for trainers, ISEC and training of officials from State/Central Government/ PSUs/ Autonomous Bodies to be organized by the Training Division/NASA of MOSPI based on agenda papers prepared by the Training Division/NASA. The Committee may also co-opt members as Special Invitees, if required.

i. Name of the Training programme
ii. Recommend a tentative schedule along with the period and duration of the Programme.
iii. Number of participants, eligibility criteria and selection procedure of participants.
iv. Recommend course contents and scheduling of the different modules
v. Criteria for selection of Resource Persons
vi. Criteria for selection of Institutions for training
vii. Determine number of Workshops/ Seminars to be conducted and broad topics and a time frame
viii. Approval for awarding internship
ix. Any other aspect as deemed fit by the Committee or referred to by the Ministry."

8. TPAC functions under the chairmanship of DG, Social Statistics and its members include senior ISS officers and external members from the academia. Every year, just before the start of the financial year, a meeting of the TPAC is conducted in which a detailed agenda notes prepared by NSSTA regarding all the training programmes to be conducted by NSSTA during the next financial year is discussed threadbare and approvals/recommendations are given. In case any urgent/special issue comes up, TPAC meetings may also be conducted mid-way. Based on the approvals/recommendations[2] training programmes are organized by NSSTA at NSSTA or at other institutes.

9. The skill sets that is required by an ISS officer has already been identified in para 3 above. Keeping in mind the skill sets required to perform their job effectively and the various offices/organizations where they may land up in future, the entire training programme for ISS probationers spanning for 2 years may be divided into 4 courses having a number of modules.

- Course1 –Proficiency in Official Statistics
  - Module 1.1 - Official statistics
  - Module 1.2 - Economics and Financial Statistics
  - Module 1.3 - Survey Methodology
  - Module 1.4 – Multivariate Analysis
  - Module 1.5 - Monitoring and Evaluation

- Course 2 – IT and data analytics
  - Module 2.1 - Advance IT
  - Module 2.2 - Data Analysis through statistical packages
  - Module 2.3 - Working with unit level data using SPSS and R
  - Module 2.4 – Data Mining and applications
  - Module 2.5 - Big Data Analysis

- Course 3 – Management and administrative skills
  - Module 3.1 - Basic management concepts
  - Module 3.2 - Leadership and strategic management
  - Module 3.3 - Communication and presentation skills
  - Module 3.4 - Office procedure, establishment and Fundamental Rules
  - Module 3.5 - Parliamentary procedure

- Course 4 –Practical experience through attachment with various offices
  - Module 4.1 - Foundation Course
  - Module 4.2 - Field Operation Division Attachment
  - Module 4.3 - State DES attachment
  - Module 4.4 – Statistical divisions / units of other ministries
  - Module 4.5 - Attachment to foreign National Statistics Offices (NSOs)

These modules are elaborated in details in the following chapters.

[2] TPAC Recommendations for the year 2016-17 and 2015-16 are given in Annexure IV.

10. Based on suggestions/feedback, necessity has been felt that for a well-structured training programme attempts may be made to run some of the programmes at NSSTA by engaging resource persons eminent in the respective field. This will enable fine tuning of the flow of the modules and avoiding duplication. The resource person may be entrusted with the task of designing the module in a holistic manner so that probationers may get a complete picture of the field/topic. In the proposed format about 45% of the training is being proposed to be held at NSSTA[3].

[3] Proposed format for ISS Probationary Training in Annexure III

Chapter II

Course 1: Proficiency in Official Statistics

ISS is a technical service with high degree of proficiency in Statistical methods and applications. With the main mandate of producing quality Official Statistics with better methods and techniques, provide solutions to the data and information needs and interpretation and analysis of statistics, a majority portion of the probationary training programme is to be devoted to acquiring of technical knowledge in the field of official statistics, economics, financial statistics, survey methodology etc. Accordingly, this module is divided into four main sub-modules: Official Statistics, economic and financial statistics, survey methodology and monitoring & evaluation.

Module 1.1: Official Statistics

2. An ISS probationer, at the beginning of his/her career should be exposed to the leading statistical activities being done in various offices/organizations in the Indian Statistical System and the respective statistical designs and applications. The work of different offices within the system is usually interlinked and so it always helps to have a broader view and wider perspective. Sessions associating senior experienced faculty from diverse subject matter divisions are kept under this module. This helps the probationer to gain from the experiences of the experts working in these offices. Distinctive features of collecting data in the various ministries and departments, challenges faced in the process and the statistical methods and techniques adopted to meet those challenges are expected to be covered in these sessions. Further, if need arises to venture into new areas or to revise an existent data collection system, the knowledge that they gain by attending this module would help them to set up an effective system in place. Managing the affairs of the state sustainably and efficiently necessitates profiling demography, social and economic activities of the people, the territory including topography, natural resources and environment in desired aggregation and disaggregation in the system of national statistics. Official statisticians therefore are knowledge professionals with core skill of observations, count and measure, analyse and infer. First economics related to the topic should be covered followed by its statistics part and then hands-on-training. For example, the module on Industrial Statistic should be broken down to Industrial economics followed by Industrial Statistics ending with practical on the topic. Similarly, the other topics may also be reoriented. Training module should be oriented to cover all aspects of the statistical process that is assessment of data demand in different domains, how data collected at basic primary level through web-based system or otherwise can be aggregated to give national level data – how technology can help in establishing such systems. Efforts will be made to keep 25% of the sessions in each sub-module on data interpretation and case studies relevant to the topic. The stress throughout the training will be hands on using R software for all the statistical and econometric technique modules. Lecture sessions should be interspersed with case studies and experience sharing as much as possible. Attempts will be made to enhance the ability to answer questions posed on data. They will be engaged in project work with live data. Trainees will be encouraged to do literature reviews to develop research oriented mind. One added advantage of having lots of project work, practical and case studies would be that NSSTA could develop a repository of case studies.

3. Accordingly, the following topics have been included in this module.

(i) Fundamentals of Official Statistics:

a. Justification: As the name suggests, the module will give an overview of the Indian Statistical System and the principles on which it is built. It will give an exposure to institutional, legal and operational aspects of Official Statistics in India as well as to methodological bases of measurement in official statistics. It will make the officers aware of the quality standards in practice and quality of the data in official statistics, especially with regard to limitations that arise from measurement and processes of statistical production. It will include domains of Official Statistics, concepts, definitions and statistical standards, statistical units and classifications, processes of statistical production, quality in official statistics and other relevant issues in Official Statistics. It will include topics relating to international practices in the field like Fundamental principles of Official Statistics, Dissemination standards developed internationally, specifics of other countries and other relevant topics. This module will cover the main & important role of Ministry of Statistics and Programme Implementation. All ISS officers should have the knowledge about how our statistical system is working before processing to the detail study of individual topic of official statistics. This module will help to build up the basic frame and structure of statistical system in officers' mind.

b. Course Contents: Overview of Indian Statistical System, mission, vision statement of Indian Statistical System and Ministry, overview of functions and activities of various offices under MoSPI, statistical setup in other line Ministries, Statistical System in States including activities of Directorate of Economics and Statistics (DES) in the States, sources of official statistics, Activities of Programme implementation Division, National Statistical Commission (NSC), Fundamental principles of Official Statistics, Collection of Statistics Act, Standard data dissemination rules like OECD Quality Framework 24 and Special Data Dissemination Standard, Allocation of business rules and official statistics, decentralised system and role of coordination, institutional mechanism for better coordination, role of Statistical advisers.

(ii) Agriculture & Allied Statistics:

a. Justification: ISS officers play a *key* role in almost all department of M/o Agriculture, Ministry of Rural Development, State DES and other Government offices that deal with the subject of agriculture and related topics. Further, in NSSO from time to time surveys are conducted on various subjects related to agriculture. ISS officers are responsible for conducting various surveys and census related to agriculture including Survey on land and livestock, Agriculture census, Land Record Statistics, crop cutting experiments, livestock census etc. They are involved in decision making process relating to minimum support price for agricultural products, agricultural prices and market information , cost of cultivation etc. ISS positions are available in departments like Animal husbandry, Fishery & Horticulture.

b. Course Content: Agriculture economics, Sources of official statistics from various departments of Ministry of Agriculture namely Department of Agriculture and cooperation, Department of Animal Husbandry, Dairying and

Fisheries, Department of Agriculture Research and Education, Activities of Ministry of Agriculture, State DES, role of CACP (Commission for agricultural costs and prices), ministry of rural development and other relevant offices. Application of GIS and remote sensing in this field, application of small area estimation in this field, international practices followed, NSSO surveys conducted in this regard etc. During this module, visits of the following institutes can also be included to provide the field exposure about agriculture sector. (a)Visit to FOD, Agriculture wing, Faridabad, (b) Visit to IARI or IASRI.

(iii) Industrial Statistics

a. Justification: Industry sector has a significant share in the national economy. Industrial Statistics is very important for policy making and research. ISS officers have a key role in industrial statistics in organizations like the CSO (IS Wing), IIP Unit, Department of Industrial Policy and Promotion, Ministry of Textiles, Ministry of MSME etc. The well-being of the industries depends on the formulation and promotion of industrial policies framed by the policy makers. To frame suitable industrial policies, the policy makers need to be aware about the quantified aspects of the existing scenarios in the industries in the country. Data has to be generated regarding each and every facet of the industrial sector starting from structure and function of industrial sector including assets, capital and costs involved to output through production including employment conditions, energy conservation etc. Data is in demand for both the formal as well as informal sector. With the service sector growing in importance day by day, there is a huge demand for data for this sector. Along with demand, there are a number of challenges and issues that have to be taken care of while collecting and compiling data for this sector. Thus, along with the present practices, the probationers also have to be made aware of the new innovations happening in this field. ISS officers posted in Central Statistics Office (Industrial Statistics Wing), Economic Statistics Division(ESD), MSME, Department of Industrial promotion and policy and other line offices are mainly involved in this job.

b. Course Content: Industrial economics (indicators and their relevance in economy),Sources of Official Statistics in industrial sector, Annual Survey of Industries, Economic Census, MSME surveys, International practices, Index of industrial production, reading balance sheets, data regarding labour conditions and other related fields by Labour Bureau, responsibilities of ISS officers posted in DIPP, NSSO surveys conducted in this regard etc.

(iv) Economic Statistics

a. Justification: The three main parameters required to understand the economy of a country would be size of the economy measured usually by its Gross Domestic product, labour force scenario of the country and the behaviour of the prices. In MOSPI this responsibility lies with National Accounts Division and Price Statistics Division. Data is collected from various offices and results are brought out at periodic intervals. This data is being followed very closely by the economists and researchers as well as the policy makers of the country. All ISS officers need to be well aware of the basics of national accounts statistics and price statistics. Again, labour statistics are mainly taken care of by Ministry of Labour and labour Bureau at Chandigarh and Shimla. NSSO surveys at different intervals conduct surveys on employment and

unemployment. The results of economic survey may also be discussed briefly in this module.

b. Course Content: Sources of official statistics with regards to National Accounts, Price Statistics and labour Statistics with details as follows:

i. National Accounts - System of National Accounts(SNA), Definitions of National Income; Elements of National Income: Measurements of National Income, Factors Determining National Income; National Income Accounts; Gross National Product (GNP), Net National Product (NNP), National Income (NI), Personal Income (PI), Disposal Personal Income (DPI); Real Income and National Income, Method of compilation of national accounts statistics for various sectors including Agriculture, Mining, Manufacture, Electricity, Gas & Water services, Financial & Non-Financial sector, Govt. Private Corporate Sector, etc., analysis of accounts of NDCU's, Construction, Capital formation, Saving, IOTT supply use table, role of the states in calculations of state & district domestic products, dissemination structure with respect to NAS, different publications published, implication in policy making.

ii. Price Statistics – Basic concepts of index numbers, different indices of price namely producers index number, wholesale price index, consumer price index etc., challenges faced in calculation of these indices in India starting from preparation of basket to weighting to generating these indices namely rural/urban or combined and those for agricultural workers, industrial workers compiled by labour bureau, role of different offices involved in compilation of these indices, conceptions and misconceptions regarding inflation, concept of deflation, purchasing power parity, calculation of Dearness Allowance(DA) etc.

iii. Trade Statistics – Trade economics, WTO, GATT, role of Directorate General of Commercial Intelligence & Statistics (DGCI&S) and (Directorate General of Foreign Trade) DGFT in Trade Statistics, Methods of data collection, compilation, validation and dissemination followed by DGCI&S in producing trade statistics, challenges faced, inland trade, anti-dumping etc.

iv. Results of various surveys in relation to economic statistics with main emphasis on Economic Survey that is brought out before the budget.

(v) Labour and Employment Statistics – Labour economics, labour force statistics, Definitions and concepts of various indicators, source of official statistics in this field, data collected and compiled by Ministry of labour and labour bureau, NSSO surveys in this respect, international practices, the latest ILO / ICLS specifications for employment, child labour etc.

(vi) Social Statistics including Demographic statistics:

a. Justification: There are several Ministry and Department under Government of India which are mandated with the task of producing social statistics. Social statistics refers to the use of statistical measurement systems to study non-

economic characteristics of the population. A sound social statistics would help a country to have people friendly policies and it would also help to understand the impact of different policies and schemes on public. In MOSPI the main responsibility in this regard lies with Social Statistics Division(SSD), though the data, to a large extent is collected by many of the line Ministries and offices where ISS officers are also posted. Demography is also included in this as by the very definition demography is study of the changing structure of human population.

b. Course Content: The topics to be considered are as below:
   i. Activities of SSD, Millennium and Sustainable Development goals, Gender Statistics, Basic Statistics for local level development(BSLLD), crime statistics, Environment economic accounting (SEEA), Climate Changes etc.
   ii. Activities and data collected and published by Ministry of Health and Family Welfare and its 4 departments namely (a)statistics division of Department of Health & Family Welfare, (b) department of AYUSH, (c) department of aids control and (d) department of health research, different monitoring programmes by M/o Health, Health Management information system, National Family Health Survey (NFHS) conducted through International Institute of Population Studies(IIPS), District Level Health Survey (DLHS), Annual Health survey (AHS)
   iii. Education Statistics will include major statistical exercises like AIHES, DISE etc.
   iv. Miscellaneous topics like water resource statistics, Surveys on impact of programmes like Swachch Bharat Abhiyan and NREGA, role of offices and data compiled by the offices like SSD, Ministry of Women & Child development, Road Transport & Shipping, Ministry of tourism, Ministry of Water resource etc., data on Sanitation, calculation of Poverty & Hunger, Social Justice etc.

(vii) Module on **Demographic Statistics** would include organizational structure and role of office of Registrar General of India (RGI), various data collected and published by them, Population Census 2011 and challenges faced during implementation, results of population census 2011, Annual Health Survey, Sample Registration System, Civil Registration System, Birth and death registration, role of IIPS etc.

Module 1.2: Financial Statistics and Economics

4. The Indian Statistical Service officers are involved in compiling macroeconomic indicators at national level. Therefore, it is appropriate that there should be training on financial statistics and economics during Probationary Training of ISS officers. The training modules on following subjects may be included in the Probationary Training Programme for newly appointed ISS officers.

- Basics of Micro and Macro Economic Theory
- Time Series Analysis & Applied Econometrics
- Public Finance & Fiscal Policy
- Monetary Policy, Banking & Financial Statistics
- Poverty & Inequality Estimation

- Presentation/ Evaluation

(i)Basics of Micro and Macro Economic Theory: -

a. Justification: A good knowledge of Economics is essential for compiling and interpreting economic data. Several indices and indicators are compiled at national level to measure the relative change in an economic phenomenon. The officers of Indian Statistical Service are engaged in compiling Consumer Price Index (CPI), Wholesale Price Index (WPI) and Index of Industrial Production (IIP). These indices are the barometer of Indian economy and any movement in these indices have several interpretations. The officers of ISS who are responsible for compiling these indices should be well versed with basics of Macro Economic theory. A large chunk of officers of Indian Statistical Service Officers are posted in National Sample Survey Office (NSSO). NSSO collects data for compiling various macroeconomic indicators through large scale sample surveys and these indicators are used by various government and non-government entities for planning and research purposes. The officers posted in NSSO should have good knowledge of basics of Macro-Economics along with the essential knowledge for conducting large scale sample survey. The officers of Indian Statistical services are posted in various central ministries. Central ministries implement various social sector schemes for welfare of citizens. The responsibility of monitoring of progress and impact assessment of various social welfare schemes are assigned to ISS officers in respective ministries. For measuring the impact assessment of such welfare scheme, the knowledge of basics of Micro Economic is essential to ISS officers. The Indian Statistical Service has cadre posts in Ministry of Finance at various levels. It is essential for ISS officers to have basic knowledge of Economics for performing assigned works.

b. Course Contents:

Microeconomics: Essentials of Economics, The Market Forces of Supply and Demand, Consumer Behaviour and Rational Choice, Demand Elasticity and Its Applications, Demand Estimation and Forecasting, Production Theory, Cost Analysis, Decision-making in Competitive Markets, Decision-making for Firms with Market Power, Pricing Techniques, Game-Theory Applications in Strategic Decision-Making

Macroeconomics: Orientation to Macroeconomics, Measuring the Value of Economic Activity, Aggregate Demand - The Goods Market and Money Market and the Influence of Monetary and Fiscal Policy on Aggregate Demand, Open Economy, Money and Inflation, Aggregate Supply and the Short-run trade-off between Inflation and Unemployment (including case studies from real life situation)

(ii) Time Series Analysis & Applied Econometrics

a. Justification for training module: The selected candidates for ISS may have theoretical knowledge of Time Series Analysis and Econometrics in their university curriculum but knowledge of applications of these theoretical concepts on time series data may be limited Central Ministries and MOSPI are compiling and publishing time series data on various indicators. This job is primarily performed by the officers of Indian Statistical Service. MOSPI releases advance estimate of National Income. The knowledge of time series analysis and forecasting is essential for compiling such advance estimate. Departments of Economics and Statistics, Ministry of Agriculture compile and release Agricultural Statistics at national level. This job is primarily performed by ISS officers. Ministry of Agriculture also publish

advance estimates of agriculture production for various policy purposes. For compiling such advance estimate, econometrics models are widely used.

b. Course Contents:
Time series analysis: Concept of Time Series, Component of Time Series, Measurement of Time Series component, Time Series models: MA, AR and ARMA models, ARIMA & GARIMA models, ARCH & GARCH models, Autocorrelation Analysis; Auto Correlation Functions & Partial Autocorrelation Functions, Time Series Modelling with the help of E-views software.
Econometrics: Concept of Time Series Data vs Cross Sectional Data, Multi-collinearity, Autocorrelation, Heteroscedasticity, Nonlinear Regression and Simultaneous Equations.

(iii) Public Finance & Fiscal Policy

a. Justification for training module: The Fiscal Policy has great impact on national income, prices, employment, consumption, distribution of wealth etc. The officers of Indian Statistical Service are engaged in collection of data related to these indicators. The Indian Statistical Service has cadre posts in Tax Research Unit(TRU), Department of Revenue, Ministry of Finance at various levels. It is essential for ISS officers who are posted in TRU to have basic knowledge of issues related to public finance and fiscal policy for performing assigned jobs in efficient manner. Directorate of Data Management Customs & Central Excise maintains the data base on tariffs and other indirect taxes. The ISS officers have key role in the maintaining of data base in the directorate. The related knowledge is essential for improvement of the data base and in day to day functioning. To understand and bring improvement in Public Finance data base, the theoretical knowledge in the area of Public Finance is essential for ISS officers. Stress will be given on the data related issues and setup.

b. Course Contents: Meaning and definition of public finance, Private finance and public finance, Role of public finance in developing countries, Public Revenue; Canons of taxations, Classification of taxes, Characters of a good tax system, Tax revenues of the Central Government, Public Expenditure; Objectives of the public expenditure, Economic effects of public expenditure, Public Debt; Meaning and classification of public debt, Economic effects of public debt, Public debt in India, Fiscal Policy; Meaning, Objectives of fiscal policy in a developing country like India, Fiscal policy during Inflation and Depression.

(iv) Monetary Policy, Banking & Financial Statistics

Course Contents:- Monetary policy; Objective of monetary policy, Monetary policy and economic growth, Role of monetary policy in developing economy, Theory of Banking; Commercial Banking { Meaning, Functions, Credit creation, Utility and role in developing countries}, Central Banking { Meaning, Necessity, Principle, Method of Credit Control, Foreign Exchange and Exchange control}, Overview of data base of central bank, Balance of Payments; Meaning, Balance of Trade and Balance of Payments, Meaning of disequilibrium in balance of payments, International Financial institution; Objective and function of IMF, World Bank, Asian Development Bank(ADB), Activities of TRU,CBEC, Goods and Service Tax(GST).

(v) Poverty & Inequality Estimation

a. Justification: The poverty estimates are derived from NSS data. The understanding of issues in estimation of poverty line is very much essential for ISS officers. The government has various poverty alleviation programmes and the progress of these programmes is measured by the respective ministries. ISS officers are engaged in this work in different Central Ministries.

b. Course Content: Concept of poverty (national as well as international), dynamic nature of definition of poverty, Estimation of poverty/ inequality, Poverty related issues in India, Mechanisms for monitoring social welfare scheme, social welfare schemes and their impact, Case Study on a poverty alleviation programme.

Module 1.3: Survey Methodology

5. A large number of ISS Officers are involved in the data collection mechanism through conduct of surveys or census. A module on survey methodology is essential for knowing the science involved in designing a survey. We may refer to the "Generic Statistical Business Process Model" (GSBPM) developed by UNECE, Eurostat and OECD as a flexible tool to describe and define the set of business processes needed to produce official statistics in reference to conducting surveys and illustrate the importance of the different topics in this module.

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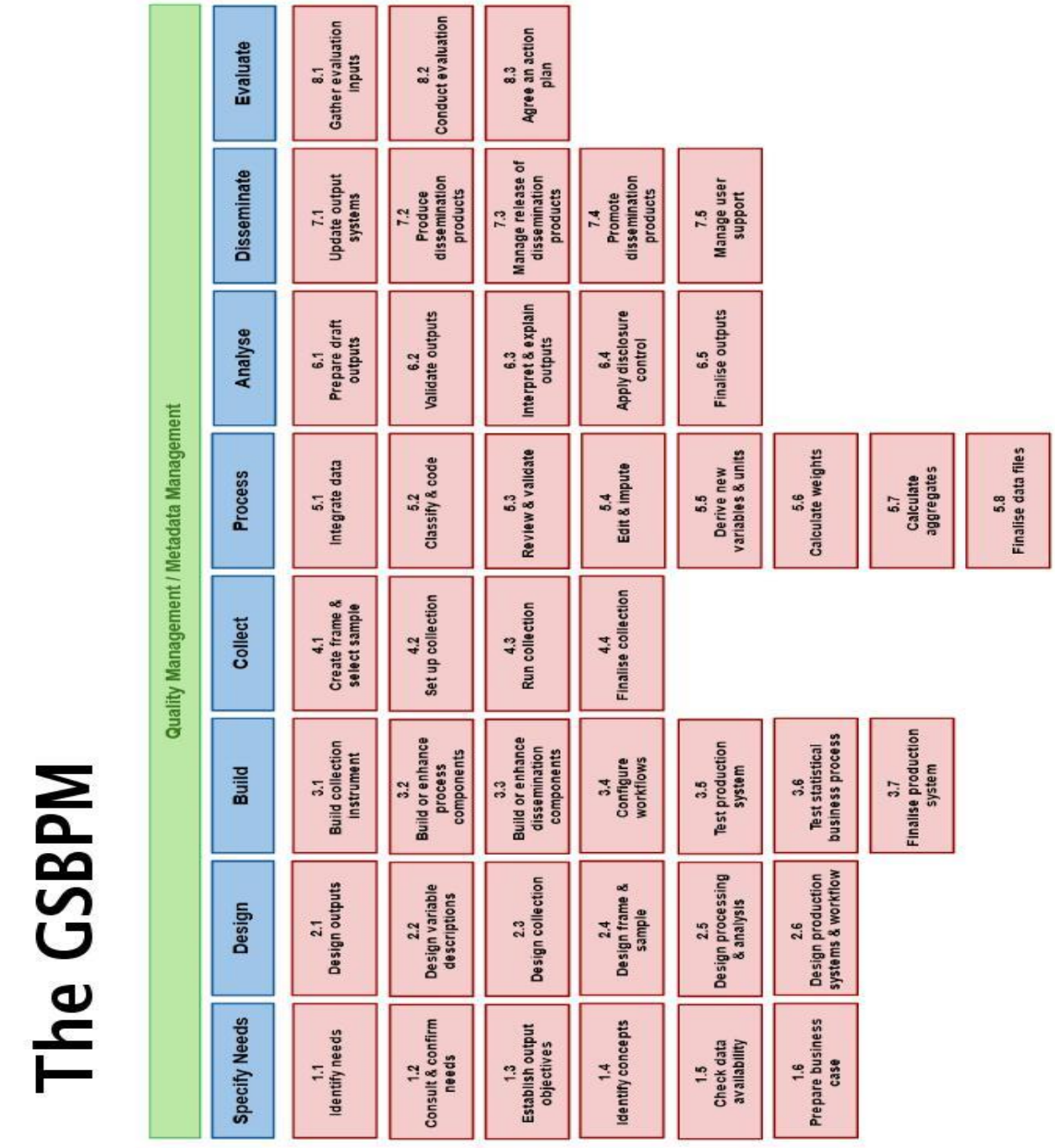

(i) **Sessions in Survey Design and Research Division (SDRD)**

a. Justification: The first three stages are Specify Needs, Design and Build. The 'Specify Needs' part mainly comprises identifying the needs, objectives and concepts through discussion with the client and/or the user, check the data availability and accordingly prepare a business case. In the Design phase, designing of outputs as in the dissemination format, variable descriptions as in indicators/parameters involved in the study based on the objective identified in the earlier stage takes place. Based on the above, the survey instrument viz. the questionnaire/schedule, field manual, diary etc. has to be designed. Further

the sample design to be employed, the frame to be used for the study, the processing stages, estimation procedure and workflow also need to be fixed at this stage. In the Build stage collection instrument needs to be built finally along with process components and dissemination concepts. Testing, if required, needs to be done, may be on a pilot phase basis before finalising or completing all pre-survey work. All the above activities are carried out by SDRD for NSSO Surveys. Thus, there is no other office in India which could give a total view of all the activities that are undertaken before the survey operation starts and give an idea of the challenges faced. Also, they are, inter alia, involved in conducting surveys on various topics starting from consumer expenditure to employment unemployment to enterprise surveys. Thus, an elaborate module at SDRD is essential for the probationers.

(ii) **Sessions in Field Operations Division (FOD)**

a. Justification: The stage is the "Collect" stage where frame is created in the field, sample in terms of household/enterprise are selected and schedules are canvassed to get responses. Session on this part can only be imparted effectively by the Officers who have an extensive field experience in the Field Operation Division Offices. The challenges faced in the field while creating the frame, canvassing the listing schedule, creating strata at FSU level and selecting households thereafter is a lesson that is a must for the probationers. How the field investigators canvass the schedule, change a non-respondent to respondent, address an inconsistent response from respondents make for a very interesting session. This session definitely needs to be followed by field attachment in various FOD offices throughout the module. The field conditions in the different regions in India are different and getting an exposure to offices in different regions would help the probationers to get an overall idea of the challenges.

(iii) **Sessions in Data Processing Division (DPD)**

a. Justification: The 'Process' stage in GSBPM is a stage which is mainly carried out in DPD in NSSO. It is involved in data entry, data validation, imputation of data, calculating weights etc. DPD designs its own data entry package DPDSYS. Thus, some days are required to be spent in DPD so that all post survey works involved in NSSO surveys become clear to the probationers. The stages of 'Analyse' and 'Disseminate' are done in association with SDRD and thus, these are topics that may be taken by both the offices. Dissemination is a very important stage and understanding of the methods followed for generating the tables and reports are very essential.

(iv) **Sessions in Computer Centre**

a. As far as dissemination of data is concerned, Computer centre also plays a very important role in creating the metadata information and data warehousing for the different sets of data being generated in various offices of Indian Statistical system. Hence, an exposure to the activities of this would go a long way in giving them knowledge about this very important stage in GSBPM.

Thus, we see that in order to get a view of the entire GSBPM process in terms of conducting a survey, exposure to the three main offices of NSSO is a necessity.

Course Content: Generic Statistics Business Process Model, steps to be taken in planning and designing of large scale sample surveys, concept of Total Survey Error, narrowing down of indicators to be included in the survey, questionnaire designing, concept of strata and cluster, preparation of sample frame, sampling methods, concept of RSE and CV, sample size calculation, allocation of sample size across strata and clusters, mode of data collection like PAPI/CAPI/CASI/IVR/Web etc., coverage error, sampling error, non-response error and measurement error like response error, error due to interviewer, error due to questionnaire, error due to mode of data collection etc., challenges of data dissemination including basic concepts of disclosure, data archiving, data warehousing, metadata, all the above topics in context of NSSO surveys and health surveys, role of the DPD, SDRD, FOD, CPD and Computer Centre and challenges faced by these offices during conduct of or data warehousing or data dissemination, statistical tools and methods for decision support, scope, demand, generation, dissemination and inference on official statistics and its institutional arrangements.

Module 1.4 – Multivariate Analysis

Justification: In official statistics, data are normally multivariate. Therefore, knowing technique for univariate analyses would not suffice for ISS Probationers. They need to acquire techniques to analyse multivariate data. This was realised by Prof. P C Mahalanobis in the formative years of Indian National Sample Surveys. It resulted in Mahalanobis distance pervasive in multivariate statistical data analysis and data mining. Officers should be efficient in recognizing patterns in the data and the relationships that exists between the different variables in the data. Its scope might be extended to modelling applied to measurement methods and data analysis of official statistics and indicators.

Course contents: Briefly, this module may include: Bayesian multivariate analysis and Markov Chain Monte Carlo; Diagnostic Checks for Multilevel, Optimal Designs for Multilevel Studies, Multilevel Models for Ordinal and Nominal Variables, Multilevel and Related Models for Longitudinal Data, Multilevel Generalized Linear Models and Missing Data, Statistical inferencing and Interpretation, dependent and independent stochastic process. Along with the theory, practical applications of these methods on live data should be demonstrated.

Module 1.5 - Monitoring and Evaluation

Monitoring and Evaluation (**M&E**): It is normally used to assess the performance of institutions, development projects or schemes/programmes. It is a process intended to improve performance and achieve the desired results through proper control of current and future management of outputs, outcomes and impact. The ISS officers works in Programme Implementation Wing as well as in different Central Ministries where they are involved in the monitoring of various central schemes and as such they have to learn the methodology and good practices of monitoring and evaluation.

Course contents: Concepts of Monitoring & Evaluation, concepts & methods of impact evaluation; M&E mechanism for different schemes and programmes; intensive practice – based learning on developing outcome indicators that can be used in concurrent evaluation and in measuring and tracking progress on human development and social policy, monitoring of projects like Member of Parliament Local Area Development Scheme (MPLADS), activities of Infrastructure and Project Monitoring Division(IPMD), data analysis tools used in M&E.

Chapter III

Course 2: IT and Data Analytics

1. Statistics is a profession related to information. Therefore, the utility of official data depends on the way in which we are able to collect, process, store/archive and disseminate this information. In this age of technology, digitization is part of every sphere of life. Management of statistical information is unimaginable without the support of tools of modern IT. For this we may again refer to the GSBPM developed by UNECE, Eurostat and OECD as a flexible tool to describe and define the set of business processes needed to produce official statistics and take case of conducting surveys to illustrate how IT encompasses all the stages of the process model.

2. As can be seen from the model, the first two stages are "Specify Needs" and "Design". These stages mainly consist of discussion with the potential users and researchers. For these stages, knowledge of basic office software and communication software is required. Use of programming and statistical packages or software packages start extensively from the "Build" stage. For example, for building collection instruments there are different modes of data collection and based on the selected mode, various features of IT can be extensively used. In modes like CAPI (Computer Assisted Personal Interview) or CASI (Computer Assisted Self Interview) or CATI (Computer Assisted Telephone Interview) or web survey, as the name suggests the whole collection process is online. The questionnaire will have to be embedded by various features and functionality like skip and choose logic, back referencing, consistency checks, inclusions or exclusions of elements in a list based on previously answered questions, randomization of questions (particularly useful for sensitive questions), image display, error messages, real time validation checks (that could help in improving data quality) and respondent tracking among many others. For developing such a questionnaire, one should be well aware of the programming and logical functions used in programming. One could either develop it from scrap in platforms like vb.net or asp.net or use software produced by some statistical offices like CAPI by World Bank (which is being used in Periodic Labour Force Survey(PLFS) by NSSO), Questionnaire Development Tool by Australian Bureau of Statistics or Blaise by Statistics Netherlands. In either case the basic knowledge of programming would be required for optimal development of the questionnaire. Even if the mode of data collection is Paper and Pencil Interview (PAPI), as is the case with NSSO surveys at present, subsequent data entry is done through in house developed packages with ORACLE/ MS-Access as backend and vb.net as frontend and subsequent validation and tabulation programmes are developed either in C, FoxPro or visual basic. For census, optical character recognition is to be used for effective scanning later on. Thus, the stages 3.1 and 3.2 namely building collection instrument and building or enhancing process components are highly IT intensive and solid knowledge of programming is required to perform in these areas. In similar lines other activities under this head like configuring workflows or testing can also be highly based on IT.

3. Coming to "Collect" stage, programming tools and platforms have to be definitely used for sample selection in surveys conducted at country level. Sampling frames like Census Villages or Enumeration Blocks or Urban Frame Surveys (UFS) or list of enterprises as per any list can only be handled by a person who is well equipped with the knowledge of programming. Similar is the case with creation of frames. For creation of frames,

modern IT based models like Geographical Information System(GIS) or remote sensing tools can also come very handy. For the collection process, as mentioned above, in case the mode is computer assisted then definitely IT plays a very important role and basic knowledge of IT or programming can go a long way in handling the questionnaire / data entry packages in field with great ease. Next is the "Process" stage, the activities that come under it in itself suggest that it is intensively dependent on IT. Coding, classifying, validating, editing would need programming. For activities like imputing, deriving new variables and units, calculating weights and aggregates, both programming or using statistical software like SPSS, R, STATA etc. can be resorted to. Again, even if statistical packages are used, some of them like R are highly flexible and programming knowledge may be used to customize existing modules as per the specific needs.

4. For the "Analyse" stage, statisticians may again use either the marketed IT tools like SPSS ,SAS, STATA or R or tools developed by statistical offices: Demetra+ (Eurostat), G-Series, G-Tab and Price System Implementation System (Canada), PX-Edit (Sweden) and Re-GENESEES (Italy). Even standard office softwares like Excel or MS_Access with its enhanced features can be used effectively to analyse the data. The "Disseminate" stage is a very tricky stage in the modern world where there is a constant tussle between "transparency" vs "privacy". In today's world, privacy of data has given rise to a totally new field called Disclosure which extensively uses probability and other statistical tools for safeguarding the data of an individual taking care of the fact that the aggregates thrown out by such modified data are not distorted. Application of such principles on the huge databases created by any statistical system, has to be based on IT tools like SPSS, STATA etc. or customized package developed to suit specific needs. Another challenge in this stage is creation of Metadata (data about data) and data warehousing i.e. archiving of data. Huge amount of information is available but one may not be able to reach the data due to lack of information about where to get the data. Thus, creating a database of data that is generated by a statistical system across the years is a daunting and highly challenging job. For example, in our Ministry, Computer Centre is the agency responsible with maintenance of the database and for also disseminating the data to the users. These days, with advent of internet based payment systems, it is also possible to disseminate the data online to its users. Report Writing and presentation of data also can be done in a very interesting manner by using various tools and packages available. Last is the "Evaluate" stage, which is essential for ensuring data quality, because it is not meaningful to continue editing and imputation with respect to the same systematic errors in the future rounds of the survey. Similarly, as for the initial phase, we will mostly use the standard office and communication software.

5. All the above discussions are based on primary data collection process. Indian Statistical Service officers work in areas like trade statistics, national accounts etc. where the data collection process is secondary data collection process. Taking the particular example of trade statistics generation, it can be illustrated as to how even a secondary data collection process is entirely based on knowledge of IT. In trade data, the receipt of data from various ports to a centralised system happens through File Transfer protocol (FTP). Programming is required at every stage to keep a track of the huge number of records received from the various ports across the country every day. The entire data processing system is maintained in very high end SUN servers with frontend as oracle D2K and backend as oracle database. Starting from the data validation that happens in various phases from tabulation to dissemination to users on payment, everything is being maintained through high-end programmes. Jobs like reclassification of codes of

products in case the classification system undergoes a change, also are highly dependent on knowledge of efficient programming.

6. Another area where extensive training would be required in this field is IT security. Clear ideas of networking, spam ware, malware, antivirus etc., is required to run the office systems efficiently and to take appropriate steps to safeguard the data that is generated as well as confidential emails and documents shared in office working. Again, in this age of Digital India, every other process starting from noting, drafting to procuring to maintain personal records are being planned to move to an online database. In such a scenario, knowing the IT well is definitely a requirement

7. Examples only from some offices of Indian Statistical System have been given above to bring forward the importance of IT. In similar lines, it can be safely said that wherever data is generated either through surveys or census or through administrative sources, for collection, compilation, processing and disseminating such data the role of IT is intensive as well as extensive. Saying so, the whole process can be done in two ways – one is by developing the IT based processes in house or by outsourcing. But it may be noted that even in outsourcing model, an officer must have a knowledge of advanced and new ideas in the digital field to develop an effective data collection system. Knowing as to what is achievable through programming and what would make a process simpler and optimal would help a lot in guiding the agency to successfully complete the work. Again, once the work is completed and handed over, a huge amount of resources may be required for making subsequent changes. If it can be done in house, it gives a lot of flexibility to the national statistical offices. We may see that most of the NSOs of developed countries have their own packages which they have developed for their own use and can be reused for various stages of statistical processing.

8. Application of Geological Information System (GIS) and Remote Sensing is another topic of interest in IT module. It is very important because of its application in various fields of official statistics. GIS deals with spatial features – qualitative or quantitative – related to a specific location on earth's surface and while Remote sensing is a unique kind of data collection method through satellites. This approach can be used to know about climate changes, agriculture production, forestry, environmental condition of country, for creating sample frames for surveys etc. Because of its overreaching impact and growing importance, exposure to the methodology is a necessity in the current era of official statistics.

9. A very important upcoming field in this area is Data Mining. Data Mining is the art of examining large pre-existing databases to generate new information. Data mining software allows users to analyse data from many different dimensions or angles, categorize it, and summarize the relationships identified. Technically, data mining task is the automatic or semi-automatic analysis of large quantities of data to extract previously unknown, interesting patterns such as groups of data records (cluster analysis), unusual records (anomaly detection), and dependencies (association rule mining, sequential pattern mining). In the near future ISS officers need to equip themselves with the tools of data mining to make more sense of the survey data available on a particular subject from various sources as well as huge volumes of administrative data available in the system.

10. The above highlights the kind of job that is being done by ISS officers in various offices, thus putting forward the importance of having an intensive as well as extensive

course on IT. Knowledge of basic IT including basic communication and office software should be followed by extensive training on programming in C, FoxPro, vb.net, oracle d2k, sql and handling RDBMS database like MS-Access, oracle etc. This module should incorporate a hands-on project as a part. There should be a module on website development. Modules on handling data via R and SPSS are essential. Some sessions on IT security are also desirable in the IT module to equip against possible cyber risk/ threat. This module should end on experience sharing by officers who are working extensively in data collection process like National Accounts, Data processing Division, DGCI&S, Computer Centre, Ministry of Human Resource Development, Ministry of health etc. These lectures would be on experience sharing about what kind of specific platforms and programming languages are used and what are the issues or challenges faced by the IT Division in those departments. Thus, it would add value to the lectures that are included in the Official Statistics module.

11. We are in a period where India is taking giant steps towards digitisation of every aspect of life through Digital India programme. Under this scenario, there is no doubt that the statistical community has to be well equipped with knowledge on IT to overcome the challenges efficiently and be on the forefront.

12. Course Content:

    a. Basic concept behind personal computers and servers, number system, bit and bytes, features of MS-Office, MS-Word, Excel and Access, creating relationship in MS-Access, concept of programming language, operating system
    b. Basic concepts of programming in the context of C++ including classes, objects, controls, loop, arrays, pointer variables declaration and initialization, fundamentals of operator overloading, polymorphism, exception handling, input/output with files, SQL, storage and file structure, VBA programming
    c. oracle database and d2k forms, data files and data dictionary, data integrity, creating and maintaining tables, indices, sequences, views and privileges and roles in oracle, stored procedures, packages, cursors, transition, distributed processing, replication, export and import of data across various databases, Oracle web publishing assistant, VB.net programming, asp.net programming, XML web services, ensuring quality by debugging, unit testing, refactoring.
    d. Analysis of data through statistical packages SPSS,STATA and R
    e. Networking concepts, LAN, WAN, Wi-Fi etc.
    f. Web Security overview, malware, spam ware, different applications available for ensuring security, antivirus etc.
    g. If possible, introduction to different packages developed by international organizations like ABS, EUROSTAT etc.
    h. Experience sharing by ISS officers handling large databases like officers from DPD, DGCI&S, Computer Centre, NAD, Office of RGI, etc.
    i. Application of GIS & Remote Sensing
    j. Data warehousing, data archiving, metadata generation
    k. Data Mining and applications – Neural Networks - structure, learning algorithms, multilayer perceptron, radial basis function, Kohonen network, Neural Clustering, similarity aggregation, Bayesian Methods. - The Naive Bayesian Classifier, Bayesian Networks, Classification and prediction by Neural Networks, Classification by Support Vector Methods, Prediction by Genetic Algorithms, Application of data mining techniques in analysis and forecasting.

l. Big data analysis: Data Science, Concept of Big Data, Fundamental knowledge on Analytics and how it assists in data driven decision making Data visualization, predictive analytics, forecasting, survival analysis, cluster analysis, linear and logistic regression, missing value patterns, optimization of data effectively using tools in R, SAS, SPSS and Excel, Documentation and dissemination.

Keeping in view the above scope and coverage of the course on IT skill, modules are planned to comprise as under:

Module 2.1 - Core IT including GIS
Module 2.2 - Data Analysis
Module 2.3 - Working with unit level data using SPSS and R
Module 2.4 – Data mining and applications
Module 2.5 - Big Data Analysis

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Chapter IV

Course 3: Administrative and Management Skills

This course is planned for developing management skills focussing on basic management, leadership and strategic management, communication and presentation and administrative skills.

Administrative skills include office procedure, establishment and Fundamental Rules of Government of India and parliamentary procedure as any government officer is required to be well-aware of these areas for his/her effective functioning.

Management may be defined as either

"making the most efficient use of available resources, whether in the form of machine, money or people"

Or

"the people responsible for the management of an organization, i.e. for directing, planning and running of its operations, for the implementation of its policies and the attainment of its objectives" (Ref. Concise Dictionary of management Terms compiled by Musa Kamawi)

Thus, it is inevitable that a statistical system can function efficiently only when the personnel manning it are well versed in management techniques. From the job of running the day to day activities of an office to coordinating effectively between different offices across the state government as well as central government offices in the data collection process, management skills are required at every step. Given the highly responsible and critical positions that ISS officers are required to hold, it is imperative that they possess the necessary knowledge, skills and attitudes to discharge their responsibility effectively. Thus, they should be exposed to training on advanced management programmes at every stage of their career, starting from the probationary period. This should be an intensive programme and should include the following topics:

a. **Leadership -** Leadership sheds light on personality characteristic and the behaviour of people with authority and influence and responsibility for leading a group. Exposure to leadership styles would help an officer to choose a management or leadership style that is best suited to his or her personality. Negotiation and conflict management would expose a participant to the essence of the collective bargaining process. It would help in understanding self and know the techniques of coaching and mentoring. It would work on building qualities that would help in increase in creativity and innovation. It would include topics like change organization culture, emotional intelligence, negotiation, ethics etc.

b. **Decision Making** - Decision Making refers to the process of identifying problems and opportunities and resolving them. Data mining techniques for effective decision making would help an officer to determine the relevant factors in the accumulated data. Risk management would enable an officer to ascertain the level of uncertainty as to the outcome of a management decision. Decision trees are commonly used in operations research, specifically in decision analysis, to help identify a strategy most likely to reach a goal.

c. **Managerial**– It would include topics like Understanding Managerial Functions, Managing by Objectives, Understanding your Managerial Styles, Managing Self and Others, Developing Creativity for Better Management, Managing difficult People, Managing by Expertise / Charisma, Goal Setting.

d. **Strategy –** It would include topics like strategy formulation, strategy implementation. It would help in developing strategic mind set in an officer.

e. **Soft Skills -** Soft skills are a combination of interpersonal people skills, social skills, communication skills, character traits, attitudes, career attributes and Emotional Intelligence Quotient (EQ) among others that enable people to effectively navigate their environment, work well with others, perform well, and achieve their goals with complementing hard skills. The Collins English Dictionary defines the term "soft skills" as "desirable qualities for certain forms of employment that do not depend on acquired knowledge: they include common sense, the ability to deal with people, and a positive flexible attitude." It would include topics like presentation skills, negotiation skills, motivating the subordinates, stress management, positivity and self-growth.

f. **HR/Organizational Dynamics –** It would include topics like Managing Self, Managing Change, Stress Management, Time Management, Team Management, Conflict Management, Negotiation Skills, empowerment etc.

g. **Policy –** It would include topics like Policy Framing and Analysis, Policy Implementation-Obstacles and Challenge, Role of Statistics in Policy Formulation and Implementation, Monitoring and Evaluation—MGNREGS/National Rural Health Mission/Sarv Sikshya Abhiyan/Swachch Bharat Abhiyan/Make In India etc. lessons learned from earlier practices, Official Statistics for decision support (Case studies).

Administrative skills: Office Procedure, Establishment and Fundamental Rules & Supplementary Rules(FR&SR), General Financial Rules(GFR) and Parliamentary Procedures

Administrative skills are a force to reckon with. ISS Officers have to be skilled in administrative skills. In most of the positions, they are posted at senior levels, where their job profile would definitely be of administrative nature. Training in this module would imbibe in them the following qualities:

- Proficiency in Government rules and regulations for running offices efficiently
- Proficiency in Procedures and Practices in Government offices
- Proficiency in different aspects of Human Resource Management in the office.

Course Content: Main features of manual of Office Procedures, FR&SR, Noting and Drafting, GFR, New Pension Scheme(NPS), Procurement in Government, Outsourcing in Government, Leave rules etc. Working in Official Language in Government offices. Focus will be on case studies.

The course of administrative and management skills will comprise the following modules:

Module 3.1 - Basic Management Concepts
Module 3.2 - Leadership and strategic management
Module 3.3 - Communication and presentation skills

Module 3.4 - Office procedure, establishment and Fundamental Rules
Module 3.5 - Parliamentary Procedure

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Chapter V

Practical experience through attachment with various offices

Without hands on training, no training is complete. It is desirable that ISS Probationary officers acquire full understanding about how the premier statistical Institutions and statistical departments carry out their statistical activities. This course may be described as the practical part of the other three courses they have learned. It will also include Foundation course as induction course for organized Group A service officers of Central Government. It also includes a visit to one foreign NSO of a developed country to understand how their functioning is different from ours. A set of attachments/field visits are listed in terms of modules as under:

Module 4.1 - Foundation Course
Module 4.2 - Field Operation Division Attachment
Module 4.3 - State DES attachment
Module 4.4 – Statistical divisions / units of other ministries
Module 4.5 - Attachment to foreign NSOs

Module 4.4 relates to all ministries where statistical data base is maintained irrespective of whether they have positions for ISS officers or not.

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Chapter VI

EVALUATION

1. Each sub-module will end in an examination/project work/case study which may be evaluated by a committee comprising an internal member from NSSTA, a member from the concerned department/s or organization and an external expert. At the end of the module on Official Statistics in the first course, each officer will choose an area in Official Statistics for writing a project in that area. S/he will be guided in this assignment by two mentors, one from NSSTA faculty and another from the concerned department/office or expert in the field. The progress/status of the project work by probationers will be monitored through the progress report submitted by them on quarterly basis. The final project report is to be submitted at the end of the 2-year probationary training. Mentoring can be done via internet or phone, occasionally face-to-face. A comprehensive evaluation of the project may be done by a high-powered committee. This committee may include senior level ISS officers and representatives from academia like ISI, JNU etc. The results/reports of all the four courses along with project report will then be compiled for final evaluation of a probationer.

2. NSSTA may develop some mechanism / modalities for funds from Ministry for meeting the expenses pertaining to expenses related to mentors.

3. Final grading may be done on the basis of parameters given below:

   Project work (30%)
   Results of examinations (60%)
   Overall participation of the officer in extracurricular activities like sports, cultural programmes etc. (10%)

Chapter VII

WAY FORWARD

1. To attract talented and eligible candidates to ISS, Government relaxed the eligibility condition in 2016 for recruitment of ISS officers from Post-graduation to graduation and increased the number of posts of the cadre. Thus, the training programme for the probationers now needs to include technical sessions that a student usually gets exposed to in their master's degree. In order to make the training programme more incentivised for the probationers, efforts may be made to award a degree on Masters/ PG diploma in Official Statistics and Data Analytics at the end of the probationary training. Since the eligibility condition of recruitment has been reduced to Graduation, awarding of a degree would help to bring up the level of the officers. This would also help the officers to pursue further higher studies e.g. Ph.D., D.Sc., postdoc etc. in future during their career. This has to be done in association with a reputed institute like ISI, JNU, IASRI etc. A bond of 5 years may be implemented to check attrition.

2. This kind of practice is followed in many foreign NSOs of developed countries.

    a. The European Master in Official Statistics(EMOS) is a network of Master programmes providing post-graduate education in the area of official statistics at the European level. EMOS is joint project of universities and data producers in Europe. The network comprises over 20 programmes in 14 countries. It was set up to strengthen the collaboration within academia and producers of official statistics and help develop professionals able to work with European official data at different levels in the fast-changing production system of the 21st century. The EMOS Master degree is based on learning outcomes which familiarise the graduates with the system of Official Statistics, production models, statistical methods and dissemination. Universities offering EMOS Master degrees collaborate actively with the national statistical institutes to reduce the gap between theory and practice. The course is interspersed with project writing, internship in the area of official statistics, EMOS workshops and webinars. This is a part of EUROSTAT. As a particular case we may look at the course, European Master in Official Statistics which is a part of the Research master methodology and statistics of behavioural and social sciences done in collaboration between Statistics Netherlands, Tilburg University and Utrecht University. This course first explains the role of NSOs in a society and European Statistical System in particular. The course is divided into 6 different topics in the first semester
        i. Aspects of Official Statistics
        ii. Sampling and Estimation
        iii. Statistical Data editing
        iv. Data Management and Statistical production
        v. Administrative and Big Data
        vi. Statistical Disclosure Control

    In the second semester the topic interpretation and presentation of official statistics is taught.

    b. The Government Statistical Service Learning Academy based at the Office for National Statistics (ONS), U.K., is one of the key providers of statistical training for the Government Statistical Service, U.K. Along with short course

programmes, European Statistical Training programme in international training courses and higher certificate courses, they also have a jointly developed programme along with University of Southampton named as MSc in Official Statistics. This course covers the core skills and knowledge needed by professional government statisticians. The course includes modules and dissertation. Modules are available in a variety of topics including: Introduction to Survey Research, Survey Data Collection, Survey Sampling & Estimation, Evaluation and Monitoring, Demographic Methods, compensating for Non-Response, Statistical Disclosure Control, National Accounts, Elements of Official Statistics, Statistical Computing and various Data Analysis modules including Regression Modelling and Small Area Estimation.

c. Statistics Canada's Statistical Consultation Group offers statistical training services to government departments and agencies, public and private sector institutions, in Canada and abroad. Besides conferences and workshop, they offer training courses in Ottawa on the full range of activities required to make a statistical agency function. Their training programs include topics like survival analysis, questionnaire design, longitudinal surveys, sampling theory, indirect sampling theory, record linkage, analysis of data, time series, statistical methods for quality control etc.

d. Australian Bureau of Statistics has a Graduate Development program for enabling the graduates to transition effectively into the ABS. The Graduate Development Program help them to:

- transition into and familiarise them with the ABS and the wider Australian Public Service;
- improve their understanding of project management, including gaining hands-on experience by collaborating on a graduate project with a group of their peers;
- enhance their statistical capability, including an understanding of the statistical cycle and associated processes;
- develop their strategic thinking and communication skills;
- increase their awareness of how the ABS links to other Australian Public Service (APS) Government Departments and State and Territory Governments.

In addition to the Graduate Development Program they:

- are provided with training specific to their role to build their analytical, conceptual and critical thinking;
- have the opportunity to undertake work rotations to widen their graduate experience;
- have access to a variety of networking and support opportunities including the graduate network, mentoring and diversity support groups.
- Projects continue to form the basis of an experiential learning component.

e. The training programme in statistical skills for staff of Statistics Finland comprises of two parts, a basic part and an advanced part. The basic part contains introduction to Statistics Finland's organisation and statistics, the production process of statistics and the principles that steer statistical work

(e.g. ethics, law, data confidentiality). The training includes also e-learning, applied exercises, group work and visits. The advanced part of the training programme examines statistical process on more detailed level and gives expertise on various phases of the process; it also develops the professional identity of statistical experts. The exercises included support learning by doing and their main aim is to imprint quality thinking into statistical work. The subject matters include economic statistics, social statistics and environmental statistics.

3. The following may be proposed as a way forward in conducting the ISS probationary training. Since eligibility criteria has been reduced from post-graduation to graduation in Statistics or Mathematical Statistics or Applied Statistics, technical inputs that a student usually gets exposed to in Master's degree needs to be included in Probationary training. Further, 2 years are spent in the probationary training. The training may be made more effective and attractive for the aspirants by introducing award of a Master's/post-graduation diploma degree in Official Statistics at the end of the two years. This has to be given in association with reputed academic institutes like ISI, JNU etc. This may comprise four courses as detailed below.

Course 1 – **Proficiency in Official Statistics**

Module 1.1 - Official statistics
Module 1.2 - Economics and Financial Statistics
Module 1.3 - Survey Methodology
Module 1.4 – Multivariate Analysis
Module 1.5 - Monitoring and Evaluation

Course 2 – **IT and Data Analytics**

Module 2.1 - Core IT including GIS
Module 2.2 - Data Analysis through statistical packages
Module 2.3 - Working with unit level data using SPSS and R
Module 2.4 – Data Mining and applications
Module 2.5 - Big Data Analysis

Course 3 – **Management and administrative skills**

Module 3.1 - Basic management concepts
Module 3.2 - Leadership and strategic management
Module 3.3 - Communication and presentation skills
Module 3.4 - Office procedure, establishment and Fundamental Rules
Module 3.5 - Parliamentary procedure

Course 4 – **Practical experience through attachment with various offices**

Module 4.1 - Foundation Course
Module 4.2 - Field Operation Division Attachment

Module 4.3 - State DES attachment
Module 4.4 – Statistical divisions / units of other ministries
Module 4.5 - Attachment to foreign NSOs

4. Efforts will be made so that the first three semesters are conducted at NSSTA. The semesters may not be done in one continuous spell but the duration may be covered by the end of the two years. The fourth semester will be a comprehensive Bharat Darshan tour where exposure will be given regarding the practical aspects of different offices - the theoretical aspects being already covered in the first three semesters.

Annexure I

List of Ministries / Departments having post of Indian Statistical Service (ISS)

Generally, the ISS officers serves at various Ministries/Departments at various part of our Country. As per latest cadre review, ISS are serving to the following Ministries/Departments

(i) Ministry of Agriculture& Farmer Welfare:
(ii) Ministry of AYUSH
(iii) Ministry of chemical & Fertilizer
(iv) Ministry of Civil Aviation
(v) Ministry of Coal: Coal control
(vi) Ministry of Commerce & Industries: Directorate General of Foreign Trade, Directorate General of Commercial Intelligence and Statistics (DGCIS), Directorate General of Supply and Disposal, Department of Commerce- Office of Economic Adviser, Department of Industrial Policy and Promotion, Directorate of Anti-Dumping.
(vii) Ministry of Communications and Information Technology
(viii) Ministry of Corporate Affairs
(ix) Ministry of Culture- Anthropological Survey of India
(x) Ministry of Defence: Army Statistical Organisation, Management Information Systems Organisations (MISO), Director General (DG) Infosys, Directorate General of Resettlement, Naval Headquarters, Additional Director General (ADG) Systems, Military Training Directorate, Air Headquarters Computer Centre, Directorate of Flight Safety
(xi) Ministry of Development of North Eastern Region
(xii) Ministry of Drinking Water and Sanitation
(xiii) Ministry of Environment, Forest and Climate Change: Forest Survey of India (FSI), Dehradun
(xiv) Ministry of Finance: Department of Economic Affairs, Department of Financial Service, Department of Expenditure- Pay Research Unit, Department of Revenue, Tax Research Unit, Financial Intelligence Unit, Directorate of Data Management Customs and Central Excise, Directorate of Income (Tax-Research-Statistics), Publication and Public Relations (RSP and PR)
(xv) Ministry of Food Processing Industries
(xvi) Ministry of Health and Family Welfare: Department of Health and Family Welfare, Directorate General of Health Services (DGHS)- All India Institute of Hygiene and Public Health, National Centre for Disease Control, National Anti-Malaria Programme (NAMP), National Tuberculosis Institute, Central Bureau of Health and Intelligence(CBHI)
(xvii) Ministry of Heavy Industries and Public Enterprises
(xviii) Ministry of Home Affairs: Registrar General of India (RGI), Intelligence Bureau (IB), National Crime Records Bureau (NCRB)
(xix) Ministry of Housing and Urban Poverty Alleviation
(xx) Ministry of Human Resources Development: Department of School Education and Literacy, Department of Secondary and Higher Education
(xxi) Ministry of Labour and Employment: Ministry Proper, Directorate General of Employment and Training (DGET), Directorate General of Mines Safety, Labour Bureau
(xxii) Ministry of Micro Small and Medium Enterprises (MSME)
(xxiii) Ministry of Mines: Indian Bureau of Mines (IBM)

(xxiv) Ministry of Minority Affairs
(xxv) Ministry of New and Renewable Energy
(xxvi) NITI Aayog
(xxvii) Ministry of Petroleum and Natural Gas
(xxviii) Ministry of Power
(xxix) Ministry of Road Transport and Highways
(xxx) Ministry of Rural Development: Department of Rural Development, Department of Land Resources
(xxxi) Ministry of Science and Technology : Department of Bio-technology
(xxxii) Ministry of Shipping
(xxxiii) Ministry of Social Justice and Empowerment: Department of Social Justice, Department of Disability Affairs
(xxxiv) Ministry of Steel
(xxxv) Ministry of Textiles
(xxxvi) Ministry of Tourism
(xxxvii) Ministry of Tribal Affairs
(xxxviii) Ministry of Water Resources, River Development and Ganga Rejuvenation: Ministry Proper, Central Water Commission (CWC), Central Water and Power Research Station (CWPRS), Central Ground Water Board (CGWB)
(xxxix) Ministry of Women and Child Development
(xl) Ministry of Statistics and Programme Implementation

NSSTA

Annexure- II

Present format of ISS probationary Training

S. No.	Training Module	Week	Venue
1.	Joining Formalities & Fundamental of Official Statistical System	1	NSSTA
2.	Official Statistics	5	NSSTA
3.	Environmental & Forest Statistics	1	FRI, Dehradun
4.	Application of GIS		IIRS, Dehradun
5.	Official Statistics	2	NSSTA
6.	Index Numbers	1	Labour Bureau, Shimla
7.	Official Statistics	1	NSSTA
8.	Management Training Programme	2	IIM, Kolkata
9.	Office Procedure	2	ISTM, New Delhi
10.	Advance IT	13	NSSTA
11.	Data Analysis and Interpretation	2	IASRI, New Delhi
12.	Working with unit level data	1	NSSTA/Computer Centre
13.	Parliamentary Procedure	3 days	BPST, New Delhi
14.	Book Reviews	2 days	NSSTA
15.	Basics of Micro and Macro Economic Theory	2	ISI, New Delhi
16.	Monetary & Fiscal Policy	1	NIPFP, New Delhi
17.	Applied Econometrics	2	ISEC Bangalore
18.	Presentations, Quiz Competitions	1	NSSTA
19.	Plan Monitoring and Budgeting Process in India	1	NSSTA
20.	Gender Statistics	1	RIPA Jaipur
21.	Financial Statistics	1	NIBM, Pune
22.	Project Work	3	Various Ministries/Departments
22.	Quiz/Group Discussion & Presentation	1	NSSTA
23.	Communication & Presentation Skill	1	IIPA, New Delhi
24.	Foundation Course	15	MCRHRD, Hyderabad
25.	Poverty & Inequality Estimation	1	NIRD, Hyderabad
26.	Monitoring & Evaluation	1	ASCI, Hyderabad
27.	Sample Survey Methodology & Estimation	2	ISI, Kolkata
28.	Sample Survey Design and Data Processing	5	SDRD/DPD Kolkata

29.	NSSO (FOD) Attachment	4	ZOs/ROs/SROs allotted by FOD
30.	State DES Attachment	2	Various DES
31.	Feedback & Presentation	1	NSSTA
32.	On-the-Job Training	6 Months	To be decided by Cadre
33.	Validation, feedback & presentation of on-the-job training	1 day	NSSTA

NSSTA

Annexure- III

Proposed format of ISS Probationary Training

S. No.	Training Module	Duration in Weeks
1	Joining Formalities & Fundamental of Official Statistical System	1
2	Official Statistics: Each 2 week session will broadly have 2 days of concerned theories and economics, 3 days of work done in respective offices , 3 days of sessions on data use and interpretation , 1 day of international practices and 1 day of presentation by probationers • Agriculture and Allied Statistics • National Accounts Statistics • Industrial Statistics • Labour Force Statistics • Price Statistics • Trade Statistics (1 week) • Social Statistics (1 week) • Health Statistics (1 week) • Education Statistics (1 week) • Misc. Subjects like Gender, Crime Statistics, Mineral Statistics, Drinking Water, Sanitation, Hygiene, Slums, Domestic Tourism etc.	15
3	Basics of Macro Economic Theory (This may alternately be done before sessions on National Accounts)	2
4	Poverty & Inequality Estimation	2
5	Time Series and Applied Econometrics	2
6	Population & Demography Statistics	2
7	Current economic Issues and sessions on Energy and Environment	1
8	Financial Statistics	1
9	Project Identification (2 days), data source and methods identification (3days)	1
10	Survey methodology(4weeks) and Data Analytics(4 weeks) including aspects of	8

	Designing, Building, Collecting, Processing, Analyzing, Disseminating and evaluating data collected through surveys/census, techniques, data dissemination techniques with reference to NSSO surveys, NFHS surveys etc.	
11	Project Work	1
12	Foundation Course	15
13	Monitoring & Evaluation	1
14	Data Analysis and Interpretation	2
15	Core IT including a part of Big Data , Data Warehousing and Data Analytics	12
16	Working on Project	4
17	Application of GIS, Environment Statistics and Activities of Labour Bureau, Shimla	2
18	Management Training Programme	2
19	Communication & Presentation Skill	2
20	Office Procedures	3
21	Parliamentary Procedure	1
22	Plan Monitoring and Budgeting Process in India & Financial Management	1
23	NSSO (FOD) Attachment	2
24	State DES Attachment	2
25	Foreign visit	1
26	Project work completion	10
27	On-the-job Training	8
28	Ending Formalities at NSSTA	1
29	Total	105

Annexure-IV

TPAC Recommendations for the year 2016-17

Training Programmes for ISS Probationers

Semester- I				
Sl. No.	Modules	Duration (in Weeks)	Venue	Contents
1.	Joining Formalities, Inauguration & acclimatization of the Fundamentals of Official Statistical System/ office procedures	1	NSSTA, Gr. NOIDA	Functioning of National (MOSPI, NSO, NSC) and International Statistical System : India, UN, etc.
2.	Training on Office procedure and RTI	2	NSSTA, Gr. NOIDA/ ISTM, Delhi	Training on Establishment Rules, Leave Rules, TA/DA Rules, Conduct Rules, Vigilance and RTI
3.	Advanced Training in IT	13	NSSTA/ Professional Institute	RDBMS & MS-Access, C++, FoxPro, VB.net, ASP.net; Project work
4.	Index Numbers	1	NSSTA, Gr. NOIDA/Labour Bureau Shimla	Overview of the major indices being compiled in India; compilation and method of construction of WPI, CPI, SDI, HDI and GDI; concept of Composite Index ; Hedonic Index Numbers; Malmquist Index; Axiomatic Approach to Price Index Numbers; Implicit Price Deflators in National Accounts
5.	Environmental Statistics	1	FRI, Dehradun	Over view of Forest Statistics, System of Environmental Economic Accounting, use of environmental statistics in Natural Resource Economic Accounting, etc
6.	Basics of Micro and Macro	2	ISI	Microeconomics: Essentials of

	Economic Theory and its Interpretation		Delhi/IEG, Delhi/Delhi School of Economics, Delhi	Economics, The Market Forces of Supply and Demand, Consumer Behaviour and Rational Choice, Demand Elasticity and Its Applications, Demand Estimation and Forecasting, Production Theory, Cost Analysis, Decision-making in Competitive Markets, Decision-making for Firms with Market Power, Pricing Techniques, Game-Theory Applications in Strategic Decision-Making
				Macroeconomics: Orientation to Macroeconomics, Measuring the Value of Economic Activity, Aggregate Demand - The Goods Market and Money Market and the Influence of Monetary and Fiscal Policy on Aggregate Demand, Open Economy, Money and Inflation, Aggregate Supply and the Short-run Tradeoff between Inflation and Unemployment (including case studies from real life situation)
Semester II				

7.	Monetary and Fiscal Policy- Concepts, Interpretation / understanding of Current economic policies; economic Indicators for measuring growth, concepts and Interpretation	1	NIPFP Delhi	Concepts, Interpretation / understanding of Current economic policies; economic indicators for measuring growth, concepts and interpretation
8.	Data Analysis and Interpretation using R and SPSS softwares.	2 weeks	IASRI, Delhi	Module on SPSS, R software using unit level data set.
9.	Analysis of NSSO Unit level data and report writing	1	NSSTA, Gr. NOIDA	Analysis of unit level of Household Consumer Expenditure Surveys of NSSO, and interpretation Report writing techniques
10.	Official Statistics including one week Training on Applications of GIS.	9	NSSTA - 8 weeks IIRS, Dehradun	Area: Agriculture, Economics / Industry, National Accounts, Social statistics (including Education, Health, Environment etc.) – with reference to India. One day visits to concerned Institutions in Delhi, Faridabad, NOIDA and Karnal.
11.	Parliamentary Procedures	1	BPST, New Delhi	The Legislative process, Parliamentary questions and other procedural devices, The budgetary process, Parliamentary privileges, Committee system in Indian Parliament, Visit to the chambers of Lok Sabha, Rajya Sabha , the Central Hall.
12.	(b)Financial Statistics including Insurance, Tax, Trade, Banking, BOP, Service Statistics	1	NIBM, Pune	Insurance, Tax, Banking, Trade, BOP, Service Statistics

13.	Applied Econometrics	2	ISEC Bangalore / ISI Bangalore	Time series Analysis and Forecasting ARIMA & GARIMA, ARCH & GARCH Models with the help of E-Views
14.	Poverty and Inequality Estimation :	1	Institute of Rural Management Anand (IRMA) Anand	Concepts (national as well as international), Poverty alleviation Programme in India, Estimation of Poverty / Inequality;
15.	Foundation Course	15	MCR HRD Institute, Hyderabad	Law; Governance, Ethics & Leadership (GEL); Political Economics (PE); Contemporary India and Global Environment (CIGE); Public Administration and Management (PAM); e-Governance.
16.	Monitoring & Evaluation	1	ASCI/NIRD Hyderabad	Monitoring & Evaluation mechanism for different schemes and programmes; concept and method of impact evaluation; practice-based learning ;
17.	Gender Issues	1	NSSTA Gr. NOIDA / ASCI Hyderabad	Definition; Gender related issues and concerns; National and International Covenants / Laws; Gender Statistics & Gender Inequality: its relation with internationally accepted indices .Engendering Statistical Offices – mechanism / effective strategy; Gender Statistics in the identified key areas of concern and data gaps Gender Budgeting

				Gender Analysis Framework
18.	Plan Monitoring and Budgeting Process in India	1	NSSTA, Gr. NOIDA	Performance management through mentoring; RFD, Preparation of Plan, Outcome Budget, Annual Action Plan Budget: Concepts and Definitions; Annual Budget and evolving of the Process in India; Deficit Financing in India and its trend; Central Government Budget; Zero base Budgeting
19.	Sample Survey & Data Processing			
(a)	Sample Survey Methodology & Estimation	2	ISI, Kolkata	Review of Sample Survey methodology; Exposure to new advances like rotation panel survey, network sampling, introduction to small area estimation etc. Linear and nonlinear Estimation procedures with special reference to measuring Survey efficiencies, reliability of estimates (including applicaton of Bootsrap / Jackknife technique).
(b)	Designing and Organizing a large scale sample survey with focus on NSSO surveys	1	SDRD, Kolkata	Survey Planning – Frame, selection of sampling scheme, sample size; Survey Preparation – Design of questionnaire etc, Estimation procedure, multipliers
(c)	Data Processing and Data	1	DPD, Kolkata	Data structure of unit level data, mapping,

	Analysis			data entry layout & schedule, scrutiny of unit level data, creating tables, imputation of missing data technique;.
(d)	Undertake a project on Sample Survey and Report writing	3	SDRD, Kolkata	Designing and execution of a small survey by using the knowledge gained during the module at 17(a), (b) and (c) Understanding the techniques / layout of Report writing; literature Review and Documentation to be done before writing a Report with illustration; different stages for writing a structured report(e.g. Title page, Introduction, Abstract, Methodology, Findings, Recommendations, Bibliography etc.); style and Tone to be used; Exercising to write a report with the help of given results / tables.
20.	Attachment with NSSO Field Offices	4	Different Field Offices of NSSO	Organisational set up of FOD, Discussion on Administrative matters with specific reference to FOD and Miscellaneous Surveys with field exposure, Scrutiny of schedule, Control and Management of technical work in FOD.
21.	Attachment with State/ District/ State Statistical Bureau	2	DESs in selected States	Sources of data and gaps in core areas (e.g. Agriculture, Health, Education) in the preparation of District level planning, Monitoring mechanism for

				Central Sector
				Schemes and programme, Twenty Point Programme, State Level MDGs, Collection and compilation of Local Level Statistics IIPs; State Domestic Product
22.	Attachment with Management Institute	2	IIM (ABCL)/MDI Gurgaon	Developing strategic mindset; managing change and transformation; team building; creativity, innovation and nudges; leadership through India Ethos;
23..	Communication & Presentation Skill	1	IIPA, New Delhi	Self-awareness & self-development; inter-personal relation dynamics: FIRO-B; communication challenges; active & reflective listening; negotiation skills for Govt. officers; communicating & receiving feedback; public speaking & Presentation
24..	Project Work	3	NSSTA, Gr. NOIDA – Attached to various Departments/Organizations and Ministries	Projects to be undertaken in the areas of National Accounts, Price Statistics, Social Statistics, Industrial Statistics, Population Studies, Agricultural Statistics, NSSO Surveys etc
25..	Quiz / Group Discussion & Presentations at NSSTA	1	NSSTA, GR. NOIDA	
26..	Posting, Feedback Farewell Formalities	1	NSSTA, Gr. NOIDA	
	Total	77 Weeks		

27.	On-the-job training	Remaining period of two years (Last one week will be at NSSTA for wrap up	As per the posting order	

TPAC Recommendations for the year 2015-16

Training Programmes for ISS Probationers

Sl. No.	Modules	Duration (in Weeks)	Venue	Contents
1.	Joining Formalities, Inauguration & acclimatization of the Fundamentals of Official Statistical System	1	NSSTA, Gr. NOIDA	Functioning of National (MOSPI, NSO, NSC) and International Statistical System : India, UN, etc.
2.	Training on Office procedure including File Management : noting and drafting and RTI	2	NSSTA, Gr. NOIDA/ ISTM, Delhi	Training on Establishment Rules, Leave Rules, TA/DA Rules, Conduct Rules, Vigilance and RTI
3.	Advanced Training in IT	13	NSSTA/ Professional Institute	RDBMS & MS-Access, C++, FoxPro, VB.net, ASP.net; Project work
4.	Index Numbers	1	NSSTA, Gr. NOIDA/Labour Bureau Shimla	Overview of the major indices being compiled in India; compilation and method of construction of WPI, CPI, SDI, HDI and GDI; concept of Composite Index ; Hedonic Index Numbers; Malmquist Index; Axiomatic Approach to Price

				Index Numbers; Implicit Price Deflators in National Accounts
5.	Basics of Micro and Macro Economic Theory and its interpretation	3	ISI Delhi/IEG, Delhi/Delhi School of Economics, Delhi	Microeconomics: Essentials of Economics, The Market Forces of Supply and Demand, Consumer Behaviour and Rational Choice, Demand Elasticity and Its Applications, Demand Estimation and Forecasting, Production Theory, Cost Analysis, Decision-making in Competitive Markets, Decision-making for Firms with Market Power, Pricing Techniques, Game-Theory Applications in Strategic Decision-Making Macroeconomics: Orientation to Macroeconomics, Measuring the Value of Economic Activity, Aggregate Demand - The Goods Market and Money Market and the Influence of Monetary and Fiscal Policy on Aggregate Demand, Open Economy, Money and Inflation, Aggregate Supply and the Short-run Tradeoff between Inflation and Unemployment (including case studies from real life situation)
Semester II				

6.	Monetary and Fiscal Policy- Concepts, Interpretation / understanding of Current economic policies; economic indicators for measuring growth, concepts and interpretation	1	NIPFP, Delhi	Concepts, Interpretation / understanding of Current economic policies; economic indicators for measuring growth, concepts and interpretation
7.	Data Analysis and Interpretation	3 (2+1 week R-software)	IASRI, Delhi	Module on SPSS, R software using unit level data set.
8.	Official Statistics including one week training on Applications of GIS	9	NSSTA - 8 weeks IIRS, Dehradun	Area: Agriculture, Economics / Industry, National Accounts, Social statistics (including Education, Health, Environment etc.) - with reference to India.
9.	Parliamentary Procedures	1	BPST, New Delhi	The Legislative process, Parliamentary questions and other procedural devices, The budgetary process, Parliamentary privileges, Committee system in Indian Parliament, Visit to the chambers of Lok Sabha, Rajya Sabha , the Central Hall.
10.	(b)Financial Statistics including Insurance, Tax, Banking, Trade, BOP, Service Statistics	1	IIPA, New Delhi/ NIBM, Pune	Insurance, Tax, Banking, Trade, BOP, Service Statistics
11.	Applied Econometrics	2	ISI Bangalore	Time series Analysis and Forecasting ARIMA & GARIMA, ARCH & GARCH Models with the help of E- views
12.	Poverty and Inequality Estimation :	1	NIRD, Hyderabad	Concepts (national as well as international), Poverty alleviation Programme in India,

				Estimation of Poverty / Inequality;
Semester III				
13.	Foundation Course	15	Marri Chenna Reddy (MCR), Human Resource Development (HRD) Institute, Hyderabad	Law; Governance, Ethics & Leadership (GEL); Political Economics (PE); Contemporary India and Global Environment (CIGE); Public Administration and Management (PAM); e-Governance, personality development and Accountability.
14.	Monitoring & Evaluation	1	ASCI, Hyderabad	Monitoring & Evaluation mechanism for different schemes and programmes; concept and method of impact evaluation; practice-based learning ;
15.	Gender Issues	1	NSSTA, Gr. NOIDA / ASCI Hyderabad	Definition; Gender related issues and concerns; National and International Covenants / Laws; Gender Statistics & Gender Inequality: its relation with internationally accepted indices .Engendering Statistical Offices – mechanism / effective strategy; Gender Statistics in the identified key areas of concern and data gaps Gender Budgeting Gender Analysis

				Framework
16.	Plan monitoring and Budgeting Process in India	1	NSSTA, Gr. NOIDA	Performance management through mentoring; RFD, Preparation of Plan, Outcome Budget, Annual Action Plan Budget: Concepts and Definitions; Annual Budget and evolving of the Process in India; Deficit Financing in India and its trend; Central Government Budget; Zero base budgeting
17.	Sample Survey & Data Processing			
(a)	Sample Survey Methodology & Estimation	2	ISI, Kolkata	Review of Sample Survey methodology; Exposure to new advances like rotation panel survey, network sampling, introduction to small area estimation etc. Linear and nonlinear Estimation procedures with special reference to measuring Survey efficiencies, reliability of estimates (including application of Bootstrap / Jackknife technique).
(b)	Designing and Organizing a large scale sample survey with focus on NSSO surveys	1	SDRD, Kolkata	Survey Planning – Frame, selection of sampling scheme, sample size; Survey Preparation – Design of questionnaire etc, Estimation procedure, multipliers.

(c)	Data Processing and Data Analysis	1	DPD, Kolkata	Data structure of unit level data, mapping, data entry layout & schedule, scrutiny of unit level data, creating tables, imputation of missing data techniques.
(d)	Undertake a project on Sample Survey and Report writing	3	SDRD, Kolkata	Designing and execution of a small survey by using the knowledge gained during the module at 17(a), (b) and (c) Understanding the techniques / layout of Report writing; literature Review and Documentation to be done before writing a Report with illustration; different stages for writing a structured report(e.g. Title page, Introduction, Abstract, Methodology, Findings, Recommendations, Bibliography etc.); style and Tone to be used; Exercising to write a report with the help of given results / tables.
18.	Attachment with NSSO Field Offices	4	Different Field Offices of NSSO	Organizational set up of FOD, Discussion on Administrative matters with specific reference to FOD and Miscellaneous Surveys with field exposure, Scrutiny of schedule, Control and Management of technical work in FOD.
19.	Attachment with State/ District/	2	DESs in selected	Sources of data and

	State Statistical Bureau		States	gaps in core areas (e.g. Agriculture, Health, Education) in the preparation of District level planning, Monitoring mechanism for Central Sector Schemes and programme, Twenty Point Programme, State Level MDGs, Collection and compilation of Local Level Statistics IIPs; State Domestic Product.
20.	Attachment with Management Institute	2	IIM (ABCL)/MDI Gurgaon	Developing strategic mindset; managing change and transformation; team building; creativity, innovation and nudges; leadership through India Ethos;
21.	Communication & Presentation Skill	1	IIPA, New Delhi	Self-awareness & self-development; inter-personal relation dynamics: FIRO-B; communication challenges; active & reflective listening; negotiation skills for Govt. officers; communicating & receiving feedback; public speaking & presentation
22.	Project Work	3	NSSTA, Gr. NOIDA	
23.	Quiz / Group Discussion & Presentations at NASA	1	NSSTA, Gr. NOIDA	
24.	Posting, Feedback Farewell Formalities	1	NSSTA, Gr. NOIDA	
	Total	**77 Weeks**		
25.	On-the-job training	Remaining period of two years (Last one	As per the posting order	

		week will be at NSSTA for wrap up etc.)		

Acronyms and Abbreviations

AHS	Annual Health Survey
ASCI	Administrative Staff Collage of India
AYUSH	Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy
BPST	Bureau of Parliamentary Studies and Training
CACP	Commission for Agricultural Costs and Prices
CPD	Coordination and Publication Division
CPI	Consumer Price Index
CSO	Central Statistical Office
DES	Directorate of Economics and Statistics
DGCI & S	Directorate General of Commercial Intelligence & Statistics
DGFT	Directorate General of Foreign Trade
DIPP	Department of Industrial Policy and Promotion
DLHS	District Level Health Survey
DPD	Data Processing Division
FOD	Field Operations Division
FRI	Forest Research Institute
GDP	Gross Domestic Product
GIS	Geographical Information System
IASRI	Indian Agricultural Statistics Research Institute
IGIDR	Indira Gandhi Institute of Development Research
IIP	Index of Industrial Production
IIPA	Indian Institute of Public Administration
IIPS	Indian Institute of Population Studies
IIRS	Indian Institute of Remote Sensing
ILO	International Labour Organization
ISEC	Institute for Social and Economic Change
ISTM	Institute of Secretariat Training and Management
MOSPI	Ministry of Statistics & Programme Implementation
MPLADS	Member of Parliament Local Area Development Scheme
MSME	Micro, Small & Medium Enterprises
NFHS	National Family Health Survey
NIBM	National Institute of Bank Management
NIPFP	National Institute of Public Finance and Policy
NIRD	National Institute of Rural Development
NNP	Net National Product
NSC	National Statistical Commission
NSSO	National Sample Survey Office
NSSTA	National Statistical Systems Training Academy
SDRD	Survey Design and Research Division
WPI	Wholesale Price Index
WTO	World Trade Organization

NSSTA