

4. The lists of principles mentioned above address good ethical and professional standards that have to be observed by all producers of official statistics, and not only the National Statistical Office. These principles have to be enshrined in and made operational through legislation. Legislative practices vary between countries, but an umbrella legal text for all activities of official statistics enacted at the level of a law, i.e. by the National Parliament, has proven to be the most effective and transparent way of providing a legal basis for official statistics.

5. According to countries' traditions, Statistical Laws vary in the degree of details addressed at the level of law and the allocation of issues between primary and lower-level legislation. Other laws may also contain articles on statistics, but it is essential to ensure they do not contradict the provisions of the Statistical Law. Because of their substantial resource and organizational implications, population and agricultural censuses are frequently based on special laws. But as major visible operations of official statistics, censuses should be strictly in line with the fundamental principles of official statistics, notably concerning confidentiality and non-statistical use of confidential data.

6. All national administrations have at least one major department for which the production and dissemination of official statistics is the core or even exclusive task. For simplicity, this department is called here National Statistical Office (NSO).¹ The reasons for creating a NSO with the core task of statistics are twofold: avoiding conflicts of interests, and economies of scale (especially in small countries). For other producers than the NSO, official statistics is one of several tasks, not the most important.

7. The purpose of official statistics is to produce and disseminate authoritative results designed to reliably reflect economically and socially relevant phenomena of a complex and dynamic reality in a given country. These results have to be available to all users, i.e. they have to be public. The function of these results is in a variety of uses for monitoring developments in a country and its parts, so as to provide basic information for decision-making, evaluations and assessments at all levels, but notably by governments, and for serving as important elements for accountability of public bodies based on achievements.

¹ A small minority of countries have more than one producer at national level for which the production of official statistics is the key task; some of the good practices given under principle 8 (co-ordination) would have to be modified in such a context, but not concerning the other principles

8. While it is certainly true that not everything that is relevant can be expressed in quantitative terms, it is also true that the situation and development of a complex and dynamic society cannot be described, or compared with other societies, without official statistics being a key component. Today's world is characterized by many developments such as globalization, new forms of household composition, unregistered migration, and economic transactions the content of which is entirely non-material. These phenomena make life for national statisticians more challenging (sometimes even to maintain the present or past reliability of statistics may be a challenge in view of certain developments); also therefore, it is crucial to ensure that the system has both a good institutional framework and the necessary resources, notably human resources, to be able to meet new challenges and maintain and strengthen the trust of users.

The production process in official statistics

9. The production of official statistics is a complex chain of operations. It starts with the investigations about information needs of various users, their filtering and subsequent bundling in such a way that one activity of official statistics can generate results that fulfil a great number of user needs and are not targeted exclusively to one user group. This phase is normally not carried out every year in a systematic and comprehensive way, but only when a multi-year programme is set up; annual adjustments are possible, but mostly only partial. Information needs have to be investigated in terms of results or outputs; the translation of these needs into the best way of collecting data from respondents, including the arbitrage between the secondary use of administrative or similar data collected outside the statistical system, and specific data collection for the purpose of official statistics through statistical surveys and censuses, is the core task of the statistical system in this programming phase. The programming phase is iterative, since it involves balancing of needs with available resources and priority setting.

10. Once the statistical objects and the sources for obtaining information for them has been fixed, and the information needs to be covered, allocated to them, each statistical survey, and each secondary use of administrative or similar data, has to be designed/redesigned, tested, and the tools and resources necessary for full implementation prepared and adjusted if necessary following the test. The design phase also includes the definition of the results to be published as official. In the case of statistical surveys, the data collection phase is a crucial

part in the design of operations that are under the responsibility of a statistical producer; in the case of administrative or similar data, this phase is outside the statistical system, with statisticians hopefully being consulted in the process of ~~before~~ decisions ~~are~~ made about their structure and content. For statistical surveys, the data collection phase itself is a key phase in terms of management and use of resources of the NSO.

11. Once the data have either been collected through statistical surveys, or been handed over to the NSO or another statistical producer in the case of administrative or similar data, the processing phase includes the data entry, control, coding, editing and in some cases imputing of the unit-level data, with the possibility of matching with other sources, and the aggregation of unit-level data to the pre-defined official results (including the necessary quality parameters). This phase is particularly IT-dependent; some of the processing may even be merged with the data collection phase if CATI or similar computer aided techniques, or electronic reporting, are used. The results and the quality parameters have to be analysed carefully before being cleared for the next phase; this may involve integration or at least systematic comparisons with other sources about the same phenomenon at the aggregate level.

12. The phase of dissemination is more than the release of the pre-defined results in various forms (press releases with comments; hard-copy publications; electronic dissemination on the internet and in other various forms); it may include subsequent publications with more detail or analytical content, or for specific user groups, and it includes the generation of additional results for specific user requests (statistical services). For these purposes, the final set of unit-level or micro-data have to be stored and well documented for a considerable period.

13. As a last phase, the whole process has to be evaluated in order to identify and address possible improvements in efficiency and quality, which are then either fed into the next wave or considered at the next systematic programming exercise.

14. In addition to the production processes, a statistical system needs a number of support processes of cross-cutting character. They address resources and the statistical infrastructure. No statistical system can work without well motivated and professional staff, and without a carefully designed IT infrastructure targeted to the tasks of official statistics (which are different in focus from the type of transaction-oriented tasks normally met in the rest of the public and in the private sector, notably with respect to the complexity of metadata).

Examples for processes that address elements of the statistical infrastructure, and do not completely follow the pattern outlined above for production processes, are statistical registers and international cooperation.

Trust of users

15. Since users cannot replicate easily this complex chain of operations themselves, they have to trust the results that are published as authoritative and unbiased. But trust in the results has its root in the confidence that producers are professionals, and that the institutional framework in which they operate allows them to act professionally in all situations, even when results of official statistics are bad news for some actors in the political scene. This is the root of principles like professional independence (Principle 2) and impartiality (Principle 1b). Decisions on the choice of sources, the methods to be used for collecting data and compiling results for official statistics, the selection of results to be disseminated as official, and all decisions about timing and forms of dissemination, have to be strictly internal to the statistical system so as to be free from any interference that could bias such decisions in order to distort or hide results in a certain way. As a corollary to professional independence, all the methods used have to be fully transparent (Principle 3). Relying on recognized international standards and good practices in national statistics across the globe (Principle 9) is an important way to ensure trust and be recognized as professional.

16. The various producers of official statistics are independent in the type of decisions outlined in the previous paragraph, which can be characterized as the “how to do” part. In most countries, decisions on the “what” part of official statistics are prepared by the statistical system, takes place usually in an intensive dialogue with the various users, but the final decision is normally with an authority outside the statistical system². In many countries, the government decides on multi-annual and/or annual Statistical Programmes (and the resources allocated to this purpose) as a kind of mandate for the statistical system by which its performance will be judged. Such programmes, if they have legal character, also serve the purpose of legitimacy for producers to collect data from primary respondents (individual, households, companies) through surveys for exclusively statistical purposes, with a response obligation that can be sanctioned, if violated.

² In a small number of countries with a centralized statistical system, the NSO receives a global budget, so that in these countries even the “what” part is a decision purely internal to the statistical system.

17. Professional independence addresses the relationship between producers on one side and all stakeholders (users, respondents, funders, taxpayers) that are outside the statistical system on the other. This principle does not address the relationship between producers, i.e. they are not independent from each other, because in this case they would not form a system. A system composed of many producers has to be coordinated and managed. In most countries, the task of leader and coordinator of the system is with the director or president of the NSO, and for this reason he/she is frequently referred to as chief statistician. These functions, and the instruments that are available to the chief statisticians in this respect, have to have a legal basis in the Statistical Law. While he/she may be assisted in this task by various bodies where producers interact, the chief statistician is the final decision-maker on professional issues not only for the NSO, but for the whole system. For this reason, he/she has to have the authority to declare certain standards and rules binding for the whole statistical system.

18. The status and personality of the chief statistician is a major determining factor for the trust of users and respondents, and notably the media. He/she stands for professionalism and integrity, and because of professional independence, he/she bears the ultimate responsibility for producing and disseminating good quality and relevant results of official statistics as a public good in an efficient way and with due regard to the additional response burden caused by the activities of official statistics.

The individual principles of official statistics

19. The UN Principles are formulated in a flexible way, in order to leave countries to decide on the most suitable way to implement each of the principles in a particular national setting. However, this openness concerning the way of implementation should not be interpreted as the core substance of each of the principles being left to the discretion of a country in the UNECE region³ whether to be implemented at all. Furthermore, the way of implementation chosen in a given country should cover the whole system of official statistics, and not only selected areas or be limited to the NSO portfolio of activities.

³ Contrary to the world level, in the UNECE the Fundamental Principles were not only adopted by the Statistical Committee (Conference of European Statisticians), but by the highest body of UNECE, in which the governments are represented, in 1992. In doing so, these governments have accepted officially that their systems of official statistics should be (or be brought) in line with these principles.

20. Sometimes the argument is advanced that the degree of implementation of the principles depends on availability of resources. Concerning the level of resources, and with the exception of the last principle on international cooperation, this is not, however, the case. The principle on relevance does not e.g. imply that all statistics concerned to be relevant have to be produced, but that those that can be produced with the available resources should be assessed against relevance, and they should only be produced if a sufficient quality of results can be obtained and the dissemination to all users be ensured. Staff, facilities, computing resources and financing have to be commensurate with Statistical Programmes, and if the resource side cannot be upgraded, the portfolio of activities has to be scaled down.

21. The great majority of the Principles address issues of the institutional framework of official statistics and the integrity of producers and their staff, and these considerations do not depend on the level of resources, nor can material incentives be a main incentive for the actors in the system. It is clear that whatever the number of staff involved in official statistics, their integrity and professionalism are a key factor, and this will have to be reflected to a certain extent in the salaries and other working conditions. Repeated training of staff, clear manuals on how to interpret each principle, which have to be well known to the staff, as well as mechanisms within the statistical system to decide on borderline cases, or more broadly speaking a culture of professional excellence, are required in addition to the legal basis per se.

22. As a corollary of the above, the core content of each Principle is not negotiable against resources. There might be occasions in which a government department or some other institution offers financing or co-financing of a survey in a particular area, on the condition that one or several of the principles be waived. If such offers are made, producers of official statistics should first try to convince the client of the common interest (in terms of authoritativeness of results) in respecting all principles, and if this is not successful, decline to be involved since such an activity would fall outside the framework of official statistics.

23. Within the list of the 10 UN Fundamental Principles, the first Principle de facto combines three principles that are better handled separately when looking at their impact. This subdivision is introduced through letters in the form of Principles 1a, 1b and 1c. Principles 2 to 10 remain undivided.

Principle 1a: Relevance

- ❖ Production of official statistics in a given area is legitimate if justified by needs for:
 - Accountability of governments to the public (basic information in each area; citizen's right to information)
 - Informed decision-making/negotiations of governments (central, regional, local) and of other State bodies such as Central Banks, Parliaments etc.
 - Binding international obligations/commitments (e.g. IMF SDDS or GDDS)
 - Public (via media and other information tools)
 - Governments/state bodies
 - Economic operators (national and international)
 - Research community
 - Educational institutions
 - NGOs
 - International organisations
- ❖ Core tasks of NSOs (in a centralised or decentralised system):
 - Investigating user needs (information about what, including periodicity, major break-downs, notably regional, accuracy and timeliness), and filtering for relevance and feasibility ("what" part)
 - Transforming relevant user needs into measurable concepts (for data collection and dissemination), and bundling them into statistical activities in an efficient way so that one activity can serve many user needs at the same time ("how" part)
 - Based on a permanent system on monitoring the use of resources, determine the resources necessary for the various activities
 - For ensuring relevance over time, permanent networks with representatives of all types of users must be set up and nurtured by the NSO
- ❖ This task has to be carried out in a proactive way, given that
 - Relevance for a given user can change rapidly
 - Producing new types of statistics is a long process, therefore anticipation of key user needs is essential ("antenna function")
 - Some users may be at the beginning of using statistics for decision-making and can therefore not easily formulate their information needs

Principle 1b: Impartiality

- ❖ Producers of official statistics (not only NSOs, but also statistical departments of ministries/Central Bank) have to be free of conflicts of interest
- ❖ Once checked for quality, results have to be disseminated irrespective of whether they are “good” or “bad” news for some users
- ❖ Producers of official statistics have to be perceived by all users as acting impartially, so that all users can have trust in the results as unbiased representation of relevant aspects of the society
- ❖ Even if users’ appreciation of results, and their views on possible policy implications, can differ widely, all should accept the results, published by the NSO, as authoritative
- ❖ Activities that could create conflicts of interests:
 - Administrative decisions on individual units (businesses, individuals) such as permits, taxes etc. Decisions to include a unit in an administrative register that may be used for such purposes is equivalent
 - Advocating specific policy measures
 - Public relations for the government/country
 - Involvement in political decisions (preparation of decisions without advocacy is o.k.)
 - Data collection for administrative use by another government unit
 - Data collection for non-official statistics if one or more of the Principles is not respected
- ❖ Activities outside official statistics that do not create conflicts of interest:
 - Tailor-made statistical tables from existing data or analysis at the request of a specific user (against payment)
 - Research, analytical and forecasting activities, providing that confidentiality rules are not violated, see Principle 6 (see below)
 - Advice on methodological issues for surveys outside official statistics
 - For NSOs as official producers of maps and similar products: combination with responsibility (what does this mean??) for cartography
 - For NSO or its president: responsibility/supervision for compiling results of elections/votes (but not for election registers)

- Advise on ICT issues to other government departments on ICT issues in which statistical producers are especially experienced/advanced
 - Advice on questionnaire design for other government units and organizations for data collection
 - Advice on statistical classifications and their usage, as well as on coding certain characteristics insofar as statistical classifications are used
 - Advice on information retrieval, making data meaningful, preparing good visual presentations of statistical information materials
 - For NSO: ICT services for other parts of the government if this does not undermine the NSO's control of its own ICT
 - The advisory functions of the NSO may even include training activities and services, making a broader use of the know-how, accumulated in the NSO
- ❖ Impartiality obliges producers, among other, to:
- Disseminate impartially (see 1c)
 - Use factual and stable terminology for the disseminated statistics
 - Use understandable and non-offensive terminology in questionnaires and materials published
 - Make sure that all units of a target population have a non-zero probability to be included in a survey, and that all regions and minority groups are well covered

Principle 1c: Dissemination

- ❖ For results of official statistics, the responsible producer guarantees the conceptual adequacy of the definitions and compilation methods used, and the quality of the data in terms of accuracy and comparability
- ❖ Statistics are presented in a way that facilitates proper interpretation and meaningful comparisons. For dissemination to the public and to non-expert users, explanatory comments (what is the significance), and when substantiated facts allow also analytical comments (why), should be added
- ❖ Results of official statistics have to be consistent or reconcilable over a reasonable period of time so as to allow sound comparisons over different time intervals
 - Revisions that affect comparability over time are announced in advance and follow a transparent schedule

- Preliminary, final, and revised results are clearly identified
- ❖ Impartiality in dissemination of results of official statistics implies:
 - All results of official statistics have to be publicly accessible; there are no results characterised as official which are for the exclusive use of governments
 - Statistical producers must be absolutely free from government interference on what and how they disseminate (no clearance procedure which involves non-statistical bodies)
 - Dissemination must be simultaneous to all users who have access to the web; no privilege for governments or media to see results before they are published on the web.⁴
 - Official statistics are released according to a pre-announced schedule
- ❖ This principle also includes the obligation to store results, and the underlying microdata sets, for later statistical use, and for producing tailor-made statistical services on request (for a period defined by law).
- ❖ All producers of official statistics have to indicate contact points to which users can turn for receiving and being provided with statistical services and publications-
- ❖ Impartiality of comments is not the same as being free from value judgments; statements like "improved" or "progress" (or the opposite) are important for non-expert users to understand the meaning of statistical results and can be used by statistical producers in their comments if they are in line with generally accepted objectives (e.g. those laid down in the constitution)
- ❖ Impartiality in dissemination strictly excludes any policy-prescriptive comments (what should the government or another actor do, change or not do). This includes comments made at press conferences or in interviews with media
- ❖ Products of the NSO and of other producers have to be clearly identifiable as official statistics. Comments made by somebody from outside the statistical system have to be kept strictly separate from comments made by statistical producers
- ❖ Impartiality of dissemination does not exclude differentiated pricing for different users, but prices should be set at the maximum to cover special service production and dissemination costs. It is also in line with this principle that certain value-added

⁴ In some countries, certain key users in the government sector receive an advance notice of the release a few hours ahead of the release time, under strict embargo, in order to be able to prepare their comments. This

- products above the official results and the initial releases can be priced in both electronic and other forms, especially if they are targeted to specific user groups
- ❖ In addition, producers of official statistics have to have the capacity to produce tailor-made tables on request of specific users that use different definitions from those of the results of official statistics. Such services should have a price equal to the additional cost of this service. The producer guarantees the quality of the data used for this processing, but not the adequacy of the concepts used in defining the aggregates insofar they deviate from those used officially (user responsibility)
 - ❖ Tailor-made tables for governmental users should be made publicly accessible, but with a clearly different status from results of official statistics
 - ❖ User satisfaction surveys are undertaken periodically

Principle 2: Professional Independence

- ❖ The “how” part of statistical activities has to focus exclusively at obtaining the most reliable representation of the phenomenon of the real world with the given resources
- ❖ If it can be assessed ex-ante that a certain level of quality (especially in terms of coverage, accuracy and timeliness) is not attainable (for resource or other reasons), the planned statistical activity should be postponed until the conditions for a reasonable quality level in line with official statistics are met
- ❖ Minimal accuracy and coverage conditions have to be specified for results of official statistics to be publishable
- ❖ Quality guidelines are documented and well known to staff
- ❖ Scientific methods, international standards, and empirically established good practices are the best guide for decisions on sound methods and techniques of collection, processing and dissemination, together with efficiency considerations and burden to respondents
- ❖ Users should be consulted, but the decisions should be made by statistical bodies (possible need for adoption by government in the case of lists of statistical surveys due to the need for legitimacy and response burden to respondents)
- ❖ For the NSO, professional independence needs to be translated into institutional safeguards for the institution, and especially for the director or president, at the level

practice is not encouraged. If it is still used, the beneficiaries of such advance notice have to be publicly identified.

of the law, which defines the “arm-length” relationship to the government. The post of the chief statisticians should:

- Have a term of office fixed in law (term that may be renewable) which is respected independently of changes in the government; for underlining professional independence it is desirable that this term is different from the term of the government
 - Have a legal protection against dismissal during the term
 - Be selected following a published vacancy with professional requirements for applicants
 - Not be a regular member of the government, but have senior level access to ministers and other policy authorities
 - Have a designated and stable line of reporting to the government
 - Not be part of a regular system of mobility in the public administration where such a system may be otherwise applicable at this level.
- ❖ For other producers, the minimum institutional safeguard is to create a statistical department for the statistical tasks, with no other tasks in the same department that could create conflicts of interest (see 1b). Only this department is part of the statistical system. The chief statistician should be involved in the selection of the heads of such departments with ministries/Central Bank

Principle 3: Transparency

- ❖ As a corollary of professional independence, statistical producers have to be:
- Fully transparent for all users about their methods (metadata publicly accessible)
 - Fully accountable to the public for their decisions they take independently
 - Fully responsible for the results they disseminate (unless another producer is quoted as a source)
 - Fully transparent about the quality of the results they publish: they have to publish quality parameters (of surveys and results), set minimum levels of precision/bias and suppress results that do not meet these targets, and warn users of certain interpretations and false conclusions (statistical artefacts, unique events)

- Fully transparent about the allocation of resources to the various statistical activities and outputs
 - Correct errors in results of official statistics (other than changes between provisional and final results, or those introduced through pre-announced revisions) at the earliest possible date, and in an open and transparent way
- ❖ Producers of official statistics have to have a system of quality management as integral part of their management culture, covering both processes and (intermediate and final) results for all activities
 - ❖ In order to be able to assess quality and limits of interpretations, statistical producers have to be able to engage regularly in analytical activities and to have the necessary know-how about analytical techniques
 - ❖ Statistics is not simply recording and summing up; it is about estimation of a real phenomenon. Even when a data collection is designed to be exhaustive, checking and editing of indications from respondents, and treatment of non-response, are always necessary. In this sense, all results of official statistics are estimates.
 - ❖ This distinguishes official statistics from activity reporting in the public sector, although the latter activity uses and disseminates many data. Not every figure reported by a public body is official statistics, only those produced and disseminated in full compliance with the principles

Principle 4: Right to react to erroneous interpretations and misuse of statistics

- ❖ This is a right, not an obligation. To be used sparsely, but effectively, e.g.
 - When important media in their comments do not observe explicit limits of interpretations the producer indicated in the comments
 - When documents for decision-making by governments/Parliaments contain inappropriate or doubtful statistics where better data would exist, or when announced limits of use are disregarded ⁵

⁵ As an exception to the above, political bodies have the right to fix rules of allocations of funds or seats based on “indicators” which may not be in line with the concepts used by statisticians for measuring a given phenomenon. Such indicators should be calculated by NSOs as a tailor-made statistical service (see principle 1c), but not be disseminated in a way that they are perceived as a statistical substitute for the best estimate disseminated by statistical producers as official results. The same considerations are applicable for composite indices used for similar purposes where different elements are combined with arbitrary (non-observed) weights

- ❖ As with all dissemination itself, reactions from statistical producers are disseminated without prior clearance by a policy part of the government
- ❖ How to deal with and minimise criticism addressed to statistical producers, notably from governments, about results released?
 - Make sure that you have assessed the quality of the results prior to release (e.g. by comparison to other sources), and investigated whether outliers are real or fictive
 - Make sure that you can explain “strange” movements or unexpected results, and you are able to distinguish between statistical artefacts, influence of unique events, and changes in underlying phenomena
 - If criticised, refer to the published methodology and to international standards you use
 - Do not enter into discussion about other figures advocated by the critics, the methodology of which is not transparent
 - For key indicators such as GDP, CPI and unemployment, have an independent audit (international peers or experts from academia) from time to time
 - Do not hesitate to ask the opinion of peers from abroad, and to publish their findings and recommendations

Principle 5: Data sources for official statistics

- ❖ Official Statistics has to use three types of sources:
 - Statistical surveys: data collection from individuals, households, corporate and unincorporated businesses, and public entities outside the own government structure, for the exclusive purpose of statistics (most of which official statistics)
 - Administrative records: secondary use of data collected primarily for administrative purposes about individuals or private businesses by other parts of the same government structure
 - Environment and territorial observation and monitoring data collected by specialised government agencies with technical devices (e.g. remote sensing with satellites)

- ❖ For statistical surveys, the Statistical Law applies to all phases of the statistical activity; for the other two sources, primary data collection has to be based on other laws, and the statistical legislation becomes only applicable once the data are handed over to a producer of official statistics (NSO or statistical department of a ministry/Central Bank). The Statistical Law must be explicit in giving the right at least to the NSO to collect data from respondents through statistical surveys, with the possibility to impose sanctions if respondents do not provide the required information.
- ❖ Decisions to be made for each statistical survey:
 - Exhaustive vs. sample surveys (mixed forms possible)
 - Sampling frame and design; grossing-up method
 - Mail, face to face interview, telephone interviews, internet (mixed forms possible)
 - Compulsory participation of the respondent vs. right to decline participation (mixed forms possible)
 - Recall and follow-up policy for non-response, depending on type of survey (including strategy for sanctions)
 - Methods for detecting and correcting errors, editing, coding etc.
 - Matching with other sources at the level of the statistical unit (when applicable)
 - The results of a the collection phase of a statistical survey should be a well documented final microdata set from which official results can be generated
- ❖ Response burden has to be assessed in advance and taken into account:
 - all new surveys have to be tested first (pilots)
 - response burden should be spread over survey populations through appropriate sampling techniques
 - all respondents have to be informed about the purpose and legal basis of the survey, and especially about the confidentiality measures
 - forms and questions have to be understandable, non-intrusive, and make answers possible for him/her from memory or from existing material (businesses)
 - first reminders have to be proportionate

- response rates, and response burden for individual economic units, have to be closely monitored
- ❖ The statistical office must have the legal right to receive, for its tasks, regularly and on an ad hoc basis, microdata sets from other ministries and public entities taken from their administrative sources. This does not mean that direct identifiers have to be included in all cases, but the possibility should not be entirely excluded.
 - It is not necessary that, in addition to the enabling provision in the Statistical Law, the legal basis for the primary data collection for a given administrative purpose explicitly foresees the additional use for statistics or the transmission of individual data to a statistical producer such as the NSO.
 - Statistical producers have the right to alter the administrative data received from other ministries and state bodies to improve compatibility with statistical definitions and classifications
 - Data received in this way should never be given back to the data owner or transferred by the statistical producer to a third party for administrative purposes
 - ❖ NSOs have to avoid considering data sources, and especially surveys, as stove-pipe type of parallel operations, but rather as a system of interrelated operations
 - ❖ Very often, the best estimates are based on a judicious combination of sources, combining the strengths and reducing the weaknesses of each source considered individually
 - ❖ Statistical producers are the only government unit that has the legal right to match data from various sources without an exhaustive list of such sources to be mentioned at the level of the law, provided that the matching takes place strictly within the limits of statistical use (see principle 6)
 - ❖ Statistical registers, especially business register, agricultural register and a register of dwellings, are a cornerstone for the statistical system. They are different from administrative registers because they can be updated through all sources, statistical surveys and censuses included. They have to be in the hands of the NSO and managed for purpose of official statistics only. It is advisable to have explicit articles in the Statistical Law concerning statistical registers

Principle 6: Confidentiality

- ❖ Statistical confidentiality is aimed at protecting the privacy of individual units - both physical persons and legal units - about which data are collected and processed. It has two components:
 - Producers of official statistics use data about protected individual units only for statistical purposes (official statistics in the first place)
 - Producers of official statistics do not disclose, either directly or indirectly, characteristics about protected units to any third party in such a way that any user might derive additional information (information not known to the user before) about a protected unit
- ❖ Exclusively statistical use: use for
 - compiling results of official statistics (either directly or indirectly through combination with other sources) by producers of official statistics
 - compiling quality parameters that are necessary for managing the processes of official statistics
 - tailor-made statistical services carried out by producers of official statistics at the request of a specific users
 - analytical results, including modelling and scenario building, carried out by either a producers on their own initiative, a producers at the request of a specific user, or as part of joint ventures between a producer and other stakeholders
 - own compilation of aggregates, analytical or statistical parameters by researchers on the basis of microdata from official statistics to which they have obtained access from the responsible producer
 - creating and updating statistical registers or similar address lists of respondents in statistical surveys to be carried out as part of official statistics (statistical producers)
 - tracking the compliance of individual respondents with the response obligations in statistical surveys
- ❖ Excluded from statistical use:
 - Any decision by a government unit or a court on a specific protected individual unit (even if this decision were to the benefit of the person concerned)

- Any control by a government or related unit of a specific protected unit with respect to the compliance with legal obligations (based on other laws than the statistic or census laws) or with respect to economic performance or other relevant characteristic
 - Any use for advocacy actions by government units that are addressed to individual units protected by confidentiality
 - Borderline case: use of addresses from statistical registers for statistical surveys outside official statistics (research purposes) or for commercial or marketing purposes by private actors, if foreseen in the statistical legislation
- ❖ Decisions to be made for the whole statistical system, either in the Statistical Law itself, or through lower-level legislation (data protection law is also relevant):
- Protected units: physical persons, private households, private businesses (whether legal persons or unincorporated enterprises) are to be protected; government units as institutions cannot invoke statistical confidentiality; public enterprises in a competitive market, as well as formally private businesses that receive regular government subsidies are borderline cases
 - All variables treated alike, or some considered to be free (e.g. for legal persons), or particularly sensitive (higher degree of protection in the case of persons, e.g. about health, crime, ethnicity). However, so-called “public” characteristics have to be protected by statistical producers if they are modified in the statistical process and deviate from the publicly available figures
 - Minimal number of protected units for dissemination of aggregates, including „dominance“ rule
- ❖ For statistical confidentiality, a „third party“ is everybody outside the narrow limits of NSO or the statistical department within a ministry. The critical boundary is therefore not between governments and outside, but between official statistics and everything else. For this reason, the units which act as producers of official statistics should be listed, and their number be kept as small as possible
- ❖ Data collection in statistical surveys: replies of respondents should go back as directly as possible to the statistical producer. No other government agency should be involved as intermediary (the risk is especially high if forms are routed back via regional

administrations unless such units are regional branch offices under the exclusive control of the NSO)

- ❖ Data processing: except in the context of statistical registers, identifiers of units should be separated from the context variables by the statistical producer at an as early stage as possible, and either stored separately or destroyed. Filled-in paper and electronic forms with full names should always be destroyed.
- ❖ Transmission of confidential data in electronic form between respondents and producers, or between field staff/regional offices/headquarters of the NSO, should be adequately secured against unauthorized access. Use of electronic reporting has to remain optional for respondents
- ❖ Data security: microdata sets have to be stored safely, and access limited to those within the NSO who use the data regularly. No direct access from outside the NSO should be possible⁶. For files with identifiers (other than statistical registers), each access has to be documented. Matching processes between different sources at unit level (other than for the regular update of statistical registers) have to follow particularly strict rules, and identifiers have to be removed from matched files
- ❖ Data security, update and access regulations for statistical registers have to be worked out carefully in a separate book of rules, notably concerning read and write access (not to be extended to anybody outside the statistical system)
- ❖ Dissemination: check all aggregates (results of official statistics and aggregates for tailor-made services) for indirect disclosure, and suppress/merge where necessary (if suppress, think of additional cells)
- ❖ Possible exceptions for disclosure of microdata without identifiers to a third party (if law explicitly permits, and following strict protocols):
 - To another producer of official statistics within the same country for its tasks
 - To university or private researchers (incl. outside the country) against signature of a contract, strictly protecting confidentiality
 - To a statistical department of an international or supranational organisation, providing that if there are clear rules in these organisations for protecting confidentiality, especially against non-statistical use
 - As public use files (risks of indirect disclosure eliminated)

- Good practices for granting access to microdata for researchers are either a secure part of the NSO, organised either physically in the premises of NSO or permitting remote access to a special server, with strict control about what is visible, downloaded or taken away in other form
 - Access to microdata that are the result of matching different sources (other than statistical registers) has to be treated with greater restraint, which may lead to a complete exclusion from the above access options.
- ❖ If other producers than NSO carry out statistical surveys, they should have the right to receive list of addresses from the relevant statistical registers from the NSO according to the approved sample design
 - ❖ All staff and other persons involved in handling confidential data have to sign confidentiality commitments on appointment
 - ❖ The Statistical Law should provide for sufficient penalties for breaches of confidentiality

Principle 7: Laws and rules

- ❖ Not only the Statistical Law itself, but also the Statistical Programme, and all lower-level legislation should be public
- ❖ Decision-making processes about the “what” and the “how” should be transparent
- ❖ If there are advisory bodies such as a Statistical Council, reports on their meetings should be publicly accessible
- ❖ Evaluation reports and audits of statistical activities/Statistical Programme should be public
- ❖ Policy manuals used in official statistics should be made public (with the exception of provisions on security measures)

Principle 8: Coordination

- ❖ The Fundamental Principles of Official Statistics apply to all producers of official statistics, not solely the NSO. As producers of official statistics are considered only those government or other public units that produce and disseminate official results in

⁶ A virtual exception is the remote access by researchers to microdata in the NSO in such a way that unit-level

compliance with the Statistical Law. Publishing activity reports as by-product of some administrative activity, or collecting data for administrative purposes, is not enough in itself to qualify as a producer of official statistics

- ❖ The NSO is in charge of the co-ordination between statistical producers and of ensuring the system-wide coherence and compliance with the statistics law, and notably with the Fundamental Principles
- ❖ In countries with less than 25-30 million inhabitants, it is advisable, both from the efficiency and confidentiality points of view, that all household surveys for official statistics, as well as all business surveys (with the possible exception of those exclusively addressed at financial businesses) are the exclusive competence of the NSO
- ❖ The main instrument of coordination is the Statistical Programme (or equivalent)
- ❖ The NSO has to be in charge of preparing programmes and evaluations of the activities contained in them for the whole Statistical System. This task has to be carried out in a proactive way in relation both to users and other producers
- ❖ Through the Statistical Programme, the institutional responsibility (NSO or other producer) for output areas, for the execution of statistical surveys, and for the transformation of administrative and similar data into official results has to be clearly specified. The assignment of responsibilities should be made on the basis of criteria, such as synergies with other statistical activities and efficiency, and may have to be modified from time to time, e.g. when the main source for the statistics in a given area changes from an administrative to a purely statistical one or vice-versa.⁷
- ❖ In addition, the co-ordination task of the NSO includes:
 - ensuring that the terminology of results disseminated is coherent
 - deciding, if diverging results are compiled from different sources, which is the official one, and investigating, and if possible explaining in terms of quantitative impact, the factors contributing to these discrepancies
 - offering on the website a one-stop shop for users which allow them to access all results of official statistics (not only those by the NSO)

data and small aggregates with disclosure risks can neither be seen nor downloaded

⁷ For this reason, it is not advisable to include such assignments directly at the level of the statistical or other law, with the exception of exclusive prerogatives for the NSO. As a further exception, the role of producers such as the National Bank that are outside the government may find an explicit basis in their basic legislation; however, it is advisable that either implicitly or explicitly, a cross-reference is made to the Statistical Law being applicable for all matters of implementation, notably concerning the principles.

- keeping up-to-date catalogues of outputs and metadata made available to users across the system
 - ensuring dissemination platforms for all official statistics, and transmission to international organisations
 - setting binding standards for all producers concern cross-cutting methodologies (such as classifications) and the implementation of the fundamental principles (such as confidentiality)
 - managing the basic statistical registers from which addresses for exhaustive or sample surveys are extracted. No parallel partial statistical registers, specific to certain surveys, should be maintained.
 - supporting and advising other producers in both methodology and issues related to the fundamental principles
- ❖ President/Director of NSO represents the entire system of official statistics, both at the national and at the international level
 - ❖ Co-ordination is not a police type of function; other producers should be convinced of the value added provided by being part of a system of official statistics under the leadership of the NSO
 - ❖ The NSO should organise regular meetings with all other producers

Principle 9: International standards

- ❖ The use of international standards at the national level is instrumental to
 - Improving international comparability, a key request by national users
 - Increasing the impartiality of decisions on the “how”, especially when controversial
- ❖ The overall structure in terms of concepts and definitions should follow internationally accepted standards, guidelines, or good practices
- ❖ The boundaries of what to include or exclude from statistics in a given area, and the classifications used within such areas, should be broadly consistent with internationally accepted standards, guidelines, or good practices

Principle 10: International cooperation

- ❖ Staff of statistical producers should have the possibility to participate in international meetings and to be part of networks of statisticians from various countries that can exchange information and have discussions among members electronically
- ❖ The community of official statisticians, be they from NSOs or producers from other countries or from international organisations, is an invaluable source for advice and feed-back
- ❖ Only with the active participation of NSOs in setting up and revising international standards, and their feed-back on national information needs and implementation issues, can international standards keep their relevance

Basic text written by Heinrich Bruengger, Director of the Statistical Division of UNECE, on 7 January 2008