

# Handbook of Statistical Organization, Third Edition: The Operation and Organization of a Statistical Agency

United Nations Statistics Division

December 2001

*Final Manuscript of a United Nations Publication now being edited.*

**Table of contents**

<i>Foreword</i> .....	6
<i>Introduction</i> .....	7
<b>Chapter 1 FOUNDATION OF A STATISTICAL AGENCY</b> .....	<b>10</b>
<b>1.1. Introduction</b> .....	<b>10</b>
<b>1.2. Independence</b> .....	<b>10</b>
<b>1.3. Relevance</b> .....	<b>12</b>
<b>1.4. Credibility</b> .....	<b>13</b>
<b>1.5. Respondent policy</b> .....	<b>14</b>
<b>Chapter 2 THE STATISTICAL SYSTEM</b> .....	<b>17</b>
<b>2.1. Introduction</b> .....	<b>17</b>
<b>2.2. Structure of the statistical system</b> .....	<b>17</b>
2.2.1. Single institutions .....	17
2.2.2. More than one institution.....	19
2.2.3. Importance of a brand name recognition .....	21
<b>2.3. Coordination tools</b> .....	<b>22</b>
2.3.1. Incentives.....	22
2.3.2. Some useful mechanisms.....	23
2.3.3. National Statistics Council .....	24
2.3.4. Coordinating budgets and standards.....	24
2.3.5. Placement of staff .....	25
2.3.6. Coordination tools for a decentralized organization.....	25
2.3.7. The role of the Central Bank .....	27
<b>2.4. The chief statistician</b> .....	<b>27</b>
2.4.1. Introduction .....	27
2.4.2. The chief statistician's superiors .....	28
2.4.3. The chief statistician's colleagues .....	29
2.4.4. Qualifications of the chief statistician .....	30
2.4.5. Term of office of the chief statistician.....	31
2.4.6. Demanding resignation and threatening resignation .....	32
2.4.7. Authority of the chief statistician .....	32
2.4.8. Competence of the chief statistician .....	33
<b>2.5. The National Statistics Council</b> .....	<b>34</b>
2.5.1. Oversight or advice.....	34
2.5.2. Membership .....	37
2.5.3. Chairmanship.....	38
2.5.4. Secretariat .....	38
2.5.5. Agenda.....	39
2.5.6. Frequency of meetings.....	39
2.5.7. Advisory committees .....	39
2.5.8. Ad hoc bodies .....	40
<b>2.6. The law</b> .....	<b>40</b>

2.6.1. Introduction.....	40
2.6.2. Main Actors .....	41
2.6.3. The law: short or long.....	42
2.6.4. The law: deterrence and enforcement.....	42
2.6.5. Access to information protected by other laws.....	42
2.6.6. Legal advice .....	43
2.6.7 Special legal arrangements in decentralized systems .....	43
<b>2.7. Financing the statistical system .....</b>	<b>43</b>
2.7.1. Sources of finance.....	44
2.7.2. Financing through government budgets.....	45
2.7.3. Market Pricing of goods and services.....	45
<b>Chapter 3 USERS AND THEIR NEEDS .....</b>	<b>47</b>
<b>3.1. The needs of government.....</b>	<b>48</b>
3.1.1. Introduction.....	48
3.1.2. Ministries of Finance .....	49
3.1.3. Other Ministries .....	49
3.1.4. Organizing and establishing contacts.....	51
3.1.5. Regional and local government .....	53
<b>3. 2. The needs of the public.....</b>	<b>55</b>
3.2.1. The community at large .....	55
3.2.2. Schools and high schools .....	55
3.2.3. The press .....	56
<b>3. 3. The needs of business.....</b>	<b>57</b>
3.3.1. Large business.....	58
3.3.2. Small business.....	59
<b>3. 4. Research and other needs.....</b>	<b>61</b>
3.4.1. Academic world.....	61
3.4.2. International institutions .....	61
<b>Chapter 4 SETTING PRIORITIES .....</b>	<b>64</b>
<b>4.1. Analysis of user requirement .....</b>	<b>64</b>
<b>4.2. Developing a progress plan .....</b>	<b>67</b>
4.2.1. Introduction.....	67
4.2.2. The annual plan and its constituents .....	67
4.2.3. Making allowances for size and uncertainties .....	68
4.2.4. Ceremony.....	68
4.2.5. Planning and budgeting.....	68
4.2.6. Planning and accountability .....	70
4.2.7. Evaluation of the plan .....	70
<b>Chapter 5 PRINCIPLES OF ORGANIZATION AND REORGANIZATION .....</b>	<b>72</b>
<b>5.1. Introduction.....</b>	<b>72</b>
<b>5.2. Theories and trends .....</b>	<b>72</b>
<b>5.3. Organization by subject or by function .....</b>	<b>73</b>

5.4. Organization and reorganization .....	75
5.5. Coordination mechanisms and corporate culture .....	79
<i>Chapter 6 MANAGING STAFF</i> .....	83
6.1. Introduction .....	83
6.2. Staff composition .....	84
6.3. A human resources policy .....	85
6.4. Recruitment.....	87
6.5. The first day .....	88
6.6. Training.....	89
6.7. Job rotation .....	91
6.8. Staff retention .....	91
6.9. Options for a new chief statistician .....	93
6.10. Human resource management: a package .....	93
<i>Chapter 7 MANAGING INFORMATION TECHNOLOGY</i> .....	95
7.1. Introduction .....	95
7.2. IT management models.....	95
7.3. Review of some concerns prevalent at the end of the 70's.....	96
7.4. Working with the commercial sector – outsourcing.....	97
7.5. Sound IT project management practices.....	99
<i>Chapter 8 INTANGIBLES ASSETS</i> .....	102
8.1. Definition .....	102
8.2. The stamp of quality.....	102
8.3. The force of law.....	102
8.4. Policies .....	103
8.5. Registers .....	104
8.6. System of National Accounts .....	105
8.7. Central review and control of questionnaires.....	105
8.8. Nomenclatures and classifications .....	106
8.9. Finance.....	106
<i>Chapter 9 MANAGING THE CORE FUNCTIONS</i> .....	108
9.1. Essential Functions .....	108
9.1.1. Planning.....	108
9.1.2. Executing and Processing.....	108
9.1.3. Analysis .....	109
9.1.4. Dissemination .....	109

9.1.5. Coordination and Standardization.....	110
<b>9.2. Survey and census.....</b>	<b>110</b>
9.2.1. Introduction.....	110
9.2.2. Project management.....	111
9.2.3. Working with project staff.....	113
9.2.4. Working with respondents.....	115
9.2.5. Repository of statistical expertise.....	115
9.2.6. Flexible survey taking capability.....	116
9.2.7. Administrative records.....	117
<b>Chapter 10 FIELD ORGANIZATION.....</b>	<b>119</b>
<b>10.1. Interacting with respondents.....</b>	<b>119</b>
10.1.1. Introduction.....	119
10.1.2. Households.....	121
10.1.3. Enterprises.....	122
10.1.4. The consumer price index: a special case.....	122
10.1.5. Government.....	123
10.1.6. Special case of provincial and local government.....	124
10.1.7. Non-profit institutions.....	124
<b>10.2. Interacting with a subject matter organization.....</b>	<b>125</b>
10.2.1. Perspectives.....	125
10.2.2. Censuses and surveys.....	126
10.2.3. Managing interactions.....	126
<b>Chapter 11 GETTING INFORMATION TO THE USERS.....</b>	<b>128</b>
<b>11.1. General dissemination issues.....</b>	<b>128</b>
11.1.1. Introduction.....	128
11.1.2. Providing users information on the properties of statistical data.....	129
11.1.3. Dissemination policy.....	130
<b>11.2. Different forms of dissemination.....</b>	<b>131</b>
11.2.1. Traditional means.....	131
11.2.2. Multimedia.....	131
11.2.3. Internet.....	132
<b>11.3. Recovering the cost of publication.....</b>	<b>134</b>
11.3.1. Introduction.....	134
11.3.2. Commercial policies.....	135
11.3.3. Using third parties for dissemination.....	135
11.3.4. Copyright and royalties.....	136
<b>11.4. Supplementing information with analysis.....</b>	<b>136</b>
11.4.1. Should an NSO do analysis?.....	136
11.4.2. Facts and interpretation.....	137
11.4.3. Analytical functions and information.....	137
11.4.4. Review of publications.....	137
<b>11.5. The Statistical Yearbook.....</b>	<b>138</b>
<b>Chapter 12 RESPECTING PRIVACY AND PRESERVING CONFIDENTIALITY: HONOURING THE CONTRACT.....</b>	<b>141</b>

<b>12.1. Respondent policies .....</b>	<b>141</b>
12.1.1. Introduction .....	141
12.1.2. Principles of respondent relations.....	141
12.1.3 Compulsion and voluntary response.....	144
12.1.4. Incentives and assurances .....	144
12.1.5. Sharing Administrative Information.....	145
<b>12.2. Data protection .....</b>	<b>146</b>
12.2.1 Physical and Electronic Security .....	146
12.2.2. Sanctions.....	147
<b>12.3. Confidentiality and disclosure.....</b>	<b>147</b>
12.3.1. Principles .....	147
12.3.2 Dominance and residual disclosure .....	148
12.3.3 Confidentiality and household statistics .....	149
12.3.4 Disclosure with consent.....	149
12.3.5 Forced disclosure.....	150
12.3.6 Passive confidentiality .....	150
12.3.7 Arrangements for Research .....	150
<b><i>Chapter 13 PUTTING IT ALL TOGETHER.....</i></b>	<b><i>153</i></b>
<b>13.1 Introduction .....</b>	<b>153</b>
<b>13.2. Principles of organization .....</b>	<b>153</b>
<b>13.3. Internal Functions .....</b>	<b>155</b>
13.3.1. Office of the chief statistician.....	155
13.3.2. Dissemination .....	156
13.3.3. The field organization.....	156
13.3.4. Subject matter departments .....	157
13.3.5. Statistical infrastructure .....	161
13.3.6. Technical infrastructure .....	162
13.3.7. The analytical function .....	163
13.3.8. Planning.....	163
13.3.9. Horizontal and vertical mechanisms.....	164
<b>13.4. Building external support .....</b>	<b>164</b>
<b><i>APPENDIX.....</i></b>	<b><i>166</i></b>

## Foreword

In 1954, two years after sponsoring an interregional seminar to discuss the matter, the United Nations Statistical “Handbook of Statistical Organization” in the series Studies in Methods, Series F, No. 6 was published.<sup>1</sup> In 1980, seven years after convening a second interregional seminar, the Statistical Office published the first revision to the Handbook as Series F No. 28.<sup>2</sup> In 1999, at a data quality seminar cosponsored by the International Monetary Fund and the United Nations, several countries requested that the Handbook be updated. The United Nations Statistical Commission confirmed this request.

This version of the Handbook is largely based on a document prepared by Jacob Ryten under a consulting arrangement with the United Nations Statistics Division. The initial review of the document was made by staff in the Statistics Division and an editorial team representing countries from each of the United Nations Regional Commissions and the International Monetary Fund. Subsequently individual Chapters were used at various seminars conducted by the Statistics Division.

Finally, one must allow that implementation of this Handbook can proceed in one of two quite different directions. On the one hand, the measures advocated in this Handbook should not be adopted one at a time but rather as a package since they act in concert with one another. However, it must also be recognized that most agencies desiring to implement the principles in this Handbook will not be in a position to implement that all at once. In fact, the most sensible course of action for a country may be to concentrate on just one area, say, for example, managing the core functions of a statistical office. In any event, each statistical office must decide for itself – given its situation and that of its country – which, if any, of the principles advocated in this Handbook are applicable to it.

Without the work of Jacob Ryten this Handbook would not have been written. He wrote a complete first draft, which turned out to be a Herculean effort. Only those who have attempted projects of this complexity can truly appreciate his efforts. The draft was reviewed by an editorial board of: Paul Cheung, Miguel Cevera, Svein Longva, Guest Charumbira, Hasan Abu Libdeh and Carol Carson who made numerous suggestions for improvements. Jason Brody made many helpful suggestions on how the text could be made more easily understandable. Several United Nations Statistics Division staff contributed to the final draft but three deserve special mention: Angela Me, who organized the production of early drafts and in addition made many valuable substantive suggestions at all stages of the process; Sabine Warschburger and Isabela Heng, who organized and produced the final draft. Chapter 7 on Managing Information Technology is substantially the work of Jack Arthur. However, responsibility for the final version of the Handbook and any weaknesses rests with Hermann Habermann and Willem de Vries, who made the final decisions on the content and structure of the Handbook.

Nitin Desai  
Under-Secretary-General  
Department of Economic and Social Affairs

---

<sup>1</sup> Hereinafter referred to as *Handbook*.

<sup>2</sup> Hereinafter referred to as *Handbook Rev. 1*.

## **Introduction**

There are two main intended audiences for this Handbook: (i) the Chief statistician (or soon to be Chief statistician of a statistical agency) and his/her colleagues; and (ii) those charged with oversight of the official statistics function.

As the heads of agencies, they are both formally and emotionally committed to continuity of a tradition embodied by the Fundamental Principles of Official Statistics<sup>3</sup>. They establish public faith in the facts turned out by the agency; drive innovation in their agency; foster an ethos of professionalism without which quality standards cannot be maintained; communicate with both government and public at large regarding the condition of their country on the basis of those aspects amenable to quantitative measurement. The Handbook then is designed for those who are responsible for providing leadership to a statistical agency and for ensuring that the public trust is not misplaced.

It would be welcome indeed, if in addition, the Handbook were also useful to those who simply want to understand why a statistical agency operates in the manner that it does.

The Handbook is about national statistical offices – government departments of varying status, created in order to compile, interpret and make public official statistics. Such offices come in all sizes and many different shapes. Some are general in the sense that they compile statistics on all that must be known about economic and social processes in a country. Others are very specialized: they only compile statistics on transport, banking or agriculture. Some have high visibility and have their identity sharply defined by statute. Others are nested within other organizations and were created chiefly to inform the governing body of their organization. However, except in size, scale of operations and scope statistical offices do not differ that much from each other in terms of their main function, their expected behaviour, and in terms of the rules that apply to them. They all process raw data, convert them into statistics, apply objective standards to their operations and make it a condition of survival to be impartial, neutral, and objective.

The Handbook is organized into the following areas: general principles for a statistical agency and system, data collection and respondent policies, principles and examples of organization and management, and dissemination guidelines.

The Handbook is not supposed to be read as a story. Rather, it is designed to serve as a checklist of items a successful statistical agency must take into consideration; a set of examples that illustrates how principles can be put into practice in certain typical contexts; a list of factors that may persuade an agency's staff to favour one application over another; and finally as a caution that while certain solutions maybe be preferred, none are universal. In particular it must be understood that although the Handbook provides clear and firm guidance in these areas, the situation in each country is unique and only those in the country can determine the usefulness of the guidance in this Handbook. For this reason, the Handbook cannot be prescriptive in a generic form. But the Handbook can be illustrative by mentioning examples and suggesting ways of learning from them and it can lay out a small number of general principles which appear to have

---

<sup>3</sup> United Nations Statistical Commission, 11-15 April 1994, E/CN.3/1994/18.



stood the tests of time and location, tradition and legal context, politics and economic development, needs and expectations. If it succeeds in doing that much, its objectives will be met.

Notwithstanding its flexibility, the Handbook, like its predecessors<sup>4</sup>, is uncompromising in certain respects. It enjoins the chief statistician and his/her staff to allow no interference by interested parties in the way facts are assembled and combined into statistics, nor in the method and timing of their release to the public. And it underscores repeatedly that the information that statistical agencies collect is to remain confidential and inviolate. The failure to treat individual information as a trust would prevent the statistical agency from functioning effectively.

A new generation, with capabilities and resources heretofore unmatched, finds itself with the responsibility of heading today's statistical offices. In fulfilling its responsibility, it may be aided by records of past practices, especially those that yielded favourable results. However, the environment in which official statistics are created and released has changed, and continues to change, so profoundly that past experience is only partly applicable. Some of the changes are technology driven and proceed at an incredible pace. Others are the consequence of social, legal, and institutional innovations. Others still are the fruit of greater affluence, better education, and more sophisticated use of knowledge than ever before.

Never has so much been expected from statistics, never have statisticians had such means at their disposal, and never has there been so much willingness to learn from each other and standardize internationally the fruit of that learning. This does not imply that the distribution of these gains is even or best or that there are no tensions or even crises. There undoubtedly are. In some instances, the strong nexus that used to bind governments to their statistical agencies has been shaken and is more fragile today than it was in the past. Some agencies are bound to look back on the individual performance of their particular agency and feel that it has not reflected the technological and economic changes referred to above.

Previously, official statistics catered mainly to Ministries of Industry and Finance, to Planning Commissions and to Ministries of Trade and of course to its most traditional supporters: the Ministries of Agriculture, Transportation and Labor. Today the body of users has expended to include departments that look after the natural environment, housing, welfare, education and health, justice and energy. In addition, official statistics are now used by large businesses on a scale commensurate with that of government, and by the general public (for example in measuring government accountability).

The drive to make inter-country comparisons is far more widespread than it was when the first of the Handbooks was drafted. Whereas standards taken for granted today such as the activity, commodity and occupation classifications were still in their infancy and in any case were literally handed down to national statistical offices by a tiny handful of international experts, the participation of agencies in the drafting of today's successors to these standards has become universal. Fifty years ago the domain of international standard setting was left to international statistical offices. Today, it is a matter that engages all statistics agencies.

These then are the features, largely prompted by developments outside the province of statisticians that necessitate updating old standards while at the same time paying attention to past experiences of statistical offices. Indeed, among the many difficulties that statisticians must take

---

<sup>4</sup> "Handbook of Statistical Organization" in the series Studies in Methods, Series F, No. 6 and "Handbook of Statistical Organization" Series F No. 28. United Nations, New York respectively in 1954 and 1980.

into account, perhaps the most noteworthy is managing an organization that thrives on continuity but must develop in an environment marked by constant change.

In this revision of the Handbook, the following are principal innovations:

- ❖ More attention is paid to the statistical process as a process and as a system, rather than as various institutions linked by coordinating devices. Accordingly, the debate between centralization and decentralization that was heavily featured in *Handbook Rev. 1* is now incorporated into a discussion of methods available to strengthen coordination.
- ❖ It is recognized that while the accessibility of up-to-date computer equipment and computer knowledgeable staff has increased greatly in the last twenty years, the management of information technology is a critical issue deserving special attention.
- ❖ Planning systems for large statistical undertakings such as censuses are now better understood and more easily put into practice, and are therefore no longer in need of detailed examination.
- ❖ The emphasis on the relationships between statistical offices, respondents and users that emerged in *Handbook Rev. 1* now occupies a prominent place in this version. There is also greater emphasis placed on the coordinating power of such elements of the statistical infrastructure as common classifications, the system of economic accounts and other integrating tools.
- ❖ This version of the Handbook, unlike its predecessors, attempts to deal with the concerns of the different classes of users and the statistics they will require as a result of their differences.

Ultimately, the successful statistical agency recognizes that ideal solutions are elusive and that practical, robust, and workable solutions are created when the advantages and disadvantages of each approach are balanced successfully. Virtually each chapter that follows illustrates such balances. Of course, these cannot be universal, because the way in which various factors are weighed against one another toward workable ends differs according to location and time. It is up to each agency to gauge its particular set of circumstances sensibly.

The successful statistical agency also recognizes that measures are not to be adopted one at a time but rather in concert. Even if initiatives are first evaluated on their individual merits, they eventually must be judged in relation to other organizational and procedural measures.

## Chapter 1 FOUNDATION OF A STATISTICAL AGENCY

### 1.1. Introduction

1. National statistical offices exist to provide information to the general public, government and the business community in the economic, demographic, social and environmental fields. This information is essential for development in these areas and for mutual knowledge and trade among the States and peoples of the world.
2. The quality of official statistics depends largely on the cooperation of citizens, enterprises, and other respondents in providing appropriate and reliable data to the statistics agencies.
3. In order that the public trust official statistics, a statistical agency must have a set of fundamental values and principles that earn the respect of the public. These include, independence, relevance, credibility and treating respondents as means rather than as ends.
4. These principles have been codified in the “Fundamental Principles of Official Statistics”<sup>5</sup>

### 1.2. Independence<sup>6</sup>

5. A widely acknowledged position of independence is necessary for a statistical agency to have credibility and to carry out its function to provide an unhindered flow of useful, high-quality information for the public and policy makers. Without the credibility that comes from a strong degree of independence, users may lose trust in the accuracy and objectivity of the agency’s data, and data providers may become less willing to cooperate with agency requests.
6. In essence, a statistical agency should be distinct from those parts of the government that carry out enforcement and policy-making activities. It should be impartial and avoid even the appearance that its collection, analysis, and reporting process might be manipulated for political purposes or that individually identifiable data might be turned over for administrative, regulatory, or enforcement purposes.
7. Characteristics related to independence are:
  - ❖ Authority for professional decisions over the scope, content, and frequency of data compiled, analysed, or published.
  - ❖ Authority for selection and promotion of professional, technical, and operational staff.

---

<sup>5</sup> United Nations Statistical Commission, Report on the Special Session (11-15 April 1994), Economic and Social Council, Official Records, 1994, Supplement 9. For more information see Appendix I or <http://www.un.org/Depts/unsd/statcom/1994docs/e1994.htm>.

<sup>6</sup> This paragraph draws heavily from the “Principles and Practices for a Federal Statistical Agency, Second Edition”, United States National Research Council, Committee on National Statistics, November 2000.

- ❖ Recognition by policy officials outside the statistical agency of its authority to release statistical information without prior clearance.
- ❖ Authority for the chief statistician and qualified staff to speak about the agency's statistics before the Government and the public bodies.
- ❖ Adherence to predetermined schedules in public release of important economic or other indicator data to prevent even the appearance of manipulation of release dates for political purposes.
- ❖ Maintenance of a clear distinction between the release of statistical information and policy interpretations of such information by the senior members of the Government.
- ❖ Dissemination policies that foster regular, frequent release of major findings from and agency's statistical programmes to the public via the media, the Internet, and other means.

8. In 2000 the United States National Research Council in writing the Principles and Practices for a Federal Statistical Agency<sup>7</sup>, recognized as fundamental goals of a statistical system the following:

- ❖ to protect confidentiality of responses
- ❖ to minimize the burden of the people who provide the responses
- ❖ to assure accuracy which requires proper concern for consistency across geographic areas and across the time, as well as statistical measures of errors in the data;
- ❖ to assure timeliness which requires concern for issuing data as frequently as is needed to reflect important changes in what is being studied, as well as disseminating data as soon as practicable after they are collected;
- ❖ to assure relevance which requires concern for improving data that help users meet their current needs for decision making and analysis, as well as anticipating future data needs;
- ❖ to establish credibility which requires concern for both the reality and appearance of impartiality, and of independence from political control.

9. If a statistical agency operates from a strong position of independence, then how are its objectives and priorities fixed? The answer is that its objectives are fixed by law,<sup>8</sup> and its priorities must be decided by the chief statistician. The objectives are often seemingly very simple. For example, the law governing the Canadian statistical agency states: "...there shall be a bureau...the duties of which shall be to collect, abstract, compile, and publish statistical information relative to the commercial, industrial, social, economic and general activities and condition of the people...".

<sup>9</sup> However, in its Strategic Overview,<sup>10</sup> the Canadian chief statistician states that the agency's

---

<sup>7</sup> "Principles and Practices for a Federal Statistical Agency, Second Edition", United States National Research Council, Committee on National Statistics, November 2000.

<sup>8</sup> See section 2.6 for a fuller discussion on the statistical law.

<sup>9</sup> Statistics Act 1918 version. Today's formula does not differ. In the Framework document of the UK's Office for National Statistics (ONS), the functions of the office are defined as "to collect economic and social statistics". Several

medium-term priorities are provincial statistics, the service sector, science and technology, etc. The former describes the agency's accountability; the latter is the chief statistician's best interpretation of what the agency should do in the medium-term in light of perceived demand and the conditions necessary to meet it.

10. A statistical agency is a service agency, so its independence is related to methods and results, not to ultimate objectives. For this reason, we begin the discussion of organizational matters with the topic of relevance<sup>11</sup>. There is no question that the products of a statistical agency must be national in scope—that is to say, they must apply to all sectors of a nation's society and economy. But what does relevance mean? And what are the constraints, both physical and psychological, that limit any attempt to be “relevant”?

### 1.3. Relevance

11. Statistical agencies should continually look to improve their data systems to provide information that is accurate, timely, and relevant for changing public policy needs. A problem is, however, that policy interests may change at a faster pace than a statistical system can adapt. It takes little time for a concern to emerge; first as curiosity, next as a subject of discussion, and lastly as a matter of substantial importance to policy makers. The question of whether there was a “new economy,” not accounted for by conventional statisticians, first surfaced in the early nineties in the press and in popular literature. Within two or three years, this issue became a political priority in a number of advanced countries, and eventually called into question whether statisticians had correctly measured the GDP of their respective countries. If this concern had justified the creation of a new research programme, leading to the possible replacement of the current system of economic accounts and supporting basic data, it would have taken years if not decades for such a programme to yield useful measurements.

12. Another example concerns the service sector. It took two to three years for the issue of the service sector—its configuration, productivity, and quality of jobs it offered to become a serious political concern. But it took over a decade to formulate, accept, and institute the basic international classifications required to collect service sector data. Indeed, as late as the end of the nineties, most statistical agencies were still experimenting with operational frameworks that would enable them to deal in a meaningful way with the service sector.

13. From these two examples it follows that recognizing a problem takes far less time than deploying the necessary means to measure its extent, and making the measurement internationally comparable. Given this disparity, in a world of rapidly shifting priorities, a statistical agency striving to be instantly relevant could become systematically irrelevant in the sense of dealing with matters that once were at the top of the policy agenda but are no longer of such great importance.

14. There is little point in attempting to deal with concerns perceived as transient. By the time a programme devised to deal with them is implemented, the policy agenda will have changed

---

countries— Australia, Israel, New Zealand, Pakistan, and South Africa have similar broad formulations of the scope of the office.

<sup>10</sup> Statistics Canada, Strategic Overview, Ottawa 1989

<sup>11</sup> Some authors believe the term “relevance” is misplaced because it is obvious. They would prefer if the matter of relevance were discussed under the heading “priorities”.

several times over. In fact, when examining priority options, the statistical agency will have to sort out transient from more permanent concerns.

15. Once a priority is determined, it is difficult for a statistical agency to modify it as fast as policy agenda concerns appear to change. This is why it is crucial to exercise good judgment in setting priorities and to accurately foresee changes in policy direction. The chief statistician's planning involves four important elements:

- ❖ devising programmes that are sufficiently general to adapt easily (after a fashion) to small changes in policy direction
- ❖ building up a reserve and creating a state of preparedness such that unforeseen contingencies can be addressed without disturbing the regular functioning of the statistical agency<sup>12</sup>
- ❖ developing human resource policies designed to make the staff of statistical agencies adaptable and redeployable so as to track effectively changes in the agency's programmes
- ❖ sharing technical information and ideas with other statistical agencies. Such sharing can stimulate the development of innovative data collection, analysis, and dissemination methods

16. Ensuring these capabilities gives the statistical agency a great amount of leverage in its attempt to adapt to problems arising from shifts in priority.

17. In an environment of social turbulence, answering to a government using statistical information for planning and allocating resources, the chief statistician is advised to keep some flexible and adoptive capability. Also, he/she should avoid overly detailed, very specific surveys, keeping in mind that policies may change unexpectedly, rendering such surveys of doubtful applicability. In addition, there is no substitute for gaining advance information on issues troubling policy makers themselves, so that the statistician is aware of impending changes in the priorities of the policy agenda. No matter how small an office, the chief statistician must spend a significant proportion of his/her time in the company of senior government officials in order to gain the necessary awareness of impending changes.

18. But it is not sufficient to engage only the head of the agency. Awareness has to extend to the entire agency and this is why a considerable amount of space is devoted to this topic particularly in Chapter 3.

#### **1.4. Credibility**

19. A special circumstance affects statistics: the results of the activities of statistical agencies must be replicable to be believable, but realistically the user cannot replicate them. This is why a statistical agency must work hard to bolster credibility, and why there is such extreme sensitivity to any attack on credibility or to notions of a loss of public faith in the reliability of a statistical agency's output.

---

<sup>12</sup> The latest experience in a number of statistical agencies was to help find out the preparedness of the business sector to deal with the millennium bug in computer systems. Statistics Canada has kept in a state of preparedness a group of survey takers who can deal with a moderately difficult subject in a period of ninety days from start to finish, provided that the number of sampled businesses does not exceed some two thousand.

20. Statistical agencies must be extremely rigorous with respect to the standards that inputs must meet, methods of processing, and derivation of results, and must instil in their staff an ethos of quality on par with such rigorous high standards. In this way, the sense that what is produced is the result of quality inputs, as well as quality methods of production and control, is constantly reinforced.<sup>13</sup>

21. The need to inspire an ethos of quality, and to convince all users of the quality of adopted production processes, has a number of organizational consequences. For example, it is reassuring to users if periodically the methods adopted by a statistical agency are subject to an outside process of evaluation and the findings are made public and open to discussion. It is difficult to convey the notion of limited openness without giving the impression of patronizing the public. And yet, uncritical openness might end up having contrary effects to those expected. For example, no matter how high a quality involved in the compilation of the national accounts, there is an inevitable residue of estimation based on assumptions that may be plausible but are not necessarily backed by evidence. Conveying this bald fact to the public may give an impression of arbitrariness that in turn could bring the rest of the structure into disrepute. Any sophisticated analyst would know the limits to the effects of these assumptions in the light of the system of identities imposed by the accounting framework. How to convey this to the public in a manner that is not harmful is a matter for careful thought above all in an environment where open inspection of methods is actively encouraged.

22. The underlying issue in the discussion of credibility is how one part of the statistical system can obtain information from one preceding it in the production chain with complete faith that quality has not been compromised in the process. For this to be assured, there must be a subtle combination of subjective elements in place. The spirit of quality shared by the staff of the agency must never falter, and methods of inspection and control, of checks and balances, powerful enough to detect, correct, and prevent future avoidable errors must always be exercised.

23. In discussing credibility, there is the matter of statisticians interacting with respondents and ensuring that they provide the best possible answers to the questions that statistical agencies put to them. "Best possible" means that the required information should be made available to the official statistical agency without distortion caused by fear of subsequent use or by failure to comprehend survey questions, and without reluctance due to the agency's perceived disrespect for the respondents' time and privacy.

### **1.5. Respondent policy**

24. The objectives implied in the previous paragraph are easier to list than to achieve, and there is no single method to achieve them. All methods tried so far rely on a combination of four basic elements: legal instruments to force compliance or to dissuade disobedience; appeals to respondents' sense of morality to encourage cooperation; assurances that the information will not be misused; and increasingly incentives are being used in some countries.

25. An international survey of practices and opinions would likely reveal that the confidentiality of individual information is the greatest concern among respondents. Agencies that have not yet managed to persuade respondents that the information provided to a statistical agency is absolutely confidential cannot rely on the quality of the information they collect.

---

<sup>13</sup> Some statistical agencies (for example, the Australian Bureau of Statistics, Statistics Canada and Statistics New Zealand) go so far as to place their Quality Guidelines on their web site or on their Intranet.

26. In all likelihood, most statistical agencies would agree that the power given them by law to solicit information is of little use unless all sectors of society are willing to cooperate. Those offices that have made a strenuous effort to convince respondents that the information they provide is valuable, and that the time taken to provide statistical information is respected and appreciated, tend to be the ones with the highest response rates. It should be clear that low response rates are as much of a flaw in statistical work as is carelessness in the editing and dissemination of numbers.

27. Persuading respondents to part with information is a difficult task. (There is a detailed discussion of this matter in chapter 12). However, it may have a high rate of return in improving overall quality. In this connection, the national statistical office should be aware of the relationship between the marginal additional expense of improving cooperation and its impact on the overall quality of the resulting statistics. However, other factors must also be taken into consideration. For example, the rate of return on the marginal expense on improving editing might be higher than that on improving response rates.<sup>14</sup>

28. All offices must have a unit dedicated to interacting with respondents. That unit may be part of the office's field organization, or the matter may be of sufficient importance to justify a higher profile unit dealing exclusively with the matter of respondents policies. The objective of a respondents policy unit is to help raise response rates, and to ensure that respondents part with information willingly. The unit's staff must be equipped to answer questions about the use of the information, the care with which it is handled, and the general attitude of their agency. They must avoid the appearance of harassment and of heavy-handedness in quoting from the law but must be fair and consistent in the way they treat businesses and households. If there is a perceived crisis in respondents' relations, the chief statistician is advised to raise the matter to his level by placing in charge someone who has his confidence and who reports to as high a level in the organization as possible. Reporting directly to the chief statistician may be a good way of showing reluctant respondents the seriousness with which the agency views the matter.

### Conclusions

Statistical agencies are service organizations. Their reason for existing, growing, and making a visible contribution to the affairs of their government and society is rooted in their capacity to provide information for the solution of important issues. However, priorities can change more rapidly than the agency's capacity to modify its productive effort. For this reason, it is important that its senior officers have the intuition and contacts that allow them to detect serious problems and distinguish them from what may turn out to be no more than fads.

A strong position of independence is essential for a statistical organization to establish credibility among its users and to create a relationship of mutual respect and trust. Collecting, analysing, and disseminating statistical information should always be distinct from policy-making activities. The chief statistician should commit to impartiality when dealing with collection and release of information.

A statistical organization must assure the soundness of the statistical collection and compilation process, and its inner workings. For this soundness to be credible to the public, and inspiring to the staff of a statistical agency, a number of conditions are required:

- ❖ the process must be logically sound

<sup>14</sup> See Fellegi, I. P. and Sunter, A. B., (1973). "Balance Between Different Sources of Survey Errors" Bulletin of the International Statistical Institute, 39<sup>th</sup> Session of the ISI, Vienna.



- ❖ the machinery that produces it must be robust
- ❖ the descriptions of machinery and process must be open for inspection and the result of inspection amenable to public debate
- ❖ both process and machinery must have the capacity to grow and to adapt to new circumstances and a new environment

Unless a statistical agency is able to ensure that the information provided to it by respondents is absolutely confidential it will not be able to rely on the quality of information it collects and the credibility of the agency will be in danger.

## Chapter 2 THE STATISTICAL SYSTEM

### 2.1. Introduction

1. What is the statistical system? Who is at its head? What is the legal basis of the system? Who makes sure that the head of the system does the right thing? Who pays for the operation of the system? In this chapter we examine alternative institutional arrangements as an indication of possibilities rather than as suggestions for what is recommended. Clearly, institutional arrangements are divided into those that have worked well and those that have not, but the relative importance of the factors are country specific.

2. While appropriate organization of the national statistical service is necessary to achieve efficiency and effectiveness, other factors also contribute to its performance. Often, it is believed that problems of statistical policy can be solved by organizational rearrangements, when, in reality, their solution requires other means, such as capable and inspiring leadership, qualified staff, application of appropriate methods and techniques, and common sense and hard work. The needs for reorganization should be identified and satisfied; however, the effect of reorganization on improvements in statistics should not be overestimated.

3. No where in the world is there a country that has vested in a single institution the responsibility to collect all the official statistics of a nation. Rather, statistical systems exist on a continuum. At one end of the continuum stand those nations in which there exists a single institution that is responsible for most of the official statistics. Examples include Australia, Canada and Mexico. However, even on this end of the continuum some official statistics are the responsibility of others. These may be agricultural, labor or environmental statistics or statistical information based on taxes or civil registration and vital statistics. The country most representative of the other end of the continuum is probably the United States of America, which has numerous statistical agencies that are, for the most part, devoted to particular subject matters. When we speak of centralized or decentralized systems we are generally referring to those that are nearer the ends of this continuum.

4. We begin with a detailed analysis of the different types of statistical systems, addressed primarily to those who are still working through problems of status, organization, and relationship of their agency to the rest of government.

### 2.2. Structure of the statistical system

#### 2.2.1. Single institutions

5. The first version of the Handbook describes the single institution as one type of statistical system:

“...A system of this nature is typified by the establishment of one department within the government to organize and operate a scheme of co-ordinated social and economic [today we would have added *and environmental*] statistics pertaining to the whole country. This department collects, compiles and publishes statistical information ...and, in

addition, collaborates with other departments of government in the compilation of administrative and specialized statistics.”

*Handbook*<sup>15</sup>

6. The advantages it cites for this form of organization are respectively:

- ❖ concentration of specialized and scarce manpower in one centre
- ❖ co-ordination of programmes within one office
- ❖ concentration of scarce equipment and know how to operate it
- ❖ easy recognition of the institution that guarantees quality, impartiality, and freedom from political interference.

7. There is a more general formulation given to this kind of system in the first revision of the Handbook:

“...A national statistical service is centralized if the management and operations of the statistical programmes are predominantly the responsibility of a single autonomous government agency, headed by the country’s chief statistician. Centralization can include outposting of staff to other departments or the delegation of certain functions to geographically separate units, which, however remain subordinate to the central authority.”

*Handbook Rev. 1*<sup>16</sup>

8. The same handbook adds to the list of advantages mentioned above “...it is furthermore convenient and efficient for users to secure statistical materials in a variety of fields from a single source...[and] respondents to censuses and surveys find it convenient to deal with a single office, especially if they suspect duplication.” The text goes on to argue that a centralized organizational arrangement makes it easier to create customized tabulations, and cross cutting arrays of data sometimes necessitated by user concerns. The text adds that protection of “incoming” confidentiality as well as “outgoing” confidentiality is easier and more credible if conducted by a single rather than by several agencies. Finally the text concludes, “...it should be easier for such an office to maintain balance in the priorities assigned to different statistical fields, that is, to co-ordinate the entire service.” The subsequent discussion stresses the need for an integrated system of social and economic statistics; assuming that both systems have sufficient funding and capable leadership, this is more easily achieved if the co-ordination problems are internal rather than external.

9. Clearly, the circumstances that exist today are not the ones that existed when the Handbook Rev. 1 was developed. Some changes since then relate to:

- ❖ the availability of computing and printing equipment at relatively low cost and the wide diffusion of the necessary know how to operate it;
- ❖ the easier access to mathematical/statistical techniques and their availability in “canned” form for easier application to problems of estimation and formal data analysis

---

<sup>15</sup> Handbook of Statistical Organization, Studies in Methods, Series F No. 6, United Nations, New York pp. 11 et seq.

<sup>16</sup> Handbook of Statistical Organization, Studies in Methods, Series F, No. 28, United Nations, pp. 14 et seq.

- ❖ the introduction of advanced quantitative methods in the teaching of the social sciences
- ❖ the globalisation of curricula
- ❖ the advent of universal telecommunications, including worldwide access to and use of the Internet.
- ❖ the sophistication of use and of users has increased noticeably, implying that their demand for integrated statistics has also increased
- ❖ the pressure on public sector resources has increased greatly, despite the progressive relative cheapening of computing and data storage facilities
- ❖ increasingly, private sector enterprise carries out some functions<sup>17</sup> once associated exclusively with statistical agencies, centralized or otherwise
- ❖ the pressures to produce internationally comparable data have multiplied not only within new inter-country arrangements such as the European Union but also because of the greater number of Free Trade and Customs Union entities

10. Despite these changes in the environment, most of the advantages of centralization given in the Handbook Rev.1 are still valid.

11. Whether or not these changes, taken together in a national context, argue for a radical change in the institutional arrangements prevalent to date is something for each government to answer, fully aware of its own circumstances. However, today's environment has probably affirmed the following note of caution from *Handbook Rev. 1*:

“...amendments in the scope and range of activities within a national statistical service require specific high level policy decision by the central government and may even involve special legislation. Such a decision is not likely to be influenced entirely by the results of an objective analysis of the alternatives. Inevitably, past practices, interdepartmental rivalries, the structure and size of government, the impact of tradition and personalities and so on come into play. Moreover, when possible changes of the organization of a national statistical service are considered, short-run disruptions in service that may be induced by the change must be weighed against the long-run gains...”

### 2.2.2. More than one institution

12. There are two advantages that are usually given for decentralized systems. The first is that the statistical agency is close, both physically and intellectually to the subject matter policy office. In this case it may be more likely that the statistical agency will be responsive to policy needs and be aware of impending requirements. The second has to do with the chief statistician. As this Handbook points out the chief statistician is enormously important in defining the culture of the institution, and in providing intellectual and ethical leadership. In a decentralized system a poor choice for the head of one agency or institution will not directly affect the culture in the other agencies.

13. The first edition of the Handbook<sup>18</sup> distinguishes three types of decentralized systems:

---

<sup>17</sup> Examples that have come to light include printing and disseminating; document storage and retrieval; data entry; systems analysis; and collecting consumer prices.

<sup>18</sup> Op. cit. p. 10 et seq.

- ❖ a statistical system decentralized by subject with a co-ordinating authority.
- ❖ statistical systems decentralized by subject with no central control or co-ordination;
- ❖ statistical systems decentralized by subject with a minimum of control or co-ordination;

14. The first of these is to be avoided if at all possible. It is the product of historical accident and rapid, disorderly rise in demand for quantitative information by a handful of ministries and other government agencies.

15. The second type of system, in which there is effective coordination even though it is not mandated by law, provides contrast to a situation in which there are *de jure*, but not *de facto*, methods for bringing about coordination. This situation would arise in the case of indifferent leadership or if the system has become ineffectual as a result of inter-institutional jealousies and rivalries.

16. So far, the forms of decentralization that were discussed had to do with institutions outside the central statistical agency dealing with certain subject matter areas. An entirely different form of decentralization that exists in many countries, in various forms, is regional decentralization. This form of decentralization too, may imply certain coordination problems. Whether such decentralization is, on balance, efficient and effective depends very much on national circumstances. Often it is a function of either the size or the country or of the governmental (federal) structure.

17 There are two basic forms of such decentralization, but of course there are many national situations that are a mix of the two.

18 The first form is comprised of regional statistical offices, sometimes in two hierarchical layers (e.g. regions and districts), but totally controlled by the central statistical office. Such systems are sometimes called 'vertical'. In this form, the role of the regional offices is usually exclusively data collection as prescribed by the central office. Often, such a system has to do with the size of the country, in combination with developing communication systems. Coordination in such systems does not have to be a significant problem, provided the central office has sufficient resources for training and instruction of regional staff.

19 In some cases, the regional offices are not only responsible for data collection, but also have an important role to play as regional dissemination centres, e.g. in France and Canada. In the case of Australia, the regional offices act as *national* centres for certain areas of statistics. e.g. the office in Victoria (Melbourne) is responsible for the compilation and dissemination of statistics about the services sector of the entire country.

20 In the other form of regional decentralization, the regional offices are *not* directly or not exclusively controlled by the central office, but are part of the regional administration of the country. Often, this occurs in federal systems of government. A well-known example is Germany, where cooperation between the Federal Statistical Office and the statistical offices of the German State governments is largely based on a complex system of agreements about data collection, statistical standards etc. Switzerland is another example. Coordination in such systems need not be a major problem, but may be rather more difficult to achieve and require more effort than in

‘vertical’ systems. For example in Spain, the Autonomous Regions have their own statistical offices that are part of the Regional administration, but the statistical offices in the provinces that are part of the Autonomous Regions belong to the central system<sup>19</sup>.

### 2.2.3. Importance of a brand name recognition

“...A distinction must be made between legal status and status in the sense of an agency’s professional and administrative standing in the eyes of other government bodies and the public. It is in fact status in the latter sense that matters most for the external capability of a statistical agency or service.”

*Handbook Rev. 1,*<sup>20</sup>

21. Usually a stand alone statistical agency is recognized as an identifiable agency within the central government, its director reports to a minister or equivalent; generally it occupies its own building and in the eyes of the public its activities are attributed to the agency itself, rather than associated with the governing ministry or an equivalent governing body. Thus in countries where an Institute of Statistics compiles the CPI, the public would recognize that the CPI is compiled by the Institute of Statistics and not, for example, by the Ministry of Economic Affairs.

22. Being a recognizable agency within government goes with budgetary recognition<sup>21</sup>. This means that in the government accounts there will be one line mentioning the Institute and the corresponding appropriation. Virtually in all countries where the statistical system is of some size and there is a dominant agency, that agency stands alone whether or not it is called an “Institute”. In smaller countries though (and during the period preceding WWII) the examples of Directorates or Directorates General nested in a ministry are numerous.

#### *Brands and no brand statistics*

Recognizing quality in statistics and using them with trust are closely associated with the recognition of the agency that has compiled them. The more instinctive the recognition, the greater the chance of taking the information at face value because of the element of trust. But for recognition to be instinctive, the agency must be visible and its visibility increases if it stands on its own as part of central government.

<sup>19</sup> Neither version of the Handbook discusses a situation in which the Central Bank co-ordinates economic statistics because it compiles the national accounts and provides the means for most innovative statistical activities. However, because the Central Bank does not have the legitimacy of the central statistical agency when it comes to defining statistical standards, adopting questionnaires and nomenclatures, and discussing internationally with statistical counterparts, its capacity to co-ordinate is limited. We will consider this further in Section 2.3.7.

<sup>20</sup> P. 21.

<sup>21</sup> Some have argued that a budgetary recognition is a mixed blessing. At times it protects the statistical system from arbitrary reductions imposed by Ministers with different ideas about national priorities. As a simple directorate, unmentioned in the public accounts, a system may escape from excessive reductions at times when the budgetary trend is strongly on the downswing.

### 2.3. Coordination tools

23. Regardless of where on the continuum is the particular structure of a nation's statistical system some coordination will be necessary. Coordination is desirable for a variety of reasons, including:

- ❖ To create a national statistical system in which the outcomes of various data collections are comparable or can at least meaningfully be related to each other, harmonization of concepts, definitions, classifications and sampling frames is necessary.
- ❖ To avoid duplication of effort, as well as undue burdening of respondents, agreements about efficient and effective data collection are required, including the use of non-statistical government data files.
- ❖ To strengthen the position of and enhance the image of official statistics, coordination of dissemination methods and pricing is very useful.
- ❖ To represent a country's interests internationally, coordination of international policies is needed.

This section addresses effective coordination tools in both centralized and decentralized systems. We first address incentives and deterrents for effective co-ordination; issues on which co-ordination is required; tools that make co-ordination possible; and mechanisms that ensure the spread of information and monitor compliance. These mechanisms are applicable more or less to both systems. We then discuss some tools specific to decentralized systems.

#### 2.3.1. Incentives

24. If the various agencies in the system have the distinct view that they are better off by not being part of a co-coordinated system, it is unlikely that that co-ordination will succeed no matter how well legislated. Governments are wary of enforcing coordination with severe sanctions, and without these, only incentives are likely to work. With respect to data collection activities, there are, in fact objective reasons why a ministry may decide to continue operating its own statistical cell rather than assign the work that it has carried out in the past to the central statistical agency. Those reasons include:

- ❖ the view that users' demands can only be met accurately and on time if the work is handled within the ministry
- ❖ the impression that the central statistical agency does not possess the skills and knowledge required to do a good job, largely because the ministry is in charge of a very specialized area or because its infrastructure is better suited for the particular statistical activity<sup>22</sup>
- ❖ the view that the statistical work of the ministry is an offshoot of its administrative procedures and is therefore handled more efficiently than if taken over by third parties

---

<sup>22</sup> This happens very frequently with Ministries of Agriculture both because their concerns are specialized and because they may employ a network of extension agents who have the right training to undertake statistical fieldwork.

❖ the acknowledgement by the ministry that in any case its legislation prevents the sharing of information with other statistical agencies and that the effort to change the law would exceed the benefits derived from transferring from such sharing the responsibility

The incentives involved in taking part in a well co-ordinated system could include any of the following:

❖ sharing of information that would improve the ministry's capacity of statistical response, assuming it has the same attributes (classification, standards, coverage etc.) as the statistics produced centrally.

❖ access to statistical expertise which the statistical cell in the ministry might lack

❖ influence in determining priorities in all-purpose statistical initiatives such as the Census of Population or in relevant classification systems

❖ engaging in joint statistical activities so as to provide leverage to its own budget

25. Of course, the relative weight of any of these will vary over time, and according to the individual agency's stance on whether or not the prospects of coordination might be beneficial, given its programme, users, and budget. Chances are, it will not be moved by such abstractions as the benefit of an integrated system of social and economic statistics. It may not even be moved by the argument that its credibility with users will rise, as will the receptivity of respondents, once they are aware of the efforts made at avoiding duplication and simplifying requests. In the majority of situations, such gains will not be immediately evident. But a clear demonstration that the ministry's users feel better off if they are provided with a broader range of data may be the decisive factor.

### 2.3.2. Some useful mechanisms

26. Co-ordination will invariably result in the loss – real and perceived – of independence by those coordinated. For example, the avoidance of duplication could mean that a particular statistical cell may have to rely on the statistical or administrative work of others to find its information. It may find that it is no longer free to adapt standards and nomenclatures to its convenience but will have to settle for those adopted by the majority or imposed by the co-ordinating agency. Sooner or later, the proximity of the cell's practices and results to those of other statistical agencies will lead users to question their consistency, and eventually coordinated answers will be called for.

27. The most frequently seen coordination tools are nomenclatures and some combination of questionnaire and budgetary control. The application of these controls can be formal or informal, depending on tradition and an assessment of the most efficient way to ensure compliance. There may even be a law concerning the details of coordination. Matters are helped if there is a political decision or at least a decision made at the highest level of the civil service that the only legitimate standards of classification are those promulgated by the central statistical agency. In many countries, the statistical agency will act as a mediator between international organizations and domestic statistical agencies. The former are perceived to have the legitimacy and knowledge required to determine standard classifications.



28. In the case of questionnaires, and even administrative forms that request information to be used for statistical purposes, one way to ensure co-ordination is to create a logo or a visa indicating that the form has been inspected and approved by the relevant central body. It is important that in exercising control, the central statistical agency be seen as a facilitator, not as an impediment to initiatives. This is not easy. An inter-agency commission that approves data collection instruments; controls respondents' burden; and is not associated with any particular agency but is provided by the central statistical agency, might allow for the perception of the central statistical agency as a coordinating friend rather than as a controlling enemy.

29. In general, co-ordinating mechanisms tend to be in the form of committees, formal or informal, but in any case sufficiently manageable to meet regularly and reach decisions that the represented parties can put into practice.

30. For the work of these committees to be fruitful, they must have the power to approve forms certifying the use of certain nomenclatures used for statistical purposes; they require support from higher levels in the political hierarchy; and officials in each ministry or agency with a stake in the statistical system must demonstrate that they regard taking part in collective initiatives as a necessary duty.

31. The central statistical agency should remember that its concerns will seldom be the highest priorities for other departments and agencies. Accordingly, it should shoulder the burden of maintaining coordination. So long as it perseveres and takes its responsibilities as co-ordinator of the system seriously, thoughtfully, and in a spirit of co-operation, the central statistical agency can give cohesion to the system. If the statistical agency were to show the least bit of impatience or lack of interest, the other participants would take it as a signal that the coordination effort should be of little consequence to them.

### **2.3.3. National Statistics Council**

32. Co-ordination may be considerably helped where there is a National Statistics Council. Countries with no previous experience with such councils but convinced that their existence may be of help, should take advantage of any relevant opportunity that offers itself. For example, having a nationally visible, prestigious figure serve as chair on a sustained basis provides an opportunity to launch the council and give it substantive powers. The central statistical agency or the chief statistician should find an *ex-officio* role in the council, thereby strengthening the office's influence in discussions about co-ordination. The National Statistics Council will be discussed in detail in Session 2.5.

### **2.3.4. Coordinating budgets and standards**

33. A powerful budgetary tool to ensure co-ordination is to estimate a budget for total statistical activities and to give the co-ordinators the power to allocate it, with fairness regarding quality and response burden in mind. A co-ordinating agency armed with the power to make budgetary allocations will find it a good deal easier to impose standards, although it is clearly in the best interest of users and of the statistical system to integrate, rather than to maintain sets of non-comparable statistics

34. At any time, a legislator might ask the question, "How much does it cost to produce official statistics in my country?" This can be an ominous question for statisticians. Ignorant of the answer, a government in the process of making serious cutbacks may opt for a

disproportionate share to be allocated to the central statistical agency, oblivious to the fact that it may only carry a small portion of total statistical activity.

35. In certain countries, the answer is relatively straightforward. The cost for a few specialized activities must be added to the initial budget of the central statistical agency, and the result is the total amount committed to statistics. However, in many other countries the answer is difficult to provide with any degree of certainty. The majority of statistical activities are conducted in other Ministries and agencies, and in those cases where they are not explicitly noted in their department's financial statement, there is no reliable way of estimating their expenditures. Often a literal "guess" is required, particularly in cases where statistics are a by-product rather than the focus of a department's work. Since staff members, and particularly professional staff, will be engaged in a variety of overlapping activities, they certainly would not be able to accurately gauge the resources invested in statistics per se. While estimating expenditures gives a rough idea of the relative amount committed to statistics, it is unreliable in discerning year-to-year changes.

### **2.3.5. Placement of staff**

36. The tools of co-ordination mentioned so far exclude co-ordination through the placement and intermingling of staff. Managing government statisticians is an issue that is relevant in only a few countries. Essentially it entails placing in the hands of a capable authority, the chief statistician being the obvious choice, the power to certify that one is allowed to work in the public sector as a statistician. The system can have additional attributes. For example, the school or institute that trains statisticians may be attached to the statistical agency. If it is highly respected, it may find itself catering to private as well as to public sector needs. In those circumstances, the chief statistician becomes not only the effective head of public sector units conducting statistical work, but head of the statistical profession irrespective of where its members exercise their skills.

37. Where co-ordination is exercised through staff members that share the same training and professional leadership, many of the coordination tools mentioned may not be required. If the need for such devices does arise, they will be created more or less spontaneously, without the need of any great formality.

38. A number of agencies have implemented the regular exchange of staff as a means to expose staff members to a broader range of ideas and practices. If the central agency is the interlocutor with other countries' agencies, it will enhance its prestige and status and serve to foster the ability to coordinate. Even though this is practiced on a small scale, and involves relatively few countries, the idea is praiseworthy, as it strengthens the sense of international community. It can also be used as an incentive by a central statistical agency, particularly in the case of developing countries, if the exchange takes place between the agency and its peers abroad.

### **2.3.6. Coordination tools for a decentralized organization**

39. Previous paragraphs discussed different types of coordination tools that should be considered when the statistical system is a more centralized one. Clearly the more decentralized a system the more important coordination becomes. Many of the tools discussed in the last Section are also applicable to a decentralized one. However, experience shown that the most important tools that should be considered are the following. These coordinating functions may be executed by a separate body and not by one of the several statistics agencies.

- ❖ the ability to control or at least to significantly influence the budgets of the statistics agencies.

- ❖ the ability to control whether or not an agency is allowed to carry out a data collection activity.
- ❖ the ability to decide on nomenclatures for the statistical system.

40. Even if these three tools are employed there is one other important consideration. This has to do with the manner of the application of the tools. More specifically the application can be done in an informal manner or there may be a formal process. In the first place there may be an informal agreement between the several statistical agencies and the agency that is doing the coordinating (or a separate coordinating body) that the coordinating agency will have the authority to apply the tools above. In well-established statistical systems this informal application can indeed be very powerful. If there is a lengthy tradition behind the agreement the force to continue their use will be very powerful. In new or reasonably new systems, however, this may not be the case and a more powerful application mechanism may be needed. This is the formal mechanism. The weaker form of the formal approach is through the order of the Prime Minister or President and the stronger is through legislative action. While it may be difficult to affect either of these formal mechanisms once they are in place it will be clear what are the responsibilities of the members of the statistical system. The coordinating agency will also be in a much stronger position to apply these tools.

#### *Centralization vs. Decentralization*

The subject of centralization and decentralization is subject of intensive discussion in the statistical community. This box summarizes some of the most important issues related to this subject.

- ❖ the stronger the powers of co-ordination at the centre of the system the greater the chances of integrating statistics effectively
- ❖ integrated statistics (definitionally, conceptually, through the use of harmonized nomenclatures and classification devices) are immensely more powerful than statistics collected without harmonization.
- ❖ If the office in charge of co-ordination is backed by numbers, legal power to apply the tools of coordination, and a healthy budget its capacity to co-ordinate is correspondingly greater than that of an office bereft of these assets. See Section 2.3.6 above.
- ❖ in a system where the tools discussed in 2.3 are lacking, it is vital that the chief co-ordinator have status, access, and the capacity to offer career opportunities to intelligent, competent and motivated staff.
- ❖ physical proximity to policy analysts can be important to statisticians in determining the policy needs. However, examples exist of centralized systems, which have found ways to be responsive to the requirements of policy officials.
- ❖ the ability of centralized systems to create convincing career opportunities tends to increase with size. Small statistical institutes with a limited number of professional posts give the impression of limiting career prospects
- ❖ economies of scale give the chief statistician more flexibility in efficient management of his/her budget
- ❖ whatever the institutional arrangements, policy analysts and decision makers particularly in the more specialized activities must feel they can involve statisticians directly in their quest for more relevant and reliable quantitative information

Notwithstanding these arguments, Handbook Rev. 1 recognizes that the practical issue to address is that of “degree of centralization” about which it says:

There seems to be a consensus that one of the statistical institutes among the several responsible for the collection and dissemination of statistics, should "...be responsible for population censuses, household surveys, demographic statistics and a wide range of statistics including establishment and enterprise censuses and surveys, as well as prices and international trade, the national accounts and other across-the-board activities. There seems to be less of a consensus in regard to the social sphere – education, health, crime etc. – where statistics are based to a substantial degree on administrative records collected by other government departments..." Handbook Rev. 1, p.14.

### 2.3.7. The role of the Central Bank

41. The Statistical Commission noted at its Nineteenth Session in 1976:

"...many developing countries have experienced severe losses of professional staff in their central statistical organizations, thus reducing their contributions to planning and policy formulation processes. Those losses and the generally severe shortages of trained statistical personnel in those countries reflected in large part the disadvantaged position of the statistical services with respect to pay scales and related working conditions..."<sup>23</sup>

42. This situation has not changed. In fact the disparity between the working conditions of statistical agencies and Central Banks, for example, may be increasing. This Handbook is not the place to lobby for improvement in working conditions for the staff of statistical agencies. But many of the remarks about organization included in this book may seem superfluous so long as such serious imbalances persist.

43. Central banks have taken over a number of key statistical activities in countries where in spite of a longstanding tradition of statistical production the budget of the central government is no longer thought sufficient to support it.

44. When the macroeconomic statistics and the key economic indicators are in the hands of the Central Bank, the latter commissions basic statistics from the statistical agency. In addition, a number of Ministries have their own statistical budget and use it to compile special performance statistics.

45. Often there is no co-ordinating mechanism in this type of system, only the standards required by the system of national accounts and by the needs of the economic policy makers. While this situation may not be ideal with respect to the long-term development of the statistical system, it is nonetheless a workable model.

46. Existing imbalances in salary and working conditions between the Central Bank and the statistical agency may significantly limit the agency's capacity. In light of such difficulties, it is prudent to recognize the reality of the situation. Even if there are no legal provisions on which to base co-ordination, the statistical agency should work out a *de facto* arrangement with the head of the Central Bank's research department.

## 2.4. The chief statistician

### 2.4.1. Introduction

"...The external capability [of a statistical agency] is also much influenced by the status of the head of the statistical

---

<sup>23</sup> Official records of the Economic and Social Council, Sixty – second session, Supplement No. 2 (E/5910), para 138. Quoted in *Handbook Rev. 1*

service in relation to colleagues in the government hierarchy. There can be no doubt that the building of a robust statistical service is contingent on assigning top people to it. In view of the great national importance of many decisions which may be affected by statistics, it would appear to be in the national interest for the statistical service to have an equal opportunity to compete with other government departments for an outstanding individual of proven capability to be its leader and manager...He or she should be in a position to develop rapport with policy advisers of other government departments and to negotiate various proposals on statistics with authority and insight...He should have the same status as the top civil servant of a ministry.”<sup>24</sup>

*Handbook Rev. 1*

47. If there is an agency such that it can be called the central statistical agency, it is the head of that agency that is referred to here as the chief statistician. The chief statistician should be the highest authority in the government’s statistical system with respect to substantive statistical matters.

48. Not all national statistical systems have an obvious chief statistician<sup>25</sup>. In this section we pay attention to the matter of status and to the practices governing appointment and resignation; to matters of authority and competence; and to the underlying issue of qualifications.

#### **2.4.2. The chief statistician’s superiors**

49. The terms of reporting vary a great deal. By and large, in situations where the statistical agency is an independent agency the head reports to a minister. However, the terms of reporting vary a great deal among countries. In some cases, the minister is responsible for appointment and dismissal or requesting resignation of the chief statistician. In other cases, the chief statistician is appointed by Parliament and it is Parliament that delegates its supervisory functions to one of its members, naturally the minister to whom the responsibility for the central statistical agency is assigned<sup>26</sup>.

50. More crucial than the chief statistician’s formal superior is the official with whom the chief statistician interacts on a day-to-day basis or on key occasions. For example, there are statistical agencies that are located in the Prime Minister’s Office, but it does not follow that the chief statistician interacts regularly with the Prime Minister. In fact, because of the Prime Minister’s other concerns, the chief statistician may find that his/her regular liaison is of much lower rank than if the statistical agency were placed under the supervision of another minister.

51. There is a question relating to which minister should be placed in charge of the statistical agency (and if so with what power). The trade off is easy enough to understand. The more powerful the cabinet position of the minister in charge, the more the status of that position reflects in principle on the chief statistician. Other things being equal, more status accrues to the chief statistician if he reports directly to the Minister of Finance than to, say, the Minister of Communications.

52. The matter of reporting to a minister and the coherence between the minister’s portfolio and the service provided by the statistical agency have to be understood with a proper perspective.

---

<sup>24</sup> Handbook Rev. 1, p. 21

<sup>25</sup> In fact even when there is a centralized system, it may be difficult to assert who the chief statistician is because of the existence of coordinating boards.

<sup>26</sup> The designation “Minister” is short hand for a variety of cabinet officers. In certain cases it is the Head of Government who retains responsibility for the statistical agency. In some Latin American countries, it is the Vice-President.

A relationship between chief statistician and an elected politician is required because the former must be accountable and take political guidance. Neither of these constraints implies a loss of independence in the sense that in the end, it is the chief statistician who decides on methods, results, and their presentation.

53. Different benefits and drawbacks arise depending on the amount of influence (not personal, but rather formal) a minister possesses. A highly influential minister would have more of a hand in determining budgetary allocations. However, public credibility might be challenged (how would an important minister such as the Minister of Economic Affairs resist the temptation of putting pressure on the chief statistician to get more acceptable results for the Government or for the Party?) and the many claims on the minister's time would heavily affect his/her sense of priorities so that his/her interest in the statistical budget might be lukewarm. Conversely, a less influential minister in charge of a more neutral and less demanding portfolio – or even a Cabinet member without portfolio – might preserve credibility and prove to have more time and interest, but have less influence on the outcome of budgetary allocations.

54. In many developing countries, a relationship was cemented between the planning body and the statistical agency. The former, because of its nature extended its interest to virtually the entire output of the statistical agency and therefore was in a position to articulate its priorities in a balanced way. Where Ministries of Planning changed functions, were retired, or simply renamed, the links forged tended to be transferred to the economic portfolios that took over from the planning body.

### **2.4.3. The chief statistician's colleagues**

55. Perhaps the most important advantage of high status is that it affords the chief statistician greater access to key people in government, and others who influence public opinion, the economy, and so on. The critical definition is that of "user", which extends all the way from the senior official who proposes quantitative criteria for an assessment of the performance of the country's health system, to the junior professional who writes a paragraph on what the latest indicator of industrial production appears to suggest. In the structure of the statistical system, access to the latter may be useful, but access to the former is essential for the preservation of the agency's claim to relevance.

56. Accordingly, the chief statistician must have easy access to the highest official – the minister or, in many instances, someone just below the minister – in each of the major user departments. Such access, provided it is frequent and sustained, allows a chief statistician to make informed decisions about priorities and internal allocations of resources. Without it, the decision-making process could lack valuable insight, particularly during times of shifting priorities.

57. The chief statistician must preserve a delicate relationship, not only with potential users, but also with the suppliers of information contained in administrative records, for their degree of responsiveness has substantial effects on the success of a statistical program. Interaction with senior officials responsible for taxation, customs administration, social security and the like is fundamentally different from interaction with potential users. With users, the chief statistician inquires into concerns, priorities, and trends, with the distinct objective of providing a service. With suppliers of information, the chief statistician is vitally dependent on the goodwill of his/her counterparts, but can give little in return; hence the importance of high status with strong political support.

58. If the chief statistician is also the chief co-ordinator of the statistical system, his/her status must give him/her access to the principals of departments containing statistical cells and have regular meetings with managers of those cells.

59. In the case of federations, if the statistical system is to have a truly national character the chief statistician must have frequent, unfettered access to the relevant authorities in the federated entities and be recognized as the chief statistician or at least the *primus inter pares* by his/her regional peers.

60. Finally the chief statistician must also maintain a rapport with his/her peers abroad. Heads of statistical agencies, particularly the smaller ones, who cannot maintain a body of expert economists, sociologists, demographers and the like, should consult their peers frequently and informally about problems they share, and judge whether tested solutions abroad could be implemented at home. Once a fraternal atmosphere is created and maintained, these judgements can be made more easily. Maintaining these relationships has become incomparably easier with the relative cheapening of telecommunications and, above all, with the advent of the Internet. If new chief statisticians do not inherit this invaluable resource from their predecessors, it should be acquired immediately and fostered.

#### 2.4.4. Qualifications of the chief statistician

61. There are three aspects to this issue: Who should the chief statistician be? Who should do the appointment? How should the appointment process be conducted?

62. There are several attributes a chief statistician should possess. First, he/she should be a statistician, someone proficient in statistics, or someone with a profound understanding of statistics. Second, the chief statistician should be capable of running a large professional organization; and third, the chief statistician should understand and be sensitive to the wishes of users whose needs will likely have profound influence on the activities of his/her agency.

63. Usually, these attributes are seldom to be found with equal weight in one single person. Some chief statisticians are distinguished professionals (statisticians, quantitative economists, demographers, etc.) who bring to their post the knowledge, prestige, and wisdom they have acquired in the course of their careers. Others have demonstrated excellent managerial instincts by successfully directing public programmes, agencies, or private institutions, preferably with a strong professional bent. Still others bring the experience and the contacts that only long years in government can produce.

64. Obviously, the nominating authority will seek to maximize all three attributes, but it may have to make a choice at a very early stage. It may decide to select a chief statistician from within the statistical agency, or prefer to scout the outside world—it may seek the most suitable candidate in academic or research organizations in an attempt to emphasize the professional component of the ideal string of attributes, or else it may consider successful programme managers with the right disposition and academic background to assume leadership of a statistical agency.

#### Needed attributes change over time

As the needs of the statistical agency evolve, the weights of the various attributes desired in a chief statistician will vary. Clearly an agency that has run into trouble over personality conflicts or budgetary difficulties; appears

to be chronically late with its outputs; or has an amorphous programme of future activities; requires a leader with high-level managerial capacity. An agency that has allowed itself to be placed at the margin of governmental concerns or appears to be insensitive to the immediate needs of decision makers, might require a leader who knows the ins and outs of government. But once the perceived crisis has subsided, the requirements may change again.

65. A wise nominating authority demands that the chief statistician be highly independent. If it appears that the chief statistician has no mind of his/her own but rather is overly influenced by an interested party in government, the credibility of key economic indicators, and eventually of the entire statistical programme, is jeopardized.

66. The perception of personal and institutional independence is so important that the process of selection and appointment is given special attention, at least in some countries. For example, in countries that have a thriving professional society, government often seeks its advice before making the final choice.

#### **2.4.5. Term of office of the chief statistician**

67. The term of office of the chief statistician is just as crucial as that of nomination. There are three standard situations:

- ❖ the chief statistician's term of office is the same as the Executive's (this is the case with the chief statisticians in a number of Latin American countries)
- ❖ the chief statistician is appointed for a term of office that can be renewed<sup>27</sup> (this is the case with the New Zealand Statistician; the Commissioner, United States Bureau of Labor Statistics; and the Director, Office for National Statistics, UK; and appears to be an emerging trend)
- ❖ the chief statistician serves an unlimited term, which ends either with his/her resignation or removal from office (this is the case with the chief statistician of Canada)

68. The considerations at play are fairly obvious. Short spells of office interfere with continuity; statistical programmes tend to extend over significant periods of time. A series of chief statisticians would not share a common vision and programme commitment, and would therefore be unlikely to produce a consistent approach to statistical policy or predictably adapt to new circumstances. On the other hand, excessively long stays in office may produce stagnant programmes, lacking energy and innovation. While such a situation may keep the statistical agency out of potential conflicts, it may also create a public sector backwater with no appeal, an inert staff, and eventually reduced budgetary support.

69. These situations represent the two extremes. In designing laws or regulations and establishing standard practices, one must guard against the greater of the two evils. One would

---

<sup>27</sup> There are many variations on this practice. For example, there might be no chance for term renewal; only one renewal; or as many renewals as the nominating authority sees fit.



imagine that in all or at least most cases, there is a provision that authorizes the political official responsible for the statistical agency<sup>28</sup> to request the chief statistician's resignation.

70 It stands to reason that requesting a resignation is less likely to be necessary if the chief statistician serves a limited, rather than an open-ended, term.

71 The existence of an effective National Statistics Council is bound to have an effect, particularly in preventing arbitrary appointments and dismissals.

#### **2.4.6. Demanding resignation and threatening resignation**

72. Responsible ministers will be very reluctant to demand the resignations of chief statisticians for reasons other than clear incompetence. Refusal to disclose confidential information or to obscure or delay the presentation of a key result should never be a reason. Most governments will understand that credibility is an essential element of a functioning system of official statistics. If, for example, a government is elected on the basis of commitment to full employment, and in fact statistics show strongly decreasing unemployment numbers during its term, these statistics will only be important if there is no doubt about the trustworthiness of the statistical system and indeed the chief statistician. Moreover, the prospect that a chief statistician will publicly resign rather than compromise his/her integrity is a strong deterrent against such a request. Identifying confidential data and modifying data or its presentation are, as mentioned before, examples of such breaches of integrity.

73. Conversely, a chief statistician should not use his letter of resignation as a bargaining tool, except when the integrity of the office is threatened

#### **2.4.7. Authority of the chief statistician**

74. So far we have examined the chief statistician's surroundings – who appoints, from whom he/she takes orders, and those with whom he/she associates. We now turn to the authority of the chief statistician.

75. There are operative failures that the user community should not accept from any chief statistician. For example, it would be unacceptable if the CPI was published two months after the period of reference or if prescriptive comments were made about the adequacy of a particular Government policy. But it is acceptable for the chief statistician to advise that the extent of revision of quarterly or annual GDP cannot be cut down substantially with the current budget constraint. Likewise, the chief statistician can claim that if questions relating to ethnicity must be the object of a dedicated survey, the budget required must be increased. If the government lacks confidence in the chief statistician's professional assessment, it should request a resignation.

76. Assuming that the chief statistician's overall performance is acceptable, the government should not become overly involved in the internal affairs of the statistical office—for example, it is unacceptable for the government to suggest to the chief statistician that in presenting quarterly GDP only seasonally adjusted numbers should be shown, or that the measure of inflation should exclude food (this is quite different from asking for a CPI sub-aggregate that excludes food; the

---

<sup>28</sup> In certain countries this could be Parliament. In others, the Prime Minister, the Minister responsible, or even the top civil servant acting with the delegated authority of, for example, the Prime Minister

former suppresses information, whereas the latter is a modification of a standard presentation for the convenience of the analyst).

77. It follows that the chief statistician must have the legal basis, and would be expected, to put forward authoritatively his/her best interpretation of users' combined wishes; the characteristics (frequency, accuracy, timeliness, detail) with which he/she believes he/she can meet those wishes; the methods used to estimate; the burden imposed on the community; and the overall cost involved. He/she should not be second-guessed or hindered unless it is to show that the government has lost confidence. It is also understood that when the chief statistician announces his/her programme, all available resources will have been consulted.

78. In situations where in addition to being the head of the official statistical agency the chief statistician is also the chief co-ordinator of the statistical system, he/she should be in a position to speak as a co-ordinator (as *primus inter pares*). In this capacity the chief statistician should have the authority to commit the system to the use of certain standards and quality characteristics, as well as to address the social burden on behalf of all members of the system.

79. Finally, the chief statistician should be the spokesman for his/her country in matters involving international co-ordination and exchanges<sup>29</sup>; its representative in international meetings; the person who determines standards where they require revision or updating.

#### 2.4.8. Competence of the chief statistician

80. The detailed knowledge required to choose among different systems options for a Census of Population or for a survey of large and complex enterprises is what one might commonly associate with a specialist, not with a senior executive officer. Nevertheless, such knowledge is expected from the head of a statistical agency. In addition, the chief statistician will be confronted with matters dealing with health, education, ethnicity, aggregation bias, treatment of outliers, leads and lags in the foreign exchange market, assets held by private non banking residents and so on. On each of these subjects he/she will be expected to provide an authoritative opinion. Gaps in the chief statistician's expertise will diminish the professionalism that is one of his/her claims to independence.

81. For these reasons, the chief statistician requires above all the prudence to surround himself/herself with specialists who can propose comprehensible options and recommend those believed to be in line with the overall framework for which the chief statistician is responsible. In his/her debriefing on various options, the chief statistician must be a quick study at times, patient at others, and must always demonstrate an enormous capacity to listen.

82. In the last few years, considerable attention has been devoted to increasing the capabilities of chief statisticians through various forms of international co-operation. Without creating very intensive co-operative arrangements such as those that exist in the framework of the European Union, United Nations regional conferences appear to be growing in stature and a considerable

---

<sup>29</sup> Admittedly there may be a problem in situations where the head of the Research Department of the Central Bank happens to be the country's chief economic accountant, responsible for its national and government accounts, its balance of payments, and the measure of the country's international investment position. International cooperation with other chief national accountants may be conducted via the International Monetary Fund and involve a different cast of characters. The position of the Chief statistician on these matters will have to be clarified in a manner consonant with the importance and the dignity of the post. An unacceptable alternative would be to deal with two discrete compartments.

investment has been made in informal meetings on specialized subjects, albeit at levels lower than that of chief statistician. The primary impetus for these conferences is to facilitate access and promote the exchange of opinions on potential solutions to common problems.

## 2.5. The National Statistics Council

### 2.5.1. Oversight or advice

“...Irrespective of the degree of centralization of the national statistical service a national statistical council or commission, composed of representatives of the private sector, the universities and government, may be established either at the top of the external committee structure or independently of it..., a top-level co-ordinating council may serve as a guiding and protective device – but mainly as regards the solution of problems of a general nature. Whether the benefits derived justify the cost is likely to depend, to a large degree, on national circumstances, including the political situation...”

*Handbook Rev. 1,*<sup>30</sup>

83. This constitutes the only reference made in *Handbook Rev. 1* to councils as advisory or governing institutions. Since these words were written, the growing importance of such bodies and their introduction in areas where they did not already exist, has become a visible trend. Their roles vary<sup>31</sup> but it is possible to state the following, taking into consideration their formal mission and the responsibilities they have assumed as their relationship with the statistical agency and its senior officers has flourished:

- ❖ A national statistical council can be used for the defence of the statistical agency. It exists to protect the statistical agency from attacks to which it cannot properly reply due to restraints on public servants.
- ❖ The council can assume the role of guardian of fundamental values such as the protection of privacy.
- ❖ The council is the ultimate guarantor that within existing resources the statistical programme as defined by the chief statistician and instituted by his/her agency preserves the best possible balance among contending claimants for statistical attention – economic, environmental and social statistics; national and regional details; reliability and timeliness and so on;
- ❖ The council is the interlocutor a minister might choose if he/she wishes to have the professional opinion of the chief statistician validated by a group of impartial experts.
- ❖ The council is the body a minister could turn to for advice and succession management in the case of a disagreement with the chief statistician.
- ❖ The council’s proceedings would constitute a venue for registering opinions about the output of the statistical agency.

84. The combination of these roles is much too important for the study of a council to be left out of the Handbook. Since the various roles imply different relationships: to the chief statistician,

---

<sup>30</sup> Pp. 12 and 13

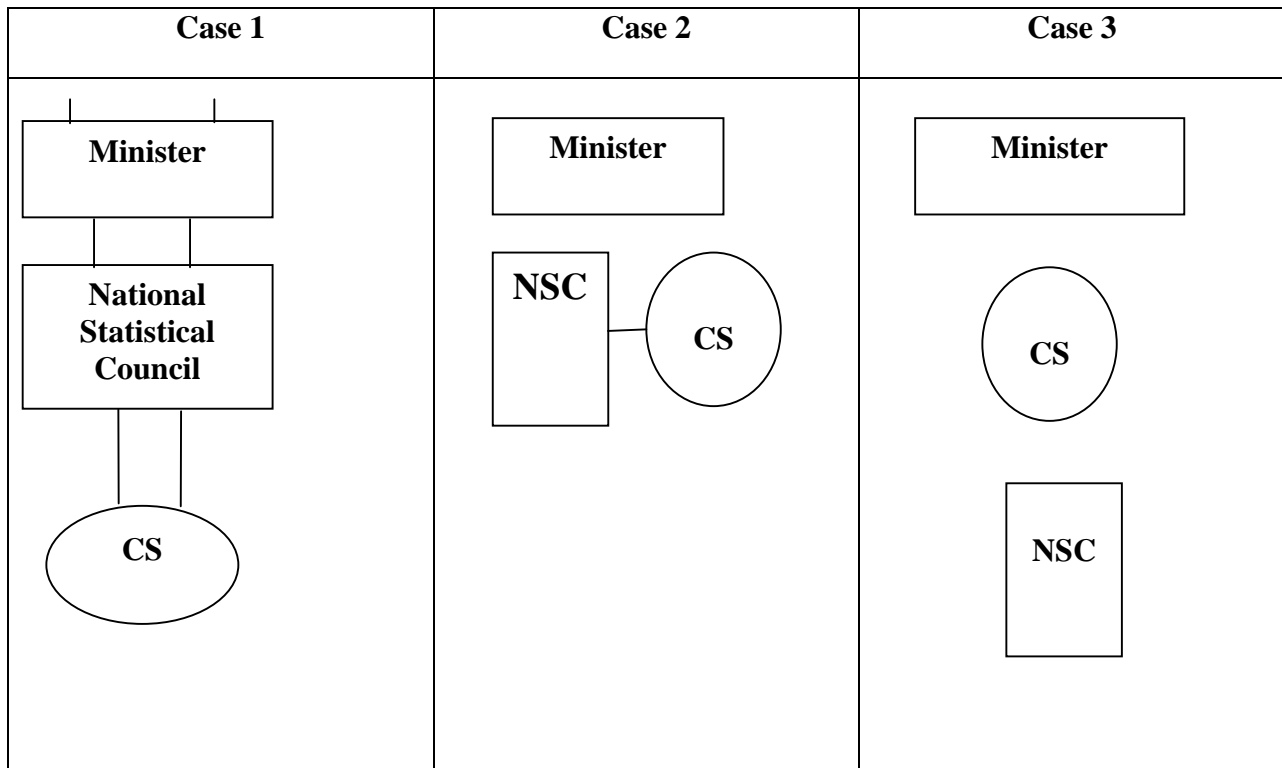
<sup>31</sup> The following though is an example of the constitution of a fairly typical advisory structure: “...An Advisory Committee will advise the Director on the statistical work of the Office, on annual corporate targets and on his responsibilities as Head of the Government Statistical service...” ONS, Framework Document, UK.

to the minister and to the public – we must also examine how the council may or indeed should be inserted in the top-level communications circuit.

85. The following schematic presentation summarizes a few of the possible basic relationships between a statistical agency and what is referred to in *Handbook Rev. 1* in a generic way as a “National Statistics Council”.

**Fig. 1**

*Illustration of three different sets of relationships between minister, National Statistics Council<sup>32</sup> and chief statistician*



**Legend**

<b>NSC</b>	National Statistics Council
<b>CS</b>	Chief statistician
<b>Minister</b>	Elected officer (generally cabinet officer) responsible for statistical agency

**Case 1**

86. In this case there is no formal contact between the head of the agency and his/her minister. The chief statistician answers to, and receives broad guidance from, the council, whereas the minister instructs, and is advised and reassured, by the council.

**Case 2**

<sup>32</sup> Even though the presiding body is indicated as National Statistics Council in all three cases, in fact its role – as suggested in the Handbook ranges all the way from a Board of Directors to that of an Advisory Board.

87. While the chief statistician takes direction from the minister<sup>33</sup>, the latter communicates with both the chief statistician and the council. It is also the minister who appoints the members of the council, and it is to him/her that they are ultimately accountable.

### Case 3

88. The chief statistician appoints the council, and while he/she is free to share the advice received with the minister, the chief statistician alone is ultimately accountable to the minister.

89. The texts of statistics acts of many countries are crowded with references to a statistical council or commission with real and imaginary powers. Often it is said that the council has either never met or has only had its initial ceremonial meeting. It is actually a loss of credibility to specify in detail what a council should do but not to be able to follow through with constituting it and seeing that it has documented meetings out of which is generated a flow of advice. It follows that in approaching this matter, the chief statistician (or his/her minister or both) should:

- ❖ choose from the available list which of the roles they feel are the most important in the medium term and which will therefore establish the powers assigned to the Council;
- ❖ identify those individuals who possess the knowledge and prestige to sit on the council; ensure their availability; and assess the likelihood of their being active and interested members;

### 2.5.2. Membership

90. The council's body of members should neither be too big, nor too small (probably somewhere between 10 and 40 members). Too small a council removes legitimacy, because some perspectives and points of view will not be represented. Too large a council will make meetings and debates unwieldy, difficult to schedule and to summarize, and altogether too costly. Clearly the scale will be a function of the usual variables: size of the country, size of the office, income per head, social interest in statistics, etc.

91. The members must be selected on the basis that a variety of opinion and perspective is sought, but by and large they must share an understanding and interest in quantitative analysis of the economy, of society, and of the environment. Thus, academics, business people, government officials, and the trade unions should be represented. In addition, active and permanent media participation is very important, the media are a mean of disseminating data to the public.

92. In large countries, countries with federal constitutions, and countries where there are distinct communities, the council should be a means of making sure that all parties have a voice. While the notion of a council representing diverse interests and opinions may seem contradictory to that of a council of manageable size, both factors must necessarily be taken into account.

---

<sup>33</sup> The Australian Bureau of Statistics Act (1975) has the Australian Statistics Advisory Council written into the Law. It specifies that the functions of the Council are to "...advise the Minister and the Statistician in relation to...(a) the improvement, extension and co-ordination of statistical series provided for public purposes in Australia; (b) annual and longer term priorities and programs of work that should be adopted in relation to major aspects of the provision of these statistical services..."

### 2.5.3. Chairmanship

93. The personality, range of acquaintances, interest, and availability of the council's chairman are key to the success of the enterprise. If no one is qualified to fill the position as the council is being launched, perhaps it is best to postpone the enterprise until someone with the right characteristics is found.

### 2.5.4. Secretariat

94. There are various schools of thought regarding the secretariat. According to one, the chief statistician is also the Secretary *ex officio* of the Council. This view fits with the provisions of Case 1. While the chief statistician would call meetings, propose the agenda (under the guidance of the Chairman), and draft minutes, he/she would be in a subordinate position, surrendering some of the powers normally associated with being chief executive officer to the chairman. This course of action is most appropriate to situations where there is a chairman of great renown and seniority willing to maintain a high level relationship with the statistical agency but not to work in it as a regular officer. But these are exceptional circumstances, and do not dictate a general rule.

95. The chief statistician may act as an *ex officio* member, taking active part in the discussions of the Council usually at the invitation of the Chairman, or he/she may act as any other member would, although the chief statistician would naturally possess more knowledge of the day-to-day activities of the statistical agency. This is a common situation, corresponding to the relationships illustrated in Case 3. This situation has the advantage that is more acceptable because the chief statistician does not surrender any of his/her prerogatives while at the same time being engaged with other members of the council in a continuing discussion on the agency's programme.

96. Another arrangement for the secretariat is that the secretary of the Council is a designated individual from the central statistical agency, who – as a rule- does this work on a part-time basis. In such a construction it is important that it is somehow (e.g. in legislation) made clear to whom the secretary reports; either to the (chair) of the Council or to the chief statistician).

97. In yet another arrangement, the chief statistician may only show up when invited, and then only to answer questions from members of the council. This is the obvious offshoot of Case 2, which is sometimes designed deliberately so that an actively involved minister would be presented with two distinct opinions on any one subject.

98. There are no assumptions about political interference with any of these systems. In all cases, things can go wrong, or alternatively everyone can behave according to the best of expectations. In some instances, the existence of a body placed in between the chief statistician and his/her minister may prove to be an essential insulator for the statistical agency. In others, ministers may try to politicise the council and use it as an additional body of influence on the behaviour of the statistical agency. In some instances, of the case 2 variety, a minister may try to dilute a hard view expressed by the chief statistician with a more nuance opinion arising from the deliberations of the council. In still other cases, a minister may find that his/her efforts are impeded by both the chief statistician and the Council. In summary, one cannot predict the action of these systems without placing them in their proper context.

### 2.5.5. Agenda

99. To avoid a dangerous confusion of roles and responsibilities, the chief statistician should exercise careful judgement when proposing an agenda for the council's discussions. For example, he/she should not involve the council in the micro-management of the statistical agency. Such matters as detailed costs of surveys, or improvement of the efficiency of projects at the operational level, should be handled within the statistical agency, without external interference.

100. But the agenda should include such matters as the council's view of the definition of unemployment; the worth of extending activities to the field of the environment at the expense of other statistical fields; or opinions on the most acceptable balance between quality and detail. If the chief statistician keeps on insisting that these are the issues on which he/she needs outside help, then he/she will not be overrun with superfluous advice, and over time, will see an improvement in the quality and value of the advice that either he/she or his/her minister receives from the council.

### 2.5.6. Frequency of meetings

101. The nature of the agenda will tend to dictate the frequency of meetings but a few words of caution are in order. If meetings are too frequent, most members will find them too onerous, and participation will probably lessen. If meetings occur too infrequently (for example, once every two years), the members will tend not to know each other and to have forgotten whatever they learned about the statistical agency during their induction. If the group of participants is relatively small – ten to fifteen – frequent meetings are easier to schedule, whereas with a larger body of members logistics get more complicated. Also, it is best to work with fixed schedules (for example, setting a fixed day of the week) so that meeting dates are predictable.

102. The reports should be publicly available, even if the subjects discussed are not the most engaging. Technology now makes it possible to publicize such reports at low cost. Placing on the agency's web site a copy of the agenda, a summary of the decisions made, and a list of actual participants, will help to demystify the work conducted by the statistical agency and the National Statistical Council.

### 2.5.7. Advisory committees<sup>34</sup>

103. In addition to the National Statistical Committee, it has been found in many countries to be useful to form advisory committees<sup>35</sup>. In theory, these advisory committees could meet regarding a multitude of matters, but in practice they are most often adept at dealing with technical issues. Thus, such committees tend to be specifically oriented toward key problems of measurement (e.g., replacing an outmoded way of measuring the flows into the labor market; estimating the productivity of sectors which have no priced output; dealing with the production of the informal sector; determining whether the CPI has a bias and so on). The difference between these committees and the ones described in the paragraphs below is that while their opinion is authoritative they seldom deal with issues that are key to the survival of the statistical agency.

<sup>34</sup> The use of the term Committee here should not be confused with the prevalent use of the word Committee in CIS countries to devote the central statistical agency.

<sup>35</sup> Sometimes such committees report to the statistical agency, in other cases to the Statistics Council. E.g. in The Netherlands the Central Commission for Statistics has about 25 standing advisory committees for a wide range of subject matter areas.



Whereas certain *ad hoc* committees or commissions are convened in response to a crisis, advisory committees of the nature described here are designed mostly to avoid crises rather than to manage them.

104. Many countries have more than one such committee. The number of advisory committees depends much on each country's capacity to support them; on the size of the community of experts sufficiently interested to take part in such discussions; and on the capacity of the agency to take notice of expert opinion and to institute recommendations where these are found to be appropriate. One benefit of such committees is that they help narrow the distance between academic and research statisticians on the one hand and practising government statisticians on the other, since many of the participants in such committees come from academic circles. Academic interest and participation in solving key problems of measurement narrows the gap between the two communities, and keeps official statisticians in close contact with intellectual advances that might contribute to their various branches of specialization.

105. Advisory committees have other advantages. If their membership includes interested government officials, they improve the sense of policy relevance of current statistics. If official data are criticized because of their conceptual or methodological inadequacy, advisory committees serve as sources of respected advice, as well as protection in the face of unfair criticism. Moreover, as additional friends of the statistical agency, they contribute to its reputation as well as to its capacity to reach out.

### **2.5.8. Ad hoc bodies**

106. The creation of an *ad hoc* body should be reserved for crisis situations. It would be pointless to convene an authoritative body chaired by someone with a great deal of prestige, whose opinion would have to be taken into consideration by government, if the problem under review were not of appropriate importance. For example, if users were concerned that calculation of the GDP accounts is biased or plainly wrong, the very essence of economic measurement would be affected. If not promptly addressed by a dispassionate group of experts at the highest level, such doubts could profoundly threaten the credibility of all economic figures published by the statistical agency. There are two general points to mention in relation to these advisory bodies:

- ❖ the membership needs to come from outside the central statistical agency
- ❖ the report relationship of advisory and ad hoc committees varies considerably among countries and depends upon the circumstances of each individual country

## **2.6. The law**

### **2.6.1. Introduction**

“...The subject of statistical legislation can be reduced to two major issues: the compulsory aspect, that is, the power the government asserts through the statistical agency to collect data; and the guarantees it provides for safeguarding the confidentiality of the information collected from individual respondents...”

*Handbook Rev. 1*<sup>36</sup>.

---

<sup>36</sup> Pp. 36 et seq

107. Laws regarding statistical agencies have largely similar connotations, though the wording may differ: The state (or the government, or the people's assembly etc.) grants certain rights to a body hereinafter designated as a statistical agency. This body's organic structure is explicitly laid out, including the requirements for the person at its head; the constraints under which it is supposed to operate; and the accountability that prevents it from abusing its rights or acting arbitrarily. The law dictates what the statistical agency is expected to do with the information respondents submit to it, and for which it is accountable. The community of respondents is asked to comply with the statistical agency's demands for information so long as they can be justified in the name of the objectives set by the law. In exchange for intrusion upon privacy rights, the statistical agency is required to safeguard respondents' information. If the agency breaks this commitment, its officers are subject to certain sanctions. If respondents do not comply, they too are subject to certain sanctions. While laws differ from each other in length, style, detail, and scope, if they do not cover the fundamental points outlined above, they are incomplete.

108. The *Handbook* includes an exhaustive list of subjects that may be covered by the law. Consulting the Handbook in this regard is worthwhile, partly as a matter of historical interest and partly because some heads of agency may still find it useful as a checklist if they entertain any wishes to get their own law changed. Appendix II contains a "model" statistical law.

### 2.6.2. Main Actors

109. Usually the law defines the main actors and their rights and accountabilities. In the case of the legal provisions for an official statistical activity, to be referred to as a *Statistics Act*, those actors are:

- ❖ the minister;
- ❖ the chief statistician;
- ❖ the statistical agency and its staff; and
- ❖ the agency responsible for the coordination of the statistical system
- ❖ the respondents.

110. The Statistics Act will also define a set of relationships with other bodies that could include:

- ❖ other government offices;
- ❖ international or supranational<sup>37</sup> institutions;
- ❖ professional societies; and
- ❖ trade and other associations incidental statistical activity.

111. And in the case of countries with Federal constitutions:

---

<sup>37</sup> In the case of European Union member countries, the law helps to define how their work is impacted by Council regulations, Directives, and Decisions.

- ❖ statistical agencies located in the governments of members of the federation; and
- ❖ other offices of governments of members of the federation.

### **2.6.3. The law: short or long**

112. The length of the law is initially a matter of taste, but its implications are real and subtle. A lengthy law stems from the desire to provide it with sufficient detail to avoid political arbitrariness once it has been implemented and is acted upon. For example, specifying in detail the membership of the co-ordinating agency or of the national Statistics Council guards against its manipulation for political favours or nepotism. But the more detail is added to the law, the less it is able to adjust to changing circumstances. Naturally, environmental changes and other unforeseen circumstances would then require legal changes; there is always great difficulty in finding political interest for modifications to a Statistics Act.

113. There are benefits to both cursory and detailed laws. In some situations, a very generally formulated law that gives a great deal of flexibility to the statistical agency has worked well. Conversely, lengthy and painstakingly detailed laws have afforded key actors a great deal of protection. Of course, there are drawbacks in both cases as well. What this suggests is that a workable compromise between these two considerations should be found and that the success of the lawmaker lies in getting the compromise right. Nothing concrete can be said on the subject in a generic way.

### **2.6.4. The law: deterrence and enforcement**

114. Legal power to demand response, accompanied by legal sanction for failure to respond, can do much to ensure high response rates that in turn are essential for the overall quality of statistics. But the matter is not as simple as that. In fact, the existence of legal powers to ensure compliance inherently serves as a formal deterrent. In most countries where such powers are well defined in law, the statistical agency has never used them or else has used them very, very occasionally.

115. Today the usual pattern is to operate a mixed system – tacitly or openly. There are various forms of mixing options. One is to regard all inquiries from enterprises as compulsory and the law may as well be unambiguous on this matter. At the same time, all surveys of persons or households are regarded as voluntary. Whether this is openly stated or only if challenged depends much on the political and legal environment and the way the public looks upon invasions of privacy. If there is an official protector of privacy – an ombudsman for example – the chief statistician may be unwilling to risk all household inquiries for the sake of a Pyrrhic victory in any one of them. For there is no known way of legally countering a campaign of civil disobedience in matters of statistical surveying.

116. Whatever the system, cooperative relations will play a preponderant role in explaining response rates. But the law may be a necessary condition upon which to build such relations.

### **2.6.5. Access to information protected by other laws**

117. It is best if the Statistics Act makes clear provision for the statistical agency's right of access to other government data holdings. This should be done partly in the interest of

streamlining government operations but, more importantly, to alleviate excessive paperwork on the part of respondents.

118. The right of access by the statistical agency to administrative holdings of information useful for statistical purposes should be explicitly recognized as an exception in the legislation that protects such holdings or in general, administrative registers. An ideal state of affairs is one of reciprocity, where the statistical legislation lays down the rights and conditions of access and the specific legislation that protects administrative holdings wherever they may be within government recognizes as an exception the right of access by the statistical agency for statistical purposes.

#### **2.6.6. Legal advice**

119. Even though the structure and content of a Statistics Act should be straightforward, a chief statistician should have access to legal advice, preferably a specialized legal adviser, expert in the interpretation of the Statistics Act and in the treatment of its various exceptions. The legal adviser will be of inordinate value in cases of conflict between the Statistics Act's provisions for rights of access and the formal restrictions embodied in other Acts.

#### **2.6.7 Special legal arrangements in decentralized systems**

120. In the case of decentralized systems, there is a need for the statistical act to apply to all the members of the statistical system. For example, if there is a statistical agency or a research department within the Central Bank, is its legal authority to collect data from other banks determined by the general authority of the Central Bank or by a specific law or regulation authorizing the responsible department to collect supplementary information for statistical purposes? If there are discrete statistical agencies in the Ministries of Transportation, Agriculture, Public Works, Interior and so on, what are their legal rights and restrictions in terms of collection, access to micro-data, and form in which individual records are stored and accessed? How does the central statistical agency decide whether the particular cell is or should be a bona fide member of the statistical system? In an ideal state of affairs the following are minimum legal provisions:

- ❖ all members of a statistical system should have a legal basis for their collection operations;
- ❖ all members should have provisions defining their legitimacy, accountability, obligation to hold individual information in trust, and sanctions if those obligations are not heeded;
- ❖ all members should recognize the form in which individual information can move from one to the other be shared for purposes of statistical integration and generally for effective analytical work;
- ❖ provisions acknowledging the need for, and definition of, statistical coordination, as well as guidelines on how it is carried out.

### **2.7. Financing the statistical system**

121. In this chapter we will look at finance from a general perspective: who should bear the financial burden of producing statistics? The subject was glossed over in the two previous versions of the Handbook, probably because it was felt that the issue was no major concern to the international statistical community. However, things have changed. It is now generally felt that adequate funding of statistics is a key issue in sustained statistical capacity building across the

globe. Of course, there will always be debate on what ‘adequate’ means and even in developed countries there are ongoing budgetary pressures that make priority setting in statistical programmes an everyday fact of life. Nevertheless, few will argue that, in general terms, the funding of statistics in developed countries is inadequate. The situation is entirely different, on the other hand, in developing and so-called ‘transition’ countries.

122. On a philosophical level, there has been some discussion on the financial burden and proper allocation of the cost of official statistics. Basically, there are two polar views (and of course a wide range of practices that mix the two extremes):

- ❖ Government pays for information which is either needed for decision making, is a public good or is needed to inform the electorate and provides this information free of charge to the public (or at most at the marginal cost of dissemination), or
- ❖ Information should be collected (and paid for by the government) primarily because government needs it for its own business and the costs of collecting, processing and disseminating any other information should be borne by the user.

123. Something of a watershed in this discussion has been the Rainer Report<sup>38</sup> in the United Kingdom, but it should be noted that the latter view (which is the gist of this report) has since fallen out of favour, because it is incompatible with the principles of political transparency and accountability<sup>39</sup>. However, some other views of the Rainer Report have since been adopted by some offices, for example that the introduction of payments between departments is one mechanism for improving the allocation of resources. It should be recognized that these discussions are mostly relevant for countries where the use of statistics is firmly anchored in tradition, where the community of quantitative analysis both in and outside the government is considerable, where political decisions are largely evidence based and statistics are an integral part of this evidence and where allocation of funds and transfers among parts of the community are driven by statistical measures.

### 2.7.1. Sources of finance

124. On a more practical level it is useful, first of all, to look at the two main sources for the financing of official statistics, which are:

- ❖ Appropriations through the government budget, both for the central statistical agency (if there is any) and for ‘statistical cells’ in ministries.
- ❖ Revenue that statistical offices generate by selling products and services at market prices.

---

<sup>38</sup> Report to the Prime Minister by Sir Derek Rayner, London 1980. See also “Government Statistical Services”, a Report to Parliament, London, 1981, p.15.

<sup>39</sup> In addition to the Rayner report there are a number of other important reports that include an examination of how statistical systems work in a number of countries. For example, the Moser Reports for Canada and Italy; the Bonnen report for the United States; the scrutiny report of the UK 1990, the GAO report on the US national accounts. While the objectives and scope of these reports are very different, even a superficial review of their contents is an invaluable source of information on comparative organizational techniques. See bibliographic references at the end of the Handbook.

125. Overwhelmingly, the first source is far more important than the second. Few statistical offices generate more than 10-20% of their ‘income’ from sales. In addition, in quite a few countries, the revenue that statistical offices generate, cannot be used for their own operations, but goes directly to the Treasury.

126. Some of the main financing issues that are on today’s agenda are:

- ❖ What information is placed in the public domain free of charge or at the marginal cost of dissemination and what information will be provide at a cost?
- ❖ If information is provided at a cost, what should the charges be based on? How does an agency guard against abusing its monopoly powers?
- ❖ Should charges apply to intra-governmental purchases/sales of special information?

127. These questions have been complicated by the fact that conventional publications are no longer the main vehicle for the dissemination of statistics, but rather the CD-ROM or indeed the statistical agency’s web site on the Internet.

### 2.7.2. Financing through government budgets

128. The process of securing sufficient government funding for statistical organizations may on the one hand be very country specific, on the other hand there are many similarities in the procedures that are actually followed. First of all, it is important that funding is based on clear, systematic, transparent multi-annual and annual work programs. In some countries, particularly in developing and transition countries, it is also important that a long term ‘masterplan’<sup>40</sup> is developed and promulgated in the appropriate government circles. Secondly, it is of course vital that the statistical agency (or agencies) mobilises sufficient political support from their user community. A Statistics Council may also be an important instrument to achieve such support. Thirdly, it is very helpful to secure funding if the statistical agency is seen as a well-managed organization that is proficient in planning, cost-accounting and in producing clear management reports that show progress, income and expenditure, under- and overspending etc.

### 2.7.3. Market Pricing of goods and services

129. There are several considerations in favour of allowing a statistical agency to supplement its budget by the sale of goods and services at market prices.

*Two key definitions:*

- ❖ **Goods**, or “information products” are self-contained arrays of quantitative information, with or without interpretation, which can be stored for future retrieval. The medium in which these arrays are recorded is immaterial. Thus, examples of “goods” include a Yearbook of National Accounts; a CD-ROM with the Standard Industrial Classification; and tables on exports and imports by commodity groupings downloadable from a web site.
- ❖ **Services** are activities carried out by the statistical agency to create a statistical information product. Examples of “services” include providing an algorithm for the selection of a sample of small businesses from a shared register; testing whether a particular table contains residual disclosure; and testing whether a time

<sup>40</sup> In the cooperation programmes of the European Union, such a ‘masterplan’ is usually called MISP, Multi-annual Integrated Statistical Programme.

series meets a set of conditions that makes it eligible for seasonal adjustment.

130. First of all, this gives some assurance that the entire community is not funding a specialized commodity that is only of interest to a select number of users. Secondly, by allowing statistical agencies to keep the proceeds of its sales of services, one ensures that unused capacity is taken advantage of which is preferable to leaving it unused and having the user organization develop its own survey capacity, with all the duplication of efforts this could represent. Thirdly, it may promote a user-oriented culture in statistical organizations.

### Conclusions

An examination of the classification of statistical systems favours the creation of a stand-alone Institute or Bureau. It is better to attach a recognizable name to the production of official statistics than to disseminate them anonymously or too discreetly. In recent years, budgetary problems affecting central governments have necessitated structures in which the effective co-ordinating power lies in the hands of research departments of Central Banks.

There is no question that concentration and critical mass provide opportunities and means of action that dispersion or fragmentation hinder. Even so, the expense and legal impediments related to the process (as distinct from the state) of centralization may be such that its feasibility is improbable. In those cases where the head of a central statistical agency is thwarted in his/her attempts to reduce the fragmentation of the system, but wants to get the most from co-ordination, there are several tools, all of which can be tried in some degree. They include in addition to mobilizing political support:

- ❖ the creation of a National Statistical Council
- ❖ the co-ordination of budgetary allocations for statistical activities
- ❖ the management of the corps of statisticians in the public sector
- ❖ the international exchange of staff
- ❖ data collection approval
- ❖ international standards

Strong leadership is key to the effective performance of a modern statistical agency. In order to attract good leadership, the job must have the right status. chief statisticians must demonstrate their objectivity and impartiality by acting independently of political controversy, but at the same time must maintain close contact with their peers in other Ministries. chief statisticians must display a rare combination of professional and managerial talents, although the proportions of each will vary according to the objective situation. Governments must not appear to be frivolous or arbitrary in demanding that the chief statistician resign if need arises, but they must not allow the continuation of a state of affairs in which energy and inventiveness have long been exhausted. Lastly, the capacity of a chief statistician can be augmented through intensive contacts with his/her peers abroad.

Securing stable (and in the case of developing countries: increased) financing for statistics is an important responsibility for the chief statistician. To obtain political support for stable finances, setting up sound planning instruments (such as annual and long-term work programmes) are helpful, as well as promoting the image of statistical offices as well-managed organizations.

### Chapter 3 USERS AND THEIR NEEDS

“We need statistics not only for explaining things but also in order to know precisely what there is to explain.”

**J. A. Schumpeter<sup>41</sup>**

“...Statistics is the area of political science dealing with the collection, classification, and discussion of numerical facts relating to the condition of a State or community. “

**Oxford English Dictionary**

1. Statistics are compiled to answer questions and, at times, to allow questions to be formulated with sufficient precision. Some inquiries are developed once and made continually (e.g., how many people who sought work this month were unsuccessful?). Other questions are asked less frequently (e.g., how many ton/miles can the railways system deliver per week?). Some questions are modified as the underlying reasons for asking them are modified by technological advances or the shifting relationship between the public and private sectors. Some questions still have not been answered (e.g., is the apparent slowdown in productivity increases merely a consequence of measurement problems or is it real?). By and large, statistical agencies are accustomed to converting a general question into one to which practicable answer can be found.
2. Statistical agency should strive for the organization that is most likely to produce an adequate statistical programme within the constraints of its budget, the capability of its staff, and the intrinsic difficulty of the questions with which it is faced.
3. It is not only the demand side that is susceptible to external change. Technological changes may affect the ways in which statistical agencies are organized and, consequently, the way in which statistical information is collected and supplied. Advances in telecommunications and computer technology have vastly increased statistical agencies' scope and power in processing raw information. Taken in conjunction, these two developments constitute a reason why geographically decentralized field operations may not be needed much longer.<sup>42</sup> On the other hand, a geographically decentralized field operation may become a useful extension of the statistical agency's dissemination facilities, in addition to its traditional functions.
4. There are other technological changes that determine a statistical agency's constraints. Business organization is shifting rapidly from pan-national to pan-regional, or even pan-global, modes. Communications and transportation technologies facilitate tight control and informed decision-making, which can be maintained irrespective of the geographic span of the business. However, the legal basis of a statistical agency is still very much bound by political frontiers; it cannot act beyond its borders, regardless of the extent of its legitimacy at home and the importance of the information it solicits to its government constituents.

---

<sup>41</sup> History of Economic Analysis, Allen and Unwin, London 1955, p.14.

<sup>42</sup> Precisely how much longer they will be required will of course vary from country to country. But given the speed of diffusion of modern telecommunications and computer technology, even those countries with lower per capita income should be able to apply these technologies to their field operations in the not-too-distant future.



5. Changes in environment, equipment, and expertise create new needs, which dictate changes in the agenda, policies, and organizational structures of statistical agencies. In the following paragraphs we examine some of the typical features of the demand for statistical products by various constituencies.

### 3.1. The needs of government

#### 3.1.1. Introduction

6. By its very nature, statistics is of special interest to governments. In addition, official statistical agencies are largely financed by central government, though there are exceptions. For example, there are instances in which the government's contribution to the statistical agency's budget is supplemented by the proceeds of sales of goods and services to all users, including the private sector. There are also instances in which statistics compiled by private sector research agencies over a long period of time acquire a semi-official status. But in the majority of countries, the largest proportion of the budget is supplied by the national Treasury, aided at times by grants from international agencies.

7. As the source of financing, the government may try to exert leverage on the activities of the statistical agency. Where it helps determine priority activities, this leverage can be constructive. Conversely, where it attempts to delay the release of a vital number, tries to modify a number, or defies a change in definitions or methods, the leverage may be pernicious. We have already seen why the latter activities are harmful. In this chapter, we will examine constructive activities.

8. The needs of government, like most needs of potential users, are usually not expressed in terms that lend themselves to instant data collection. They are divided into two categories: needs that call for regular observations of the same variable and needs that require information collected on an *ad hoc* basis. Examples of the former include the need to know how average consumer prices change from one week, month, or quarter to the next, so as to maintain a current perspective on inflationary pressures; the need to determine the relationship between receipts and payments from and to abroad in case the Treasury runs out of foreign assets; and the need to know the expected annual school enrolment by small area within particular regions, in order to ensure that class space and teacher supply meet the demand. These needs are met by the regular publication of statistics with known and describable properties: the Consumer Price Index, the balance with the rest of the world on goods and services, and the population projections by gender, age, and area. In the majority of countries, there are intermediaries<sup>43</sup> who interpret the current statistics in light of those compiled earlier and inform decision-makers about changes that may require attention.

9. In cases in which the government requires *ad hoc* statistical information to explain the roots of a particular problem, the situation becomes complicated when there are no measurement conventions geared to the nature of the problem and the expected answers. Examples of such problems include whether the scale of evasion of value added tax collected appears to be growing; the size of the underground economy; whether the current policy on incarceration makes best use of resources to meet stated objectives; and whether current pay scales discriminate against women. In such cases, the very nature of the evidence may be open to interpretation and

---

<sup>43</sup> For a discussion of where those intermediaries should be located (within or outside the statistical agency) see Chapter 10.

discussion. Clearly, translating users' information needs into the data collection or rearrangement that will eventually take place is a complicated process.

10. Some problems persist irrespective of time, place, and method of government or structure of political system. "How many people are there of military age?" was a popular question even two thousand years ago. "What gross tonnage is available to feed the inhabitants of the British Isles?" has had a fairly long tradition and was until recently a matter of concern to many cabinet ministers in the UK. Other problems are entirely new and are the result of technological innovation and of the changes in the way economic agents organize themselves in response to new techniques. They too exert pressures on statistical agencies, not only for the compilation of new information but eventually for the reorganization of basic data as well.

### 3.1.2. Ministries of Finance

11. The needs of Ministries of Finance are longstanding, even though the form in which data must be presented changes in step with advances in economics and accounting. Their needs range from measuring the wealth of the country to balancing the state ledgers and setting aside resources for future generations.

12. A Ministry of Finance attempts to ascertain whether imbalances exist between uses and applications of resources, and what impact those imbalances can have. Of particular interest are those imbalances that affect the labor market—i.e., they raise questions about how much is required from labor to maintain the current production level.

13. A Ministry of Finance must know how changes in quantities and prices interact to change value. By and large, a Ministry of Finance is more interested in statistics that relate to rapidly changing variables—e.g., the demand, rather than the supply, side of the overall balance. For this reason, its questions tend to be clustered around the behaviour of the major demand aggregates: consumers, the confidence with which they behave in the marketplace, and the portion of their incomes they are prone to save; investors and the structures and equipment they wish to acquire; businesses abroad and the willingness they display to purchase nationally produced goods and services. Other Ministries are more interested in looking into the supply side of the balance.

### 3.1.3. Other Ministries

14. These are the so-called vertical Ministries (Agriculture, Mines, Energy, Transportation, and Communications are the most frequently encountered examples), and they need to know the size of their respective constituencies. In addition to some core information about production and its structure, such as employment and rates of return on capital invested, each ministry has a unique set of interests relevant to its sector. For example, the Ministry of Agriculture tends to be particularly concerned with improving crop production forecasts and the environmental effects of herbicides and fungicides; the Ministry of Transport, with road safety, the condition of the rolling stock, and the adequacy of airports; and so on. At times the special interests of these Ministries precipitate detailed regulation of their respective sectors<sup>44</sup>. This certainly has been the case in a number of countries with both road and air transportation, although in the last ten to twenty years, the motto of some of these Ministries has been "deregulation"<sup>45</sup>.

<sup>44</sup> In regulated sectors, the forms used to ensure compliance frequently are, or can be, used for statistical purposes.

<sup>45</sup> Deregulation may have been good for free enterprise, but it posed a dilemma for statistical agencies. Some

15. Ministries of Energy became very important in recent years and are to be found in both producer countries and in dependent user countries. Essentially, their concerns are met if the statistical agency succeeds in compiling a current balance of energy supply and demand that allows substitutions, shortfalls, import requirements, and so on to be detected. The ministry will seek to ensure that the country's endowments are not depleted too rapidly; that prospecting and drilling take place in an orderly environment; that fuel substitutions are based on the correct rates of exchange; etcetera. As in previous cases, this is a ministry that not only wishes to keep abreast of the size and resources of its constituency but also requires specialized information of the kind that only specialists would possess.

16. Ministries of Labor are known by a variety of names- (e.g., Employment or Human Resources), and their interests include the condition of the labor force; the facility with which it can take part in gainful occupations; whether the workforce is equitably remunerated; whether the work-place is safe and equipped with appropriate training facilities for employees whose skills are no longer needed and for those whose skills are in short supply relative to emerging demand; and whether there are barriers to geographic mobility where geographic, rather than overall, imbalances in demand and supply exist.

17. Examples of cross-cutting ministries (or, in some cases, parts of Ministries) are Sports, Culture, and Tourism. Their primary interest is sizing up the sector for whose promotion (or regulation) they are responsible and determining its unique characteristics so that promotional resources can be efficiently assigned.

18. Health and Education tend to be the largest of the service Ministries and their portfolios cover both the public and the private sectors. Licensing and/or regulating are onerous parts of the ministerial chores that demand a great deal of detailed quantitative information; moreover, they serve as typical cases of the authority of the central government dovetailing with that of municipal authorities<sup>46</sup>. Since these Ministries assume regulatory duties, a wealth of detailed information is generated as a result of their administrative processes. The information requirements of these Ministries have become increasingly dominated by the notion of effectiveness, which requires measuring the outcomes of their policies and actions. Administrative records are insufficient to measure outcomes. So, questions about effectiveness lead to demands for supplementing administrative records with independently generated statistical information within an analytical framework.

19. Because government is responsible for an overwhelming share of the provision of health and education services in many countries, questions arise regarding efficiency and public accountability. Examples of such questions include: How much does it cost society to provide free schooling for all children up to the age of 15? How are the costs recouped? Are the physical facilities adequate or is there inequity in the provision of the service? Do the teacher-student ratios ensure effective use of the resources assigned to education? Are they likely to continue doing so in light of the age of the workforce and the growth in population? Are there enough teacher training facilities to guarantee the maintenance of the current teacher-student ratios? And the most

---

statistical agencies relied on the regulatory information requirements of these Ministries, finding all the information they needed in the specialized Ministries' administrative records. Not only did deregulation put an end to this state of affairs but in many instances the Ministerial authorities passed new legislation, asserting that henceforth the paperwork burden they imposed would be drastically diminished. These promises compounded the problem created by the absence of administrative records. A few countries still have not found a way to improve this situation.

<sup>46</sup> Or, in federal countries, with regional, provincial, or state powers.

important question to which decisive answers have not yet been found: Is the marginal public investment in health (education, science, etcetera), in light of the observed outcomes, commensurate with the expected return?

20. Similar questions arise in the health sector. Are marginal expenditures on additional hospital beds more effective than expenditures on improved home care if the objective is to minimize pain? In general, statistical agencies must resist the temptation to compile information that is understandable and amenable to a count but uninteresting from the point of view of the policy- and decision-makers. Rather, they must devise methods and techniques that will allow them to tackle the more difficult problem of measuring outcomes (in the case of health, education, and science, there is no designated length for the period of observation before an outcome can be assessed).

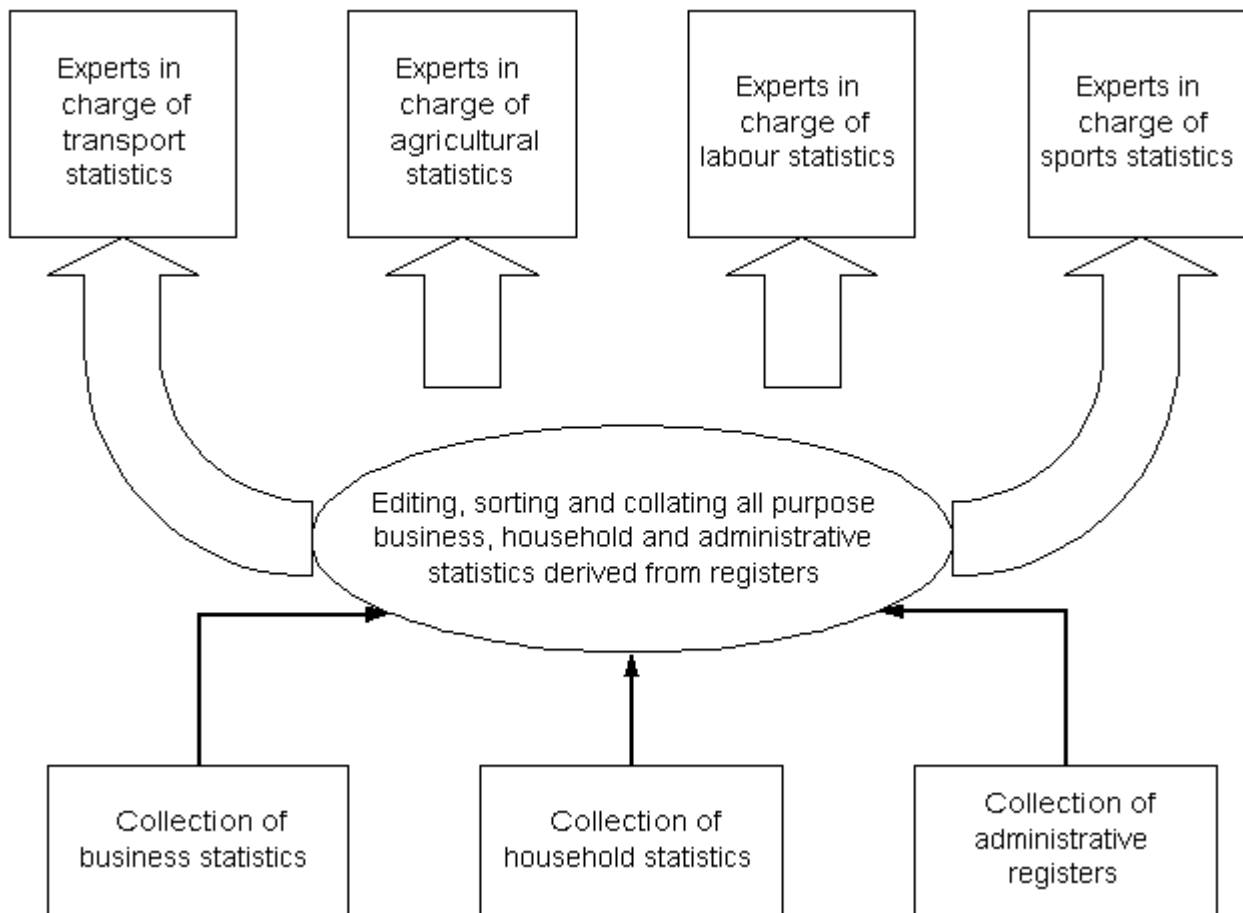
21. If it becomes clear to all that the question of effectiveness drives the need for information—and taking into account the difficulties in measuring effectiveness without making very controversial assumptions—the national statistical office should establish a close partnership with health economists, school administrators, criminologists, and natural scientists. Such a partnership should be designed to help clarify the limits of the information available in these domains and the possible progress that a statistical agency can make.

#### **3.1.4. Organizing and establishing contacts**

22. There is a core of general information that is of great interest to each of the sectoral economic Ministries, however small their portfolios. That core contrasts with a number of specialized questions that are more efficiently answered by specialists. A statistical agency should ensure that the most efficient arrangements are in place to gather core information and that Ministries have access to specialists so that dialogue on what is of particular interest to the ministry may proceed unhindered by ignorance of the subject under discussion (see Figure 2).

Fig. 2

*Schematic representation of a statistical agency organized to collect, process, and disseminate data in selected specialized fields*



23. An essential point is how to be sufficiently linked to the policy analysts in the specialized Ministries to (a) foresee what kinds of problems are likely to arise several years from now; (b) foresee which part of the current demand already met by *ad hoc* information from the statistical agency is likely to become a fixture in the near future; (c) conduct an dialogue with the relevant ministry experts; and (d) supplement all-purpose statistics with more specialized information.

24. The diagram is general enough to suit both a decentralized and a centralized system. In the case of the former, each “expert” box might correspond to a statistical cell (or bureau) in a separate ministry. Moreover, each of those cells might carry out its activities in any one of four possible ways: by having its own collection capability; by commissioning the central statistical agency to carry out the collection on its behalf; by adding statistical requirements to the ministry’s collection of administrative records and separating the statistical from the general information when the records are collected; and by contracting a third party to take charge of the collection operations.<sup>47</sup>

25. In the case of a centralized system, each of the “expert” boxes corresponds to an

<sup>47</sup> The underlying assumption is that the statistical cells have unimpeded access to the collective database.

organizational unit within the central statistical agency charged with liaison, dialogue, advisory function, or another objective corresponding to a particular ministry or complex of institutions sharing the same concern. The essential properties of each cell are:

- ❖ the ability to foresee requirements and understand their nature and statistical implications;
- ❖ knowledge of available information and ways to supplement it, so that a database capable of satisfying current and future needs can be created;
- ❖ access to existing information—individual records if necessary—in order to ensure correct matching and record linkage; and
- ❖ the direct or indirect collection capability required to add specialized information to the existing database.

26. We know from experience that meeting the third requirement can present delicate, although not necessarily insuperable, problems of intrusion into the privacy of individual citizens. Some of these problems are strictly connected to the legality of access to individual records. Others, assuming the legal barriers are overcome, are thornier because they concern actual intrusions into privacy, which may require special institutions for control and regulation.

### 3.1.5. Regional and local government

27. Problems relating to the interaction between statistical agencies and regional authorities are similar to those relating to interaction with Ministries; the latter cut across subjects, while the former cut across geography. This is a simplistic description of the problem of assessing and satisfying the information needs of other levels of government. Underlying this description are the problems of access to officials who work for different levels of government; issues related to central versus regional politics; and constitutional issues that may pose formidable barriers to communication and access.

28. Often, those responsible for regional government will ask for a small-scale version of what is done at the national level. Thus, if the national agency compiles national accounts, a consumer price index, etcetera, it is likely that all of these, limited to the scope of the region but as comprehensive as possible, will be required to satisfy regional authorities.

29. More realistically, the needs of regional and local authorities will be subordinate to those of the government apparatus. Thus, all of them, irrespective of size, will be interested in the number of people (or families or households) who live under their jurisdiction; the demographic and income characteristics of this population; employment status; housing conditions; and possibly health and education attributes. Such information makes planning at a local level possible.<sup>48</sup>

30. In most countries with a Federal constitution, each State (Province, autonomous region) has a government with certain well-defined interests, as well as a residual set of concerns that, by consensus, are left to the Federal level—e.g., foreign trade and payments can only be managed at the national level.

---

<sup>48</sup> See Regional Statistics, Proceedings of a Meeting, Office Federal de la Statistique, Neuchatel March 2000.

31. The problem posed to the central statistical agency is how to meet the requirements for information, without compromising reliability or thoroughness, for areas that are substantially smaller than the nation. Different countries respond to this challenge in various ways. For example, in some countries the national statistic is essentially the sum of the statistics estimated by the offices of each of its politically defined regions, except of course in matters explicitly of Federal concern. In other countries, an understanding is reached whereby the national statistical agency agrees to supply local offices with core statistics of equal merit<sup>49</sup> for each subject area, to be supplemented with information collected by each local statistical agency.

32. Whereas discussion with specialized Ministries is often a discussion of experts, discussion with local or regional authorities is more likely to be policy oriented and to involve the chief statistician. The reason for this is simple. Most statistical agencies are equipped to make effective use of censuses at the local level (their usual purpose), but they are not positioned to provide a wide range of reliable non-census data at the local level. Widespread over sampling of businesses and households intended to meet particular requirements of regional authorities would deplete both the budgets of central agencies and, perhaps more important, the goodwill of respondents.

33. Part of the dialogue between central statistical agencies and regional and local governments assesses what useful statistical information can be squeezed out of existing administrative records, as well as ways to persuade the collectors of administrative records to take into account possible regional requirements. In those situations where there is access to these records, usually their coverage is adequate for small areas. The outcome of this dialogue, if successful, is a mixture of national and regional statistical estimates with local area information derived from administrative records.

34. Managing the requirements of government agencies—local, regional, specialized—is a matter that requires great delicacy. The chief statistician can err by being too far removed from the centres where the requirements are formulated, too quick to create precedents that the budget of his agency will not allow to be generalized, or insufficiently forthcoming. The sum total of these errors may lead to the creation of alternative data collection agencies, making overall coordination much more difficult.

35. With this in mind, a chief statistician is well advised to create permanent contacts with prospective public-sector users to keep abreast of the way requirements are evolving and of the quality of the service that the agency provides. The form those contacts will take and the level of the designated liaisons will be dictated by efficiency concerns. Ultimately, the chief statistician will have to articulate a policy with a number of necessary elements:

- ❖ statistics that are compiled nationally but accompanied by regional breakdowns
- ❖ reliability of regional statistics<sup>50</sup>
- ❖ conditions of access to the regional database

---

<sup>49</sup> The word “merit,” used here, is meant to encompass both equal detail and equal reliability for those details that are preserved at the local level.

<sup>50</sup> It is best to negotiate these attributes so that interlocutors can become aware of the difficulties involved in providing geographic breakdowns. The reliability features referred to would include timeliness, the best measure of error possible, and supplementary detail.

- ❖ support for regional agencies that wish to supplement their own databases with resources available at the national level
- ❖ consultation on geographic classifications

36. The chief statistician should keep lines of communication open to local and regional bodies at all times and bestow authority upon someone in whom he or she has total confidence. Few situations can escalate as rapidly as a centre-periphery misunderstanding, with mutual recriminations arising from failure to communicate openly.

37. In general, allowing representatives from peripheral bodies to see a statistical agency from the inside is the best possible way of demonstrating its inherent limitations. Thus, it might be advisable for the central agency to accommodate trainees from the regional organizations. Where no group ethos of statisticians exists, one might institute surrogate measures to develop one. In the end, the creation of a national community of statisticians bound by common professional interests (e.g., through a professional association that recognizes professional standing irrespective of level of government), may turn out to be a more potent device to preserve harmony between the centre and the regions than the introduction of purely organizational measures.

### **3. 2. The needs of the public**

#### **3.2.1. The community at large**

38. The public keeps a watchful eye on regular statistics such as the CPI, the unemployment rate, and on overall economic performance. The statistical agency should be able to address these concerns. At the same time, it should capitalize on the public's ongoing interest and ensure that its name is automatically associated with the publication of data with which the public is most concerned. The statistical agency should also strive to inspire confidence in its efforts to maximize the quality of these key measurements.

39. The public also has requirements that are not so substantial, permanent, or well defined. The difficulty lies in their inchoate condition and in the fact that a particular interest may flare up at any moment in response to a particular situation, most often an unforeseen event of a threatening nature (e.g., What was the value of the housing destroyed by last week's hurricane? How much in savings has been wiped out by the latest bout of inflation? How many illegal immigrants are there in a particular city? How large is the underground economy?). One way to address these concerns directly is to maintain a small *ad hoc* survey capacity characterized by very quick turnaround.

#### **3.2.2. Schools and high schools**

40. The introduction of statistics in school curricula is a means of instilling respect for quantitative information and analysis. Both primary schools and high schools offer a variety of courses in which statistics play a visible role. The following are examples of basic questions that appear in the curricula of many schools at both the primary and secondary level: How many people live within the country's borders? What is the population density? How wealthy are they? What do they do in their leisure time? How are they employed? How many of them are poor and need help? Do they have access to educational and health facilities?



41. The names of the relevant courses vary from country to country but the subject matter is more consistent than the terminology suggests. Several statistical agencies have a special programme to support initiatives by the educational system to promote the use of quantitative data at an early age.<sup>51</sup> In Poland, there is an active high school competition for the best essay in which extensive use is made of official statistics. In other countries, schools are granted premium access to the national database of the statistical agency.

### 3.2.3. The press

42. The press and other means of mass news dissemination play a special intermediary role in the relay of statistical information, whether it is the subject of headline or local news interest. For this reason, the statistical agency is responsible for ensuring not only that the right information gets into the right hands at the right time, but also that it is properly described and imparted in the appropriate form to those who most need it.

43. No statistical agency has the power to ensure, for example, that all those whose lives are affected by a change in the measured level of consumer prices become aware of the fact exclusively by consulting a statistical bulletin. Even in countries where the population is measured in tens of millions statistical bulletins are seldom published in quantities of more than a few thousand (with the possible exception of the occasional prestige publication, which may be issued in quantities of two or three times the average circulation).

44. For these reasons, the agency will have to rely on the press to ensure that statistical news reaches all interested parties. This creates several challenges, which will have to be dealt with through a liaison organization:

- ❖ ensuring that newspapers, television, radio, and magazines all become aware of the latest statistical information at the right time;
- ❖ ensuring that the statistical office is responsive, even during non normal office hours, to the deadlines of the press;
- ❖ providing, along with the latest numbers, the necessary amount of explanation so that the press does not put an unbalanced spin on the news;
- ❖ periodically reviewing with the press the arrangements made to ensure efficient dissemination;
- ❖ making all possible efforts to present statistical news in manner that minimizes misinterpretation and enhances clarity;
- ❖ holding seminars for members of the press to highlight simple analytical techniques for interpreting and assessing current data.

A number of offices have made permanent arrangements to ensure that these challenges are met and that the value of the press to the statistical agency is maximized.

---

<sup>51</sup> More ambitious courses can easily be envisaged to prepare young people for a university education. For example, an introductory programme in macroeconomics for high school children might use national accounting data and programmes in applied mathematics or statistics might use live statistical series to illustrate techniques of time series analysis.

### **Colouring statistical news**

This heading is not meant to suggest impropriety. Ensuring that the news gets interpreted properly does not imply manipulation of the subjective views of the press. Rather, it implies that everyone should be aware of the pitfalls of interpretation. For example, if the imports of toys escalate significantly in the month of November (in a country where a large proportion of the population celebrates Christmas), this is not necessarily a harbinger of disastrous news for the national balance of payments. Rather, it may mean that the domestic toyshops are preparing for Christmas, and the relevant comparison is not with the previous month but with the same month one year earlier. Such is the situation with unique events—e.g., the leasing of three jumbo jets for the national airline or the effects of a strike or a natural disaster—which may distort the expected figures and play a major role in their interpretation.

### **Recognition**

The statistical agency should get recognition when statistical headlines are broadcast. Often, mass media make references such as this: “Government officials claim that this month’s production of cement is well above expectations, leading to an optimistic outlook for the construction industry....” Correcting the failure to single out the statistical agency responsible for the estimation should be a matter of priority. Giving the agency credit not only reminds the population of its existence, role, and responsibilities, but also reinforces its imprimatur on the release of key figures and impresses upon users that those figures have a special character of reliability.

45. In most countries and in most political systems, governments can be elected or their tenure of power can be ratified on the basis of promises made to the electorate. Promises range from the general (“we shall make this country secure for our children”) to the very specific (“we shall keep the rate of unemployment below 5 percent”). Political accountability in the latter example can only take place in light of an objective measure (official statistics) that informs public opinion about whether or not the government has kept its promise. In this instance, opinion is formed in two ways: the public may decide that the government was or was not faithful to its electoral platform or it may decide that the standard of measurement—the official statistic—was unreliable and therefore of no consequence in its ultimate judgement of the government’s performance. The press can play a constructive role in ensuring that the judgement of performance does not get mixed up with the reliability of the statistics.

46. A number of agencies have achieved public confidence in their word and institutional guarantee. Clearly, this situation is desirable for every statistical institution. Since the press can be a valuable ally in this task, investing in a press liaison is worthwhile.

### **3. 3. The needs of business**

47. Ultimately, all business users’ interests in quantitative information are similar. The fundamental questions are: How many businesses like ours exist? How do they compare to us? What are the prospects for our business and for those with similar attributes? Other interests are merely variations on these fundamental questions.

48. To provide an answer, the statistical agency must first define “us.” From the statistical agency’s point of view, the definition should be as wide as possible, so that sampling techniques can be used effectively and the seemingly insoluble problems of accurate coding can be overcome. From the point of view of the potential user, “us” should be as narrowly defined as possible, to account for the large number of idiosyncrasies of what is being compared.

49. Once the scope of “us” has been defined, the next challenge is to select the attributes that must be compared to satisfy the interests of business. In principle, all economic variables are potential subjects of comparison. Thus, the number of employed per unit of revenue and per unit of profit; the structure of costs; the size of the market measured in number of customers and in gross revenue; the composition of the market in terms of purchasers at home and abroad; the return on capital invested; the rate of product innovation; and the prices quoted are all examples of important attributes.

50. Of all these variables, and in most lines of business, the two that appear to be of greatest interest are the rate at which prices are adjusted to conditions of overall and specific demand and the rate at which the products or services of a business are influenced by technical and organizational innovation.<sup>52</sup>

### 3.3.1. Large business

51. At the limit, the interests of large businesses are very similar to those of the Ministries of Finance, and the respective specialized sectors. Obviously, if businesses cater to national markets and possess multiple lines of specialization, the only useful point of comparison is the rest of the economy. Their questions will resemble those of the Ministry of Finance, with an emphasis on cost structures for activities of special interest; cost structures of competitors abroad; information on barriers to their activities abroad (both tariff and non-tariff); and financial information on investment at home and abroad.

52. In many countries, large business represents a disproportionately large share of the GDP, and therefore neither its requirements for information nor the accuracy and the promptness of its responses can be ignored. For this reason, a number of statistical agencies have instituted a special unit with the exclusive function of managing relations with large business. Not surprisingly, the first agencies to institute such units were in those countries with the highest concentration of large businesses. However, the payoff has been so significant that others have followed suit. Today, there are examples of large business units in large and small statistical offices, in industrially advanced and in emerging industrialized countries.

53. The role of a large business unit is manifold. Therefore, it stands out as an exception to the simple rules of organization along the statistical production process. Its responsibilities include:

- ❖ keeping a current record of the boundaries and structure of large businesses (these businesses change configuration very quickly, so what is reported in one period may not be significantly comparable with the previous period)
- ❖ keeping track of the businesses’ accounting practices to distinguish between internal transfer pricing and arm’s length market pricing
- ❖ deciding, in communication with designated business contacts, what statistical questions can be answered directly, using account information, and what questions require estimation

---

<sup>52</sup> The timeliness constraints on these data are usually not as stringent as those on general-purpose data such as the CPI or the GDP.

- ❖ making sure that each business is required to answer each question only once and that the answer is used in all databases for which that information is required
- ❖ communicating with the business' research department regarding its needs for information and the most convenient medium in which to provide the data
- ❖ gathering, from discussions with the research department, information as to the intentions of the business regarding innovation; investment; acquisitions abroad; and general confidence in the domestic market.

The larger the business, the more explicit and articulated each of these responsibilities.<sup>53</sup>

### 3.3.2. Small business

54. Satisfying the information needs of small business is the greatest challenge for business statistics for a number of reasons: The ratio of effort deployed in answering requests for information – regulatory and statistical --from the government to the economic size of businesses is much higher for small than for medium-size and large businesses. The ratio is almost as high as that for households. In addition, even when the need for information is well formulated, the specifications tend to be so detailed—in terms of what the business does, where it is located, and with whom it wishes to be compared—that the statistical agency finds it difficult to comply with any professionally acceptable degree of reliability. The third reason has to do with the nature of small business needs for information—even though they tend to require highly specific statistics, small businesses may be reluctant to comply with all of government's demands for detailed information because devoting the necessary time and resources would significantly add to overall costs. The statistical agency will find it very difficult to accommodate small business needs if it does not have access to key administrative records and the ability to use them for statistical purposes.

#### Examples of administrative records of use for small business statistics

Under most circumstances, the high level of corporate income tax information limits its usefulness in deriving small business statistics. In addition, the apparatus required for collecting direct taxes is unevenly developed, so income tax records are of little help in many of the countries where the activities of small business and their relationships to the informal sector are of special interest, even where access is granted. Conversely, indirect taxation is a virtually universal source of information. In recent years, the governments in many countries have made special efforts to ensure that such taxes, particularly value added taxes, are levied and faithfully reported to the proper authorities. They have also made special efforts to ensure that social security records are complete and accessible. While access to and use of these records is only useful to measure and describe the organized sectors of the economy—at times leaving a large swathe of informal economic activities nearly untouched—nevertheless, the information that can be gathered from the records is more substantial than any information the statistical agency could collect unaided. If it relies on indirect tax records, the agency is free to concentrate its efforts on household, and related, activities that may for a time resist the effects of taxation and social security reforms.

56. Despite all these difficulties, small businesses are of undeniable importance. They are numerous<sup>54</sup>; play a key role in the service sector; are given a large share of credit for innovation,

<sup>53</sup> There is at least one example of a publication of “large business statistics”. The Argentine Instituto Nacional de Estadística y Censos (INDEC) not only has a unit in charge of large businesses, but also uses a separate survey and publishes a statistical bulletin reporting the results for the principal economic variables.

particularly in the dynamic activities that characterize a modern economy; and, according to some, play a key role in job creation, particularly in the early phases of a cyclical upswing. For these reasons, their wishes must factor into the dissemination programme of a statistical agency.

57. There are two aspects to meeting the information needs of small businesses, both of which affect organization—the information itself and training small-business employees to use the information to their advantage<sup>55</sup>. One of the most significant barriers to the survival of small businesses is gaining access to credit on affordable terms, and to do so, they must demonstrate how their costs and gross profits compare with those of their competitors. Thus, what is of prime interest to them is not averages and totals but rather the distribution of key ratios and where they fit in. Examples of such ratios are advertising costs to total cost; equity to credit; and accounts receivable to total revenue.

58. Using a table with distributions of key ratios may be intimidating at first, particularly for some entrepreneurs who are apt to trust their intuition or salesmanship more than unfamiliar arrays of numbers. For this reason, the statistical agency may wish to offer seminars for small-business managers and take advantage of trade fairs and similar events to display its relevant products.

59. The demographic characteristics of markets are also of interest to businesses of any size, particularly those who cater to the final consumers or to freelancers who work from home. The age, gender, family, and income attributes of the population in very small areas are of the utmost importance to them, but they may not have the knowledge or the confidence to approach a statistical agency and request cross-tabulations derived from the census of population. In order to cater to those wishes, statistical agencies may have to utilize specialized consultants who can estimate potential sales of a wide range of articles on the basis of a combination of small-area census variables and the results of the latest survey of family expenditure.

60. In any case, maintaining a unit within the statistical agency that specializes in small-business concerns is valuable. Its responsibilities should include the following:

- ❖ maintaining expertise in the handling of administrative records so as to satisfy current demands either exclusively or primarily with the information they contain
- ❖ organizing events of interest to small business and using them as opportunities to disseminate extracts of existing databases and to assist small businesses in the effective use of statistical publications
- ❖ championing small-business claims for limitations on the paperwork burden generated by government in general
- ❖ serving as permanent liaison between the statistical agency and such agencies as social security, indirect taxation, and customs.

---

<sup>54</sup> According to Statistics Canada's Business Register, small businesses (defined conservatively) accounted for 95 percent of the number of all businesses with one or more employees. Taking into account zero-employee businesses, the proportion should rise to approximately 98 percent. Countries of comparable size and development have a similar makeup.

<sup>55</sup> Some imaginative approaches along these lines can be used to establish a dialogue with business enterprises in the informal sector—for example, showing them, free of charge and of commitment, how they can analyze their performance by using statistical tables.

### 3. 4. Research and other needs

#### 3.4.1. Academic world

61. The academic world can place burdensome demands on a statistical agency but it can also be the most important ally in defining research and action programmes, in evaluating the quality of the statistics produced, and in helping explain to laymen the underlying strengths and weaknesses of official statistics. So, contacts with members of academic institutions are a strategic resource and should be as extensive as possible.

62. The needs of the academic world cannot be summarized as easily as those of other sectors. In theory, they encompass all activities of a statistical agency. Any research in the social sciences<sup>56</sup> that is conducted in an academic institution and requires testing places demands on statistical agencies. Academic needs may differ from the needs of other sectors in at least one fundamental respect. All other sectors require statistics for formulating policy, examining options, and ultimately making decisions, and are therefore less prone to worry about how the data are generated. The reverse is true for the academic community. For example, in testing a particular economic theorem, it may be crucial to distinguish between data as they are observed and data altered by standard editing processes. In addition, academic researchers are far more likely to dispense with the statistical agencies' analyses, in favour of their own. For these reasons, the statistical agency should establish a liaison with academic researchers, but a distinct unit is not required.

63. Agencies that have a special methodological unit in charge of survey design and estimation may be tempted to locate the liaison with universities in such a unit, at least for researchers in applied sociology, demography, criminology, and microeconomics. This should not preclude contacts with other parts of the agency.

64. Naturally, macroeconomists prefer to establish their liaison with the agency's national accountants and are less interested in the sampling aspects of the underlying statistics. However, much of the communication between the statistical agency and academia will be the result of individual circumstances and some trial and error. The essential point is to capitalize on the contribution to the statistical process that can be made by academic institutions. Many statistical agencies have programmes that allow for an interchange between university researchers and the more research-inclined members of the statistical agency. To carry out such an interchange, the university and statistical agency may each assign researchers to the other's institution, or they may collaborate on projects of mutual interest.<sup>57</sup>

#### 3.4.2. International institutions

65. In many countries with advanced statistical systems, the programme requirements of international agencies<sup>58</sup> represent no more than a marginal addition to the statistical agencies' domestic programmes and can be treated as a by-product of current activities, but this is not

---

<sup>56</sup> Increasingly, the state of the environment and the condition of a country's natural resources have become subjects of statistical activities and, of course, are of interest to academic researchers.

<sup>57</sup> Several papers address the subject of "blue-collar" and "white-collar" statisticians. See, for example, Martin B. Wilk, "Blue and White Collar Statisticians." Proceedings of the Royal Statistical Society of Canada, 1985.

<sup>58</sup> This refers to international agencies only. The demands placed by supranational agencies on member countries are of a different nature and magnitude, depending on the closeness of the relationship.

always the case. Indeed, in some statistical agencies, apart from special large-scale initiatives such as the census of population, the requirements of international organizations dominate the current programme.

66. For many statistical agencies, international agencies remain the most important source of conceptual and methodological guidance, not only in improving their capacity for inter-country comparisons but also in structuring domestic programmes. The demands of international organizations impose a discipline without which inter-country comparisons would quickly become either unachievable or meaningless. Comparisons are possible largely due to the use of international classifications and standard accounting systems such as the SNA.

67. In addition to the benefits the international agencies bring their intervention also often brings significant problems. Since an international agency brings with it extremely needed resources it is difficult, if not impossible, for many developing countries to approach the offer from an international agency as an arms-length transaction. Moreover, the intervention of the agency may cause significant disruptions in the program of the national statistical office. Situations have also arisen where the data collected by the agency is published without any review by the country. Finally, too often, international agency programs have not been accompanied by a transfer of technology from the agency to the country. Thus, while, valuable information has been collected there has not often been a corresponding improvement in the statistical capacity of the country. Fortunately, this situation has been changing and international agencies are increasingly committed to capacity building. One of the important responsibilities of the chief statistician is to ensure the maximum amount of capacity building while continuing the cooperation with the international agencies.

68. Throughout this chapter, the need to create a specialized unit charged with particular functions is discussed. This should not be taken as a panacea. A great deal depends on the size of the office, its stage of development, and the weight of the problems it faces. In many instances, it is sufficient to assign one person. In other cases, it is best to distribute responsibility throughout the agency. Where the specialized position can broaden agency employees' experience by exposing them to keen, analytically minded users, it is favourable to distribute the responsibility.

### Conclusions

Statistical agencies should create a programme that is as versatile as possible, in order to serve users with a wide range of questions and concerns. The discussion above illustrates the variety of those concerns and questions. But a statistical agency cannot confidently predict the nature of future concerns and the types of questions that might be answered through the use of official statistics. Accordingly, it must invest in the ability to produce general purpose, versatile tabulations. A statistical agency can, and should, also invest in ensuring user access to techniques that allow for rearranging basic data to conform better to specific objectives. But this is only possible if there is a clear understanding of the nature of the questions.

However an agency is organized, consideration should be given to the assignment of specialized functions (in a distinct unit or not) with a dual mission:

- ❖ detecting, through close contact with all sectors, upcoming matters of concern that may require statistical support
- ❖ following up with representatives of the various sectors to determine the adequacy of the service provided by

the statistical agency

Some functions would benefit from the cooperation of the relevant subject-matter experts. In a few special cases, specialized units may be created to address each function. Such cases include relations with large business; small business and its associations; and the press. In all instances it is imperative that the findings of these units be incorporated into the formulation of priorities and the corresponding plan of action.



## Chapter 4 SETTING PRIORITIES

### 4.1. Analysis of user requirement

1. The previous chapter underscored the fact that meeting the demand from some users requires a specialized understanding of the corresponding sectors (for example, health and education). It also showed the need to maintain a special relationship with businesses (multi-location, multi-activity, multi-national) that in many instances account for a disproportionate share of a country's GDP. These considerations have a number of consequences for statistical agency. In the sections that follow, we examine how various requirements give rise to a plan of action to ensure a balance between the supply of and the demand for information.

“Ideally, priorities should be determined on the basis of analyses of the costs and benefits of various alternative ways of using scarce resources....Although, with the exception noted, the cost of statistical projects can, in principle, be identified and measured, this is rarely the case with benefits...[because] statistics are intermediate products, not end products. The benefit of a statistical series is a function of its impact on policy decisions and their importance; it is generally very difficult to pin it down and attach a meaningful value to it. Secondly, the process of identifying benefits is all the more difficult both to the extent that the series are part of a system in which the diverse elements are interdependent and the value of each is enhanced by the availability of the others....Thus priority setting and allocation of resources among competing possibilities in statistics cannot be calculated precisely but must be determined...on the basis of judgements and insights based on past experience...in order to render priorities and related resource allocation as rational and balanced as possible.”

*Handbook Rev. 1*<sup>59</sup>

2. This quote describes a circular process. While there have been several attempts to establish a “calculus of priorities,” none of them has gained wide acceptance. The idea behind some of these attempts is to weigh several attributes—e.g., importance of the request (using some arbitrary unit of measurement); cost of answering it fully; cost of a partial, short-term answer; effects it might have on other activities within the statistical agency; consequences of denying a request for statistical information on the relevant decision or policy (again using some arbitrary unit of measurement); and so on. The scores derived from these attributes would be used to compile a table ranking each priority. But that is not the way things are done, and while such a method introduces a consistent and explicit set of factors, the conclusions are no less arbitrary.

3. A chief statistician cannot avoid prioritising the activities to which an agency is committed.

4. Fortunately, priorities do not change from one day to the next. The activities of a statistical agency possess a constancy. Indeed, from one year to the next, a statistical agency will not change its agenda by more than a small fraction of its total resources (5 percent is probably a generous estimate), with the exception of large-scale initiatives such as the censuses of population,

---

<sup>59</sup> P. 61. The text in Handbook Rev. 1 is largely based on C. A. Moser, “Planning and integrating statistical programmes in a centralized system,” Bulletin of the International Statistical Institute, vol. XLIV Book 1, pp. 132-135.

agriculture, and economic activities. In addition to these endeavours, the statistical agency is likely to continue measuring from one period to the next the variation in consumer prices, the rate of industrial production, the amount of international trade in goods, the size and condition of the labor force, and so on. Once these activities are taken into account, the allocation of additional resources should be at the discretion of the chief statistician, who can initiate subtle changes in direction by placing a somewhat heavier accent on one activity or another.

5. That is not say that every single one of the activities carried out regularly by a statistical agency is static. In fact, as part of the standard work of an agency, products are added or removed from the CPI, new nomenclatures replace old ones in the compilation of trade statistics, and changes in the population are ultimately reflected in the sample on which a labor force survey, for example, is based. Moreover, in many offices there is a systematic drive to carry out habitual tasks in a more productive and effective manner. The success of such drives frees up resources, which in turn can be allocated to alternative activities. Accordingly, setting priorities turns out to be not so much an exercise in the evaluation of discrete subjects but rather a series of marginal changes in an ongoing programme to which additions and subtractions are made at regular, and sometimes even predictable, intervals.

6. In order to preside over this process, the chief statistician, to a greater or lesser degree, requires the following:

- ❖ authoritative information about what various constituencies perceive as gaps in the range of statistical products and an understanding of why those gaps are awkward for policy formulation
- ❖ information about emergent issues of public concern that may require statistical information
- ❖ information about the cost of alterations to the existing program, including possible additions in light of the two elements noted above
- ❖ a mechanism to sort out possible requirements.

7. These four elements underlie the planning process, which can be handled formally or informally. The advantage of formality is not so much the intrinsic value of the ceremony but rather that it impresses on all participants that the planning of a statistical program is one of the most important, if not the most important, statistical activity that an agency's management can undertake.

8. Priorities should be determined within a framework. Nowadays, frameworks are referred to as strategic overviews, strategic frameworks, or corporate strategies. Mostly, these headings apply to the same thing: a medium-term plan that allows the agency to acquire, maintain, or change existing capabilities while continuing to meet new requests.

9. Priorities ought to be selected from within a framework not because it is fashionable to do so, but rather because it is the most effective way to ensure that the priorities are clearly articulated and that the priorities are considered as a whole rather than in piecemeal fashion, which could result in inconsistent and duplicative activities. The alternative is distinct descriptions of activities with no coherence.

### Balancing of requirements

“...[1]a balance must be achieved between servicing users needing detailed data in specific fields and those needing across-the-board aggregative data for macro-economic and social analysis...[2] there is the balance between different subject matter fields [this balance should ensure] that some resources are assigned (a) to projects that are in their early stages of development, (b) to strengthening weak areas and (c) to carrying out at least a minimum of research and analysis...[3] within each subject matter field there is a balance between different projects both across the board and in time. The importance of covering the entire field must be balanced against the need for detailed tables in parts of the field...[4] there is the balance between timeliness, accuracy, and publication of detail...[5] there is the balance between satisfying user needs and avoiding undue burden on the suppliers of primary data...”

*Handbook Rev. 1*<sup>60</sup>

10. It is generally accepted that one can precisely define the costs but not the benefits of statistical undertakings. There is no way to devise a program to answer the question of how many people will benefit directly or indirectly from the publication of a particular number and to what extent. Nevertheless, a chief statistician’s decisions regarding the allocation of resources implies that the balance of costs relative to benefits is more favourable in one direction than another.

11. The issue is to assess needs and concerns—as a source of information on how a statistic can be beneficial to its potential users. And since its usefulness cannot be quantified, one should have at least a general impression of what that use might be.

12. Clearly, the formulation described above is rather abstract. In practice, there is no substitute for an inquiring attitude, one that seeks to relate systematically proposed new statistics to the questions they are deemed to be helpful in answering. Furthermore, those questions should relate to the concerns of the general public or the government.

13. On the supply side it is important to track costs and to keep a history of costs of different kinds of statistical activity. A chief statistician should at least be able to argue in relative terms about costs and benefits—for example, if  $x$  were spent on activity A,  $y$  should (or not) be spent on activity B given the apparent (albeit non-quantifiable) benefits of A relative to B. The tracking of costs for planning purposes should be the object of considerable attention and respect within a statistical agency and should include the following:

- ❖ the ability to assess the value of a statistical activity (e.g., a survey, the compilation of an account, the editing of an administrative file, the publication of a statistical bulletin) with a degree of accuracy adequate for planning purposes
- ❖ the ability to archive and retrieve the results so that they can be used to price future activities
- ❖ the ability to reveal alternative uses for the same resources
- ❖ a mechanism to record decisions and assign accountability.

<sup>60</sup> P.61.

## 4.2. Developing a progress plan

### 4.2.1. Introduction

14. Notwithstanding the limitations of planning, experience shows that embarking on any complex initiative (conducting a family income and expenditure survey, launching a quarterly labor force survey, compiling an input-output table) without a plan is a prescription for unmanageable turbulence and very uncertain outcomes. This uncertainty is worsened by the interdependency of a statistical agency's undertakings. For example, the input-output table cannot be compiled without the survey of inter-industry purchases and sales; the latter cannot be conducted without the new commodity nomenclature, which in turn requires a production survey; and so on. Planning for all the interdependencies and expecting them to function precisely, though, is not realistic. Rather, in addition to careful planning, considerable flexibility, local discretion, and fallback positions are necessary. The art of planning statistical operations is finding a way to manage all of this in a timely and realistic fashion.

15. In the next section we look at the various purposes and elements of a plan; the difference between a multi-year exercise and a single-year plan (which is more akin to a traditional budget); the significance of "accountability"; and lastly, the plan as a teaching device once its results are evaluated.

### 4.2.2. The annual plan and its constituents

16. Essentially a plan consists of the following elements:

- ❖ a clear set of objectives to be met by the end of the planning period
- ❖ a description of the steps to be taken
- ❖ a list of the requirements—environment and resources—to ensure the practicality of the objectives
- ❖ a discussion of fallback options should the outcomes not meet the objectives

Additional elements include the mechanisms for monitoring and evaluation.

17. *Handbook Rev. 1* devotes a great deal of space to describing in detail a three-tiered planning structure:

"...a system of overall planning is described, based on a long-term plan of a "strategic" nature, ...a medium-term plan of a more "tactical" nature and a short-term "operative" plan."

*Handbook Rev. 1*<sup>61</sup>

In this edition, we focus primarily on "operative" plans.

18. The reason why an operative plan must be annual—in addition to the fact that the standard budgetary cycle is annual—is that if it were devised less frequently, it would be forgotten, and if it were devised more frequently, the activity of planning would consume available resources and

---

<sup>61</sup> P. 70

impart a sense of instability. The annual plan must also fit into a longer-term framework, thereby preventing the creation of a series of disjointed annual plans and ensuring that the statistical system, while maintaining its flexibility, will not be faced with changes in direction that it cannot accommodate.<sup>62</sup>

#### 4.2.3. Making allowances for size and uncertainties

19. Many offices are small—100 staff members or fewer—and have unpredictable budgets, either because of political circumstances or because much of their resources come from international initiatives over which the office limited influence. Thus, if there is a concerted push to measure poverty on an international scale or to examine the factors that affect fertility, the scale of operations required might account for a very large component of the office's total activity. Conversely the existence of a multi-year plan can help ensure that international programmes reflect national needs. Notwithstanding, the principle of having a five-year plan and an annual set of objectives firmly anchored in that plan is as applicable to small offices as to much larger ones, which tend to have a more predictable budget. The difference is that in smaller offices, the actual implementation of an undertaking can be much more informal, allowing for greater flexibility.

20. A plan of this kind has multiple purposes, involving perceptions as well as organizational realities:

- ❖ impressing upon the staff that their work is part of a larger scheme and is not a routine continuation of some arbitrary disposition creating a basis for measuring the performance of the office and of its organizational units
- ❖ recording experience in order to improve future allocation of resources, reliability in carrying out tasks, etc.
- ❖ increasing the efficient use of available resources
- ❖ documenting inadequacy of resources relative to imposed tasks
- ❖ improving the perception that the statistical agency uses rational criteria to organize its activities

21. These objectives are somewhat easier to attain if planning is open; if a significant proportion of the staff takes part in the establishment of the plan;<sup>63</sup> and if there is a collective effort to learn from experience by reviewing systematically the differences between activities planned and activities carried out. But there is no avoiding the cost involved in documentation, tracking performance, recording costs, and organizing a structure that is cohesive and achievable.

#### 4.2.4. Ceremony

<b>Should there be a planning unit?</b>
---

<sup>62</sup> Assuming that the annual plan is part of a five-year medium-term programme, that resources are constant, and that the maximum permissible annual shift in staff is only five percent gross, at the end of the term, one quarter of the staff might be doing very different things from what they were doing at the beginning.

<sup>63</sup> "The major objectives of planning are...to involve as many staff members of the statistical agency as possible in the priority setting and integration function..." *Handbook Rev. 1*, pp. 70 et seq.

22. On the one hand, the expectation that detailed plans can be fulfilled with total precision is likely to cause frustration with the entire planning exercise and may lead to a premature abandonment. On the other hand, introducing the plan in a manner that is too lax may lead to its never being addressed with the respect that is required for it to function effectively. This is why in a number of offices where the annual planning activity has become formalized, the discussion and

This has not been a recent matter of discussion or systematic exchange of experiences in international venues. It is nonetheless an important question of consequence to the larger and more complex statistical agencies. The general advantages and disadvantages are easily described. Having a specialized planning unit reduces the time spent planning by the substantive experts of the office and allows for more control, consistency in presentation, and ease in verifying internal consistency in execution. But it increases very substantially the risk that the planning activity will be treated as “someone else’s responsibility” by the substantive part of the office and never be as internalised as it should. As a solution, some offices have adopted a mixed regime, in which the planning unit is responsible for the formal part of planning and for acting as a secretariat to the planning effort (or committee); the substantive part of planning rests squarely with those whose activities are to be planned. Naturally, in mixed organizations of this type the cost of planning increases. But so do the chances that it will be taken seriously.

promulgation of the plan are subject to some ceremony.

#### **4.2.5. Planning and budgeting**

23. Contrary to a natural first reaction, the institution of sensible planning is a measure that usually leads to less, rather than more, detailed control of the various parts of an office attaining high-level objectives is only possible if local managers have the discretion to modify their approaches in light of those unforeseeable circumstances. This means that effective planning requires the establishment of a sound budgeting approach, complete with a statement of how authority is to be delegated.

24. Conceptually, the relationship between the two activities is as follows. A plan is created, taking into account all the interdependencies and outlining a set of objectives, a schedule, and steps to be taken to ensure that the objectives are met.

25. The plan will appoint agents to head its various activities.. Each agent will be given a discretionary budget and the responsibility for achieving a balance between income and expenditures. Handling matters in this fashion has the added virtue that each agent will become more conscious of costs. If the performance in meeting objectives is judged from the point of view of efficiency, the various agents will have the incentive of finding methods and techniques that will allow them to meet objectives with the resources allocated (rather than the somewhat perverse situation that has been known to occur, wherein managers spend as much as possible to demonstrate their authority). Essentially, planning involves controlling the resources allocated to agents, thereby requiring that they achieve their goals within the given resource constraints. This arrangement applies to offices of all sizes.

#### 4.2.6. Planning and accountability

26. The greater the discretionary authority given to planning agents, the greater their accountability. In the framework of an open plan with a great deal of devolution of authority and responsibility, the chief statistician will ask for accountability from the staff. If the management establishment is too inexperienced to carry out its part of the agency-wide plan, the chief statistician will not be able to comfortably delegate budgetary authority. An organization can be considered efficient if the head of the system can rely on subordinates to help formulate and carry out both a medium-term and an annual plan.

#### 4.2.7. Evaluation of the plan

27. At the end of a planning exercise (annually and, on a more strategic basis, every five years) the chief statistician should receive a formal<sup>64</sup> evaluation. This evaluation may be conducted by an outside party or by a unit within the statistical agency, depending on the political, legal, and regulatory circumstances. The evaluation serves several purposes:

- ❖ accounting to the government for the work of the agency
- ❖ conveying to the staff the seriousness of the process
- ❖ determining the degree of error in the process—exogenous (beyond control) and endogenous (subject to control and future improvement)—and attempting to explain the causes
- ❖ validating or changing the agency's strategy
- ❖ using the results to engage the organization's management in a dialogue regarding accountability.

28. For the process to be credible, the evaluators should not also be the planners; in fact, the greater the organizational distance between the two, the better. It is also worth considering the possibility of using the evaluation as a training opportunity. For example, recently recruited professionals can serve as assistants to an evaluation secretariat, thereby receiving their introduction to the planning exercise. It is not critical to constitute an evaluation secretariat as a permanent organization. Indeed, it may be rather difficult to justify it, as it is unlikely that it will have work year-round. One option is to have a standing committee headed up by someone who is indisputably knowledgeable and objective. If circumstances allow, evaluation (and similar tasks, such as audit) might consistently be handled by retired senior officials of the agency.

---

<sup>64</sup> Although for smaller offices it could be informal, the effort to prepare and disseminate the result of a formal process can be helpful nevertheless.

**Conclusions**

There is no objective “calculus of priorities” in a statistical organization. The chief statistician must combine intuition with the experience and current to make decisions with confidence. Once this becomes routine, the agency will be able to formulate, albeit in a qualitative way, some of the benefits of a planned course of action. It is important to implement an effective mechanism to track, measure, and record costs. For a planning exercise to be effective, it must reflect the right balance of decisiveness and staff participation. It should be part of a medium-term framework and treated as the annual definition of activities, their cost, and the corresponding resource requirements. The staff, having taken part in the creation of the plan, should be held accountable for its execution. The practice of evaluating the plan *ex post* should be strictly observed, as a means of enforcing accountability and learning from experience.



## Chapter 5 PRINCIPLES OF ORGANIZATION AND REORGANIZATION

### 5.1. Introduction

1. The literature about organizational theory demonstrates that organization is not a trivial matter and, most importantly that, while there is no single, ideal way to structure an organization there are some commonly accepted general principles.
2. This last point applies to statistical organizations as well. There are in theory at least a dozen different, sensible ways to organize a statistical office. Remarkably though, in spite of clear differences in detail and even in organizational philosophy and culture, there is a great deal of similarity in the organization of statistical offices across the world. For example: a director of economic statistics from the statistical office of country A is likely to find a counterpart with very similar responsibilities in country B. The same applies to a director of social statistics or national accounts, or the director (or head of department) of price statistics, the business register, environment statistics or dissemination. No doubt, there are common underlying principles at work when it comes to organizing statistical agencies.

### 5.2. Theories and trends

3. There are some widely accepted, alternative principles for structuring organizations:
  - i. Knowledge or skill (e.g. departments of cardiology, internal medicine and neurology in hospitals)
  - ii. Work process, often based on the technology used (e.g. letterpress and offset departments in a print shop)
  - iii. Business function ( e.g. manufacturing, research, engineering, accounting.)
  - iv. Output (different product lines or services in different divisions, e.g. household appliances, machinery, maintenance)
  - v. Client (different organization units for retail to households, large business clients etc.)
  - vi. Time (shifts in factories and hospitals)
  - vii. Place (different geographical areas that are served)
4. An entirely different distinction, which cuts across the principles mentioned above, is that between hierarchical organization structures and network organizations.
5. Principles 1 and 2 are particularly relevant for statistical offices. Principle 7 is also relevant, but was already discussed in Chapter 3 (regional decentralization). Some of the other alternatives (3, 4, 5) may be relevant for certain parts of statistical organizations, but can hardly be

seen as major guiding principles. While the distinction between ‘hierarchy’ and ‘network’, is also relevant, government rules and bureaucratic traditions in many countries may not be ‘network-friendly’.

6. Since the seventies, when *Handbook Rev. 1* was written, new trends emerged that affected organizations in general. Some of these trends apply more particularly to statistical offices. Among the *general* trends, those of particular relevance are:

- ❖ Need for greater flexibility to respond differently to different situations
- ❖ Fewer detailed rules and procedures
- ❖ Greater autonomy and encouragement of initiative
- ❖ Fewer levels of management
- ❖ Workers empowered to make decisions
- ❖ Cross unit team structures, project teams, matrix organizations, networks
- ❖ Outsourcing and downsizing
- ❖ Increased budgetary pressure

7. For statistical offices *in particular* relevant trends include:

- ❖ Need to improve timeliness
- ❖ Need to reduce the reporting burden
- ❖ Increased focus on (rapidly changing) user needs and therefore on customized dissemination methods

8. In addition, dramatic increases in decentralized computer power, as well as related developments in telecommunication have also affected the organization of statistical offices. Most of all these technical changes have affected the response to the trends mentioned above.

### 5.3. Organization by subject or by function

9. The relevant sections in *Handbook Rev. 1* focused on two recognized ways of structuring a statistical office: by subject matter and by function. The term ‘subject matter’ is ambiguous and has several connotations. It may apply to the institutional source of the basic information that is collected. Education statistics, for example, would be classified on the basis of the source from which the statistics are collected: all statistics collected from educational institutions, including say, their finance data, would be assigned to the responsibility of the education division. The ‘knowledge base’ of that division would consist of all the *ins* and *outs* of the education system. An alternative interpretation of ‘subject matter’ centres on main categories of data. This interpretation leads to groupings such as employment and unemployment, finance, investment etc. Ignoring these subtleties, the most common interpretation of ‘subject matter’ vs. ‘function’ leads to the creation of divisions such as trade, industry, health, education etc. and the second to divisions

such as sample survey design, data entry and data editing, field operations, analysis, dissemination etc.

10. For reasons, some of which will be described below, it has always been difficult to make a clear cut choice between 'subject matter' and 'function'. Accordingly, the structure of most statistical offices is a mix of the two. There are some functions that are ideally suited to be grouped into agency wide functional units, e.g. sample design and field work. Other functions, such as questionnaire and publication content and analysis/interpretation generally require the direct involvement of subject matter specialist and should therefore be assigned to subject matter units.

11. There are two additional requirements that have come to the fore more recently, namely:

- ❖ the requirement that data collection should be organized as efficiently as possible in order to minimize the burden for both the respondents and the collecting agency and at the same time to speed up enhance timeliness

- ❖ the requirement that statistical information be disseminated in a manner relevant to the problems or questions that it addresses implying that dissemination should be user-focused rather than based on statistical sources and processes.

12. These two requirements could give rise to two different organizational structures within an agency: one for data collection and one for data dissemination. In order to 'connect' the two structures, a bridge is required, a unit in charge of re-sorting data after they have been collected and edited, into new groupings that lend themselves better to analysis and dissemination. This aspect of organizational design applies to a statistical agency of any size. Naturally, the smaller agencies can adopt more flexible solutions.

13. To summarize:

- ❖ in theory, there are many organizational principles that one could use to structure statistical offices

- ❖ in practice, most statistical offices have been organized according to either 'subject matter' or 'function', but usually according to some combination of these two principles

- ❖ new organizational trends have affected all organizations and some of them are specifically relevant for statistical offices

- ❖ among new developments is the realization that statistical offices may be organized in two ways: for data-input according to data-source, for data-output according to user categories, with a bridge in between where the data are re-sorted

14. The difficulties involved in finding the right organizational structure are illustrated by a brief case history.

#### 5.4. Organization and reorganization

Before 1974 the organization chart of the Dutch Central Bureau of Statistics (CBS, now Statistics Netherlands) was simple: a Director-General, a Deputy, a director for coordination and about 20 departments, most of them subject matter oriented but a few constituted along functional lines (including a large department for computerized data processing). Some departments were subdivided into divisions, some not.

15. In 1973 the government announced a plan to relocate the Bureau to a city (Heerlen) at 200 kilometres from The Hague (the administrative centre of The Netherlands), in order to create government jobs in that part of the country. This caused turmoil, not only among CBS staff, but also among other stakeholders and in political circles. The Director-General resigned. After a while, the compromise was reached to relocate only half of the Bureau, as well as to substantially increase its resources, partly to compensate for inefficiencies, partly to tackle new statistical work, partly to create new employment. Also, a new organizational structure was developed.

16. This structure regrouped statistical departments into four directorates:

Economic statistics (12 departments)	Essentially: subject matter grouping
--------------------------------------	--------------------------------------

Social statistics (9 departments)	Essentially: subject matter grouping
-----------------------------------	--------------------------------------

Methods and development (4 departments, incl. the central computer department)	
--	--

	Functional grouping
--	---------------------

Office services (4 departments)	Functional grouping
---------------------------------	---------------------

All departments were subdivided into divisions and subdivisions, and often two more layers.

17. At the same time the staff employed was substantially increased, from about 1500 to well over 2000. During the seventies and early eighties new increases in staff were allowed. In 1982 the (budgetary) number of posts in the CBS reached the level of about 3500 (the actual number went up to just over 3000). Then came the turning point.

18. From 1982 to 1992 the CBS (and most other government agencies) was forced to cut down its budget and staff-numbers. Cuts in the early nineties brought the staff down to around 2500. Overall, the Bureau managed to keep most of its statistical output intact, thanks to effective computerisation. In the early nineties it had one of the largest and most advanced computer networks in the country: about 2500 PCs in local area networks and with high-speed connections between the two locations. Moreover, efficient software (including Blaise) for data collection, data editing and data dissemination was developed.

19. Regardless of budgetary decreases, demand for statistics increased, largely propelled by demand from the European Communities. Around 1992 the point was reached where the increases in efficiency could no longer offset budgetary cuts. This created tension. The Central Commission for Statistics, which decides on the CBS' program of work, had great difficulties to establish priorities. Several important users (e.g. ministries) became dissatisfied.

20. In this situation, the CBS management tried a ‘pre-emptive strike’ and launched the so-called Operation TEMPO, which stood for:

TIMELY – EFFICIENT - MODERN - PROFESSIONAL - INDEPENDENT

The main focus of TEMPO was external: input-co-ordination to minimise response burden and output-co-ordination to maximise user-satisfaction.

21. Analysis made clear that the problems were the following:

22. Problems created by external factors included: increasing demand for statistics, decreasing budget, consequent need to improve efficiency, tension between European and national requirements, pressure to reduce the response burden, need to improve presentation and public image, need to improve timeliness, need to improve public image.

23. Problems caused by internal factors included: too much compartmentalization and specialization, too many layers and poor internal communication, unclear responsibilities, complex internal rules and procedures, excessively inward-looking culture, low self-esteem, bureaucratic management attitudes

24. The organizational structure was completely transformed. Top management of the CBS would consist of the Director-General and two policy directors (including the Deputy). There would be 8 directorates: 4 for statistical production and 4 for support. The first of these supporting directorates was for input-co-ordination, responsible for the business register, data collection from households, development of EDI (Electronic Data Interchange), etc. The second was for output-co-ordination, including the development of a central database for overall dissemination purposes, integration of information (incl. national accounts), general publications and marketing and public relations activities. The third supporting directorate was responsible for basic statistical infrastructure (incl. methodology and computer services) and the fourth for general office services. Financial and human resource management were placed in a staff directorate, directly under the Director-General, who in addition was assisted by a small cabinet, responsible for international relations, legal and policy matters and for providing the secretariat of the Central Commission for Statistics.

25. The four directorates for statistical production were organised on the basis of a combination of principles, of which subject matter coherence and relations with ‘market segments’ (both in terms of users of information and of suppliers of basic information) were the most important. These four directorates were responsible for:

- i. Agriculture, manufacturing, environment, energy and technology
- ii. Trade, transport and commercial services
- iii. Public sector and well-being of the population
- iv. Demography, labor, income and consumption.

26. In terms of management, statistical divisions would be fairly autonomous; their performance was monitored by a system of so called contract management. Within each

directorate there were 8-10 statistical departments. Their internal organization was such that production teams were responsible for the complete statistical process.

27. In 1999, the government announced plans to close down the office in Heerlen, as well as to once again drastically reduce budget and staff numbers. Another turbulent period followed. Again, a compromise was reached. The Heerlen office remained open, but the CBS was asked to implement a plan to further reduce staff numbers.

28. This meant another fundamental reorganization, be it with a quite different perspective: while TEMPO was induced by the need to strengthen the orientation towards clients and respondents, the new reorganization was pushed by the task to further reduce cost and improve efficiency. Hence, this time the focus was on the streamlining and standardisation of processes.

29. The organization of statistical processes was, therefore, restructured from a subject-matter to a process orientation: production units were integrated and subsequently segregated according to stage in the statistical process. The movement towards integration led to the reduction of the number of Statistical Directorates from four to two: one for Business statistics, and one for Social and Spatial statistics. Within each of these Directorates, separate Departments were established for data collection and administrative editing on the one hand, and for statistical editing and analysis on the other. Because of the geographical Voorburg/Heerlen separation, there is one Department of each type in both locations.

30. In this design, there was no longer need for a separate Input Directorate, also considering that external data sources for persons and for businesses have little in common. Conversely, the Output Directorate (Macro-economic statistics and Publication) was maintained, and its responsibility with respect to publication and dissemination was even strengthened: all data produced by the statistical divisions are published by the Output Division, which also accommodates the central Information Service.

31. The Directorate Technology and Facilities completes the Division structure. To ensure close co-operation between technology/methodology and production, a substantial part of its IT and methodology staff is operationally assigned to the statistical Directorates.

32. The supervision over the four Directorates and twenty Departments is in the hands of the Executive Board, consisting of the Director General and his Deputy, who is in charge of statistical policy and processing. Together with the Directors of the four Directorates, they form the Management Committee.

33. The process-oriented new structure is heavily supported by advanced IT-tools. Actually, large databases account for a clear demarcation between the various stages in the statistical process:

- ❖ Data collection departments and data analysis departments are delimited by a database containing consistent source data at the micro-level; these data are the inputs for statistical editing and analysis;

- ❖ Data analysis departments on the one hand and the publication and integration departments on the other are delimited by a data base containing consistent statistical data at the micro- and aggregate level; these data are the inputs for the integration and tabulation processes.

34. Finally, it should be stressed that integration of processes not only leads to more efficiency. It is also a major step towards the long cherished goal of presenting a coherent picture of society in the form of consistent figures.

35. *Postscript:*

*It is difficult to assess the necessity or indeed the costs and benefits of the organizational changes that SN (Statistics Netherlands) has implemented over the years. Clearly, any major reorganization may generate innovation (fresh ideas), gains in efficiency and better focus on strategic objectives. It is, however, also energy consuming and jeopardises continuity. Many statistical agencies innovate, improve their efficiency and rethink their strategies without major organizational changes.*

*The last reorganization of SN, however, intends to fundamentally restructure the primary process and thus to produce substantial efficiency gains as well as integration, doing away with existing stovepipes for separate statistics. It is difficult to see how this can be achieved without a major organizational change.*

36. Newly appointed heads of statistical agencies may wonder whether the organization that they have taken over is the most efficient and effective one and whether changes in structure ought to be made. Likewise, long serving chief statisticians may at some point in time realize that the circumstances have changed so much over time that there is reason to consider a possible reorganization.

37. Before any major reorganization is initiated, it is wise to think at least twice, because of the risks and costs involved. There are also some general considerations to be borne in mind. They are expressed below as maxims:

- ❖ make no changes to accommodate every valuable new idea; this creates confusion and uncertainty
- ❖ organizations are not mechanical structures that can be simply re-engineered to meet new sets of circumstances; instead, they are living organisms and tend not to perform well when they are restructured along totally unfamiliar lines
- ❖ organizations are not ends in themselves; they serve to facilitate and they must accommodate traditions and most of all talented people<sup>65</sup>
- ❖ undue changes in top management personnel may antagonize staff and create factions
- ❖ while efficiency is an important concern, some overlap in responsibilities and even some redundancy cannot always be completely avoided without running the risk of overlooking important matters; obviously the overlap should be minimized
- ❖ the organization chart should be simple and easy to explain to insiders and outsiders; if it looks complicated on paper, it will probably also be complicated in practice

<sup>65</sup> See S. A. Goldberg (1973) op. cit. P. 7 "It is worth recalling ...that organizational structures are but shells...In the last analysis what is really decisive in the life and death of an institution is the calibre and suitability of the people that comprise it."

- ❖ it is advisable to limit the number of hierarchical levels (four is widely seen as the maximum), because messages tend to get distorted as they are transferred from one level to the next; at the same time, however, the span of control of supervisors should remain manageable (ten professionals is probably the maximum number to manage although for production staff the number is, of course, much higher)
- ❖ if a reorganization is unavoidable, keep the reorganization process as brief as possible
- ❖ make sure that the views of all staff members are heard
- ❖ the reasons for any re-organization should be made perfectly clear, because people resent working within a framework that is not fully understood

38. While these considerations apply to most organizations, there are also some points that should be borne in mind as they apply to statistical agencies in particular:

- ❖ Much of what statistical offices do is marked by sharp fluctuations in the workflow. For example for annual business surveys most of the basic data may be received in the second quarter of the year, most of the data editing may happen in the third quarter, and the mail-out of questionnaires for the next survey round may happen in the fourth quarter. To even out the workflow it may be a good solution to combine this work with tasks that have another ‘seasonal pattern’, e.g. short-term data collections, into one organizational unit. The extreme approach is, of course, to look for an agency-wide solution.

- ❖ For certain activities, particularly those that affect the corporate identity, it is important to aim at strict agency uniformity, and these activities should be placed under unified control, in one organizational unit. The agency ‘stamp’ is important because it assigns quality and conveys integration. Therefore, products (including questionnaires and electronic products on the Internet) should have a common look and feel; control of their design should preferably be centralized. Other examples of the importance of conveying a unified corporate identity are organizational units for international relations and press offices.

- ❖ In times of decreasing budgets, statistical offices are sometimes confronted with the question whether or not it is financially efficient to outsource certain functions, and which services can responsibly be bought outside. Catering, janitor services, security, in many cases printing and sometimes part of the dissemination activities are likely candidates for successful outsourcing. Some more general (e.g. basic computer skills) or on the other hand highly specialized types of training (e.g. management training) can often be bought easily. Much more controversial is outsourcing of interviewing; apart from quality issues that have to be considered, few commercial interviewing agencies seem to be able to compete –price-wise- with the agency’s own fieldwork staff. And finally, a very controversial issue is to what extent certain computer services should be bought or self-produced.<sup>66</sup>

### 5.5. Coordination mechanisms and corporate culture

39. In all organizations, a sufficient degree of coordination (and not only statistical coordination in a narrow sense, as described in chapter 2) is a must. While in smaller statistical

---

<sup>66</sup> One example of successful outsourcing of routine computer network maintenance is to be found in Statistics Sweden. See chapter 7 for a fuller discussion of outsourcing of information technology.



offices, coordination may be achieved through ‘mutual adjustment’, and coordination in units of larger offices through direct supervision, there will also be a need for standardization –agency-wide- of processes, outputs and skills.

40. Even more importantly, though this is a difficult topic, is the creation of a strong corporate culture: shared beliefs, values and norms. A strong system of internal communication (newsletters, Intranet, periodic meetings of the chief statistician with senior and middle-level managers and indeed rotating selections of all staff) may help to achieve this. A seemingly trivial, but in principle very functional technique of creating a corporate culture is for senior managers to regularly visit the work floor.

41. Among the more formal mechanisms to coordinate and to promote corporate culture, a well functioning system of committees is perhaps the most important and effective. In the following sections the role and workings of such committees are discussed. A distinction must be made here between committees and task forces or project teams. The latter serve to deal with specific, finite problems. Committees usually have a more permanent character and serve to address long term or recurring issues.

42. *Handbook Rev. 1* distinguishes the following as sufficient justification for the creation of a committee:

- ❖ Improving across-the-board communications and increasing the sense of participation in collective initiatives
- ❖ Mobilizing agency-wide support for new and high-priority tasks
- ❖ Ensuring multi-disciplinary contributions to a new and complex undertaking
- ❖ Maintaining a balance of different interests and perspectives when new methods, standards or concepts are introduced.

40. On the subject of structuring a committee required for effective management of a statistical agency, *Handbook Rev. 1* states:

“Indeed, it is, or it should be, one of the constant challenges of top management in a statistical agency, irrespective of its pattern or organization, to keep the horizontal dimension alive, visible, and effective.”

*Handbook Rev. 1*<sup>67</sup>

41 We may safely assume that a sizable agency (i.e., 500+ employees) will reflect in its organizational structure both subject matter and functional units. As a result, there will be points of internal tension for which some form of mediation is required. For example, both the department in charge of industry statistics and that in charge of health statistics have the required funds to pay for the computer processing of their latest data. Monthly, conflict arises over which department takes priority, as does the threat of one or the other missing scheduled release dates. The chains of command of the two departments only meet at the very top. A system that reduces tension, forecasts events, and standardizes the manner in which future conflicts arising from this

---

<sup>67</sup> P. 10

kind of situation are resolved, becomes necessary. *Handbook Rev. 1* points out that horizontal mechanisms must be put in place to resolve conflict and promote integration in any organization with separate units that must agree on an integrated programme. Such mechanisms are known as horizontal committees. Some statistical agencies have a complex network of committees, some standing and some *ad hoc*, all created to promote an overriding objective and to minimize inevitable tensions.

42. The influence of a horizontal committee depends on whether the statistical agency wants to maintain its established hierarchical flow of information, or wishes to introduce a second source of advice and information specialized in corporate rather than single organization problems. In the case of the latter, committees may become as powerful as the regular units listed on an agency's organization chart.

43. There are essentially two kinds of internal committees<sup>68</sup>, those that deal with managerial and those that deal with technical issues. Certain statistical problems exist irrespective of the good will of participants, the soundness of the agreements reached by them, and the quality of basic statistics. For instance, in those countries where there are estimates of quarterly national accounts, issues inevitably arise from the nature of the basic statistics and resulting inconsistencies when the accounts are first compiled. Where a central register of businesses, classified according to their economic activity exists, subject matter experts should take part in agency-wide discussions to ensure that different surveys do not end up with overlapping populations.

44. Situations requiring periodic discussions that cut across several organizations extend beyond those concerning subject matter. Issues such as the recruitment of professionals; the provision of general training for all classes of staff; and the standards of dissemination where different parts of the organization contribute to the same publication, all require open discussion and review of internal protocols. These matters are of consequence to both large and small organizations, but in the case of smaller organizations, the formality and size of committees decreases substantially.<sup>69</sup>

45. One important committee, essential in instances where the statistical agency's staff is unionised, deals with matters of labor-management relations. There are many situations in which the chief statistician needs a direct conduit to the staff, just as staff members need direct access to the agency's executive. The nature of such a committee's agenda depends partly on which elements are handled on a government-wide basis and which are left for each agency head to solve.

46. In the following discussion we address those concerns requiring regular attention. Issues resulting from a temporary increase in interest justify the creation of a Task Force and are not seen as crucial to the agency's organization. The elements required for a Task Force to operate successfully, though, are much the same as those necessary for the functioning of a standing committee.

47. Typically, committees do not have a budget. Their power is a result of the respect they are given by the rest of the organization and the established practice of resolving cross cutting issues by committee. Still, committees have minimum requirements — a chairman, a secretary, an

---

<sup>68</sup> There is a discussion of external or advisory committees included in chapter 2 above.

<sup>69</sup> In the case of Switzerland—a medium sized statistical agency—there are standing committees covering such subjects as the consumer price index (CPI) and ad hoc committees formed to deal with unique problems as they arise.

agenda, and rules on membership. The chairman should be a capable and impartial leader, and his/her judgement should be respected, even though it is not an official decree. The committee's purpose is to advise the chief statistician on what it believes. While the latter has the power to ignore the committee's advice, in practice, and possibly with slight modifications, the committee's voice will be heard.

48. The Committee's recommendations should be recorded. These decisions, together with a short account of the reasoning behind them, should be open to inspection by the rest of the staff. For large offices with a comprehensive internal system of communications, all of the committee's agenda, deliberations, and records of decision should be posted on the agency's Intranet. As an organizational rule, while the committee's recommendations are not reached by consensus, staff members should always be privy to the committee's decisions.

49. Committee membership is an opportunity to contribute to agency-wide policies, as well as a training ground for future senior managers in the sense that it provides members with a broader perspective than they could acquire from their regular jobs, and makes them aware of the wide range of considerations important to the agency. Committees must not grow too large, or else they become cumbersome and incapable of reaching closure on the issues they debate. Generally, committee meetings lasting over two hours represent a heavy tax on their members' time. In order to maximize the training benefits that such committees confer on their members, some system of membership rotation should be adopted. One possibility is that members serve on a committee for a mandatory period of two years, extensible by one year, after which they move on. Inevitably, an informal league table ranking committees by their perceived influence or prestige will be established. Determination of membership should acknowledge prestige and ensure that those managers who show promise serve on committees with the most critical agendas.

### Conclusions

Organizationally, there is no 'ideal' model. In practice most statistical offices have been organized according to either subject matter or function, but usually according to some combination of these. Moreover, there has been a realization that one might organize statistical offices in two ways: according to data source or for data output according to user categories.

Before any major reorganization is initiated it is wise to think at least twice. Some of the general considerations to be borne in mind include:

- ❖ make no changes to accommodate every valuable new idea; this creates confusion and uncertainty
- ❖ organizations are not ends in themselves; they serve to facilitate and they must accommodate traditions and most of all talented people
- ❖ while efficiency is an important concern, some overlap in responsibilities and even some redundancy cannot always be completely avoided without running the risk of overlooking important matters; obviously the overlap should be minimized.

## Chapter 6 MANAGING STAFF

### 6.1. Introduction

1. Nothing is as important to a statistical agency as its staff. For the difference between a well-organized, strongly motivated and technically competent staff, and one that only displays these attributes to a very modest extent is the difference between a good and credible office and one which is second rate. Expenditure on staff accounts for a dominant fraction of a statistical agency's budget. In a sample of offices representing a broad array of sizes and stages of development, salaries account for approximately 70 per cent or more of the total budget. In addition, heads of agency tend to devote more time to staff problems than to any other issue.
  
2. Improvements have been made in "people management" in bureaucracies in general and in statistical agencies in particular. People management is acknowledged in discussions in international venues as having been taken for granted in earlier times, and is now perceived as critical. Also addressed in such discussions are the various stages of training and the need to retain and develop staff, as well as the considerations that determine how specialized the agency's staff should be.

#### Handbook Rev. 1 on the subject of staff and skills

"A decisive factor in the internal capability of a statistical agency is the calibre of its staff. An agency can only function well if good people are available to make it work. Organizational arrangements may contribute to enabling good people to do their best; but it is essential to give utmost attention to building up the right kind of staff in organizing and managing a statistical agency."

"To acquire the kind of skills needed, a statistical agency must have a well-planned policy and active programme of recruitment, career development, education and training."

"In addition to the personnel unit, other units of the administrative branch should be involved in carrying out the personnel policy. The acquisition and maintenance of adequate office space and equipment can contribute not only to efficiency but also to the well-being and satisfaction of the staff. Moreover, suitable accommodation, facilitating ready communication between people working in related fields, is conducive to the integration of statistics because, in a real sense, the "successful integration of statistical end-products is contingent upon the 'integration of the statisticians' ."

"After some time, when a minimum of experience has been gained, every employee should be obliged to attend an orientation course where further explanation is provided."

"Officials of the personnel unit should teach the introductory course for employees at lower levels [management should teach professionals]; the establishment of good personal relations between this unit and the new employees is of great importance."

"The in-service education and training described above requires not only teaching but also quite extensive administrative efforts. Therefore permanent machinery should be established in the form of an in-service training school. In a small or medium-sized agency, a part time head of the school may be selected from among the best qualified professionals of the agency. In a large agency, a full time head may be needed. Such machinery is

necessary to ensure the proper design of courses, recruitment of teachers, selection of students, etc.”

*Handbook Rev. 1, Chap. VIII*

## 6.2. Staff composition

3. The share of the professional and technical components has increased substantially even in cases where actual numbers have dropped and relative resource endowments have not kept up with changes elsewhere in the civil service. It happens in some statistical agencies (at least in countries in the OECD area) that professionals account for one in two staff members. Statistical surveys have become more sophisticated, at least in terms of planning, and general expectations regarding the quality of the estimates produced by statistical agencies have risen. The computer and communications revolutions and the resultant gains in labor productivity have surely contributed to these trends. One of the many results of these changes is the impact on the human resource policies adopted by, or imposed on, statistical agencies. These policies, which were still in the developmental stage 20 years ago, appear to have fully evolved in many agencies and should therefore, be open for study by statistical offices that are still undergoing structural changes.

4. The staff of a statistical agency is not solely made up of statisticians. But it is a common practice—although by no means a rule—to appoint someone with strong credentials in statistics.

5. Irrespective of the incumbent’s other virtues, the demonstration to the public that the government’s chief statistician has a profound understanding of statistics tends to inspire confidence. Due to the range of subjects covered by a modern statistical agency, the staff tends to possess a variety of skills and academic backgrounds. Even agencies that only conduct moderately complex and specific statistical undertaking find themselves in need of a wide range of talents. Statistical operations require a mix of economists, sociologists, demographers, econometricians, model builders, geographers, anthropologists, criminologists, engineers, computer experts and so on.

6. Some of these skills are not required for day-to-day statistical operations,<sup>70</sup> but they prove essential when new operations are being planned and launched. Naturally there is a certain amount of learning and technology transfer that makes the staff of statistical agencies more versatile but in the end, medium and large offices will find that there are limits to what can be borrowed from other countries and other institutions and will therefore choose to enhance their own capabilities.

7. There are important reasons to build a multi talented staff with a good mix of academic and work experience backgrounds. The following is a discussion of the factors that dictate the balance of skills required from the staff in an effective statistical agency. As in many other situations, the question arises whether certain capabilities are used so often that they should be available to the agency on a permanent basis or whether given the expected usage it is sufficient if

---

<sup>70</sup> Even so, there are well-established statistical operations that do require the almost daily intervention of very specialized knowledge. Nothing could be better established in the majority of Government statistical agencies than the Consumer Price Index (CPI). And yet maintaining detailed specifications of goods and services priced every month or every quarter in the face of technical and institutional changes demands a knowledge usually possessed by a wide variety of specialists. Thus, offices may require at least the frequent advice of civil engineers, telecommunications, radio, and television specialists, banking and insurance operators, etc.

they are acquired if and when their use demands it. This holds for people as much as for equipment. For example, when adapting an international classification to suit national purposes, there will be an inevitable growth in demand for very specialized knowledge, such as chemicals, electronics, pharmaceuticals, computing, the audio-visual industry, and financial services. Likewise, international trade statistics require specialized commodity knowledge as well as knowledge of national customs administration processes. These are examples of requirements that tend to be in demand when new methods are introduced or new classifications are instituted. In such cases, an agency may choose to employ the services of a specialist, through a consulting contract or some other non-permanent association.

8. The more general the capabilities sought, the easier it is to administer and maintain them. Moreover, general capabilities have a versatility that agencies, particularly the smaller ones and those that have not yet fixed a medium-term agenda, find attractive. General training can be provided formally; creates the basis for a shared culture and predictable performance; and can more easily be supplemented by specialized training as staff members move from one job to another.

9. Professional staff can often be divided into two categories:

- ❖ General personnel capable of performing at lower and intermediate levels of sophistication in the areas of computing, statistical design and analysis, national, public sector or enterprise accounting, and economic, social or demographic analysis

- ❖ Specialized personnel capable of performing at a substantially higher level in an area such as non-response analysis or in a field such as analysis of geographic information, criminology, or health statistics.

10. This structure can be augmented by the occasional purchase of services provided by national or international consultants who are highly specialized or concerned with matters of policy and public perception to contribute to some major undertaking.

11. Once a determination has been made as to what is acquired as permanent staff and what is acquired through short-term contracts, the chief statistician will evaluate supply and demand and attempt to correct any imbalances through recruitment policies.<sup>71</sup>

### **6.3. A human resources policy**

12. Irrespective of its composition, the work force of a statistical agency is its most precious resource and as such it must be treasured. An effective statistical agency will manage its staff with the help of an explicit set of policies. The most important elements of a personnel (human resources) policy are:

- ❖ ability to ascertain personnel needs

- ❖ standards and techniques for recruitment

---

<sup>71</sup> Some of the larger statistical agencies have an explicit personnel forecasting model, designed primarily to consider the hierarchical level of the incumbents and match it to their demographic characteristics. The model is used to avoid the rise of undesirable imbalances in the hierarchical (more than in the professional) structure

- ❖ deployment of personnel
- ❖ introductory training
- ❖ monitoring equity in recruitment and in career advancement
- ❖ intermediate training
- ❖ career development and job rotation
- ❖ training for managerial functions
- ❖ staff motivation and retention

13. These elements are listed in the approximate order in which they naturally arise. Certainly, other features could be added, but these are sufficient to support a policy with common objectives. The following is an example of a set of coherent objectives, which the elements listed above are designed to help attain:

- ❖ increase the proportions of professional staff by expanding the annual intake of young professionally qualified staff
- ❖ ensure that once recruited, qualified people are assigned suitable jobs, and everyone is treated fairly
- ❖ devise a proper mixture of deterrents and incentives, to be made explicit to the staff
- ❖ administer sufficient training to staff members at key points in their careers, so as to maximize versatility and motivation
- ❖ ensure that key jobs are staffed and have a possible successor ready to step in to the incumbent's shoes should the need arise

14. To facilitate a discussion of ways in which these policies can be administered, four internal institutions should be examined:

- ❖ office of personnel
- ❖ personnel committee
- ❖ in-service training facility
- ❖ evaluation machinery

15. The office of personnel and the personnel committee assess needs, recruit and deploy staff, formulate retention policies and ensure equitable treatment. The in-service training facility, as its name suggests, oversees training. Finally, the evaluation machinery fields questions regarding the adequacy of these mechanisms.

16. *Handbook Rev. 1* suggests that when a statistical agency reaches a certain size, it should invest in a professional Office of Personnel. But experience shows that while such an office is

essential in dealing with the *administration* of all or most personnel policies and with advising on the development of personnel policies and instruments, it seldom plays a decisive role in detection, evaluation, or persuasion, all of which help ensure that talented people come to work for a statistical agency, that the agency's stock of people gets renewed as often as required, and that there are incentives to retain the best employees. This finding, while seemingly critical, merely recognizes a simple fact: a professional Office of Personnel primarily will administer public service acts, enforced in most countries, that regulate the conditions of recruitment and employment in the public sector.

17. Cases in several countries have also shown that the most successful formula for the management of personnel issues is one in which the subject matter staff is intimately involved with such personnel processes as recruitment, training, and retention. Heads of personnel units are the advisers best qualified to validate suggested personnel approaches and policies. They are also the right choice for the execution of policies once the choices are made and the policies in question defined.

#### 6.4. Recruitment

18. Often Ministries such as Planning, Treasury, Industry, Employment, Agriculture, and Transport as well as agencies such as Central banks, Stock Exchange Commissions and Comptrollers Offices will draw recruits from the same pool as the statistical agency. In most countries, initial, and subsequent, salaries in the statistical agency are relatively low compared to Central Banks. Moreover, in some developing countries this inequality also holds between the statistical agency and other ministerial agencies. For this reason the statistical agency should develop a recruitment plan, including attractive items such as:

- ❖ impressing upon them that professional work tends to be more rewarding in a non-political environment such as that maintained by the statistical agency.
- ❖ appealing to the competitive instinct of recruits by promising them that merit will be used to militate against the more onerous aspects of seniority rules in their promotion prospects; and
- ❖ giving recruits intensive and marketable training of a practical nature either directly or by agreement with a teaching institution;
- ❖ striving to send young people to acquire training abroad as soon as they prove themselves ready;

19. All this is subject to the constraint that the statistical agency should rather not recruit than deliberately recruit the mediocre. The personal involvement of the chief statistician in these matters can help transform a mechanical and not very fruitful approach to young people into one filled with prospects and enthusiasm.

20. Young people who decide to go into public service are often seduced by the prospect of working on policy analysis. The opportunity to be in the proximity of those whom they perceive as the makers of the Nation's destiny is an unrivalled attraction. This creates a problem for a statistical agency. Not only does it add to the difficulty of enticing top graduates, it also makes it more likely that if recruited and given specialized training, these graduates will move on to more prestigious centres of government. Furthermore, once economists and social scientists start working for other government agencies, the possibility of getting the brightest back to a statistical



agency is not high. For this reason, statistical agencies must accept the cost and the risk of recruiting young people with no experience, forge suitable training policies, and stick to them in the knowledge that they face inevitable high rates of attrition particularly among the non-statisticians.

21. There are a great number of careers open to young people with ability for quantitative analysis that promise greater incomes and a faster rise to even higher monetary rewards than anything the chief statistician can hold out for them. It is very difficult for a statistical agency to compete with the private sector on initial or prospective salary. However, statistical agencies should be looking for who are searching for more than salary. Those who may be more successful in the government in general and in the statistical agency in particular, would join the organization because they wish to have a job with higher moral purpose that is public interest. Still, as we have mentioned previously, it is often difficult for the statistical agency to compete with other governmental agencies on the lookout for the same kinds of talents. Mitigating this situation is the fact that those who have graduated in mathematics with special reference to statistics, and who do not wish to teach or to be an actuary, but are interested in mathematical applications to sampling, statistical design of experiments, hypothesis testing and so on, the statistical system presents the most interesting challenges. The statistical agency should make it a priority to find professionally interesting work for such employees as soon as they join the agency. In addition it is probably easier as a matter of practice to get young statisticians to broaden their interest so that they extend to economics and social organization and stay with the statistical agency rather than expect economists and sociologists to extend their stay for the sake of interesting issues in the theory of measurement.

### 6.5. The first day

22. In official texts on organization, little if anything has been said about a new employee's first day in the office. And yet the first day (or the first few days or the first week) can have a pronounced effect on the recruit's attachment, respect, and dedication. If the statistical agency is just another government agency, it will not be able to compete with more prestigious areas within government. It will have neither the cohesive and elite forces that bind together Foreign Service officers nor the high profile work that characterizes the business of analysts working on macroeconomic policy. The strengths of a statistical agency are that it will allow long term pursuits to be entertained in an atmosphere relatively free from political turmoil and totally free, one hopes, from successful political pressures. Those strengths can be cemented in a recruit's first few days and converted into loyalty to the office.

23. An effective statistical agency will ensure that the following takes place on the first day:

- ❖ the new recruit finds an agreeable place in which to sit and something definable to do
- ❖ an accessible person is identified to whom to address questions and get doubts resolved<sup>72</sup>

---

<sup>72</sup> There are agencies in which there are two such persons: one is an immediately defined supervisor who is responsible for the day-to-day administration of the recruit's work and performance. The other—acting as a “mentor”— is responsible for the recruit's adjustment to the new workplace, for the resolution of longer-term questions and doubts, and for the discussion of supplementary skills that the candidate may wish to acquire as a means of career development.

- ❖ the organization conveys its willingness to consider the individual's career in addition to the immediate job
- ❖ an explanation is given of what the individual's activities will be in the immediate and the near future, how they fit in with the organization of the office and what specific objectives they are designed to serve
- ❖ a training plan is presented
- ❖ orientation. Some(larger) offices have developed the tradition of organizing, at regular intervals, e.g. every month or every second month, an orientation day, which is meant to give new recruits a quick overview of how the organization is structured and operates.

#### **Intranet and the first day**

The first day has become an incomparably easier affair to manage with the institution of the Intranet. In several offices, recruits are equipped with a PC and a modem and find a personal greeting from the chief statistician; the text of the law that rules their agency; the structure of the organization, complete with the names and telephone numbers of key people; extracts from major publications; and usually a thriving exchange of messages among staff members that range from private sales of cars or audio equipment to serious discussions of methodological problems. Even if a PC and a Modem are not available, a printed guide with the above material would still be of value.

### **6.6. Training**

24. Training should be regarded as an ongoing activity. In fact without going so far as the Armed Forces where a promotion to a new rank is viewed as the beginning of a training process that will lead to the next promotion, training should be a continuing activity.

“The supply of professionals with the skills required in a statistical agency is as a rule scarce....Frequently the progress made by new staff members is slow because they do not know the characteristics of the agency sufficiently well....After some time, when a minimum of experience has been gained, every employee should be obliged to attend an orientation course where further explanation is provided...”

“In many countries, the knowledge acquired in universities, both in subject-matter field and in statistics, is often too general and abstract to be immediately well adapted to the needs of statistical agencies....Developing countries have access to regional institutes of statistics, sponsored by several countries, which a statistical agency should take advantage of.”

*Handbook Rev. 1*<sup>73</sup>

25. There is no denying that the demand for training has increased. Generally speaking, the statistical process has become increasingly complex. Traditional on-the-job training methods, while indispensable, are not the most effective way to ensure versatility of skills and standardization of methods. And on the other hand, training facilities for developing countries seem to have diminished by insufficient budgets and lack of available trainers. In addition, the demand on statistics in terms of accuracy and timeliness has increased. This makes the choice of training methods, particularly for more experienced, specialized statisticians a crucial issue.

---

<sup>73</sup> Pp. 42 and 43

26. While there are different ways to provide career-long training, one way that has proved to work in many countries is to consider general-purpose training as having three distinct cycles:

❖ the introductory cycle: This is primarily designed for newly recruited staff, and its purpose is to ensure their speedy integration into the organization, which implies both becoming familiar with the traditions of the statistical agency and being able to make a contribution in any of the domains or functions within its scope. Virtually all agencies administer such training, even if they do so in the most informal manner.<sup>74</sup>

❖ the intermediate cycle: This training cycle is designed primarily for those who have worked in a statistical agency for a period of five to ten years and who have not had an opportunity to refresh their skills

❖ administrative cycle: Over the course of a staff member's career, its direction eventually becomes foreseeable. Those who have the potential to fill policy making positions within their respective agencies, should be trained in the subjects that will demand their energies once they reach management levels. These subjects include financial administration and control, large project management, marketing, the government institutional set-up, and other features of the environment external to the statistical agency.

27. Moreover, one should make the corresponding cost part of the agency's regular budget; and administer training to all targeted staff members as a matter of course. Because such training is regarded as general purpose, it is not sufficient and should be complemented by more narrowly defined courses to meet specific short-term needs. Many offices are not in a position to provide courses at all or at any of these levels. This is why alternatives and special arrangements are so important. In general, training can range from the very formal, given in a separate school by qualified trainers and lasting for several months at the end of which course graduates are awarded a diploma, to an informal series of discussions with senior officers, possibly including the head of the agency.

28. For those offices, which are very small, newly formed and where tradition is still being created, the alternative solution may be to benefit from what is available in the offices of better-endowed neighbours; or in more advanced statistical agencies in which training modules for visitors from abroad are featured regularly. There are numerous variations on this practice, and the possibility of offering additional courses largely depends on the overall resources of the statistical agency as well as on the time and money it wishes to devote to initial training. Generally, the size of the agency and its endowment will determine the formality and specialization of the courses it offers.

29. The idea of an in-service training institute is almost as old as that of creating a stand-alone statistical agency dedicated to the improvement of statistical methods and compilation and dissemination of social and economic statistics.

---

<sup>74</sup> In the United States Bureau of the Census, newly recruited staff were expected to attend a lengthy course, which involved taking a small-scale survey after designing it literally from scratch. The survey was conducted by a group of recruits, each member assuming a specialized role (computer analyst, questionnaire designer, sampling error estimator etc.). Its primary purpose was to instil at an early stage the habit of working in multidisciplinary teams. The idea was adopted by a number of other countries. In some countries, recruits must complete a range of compulsory courses lasting two to three months, followed by a couple of years of assignments in various parts of the agency, so that they gain a more general perspective on statistical work and the way it is handled while simultaneously contributing to it.

“...[The] education and training described above requires not only teaching but also quite extensive administrative efforts. Therefore permanent machinery should be established in the form of an in-service training school. In a small or medium-sized agency, a part time head of the school may be selected from among the best qualified professionals of the agency. In a large agency, a full time head may be needed. Such machinery is necessary to ensure the proper design of course, recruitment of teachers, selection of students, etc.”

*Handbook Rev. 1*<sup>75</sup>

30. Some countries have such a facility and run it very much in accordance with these recommendations. Other countries have different arrangements with local universities, in which they share the burden of administering at least the more formal aspects of training. Others still adopt *ad hoc* solutions and ensure that their junior and intermediate staff are trained abroad, preferably in neighbouring countries or else in a regional training facility.

### 6.7. Job rotation

31. An agency’s “staff model” may fall anywhere between two extremes. At one end of the spectrum is the “no one moves” model. Its objective is to maximize specialized human capital by allowing staff members to learn more and more about their respective areas of responsibility (e.g., industry; health; education; retailing; balance of payments). Staff members would be expected to have a purely vertical career and would only leave their areas when called upon to discharge agency-wide responsibilities.

32. At the other extreme, the driving principle is versatility. Staff members are encouraged (or required) to acquire the widest possible experience in the shortest possible time by moving from one job to another. Where this movement is directed by the office of personnel, it would likely be in keeping with an optimal pattern so that the acquired experience would provide the most versatility.

33. It is virtually impossible to quantify the many factors that affect how an agency will balance the need for specialized knowledge and versatility. For example, staff morale is an important consideration, and if the idea of permanent rotation goes against habits and expectations, its introduction in an extreme form may create negative reactions that outweigh its benefits. Conversely, in a culture where the staff are used to and expect to change jobs every so many years, the absence of opportunities to try different assignments might well lead to frustration and atrophy.

34. Somewhere in-between is a point that makes possible to find a balance, capitalizing on the inherent strengths of the two extremes. For example, an institution may require that at a certain level no one is allowed to remain on the same job for more than five years; if one opts to keep the same job for an indefinite period of time, it would be with the knowledge that one’s chances of advancement are correspondingly reduced, even if job performance is entirely satisfactory.

### 6.8. Staff retention

“Despite the contributions of national, regional and international institutes to the trained statistical work force, critical shortages exist in developing countries. In a more fundamental sense, the shortages reflect the disadvantaged position of the statistical service in many developing countries with respect to pay scales and related working conditions as well as the low or moderate status of the national statistical services within the government hierarchy. Thus the most promising young people do not enter the statistical service as a first choice...”

---

<sup>75</sup> Pp. 43

35. Staff retention is one of the major challenges for every office, large or small, well or poorly endowed. The smaller and less well endowed the office, the greater the loss sustained when a talented individual leaves. Several methods of retaining staff are worth exploring but none is foolproof. Ultimately, losses of employees to other offices and to the private sector must be included as part of the expected cost of running a statistical agency.

36. One way to deal with staff retention is simply to accept that no statistical agency can keep its most talented people forever. Accordingly, the best it can do is to procure the services of capable staff for a limited period. It is better to be explicit about it for in this way there are no surprises at the end of the period for which these services are contracted. One tactic is to convince departments of government that attract talented professionals with abilities in quantitative analysis that it is in their interest to place such people in the statistical agency for a while, so that they can learn all about the limitations of data and the possibilities of statistical inference. Moreover, such sharing of staff will help the statistical agency sort out its priorities, connect the agencies, and creating a better basis for ongoing dialogue. Since these features are always valuable, the initial stationing of people in the statistical agency or the ongoing exchange policy could become permanent features of a government-wide personnel management program.

37. Another way to improve retention is to provide positions of increased responsibility to young and talented people as soon as they have demonstrated their capability. There is a risk, but it is preferable to retaining staff members of mediocre talent while losing those whose talents are exceptional.

38. Another option is to form a contractual relationship with recruits that will deter them from leaving the statistical agency for frivolous reasons. For example, in offices with structured introductory training programmes, recruits could spend their first year on a particular assignment, after which they would participate in the training programme, provided they have signed up for a stay of at least three to five years in the statistical agency.

39. There are also special programmes that can be developed to assure that qualified persons are recruited such as the ‘cadet programme’ of the Australian Bureau of Statistics (where the statistical office pays for the education of talented future statisticians), and internships.

40. Traditionally the problem of staff retention has been sharpest for experts in information technology (IT). As the speed of deployment of IT has increased so did the demand for trained personnel; however, the supply of qualified people did not increase as quickly. In such circumstances, it became virtually impossible for a government institution to compete with the private sector, the banking sector, or companies owned and operated from abroad. Government institutions could not offer competitive salaries, and what they could offer—job security—was not an overriding concern for the young and mobile professional with those skills. The standard response to this situation, which has shown no great variation in the recent past, was to recruit ever younger, less-experienced technicians and administer training. But this policy, in addition to consuming resources, converted statistical agencies into an unrecognised training centre for the private sector. As soon as recruits were trained, some other enterprise stepped in, offering to double or triple their salaries.

---

<sup>76</sup> P.43

41. Next chapter will consider in more detail how to manage IT in a statistical agency.

### 6.9. Options for a new chief statistician

42. No recently appointed chief statistician—with the possible exception of one in a newly created office—can make more than minor staff changes. Annual recruitment represents only a small share of the total number of employees and is unlikely to make a profound difference in the short term. Most agency heads will inherit a complete team; some will inherit a ready-made team from which the top layer has been removed, as when there is a change of government<sup>77</sup>. Whether or not the existing team is ideal, it is prudent to keep it intact (to do so may also be the only option under the law), and to make improvements through gradual additions and by taking advantage of voluntary departures and retirements.<sup>78</sup>

43. Occasionally, total resources are increased appreciably because of a special project (e.g., a Census or a very complex and costly survey) for which supplementary staff members must be recruited. In such cases, significant staff changes may be made; this is not the rule but when it does happen experience shows that the risks involved in hurried recruitment outweigh the bad impression created by a sluggish response to an urgent need.

44. A chief statistician newly appointed to run an existing agency may worry about being overly dependent on the existing staff for advice, and may be concerned that the staff will take advantage of the situation, perhaps to carry out a pet project, exaggerate a technical difficulty, or add to resources in a less than unbiased fashion. Accordingly, a chief statistician joining an agency may wish to bring in someone he has worked with, whose judgement he trusts and with whom he can discuss options as an alternative to his own immediate subalterns. While this practice may provide a certain cushioning, it may well have the unintended effect of widening the gap between the head of the agency and the regular staff. In fact, the greater the access and the level of the newcomer the greater the danger of internal rivalry. One device, which has been used to signal the transient nature of the appointment, is to bring in the newcomers but not as part of the established hierarchy.

### 6.10. Human resource management: a package

45. So far we have described the elements of a human resource policy and the factors that affect them. But makers of policies—Chief statisticians, Heads of Personnel, Committees on Human Resources—are not simply free to pick and choose those measures they believe are required to solve a current problem without concern for the coherence of the resulting set. Policies, in this domain perhaps more than in any other, must reinforce each other in order to be effective. For example, a strong impetus assigned to job rotation can only make sense if versatility

---

<sup>77</sup> It is typical in some countries to have the top layer of management of a statistical agency tender their resignation when there is a change in government. In some of these countries, the President, by constitution serves only one term, so this practice might create a change in direction as often as once every four or five years. Moreover, the management being called up to tender its resignation has just mastered the mechanisms of the system, whereas its successors are unfamiliar with them. The result is that the second level of the staff, or perhaps a lower level still, must take charge of day-to-day operations.

<sup>78</sup> There is little advice that can be given to Chief statisticians in a generic way on what to do with the people who are generally perceived to be a liability to the organization. Of course, if they are very disruptive there may be no choice but to engage all the means available by law, regulation, and tradition to free the organization from their services. Such cases, however, tends to be the exception. More often, people are on the margin and the Chief statistician receives conflicting advice about their value to the organization.

is favoured over specialization and general training over on-the-job training. The list below details a possible set of measures and policies applicable to small to medium sized offices:

- ❖ a steady influx of recruits, weighted in favour of those with post-secondary training, with insistence on computer proficiency and flair for quantitative analysis
- ❖ as heavy an investment in the beginner's initial training as resources permit, laced if at all possible with out of the institution or even out of the country training opportunities for the most talented
- ❖ an agreement with other public sector institutions in which talented young people remain in the statistical agency for a reasonable period of time
- ❖ promotions based on merit as opposed to seniority, in order to minimize the loss of able staff members
- ❖ semi-compulsory job rotation in order to avoid excessive specialization, supported by ongoing training to ensure versatility and acquired familiarity with a variety of jobs within the statistical agency

#### **Conclusions**

Staff are the most important asset of a statistical agency. It therefore deserves a policy especially designed to ensure that:

- ❖ the most talented and promising people are recruited
- ❖ the selection process is as thorough and as professional as possible
- ❖ newly recruited staff are properly assimilated into the statistical agency
- ❖ working conditions are satisfactory and designed to facilitate communications between newcomers and the rest of the organization
- ❖ personnel administration is a necessary activity within a statistical agency and is better handled in a centralized mode by professionals but not exclusively by them
- ❖ training needs may justify a special training centre with its own staff and a dedicated (part time or full time) professional director
- ❖ human resource policies should constitute a coherent set. (small and medium sized offices should be encouraged to choose policies that favour versatility and maximize career opportunities within the office)

## Chapter 7 MANAGING INFORMATION TECHNOLOGY

### 7.1. Introduction

1. Much has changed in the twenty years since the matter of capital assets was addressed in *Handbook Rev. 1*. Four advances, familiar to all, have greatly expanded the capabilities of a statistical agency:
  - i. Powerful, relatively inexpensive computer equipment has been made available to all staff members in many statistical offices.
  - ii. User-friendly applications software has given staff members control over a number of key statistical functions ranging from questionnaire design to collection, editing, tabulating, mapping and publishing. Readily available off-the-shelf components have made in-house application programming easier and component reuse within the organization has become more common.
  - iii. Computer networking has facilitated internal access to data and metadata through established tiered client/server environments.
  - iv. Internet technology has made timely access to the outside world feasible for staff members, thereby making it possible to conduct research, gather general information, etc., at all levels of an organization, rather than solely through top management.
2. These and related changes have given rise to new concerns regarding how to manage the information technology (IT) environment. We include in the IT framework hardware, software, staff resources, and commercial services.

### 7.2. IT management models

3. Our focus, here, is not with the management of particular technologies but rather to investigate if there are broader themes that will withstand the inevitable – and fast paced – changes in technology to come. Thus, for example, we will not try to examine the pros and cons of a client server model or optimal network structure within an agency. Even if such competency were within the province of this handbook the opinions would be out of date even before the handbook was published. Rather we will first consider two organizational models which we believe have a reasonable chance of being valid over the next ten or so years and then consider some general prescriptions which should be valid independent of particular technological winners and losers.

3. **Model 1.** In this model the agency makes detailed and comprehensive decisions about its informatics infrastructure. This goes far beyond hardware decisions and also includes a common software architecture. By this we mean not only the underlying data base management software and consequent standardized definition throughout the agency but also standard user interface,



group ware (e.g. Lotus Notes type products and again standard naming conventions and archiving conventions), personal software such as spreadsheets and the integrating tools to “glue” the software together. Some agencies have gone so far as to prohibit private personal file storage to be attached to workstations to ensure that no other software -- except that approved by the central informatics area – is found on individual machines. Maintenance, updates and decisions on new software are all determined by the central organization.

4. Since there is one common infrastructure in the organization this approach serves to bind together the organization and prevent information anarchy. As well it makes it much easier to integrate different functions of the agency such as registers and cognitive research. On the other hand it may stifle creativity and parts of the organization may not have the tools they need to perform their functions properly. The success of this model is clearly dependent on the effectiveness of policies and personnel in the central informatics division.

5. **Model 2.** This model also recognizes the need to avoid information anarchy. This approach relies on standards – hardware, software, and telecommunications – to provide for a coherent informatics environment in the organization rather than a standard and unyielding infrastructure. At first glance it may seem that this is easier to implement. Certainly most staff outside the informatics organization will embrace it because it provides for more local flexibility and decision-making. From a central management view it is harder to implement. In practice, it has proved exceedingly difficult to ensure that new software -- even if it meets the standards – will transparently integrate with existing software and changes to the existing software may cause unforeseen problems in the local new software products. This approach does allow some flexibility and potential adaptation of new software even if the central informatics staff makes decisions, which turn out to be short-sighted.

6. In either of these two models there is general agreement today that software applications should be developed as closely as possible to the substantive user. In the first model all the software tools would be defined, provided and maintained by the central informatics organization. In the second model the basic tools would be defined and a set of standards that would have to be met are also defined by the central organization. Both models have shown that they can be successful. The choice is often made on the culture of the organization as much as on technical grounds.

### 7.3. Review of some concerns prevalent at the end of the 70's

7. In the 1970's and early 1980's, as statistical agencies tried to integrate mainframe computers into their operations, concerns were very different. A number of prescriptions emerged, regarding not only the way the systems analysis workforce should be managed, but also relations with other government computing establishments, as well as what software to implement and what to avoid. These are summarized below:

- ❖ Do not squander specialized human resources; they are scarce and must be kept together under central supervision.
- ❖ Document all systems extensively.
- ❖ Organize the work force creatively so as to provide both functional and subject matter experience i.e. balance versatility and specialization.

❖ Promote training activities where on-the-job training is built in.

8. With respect to the first recommendation, it is still true that specialized informatics expertise is scarce. However, depending on the size of the organization and its levels of decentralization it may be more sensible to locate some of these resources with the functional areas of the statistical office. Training and staff development should be elaborated and updated on a regular basis. The importance of documentation cannot be underestimated although the difficulties in achieving this objective are as great today as they ever were. Finally, exchange of experience and know-how between area specialists and application developers should be encouraged.

9. While these recommendations generally still hold we submit that several of the recommendations from the *Handbook Rev.1* have been bypassed by the changes in the IT industry:

❖ Do not subcontract any systems work and programming, other than certain one-time applications, to outside agencies.

❖ Do not assign systems analysts and programmers to new projects until they have completed clear documentation of data and programs for ongoing projects.

❖ Do not leave administration of hardware to other parties unless it is guaranteed that statistical processing will get the highest priority.

10. With respect to the first two recommendations, instead of asking how it should be developing software applications the correct question for the statistical agency might better be: “Should a statistical agency be engaged in any customized software development – regardless if it is developed by its own staff or subcontracted?” The evidence to date says that an agency does this at its peril. The history of customized software projects is replete with projects that were never completed, or partially completed and over budget. The comprehensive off-the-shelf software products now available reinforce this admonition. A rule that some have used is that if seventy to eighty percent of an agency’s requirements can be met by a product that actually works then the agency should consider changing or dropping the remaining twenty percent of its requirements. With respect to the last recommendation it is worth noting that many companies are increasingly looking to find others to operate their hardware infrastructure. This practice, of concentrating on the core functions of an organization and contracting out – or outsourcing – others that can be better done by specialized organizations is one of the greatest opportunities, and challenges, to statistical agencies in the IT area.

#### **7.4. Working with the commercial sector – outsourcing**

11. Organizations generally receive best value using commercial products and services, if they can be adapted to the mission requirements. The common reasons for considering outsourcing are:

❖ Proven, commercially viable technologies are available only in the marketplace,

❖ “Standard” or “commodity” products are less expensive due to competition,

❖ Vendors often have specialized skills that are difficult to maintain “in-house”,

- ❖ The agency can concentrate on the core mission (which is not IT project development),
- ❖ Competition can bring innovation to bear on a mission requirement,
- ❖ Risks can be shared with a vendor if the rewards are great enough, and
- ❖ Proprietary, or unique software or systems may only be available from a vendor.

12. Standard IT products are those having high market penetration, such as the personal computer, which have industry standard characteristics, and are available as commodities from a variety of sources. This category also includes some classes of software and network service products such as computer operating systems, office software suites, some statistical packages, network portal services, and web hosting. These are the most likely candidates for outsourcing not only the product itself, but often the maintenance, update, and replacement.

13. Commercial sources are often used to do IT project development and implementation, or provide specialized skills (such as network management, proprietary database knowledge, etc.). This is done where cost-effective and the designated tasks fit an organizational strategy for in-house versus out-house skills and responsibilities. The requirements for this category are the most diverse, and vary not only from country to country, but also from organization to organization. Past performance and the experience of other similar organizations can be the most effective aid in deciding the level, source and scope of outsourcing IT project development and support.

14. The accomplishment of a mission requirement itself can often be competed through outsourcing, rather than simply competing various pieces. With careful construction of “proper government function” and protection of the information being handled, vendors can be given the incentive to accomplish an end result by innovative methods. Recent examples include the collection of delinquent taxes by commercial vendors, using a for profit business model to govern the contract. It is becoming more feasible to outsource or contract larger individual segments of government functions. See also Section 9.1.8.

15. Outsourcing can often allow the risks to be shared with a vendor, along with the rewards. Often a vendor can share in the benefits from implementing a project, either through rights to data and/or products developed, or receiving revenues from services provided, such as dissemination. This arrangement can give a significant incentive to a vendor to be successful and receive a return on his investment in the project.

16. A vendor can offer a unique product, such as market leading software that is effective enough to outstrip the competition. Careful market analysis is needed to be sure the acquisition of the product is justified and does not present excessive risks in its’ application. In more specialized fields, such as Geographic Information Systems, this is often a requirement because of the dominance of single or a few vendors. This type of situation requires care not to invent something that is much more cost-effectively available in the market, recognizing that the commercial products may be unique and/or proprietary. Attempts at government specification of formats and standards that these products must meet, has often met with failure. Care must be taken not to create a sub-optimal solution to a problem best left to the creativity and competition of the private sector.

17. Finally, one of the most vexing problems in outsourcing is maintaining a healthy, productive, and ethical business relationship with a commercial supplier. Too often, government

contracts provide significant penalties and “protections” for the government to impose, but fail to recognize how to provide significant incentives for the vendor. Good practice is to decide in advance what success should be for a vendor, and then include that consideration in the design of the contract. Managing the business relationship in an adversarial way almost always leads to project failure at some point in larger IT projects. Conversely, most reputable vendors are in business for the long run, and understand that the overall success of a project is the most important objective. Finding or recruiting managers in the statistical agency with the skill and experience to effectively manage an outsourced function can be almost as difficult as finding specialized technical skills to carry out the work internally.

18. Regardless of whether outsourcing is used the likelihood of success of IT projects is greatly increased if it follows sound management practices. In the next section we will examine the extent to which such practices have been identified.

### 7.5. Sound IT project management practices

19. Because of the importance of IT and because the results of too many IT projects have been so poor, a great deal of effort has been applied lately in identifying good project management practices<sup>79</sup>. These can be summarized as:

- ❖ Involving top-level management,
- ❖ Employing effective risk analysis in guiding direction,
- ❖ Avoiding leading edge technologies, opting for small projects, and
- ❖ Involving end users in project formulation and management.

20. The preparation of a detailed IT project plan is now common practice for invoking the necessary discipline to ensure that these practices are followed. The project plan is designed to analyse return on investment, identify risks and mitigation strategies, ensure modular development to avoid large-scale failures, and provide for oversight and review at crucial steps along the way. No sizeable IT project should be undertaken without this management process being utilized – in the United States for example, the process is specified in detail in several laws governing IT budgeting and procurement<sup>80</sup>. This direction describes three major phases of the investment and control process for IT projects<sup>81</sup>:

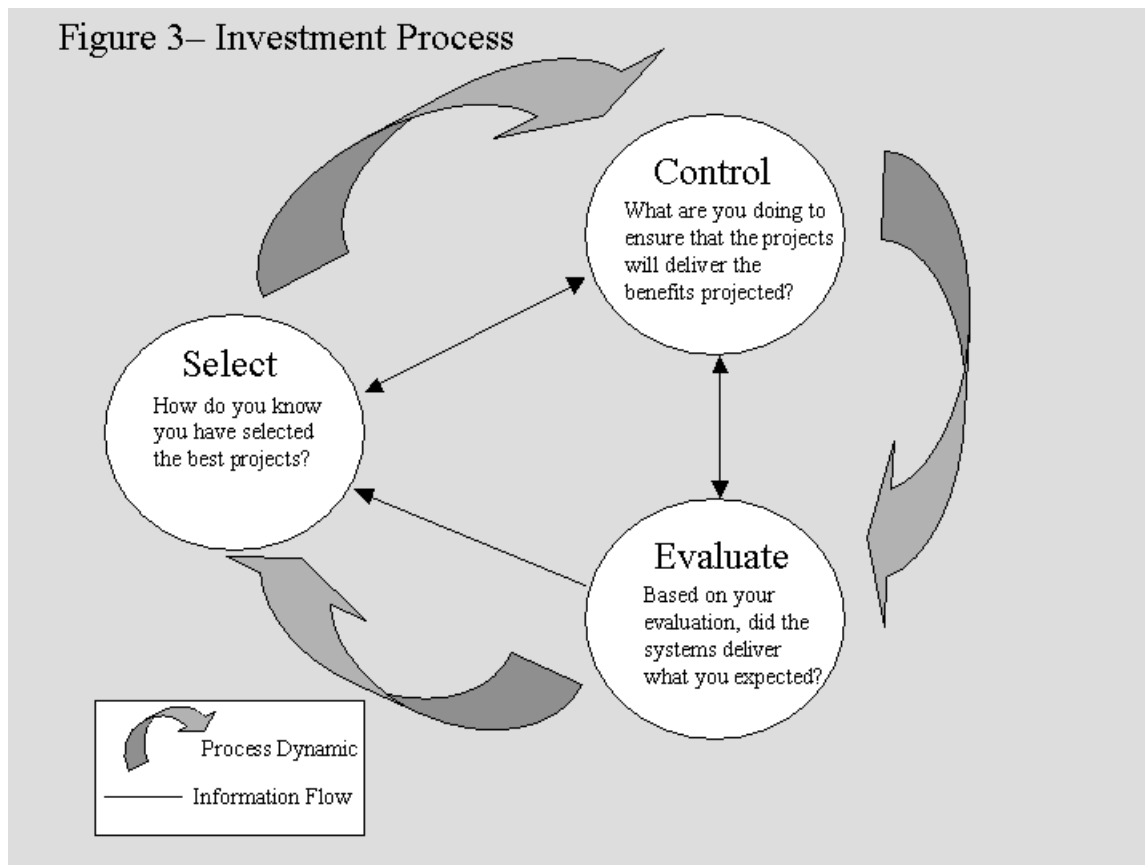
- ❖ Selecting (screening, evaluating risks and return, and assessing how the project will help accomplish agency mission),
- ❖ Controlling (monitoring against costs, schedule and performance), and
- ❖ Evaluating (post implementation reviews, adjustments, and lessons).

<sup>79</sup> Management of Large Public Information Technology Projects, OECD Country Report, United States, October 2000.

<sup>80</sup> United States Public Laws 103-62, 104-13, and 104-106.

<sup>81</sup> United States Office of Management and Budget Memorandum M-97-02 and additional guidance.

Figure 3– Investment Process



21. This management discipline has, for example, been largely responsible for improving the success of larger IT projects in the United States Government over the past five years.

While this management discipline has been found by others to be useful the only “certainty” that the chief statistician can rely on is the changing IT environment characterized by:

- ❖ Continual availability of new and different IT capabilities and products,
- ❖ Claims by marketing organizations of amazing results in applying their products,
- ❖ Lobbying by internal staff who have become advocates of a product or specific technology in which they have become skilled and knowledgeable, and
- ❖ Continual pressure to reduce costs and improve delivery of products.

22. Keeping an eye on how well commercial products are faring in the marketplace is critical to avoid ending up in a “blind alley” with an orphaned product. The larger vendors generally provide more stability and support of products over the long term, while many of the smaller vendors, who rely on a narrow product line, generally have more volatile business prospects.

When you have a solid technology management process in place in your organization, it is still a challenge to choose appropriate technologies to leverage the mission. Generally, it is best to:

- ❖ Avoid new or “immature” technologies,

- ❖ Assess results of others, who have already applied the product,
- ❖ Decide if the product is compatible with the existing information/technology architecture of the organization, and
- ❖ Assess the risks and price/performance of the product.

23. New and emerging technologies are notoriously difficult to assess in terms of when, or if, they will mature and become mainstream products. In the 1980's it appeared that imaging technology for document storage and retrieval was just around the corner, and several large IT companies bet their business future on their emergence. They all lost, and that market still struggles below most of the market projections for the technology. On the other hand, the worldwide computer access provided by the Internet, and the associated explosion of the technology beyond any projections made before 1995, is potent testimony to the power of a technology whose time has come.

24. Learning from the experience of others with similar business issues is also a powerful tool – visiting other countries that have adapted technology for similar functions, and comparing their results can be very helpful. It is often difficult, however, to account for differences in application and operating environment from organization to another. It is critical to assure that when applied successfully in one organization, the technology can be similarly applied in another. Carefully inspecting the adaptations necessary to operate in another environment can make the difference between success and failure during implementation.

25. Finally, before choosing to adopt a new technology, it is critical to assess the risks and determine, conservatively, the projected price/performance. Remembering that the track record for such implementations is notoriously poor, it is crucial that managers be convinced that the IT project plan is complete and solidly demonstrates a successful implementation strategy.

#### **Conclusions**

The effective management of information technology in a Statistical Office is a careful balance of management discipline coupled with innovative application of new and progressive technologies. Experience with the high rate of failure of these projects has shown that the following practices can significantly reduce the risk:

- ❖ Involving top-level management,
- ❖ Employing effective risk analysis in guiding direction,
- ❖ Avoiding leading edge technologies, opting for small projects, and
- ❖ Involving end users in project formulation and management.

Additionally, a deliberate organizational strategy and management model for managing in-house versus out-house technical skills can best guide the long-term direction for accomplishing the Statistical Office mission.

## **Chapter 8**

### **INTANGIBLES ASSETS**

#### **8.1. Definition**

1. In this section we look at an agency's non-staff assets -- its laws, policies, traditions, prestige, credibility in the eyes of the public as well as its policies, registers, frameworks, and nomenclatures.

#### **8.2. The stamp of quality**

2. A statistical agency must attach the stamp of quality to what it does. For this to happen, its stamp must be recognized. See also 2.2.3. The situation is similar to that faced by the producer of a marketable product that wishes to differentiate itself from competitors by instant recognition, assuming that the instant recognition is associated with sound construction, attentive service, and durability. The difference is that with few exceptions statistical agencies are monopolistic producers of figures; the figures (at least the general aggregates) are freely accessible to the public and the statistical production process cannot be replicated by the majority of users.

3. A statistical agency's stock in trade is the recognition of its name and the unimpeachability of the attributes associated with that name. Thus, the agency must be perceived to have the legal basis to intrude into the privacy of individuals, enterprises, and institutions; the integrity not to part under any circumstances with the individual information it collects in the course of its activities; the competence to use that information in order to derive the best possible estimates of aggregate measures; and the sense of responsibility to ensure that those measures are useful to the government and to the public at large. These attributes stem from pride and respect for the agency's image, and sufficient legal competence to ensure that the agency works well within lawful boundaries.

4. In its administration, the statistical agency should strive to make this posture universal among its staff. Larger agencies may even wish to devote a department to liaising with media and reviewing its reports, to ensure the maintenance of its public image.

#### **8.3. The force of law**

5. A favourable image is necessary to the functioning of a statistical agency, but insufficient by itself. Oftentimes, a statistical agency demands, not merely once, but on an ongoing basis, that respondents tolerate intrusions into their privacy and comply with its requests for information. When the same is desired by private agencies (e.g., those engaged in marketing), the cooperation of respondents is purchased or otherwise remunerated, and in any case is typically inferior to what statistical agencies judge to be acceptable. Government agencies tend to operate invoking the efficient working of government and of the community as reasons to elicit information, but this presupposes legal basis.

6. The law has to define clearly why certain classes of information are required, what guarantees are offered by the statistical agency regarding how individual records are protected, and what penalties might be incurred by respondents who fail to provide truthful and timely

information (see chapter 12 for a broader discussion on what protection is typically afforded to respondents).

7. A statistical agency will need to ensure that it has both a sound legal basis and the right image –with respondents and users alike.

#### 8.4. Policies

8. Who in a statistical agency answers a telephone call from the Prime Minister’s Office? Who is responsible for meeting the press the day the CPI is released? Should an academic doing research on the premises be allowed access to microdata, provided it is anonymous?

9. Such questions, while frequently posed, are not always answered consistently, or else consistency is more a matter of habit than any actual policy. There have been instances, however, where various practices and traditions are codified and brought together in one policy manual. Usually such an exercise has two objectives: to provide a standard of practices, thereby increasing consistency, and to question the wisdom and propriety of such practices in the process.

10. Maintaining policies, making staff aware of their existence, and ensuring compliance is a thankless job, which usually earns the incumbent (if there is one) frosty relations with the rest of the organization. However, if policies are not enforced, individual agencies will revert to old habits, weakening any possibility of continuity or consistency. It follows that this responsibility should be assigned to a trusted official who ensures that at appropriate intervals the matter is discussed with senior officers so that they are kept abreast of goings-on within the agency and policies are revised if necessary.

#### Effects of codified policies

The existence of a code of policies has several beneficial effects. In situations where there is a high turnover of staff, there will be ongoing pressure from outside organizations for special concessions, such as waiving of fees for services, early access to new statistical information, or access to material that under normal circumstances would be regarded as confidential. If there is no relevant documentation to bolster the refusal of such requests, and there exists a precedent of inconsistent reactions, institutional resistance to improper requests is weakened overall. Furthermore, the discomfort involved in appearing to be negative is considerably lessened if the agency can show that it reviewed a particular situation, decided on a course of action, and stood firm on the matter by ensuring that all its staff are aware of the recommended guidelines. The position of an agency is strengthened even further if it can show not only that the stated policy is adhered to but also that it happens to be a matter on which other agencies worldwide have come to similar conclusions. Lastly, public image is considerably strengthened if a spokesperson for the agency can show that there are written policies covering the particular matter being challenged.

11. Because interests and concerns evolve in an unpredictable fashion, a statistical agency should maintain a store of available information on a wide variety of topics. It is incomparably better to ensure that information is interrelated and, where it encompasses different attributes of what is, hypothetically, the same population, the population in question is defined and measured in the same way. For example, it is far better to analyse net business formation with the knowledge that industry statistics apply to the same population than to make tentative adjustments for a different scope. Whereas in one case, energies are dissipated in trying to explain what the data show or fail to show in spite of statistical discrepancies, in the other case, analysis may proceed at once. However, it should be kept in mind that the design and upkeep of the special



tools required for this kind of integration constitute yet another element in the statistical production process, with its own set of organizational implications. In the remainder of this section we consider a class of tools that serve to as integrating tools. That is, they serve either to integrate information and/or to integrate the functions of the agency itself.

### 8.5. Registers

12. *Handbook Rev. I*<sup>82</sup> has a special section on registers, with particular emphasis on business registers, but there is little discussion about the appropriate location for these in the organization of the statistical agency.

13. The reasons are not difficult to fathom; at the time, the introduction of business registers in the production process was a novelty. It was made possible by two sets of circumstances: (a) some statistical agencies were granted access to a computerized store of administrative information (in this case, information derived from tax records), and (b) largely as a result of the introduction of database techniques, statistical agencies discovered that the computer could be used for massive processing jobs other than international trade statistics or the census of population.

14. Today, the notion that a statistical agency must have a business register, a register of household addresses, a catalogue of location codes, and possibly a number of specialized registers (e.g., a farm register or a register of ocean-going vessels) is commonplace. Therefore, there is little need to describe the contents of such registers or why they are required. It is, however, necessary to discuss how they should be managed and where they should be located.

15. There are various points of view. One is that the business register should be located with the division of the agency in charge of economic statistics, and the household address register should rest with the part of the agency in charge of social statistics. The specialized registers should be managed by those who make the most use of them (the farm register with agricultural statistics, vessel register with maritime transport and foreign trade statistics, and so on). Another view places registers in a central organization within the statistical agency, where it can be shown that their maintenance is an agency-wide service. Each method has its advantages and disadvantages, and these should be known in advance.

16. Assume that the organization in charge of business or economic statistics consists of half a dozen units, each in charge of either an industry (manufacturing, mining, construction, business services, etc.) or a type of expenditure (exports, capital formation, consumer outlays, etc.). Whether the register is placed at the very centre of the organization as a corporate asset, or within the economic statistics organization, will depend a great deal on personalities and is therefore outside the scope of this book. If they are to serve as integrating devices, it is important to keep in mind that:

- ❖ registers must be placed in a service unit;
- ❖ no single user organization is entitled to modify the contents of the register; and
- ❖ the custodian of the register is ultimately responsible for its integrity, the classifications assignments, and the definition of the statistical unit.

---

<sup>82</sup> p. 65

17. Where registers are looked upon as agency-wide assets, it usually best if their respective custodians are dependent on an internal board, rather than exclusively on their hierarchical superiors. The composition of the board would include supplier organizations (e.g., those responsible for the acquisition and deployment of tax and social security information) and user organizations (all whose surveys are based on the agency register files).

### 8.6. System of National Accounts

“The system of national accounts and balances represents an [integrated set] of standard concepts and classifications applicable to the most important macro-data of economic statistics and characterized by the fact that all concepts are inter-related within a system of definitional relations....They represent a useful frame for developing statistics, facilitating the identification of gaps, and the setting of priorities in quantitative perspective....It is a great advantage for these integrating frameworks to be developed in the central statistical agency of a centralized national statistical service or in the co-ordinating body of a decentralized statistical service....The unit responsible for elaborating the national accounts and balances and similar integrating frameworks should be assigned a particularly important duty in regard to data improvement and integration.”

*Handbook Rev. I*<sup>83</sup>

18. The central role of the national accounts has become even more critical in today’s statistical agencies, and its use in identifying weaknesses and gaps in basic statistics has grown clearer with the publication of the 1993 United Nations version of the system. There is no such widely accepted and powerful integrating tool for social and demographic statistics.

19. The management of the national accounts requires specialized skills and the closest of liaisons with its key users. Moreover, the role of the economic accounts extends beyond the production of data on the condition of the economy at regular intervals. Part and parcel of the task of estimating the broad macroeconomic aggregates is the related task of taking inventory and organizing the corresponding basic economic statistics. In those cases where a specialized agency is exclusively responsible for the economic accounts—the Research Department of the Central Bank, for example—it will have a central role in guiding the statistical system.

20. In some organizational models the unit responsible for the compilation of the national accounts is separate from its counterpart in charge of basic economic statistics. In this situation, it can be far more difficult to signal gaps, point out weaknesses, and generally exercise leadership when reporting to different supervisors.

### 8.7. Central review and control of questionnaires

“[These two functions are] essential to integration. The subject matter divisions of a statistical agency should as a rule be responsible for the content of questionnaires and should work in co-operation with the functional units, especially those responsible for methodology, survey design, and data processing.... Before a questionnaire is put to use, a central authority should ensure that certain requirements are satisfied as regards integration, efficient data processing, editing requirements, and obligations towards the data suppliers. First and foremost, it must be determined that the concepts and classifications applied conform with the standards established so that integration is facilitated...”

*Handbook Rev. I*<sup>84</sup>

---

<sup>83</sup> P. 68

21. These words are as relevant today as when they were first written. Moreover, to facilitate integration, the statistical agency should ensure that questionnaires are written in a language that respondents can easily understand, and which accordingly minimizes response error. In larger agencies a specialized unit may be established as an agency-wide service, devoted to cognitive research and to efficient questionnaire layout. Moreover, a unit devoted to these matters is ideally suited to conduct studies of equitable response burden.

### 8.8. Nomenclatures and classifications

“Unless concepts and classifications applying to several subject-matter areas of statistics are standardized within a coherent logical system, statistical data cannot be structured to meet the needs of users for aggregated data or for compatible information from various fields....Standard definitions are needed for various items, for example, urban population, illiteracy, wages received, industry, agricultural holdings, etc....The general use of standard definitions is essential for compatibility of different data referring to the same subject....Standards that are to enjoy general acceptance should be formulated in consultation with specialists in the respective fields. Technical committees are the most appropriate instruments for this work. [However,] the responsibility for implementation should rest with the chiefs of the subject matter divisions; ...a separate central unit ...must monitor the implementation. [The] uniform implementation... and the maintenance of coherence among them, require continuous attention and negotiation with the suppliers and users of the data. This is particularly important in countries undergoing rapid changes and economic development.”

*Handbook Rev. I*<sup>85</sup>

22. The organizational elements specified in the earlier version of the *Handbook* are still required for effective coordination today. They consist of a central unit charged with the duty of promulgating standards and monitoring their implementation to ensure coherence within the system; a technical committee to iron out difficulties and ambiguities in implementation; and a negotiating mechanism to ensure that users and suppliers of data fully comprehend the standard. In light of today's experience, the requirement for international comparability requires further discussion. Political unions, customs unions, Free Trade areas, and the global character of foreign investment all require that statistics (and particularly socio-economic statistics) be expressed in the same language. The failure to use internationally comparable standards should be regarded as a deficiency in the organization of a statistical service. By the same token, the organizational elements required for the effective coordination of classifications, nomenclatures, and concepts must include a division in charge of ensuring that what is adopted nationally is comparable with that adopted by other countries.

### 8.9. Finance

23. A unit in charge of finance is necessary to the proper functioning of a statistical agency, for obvious reasons. It should not be set up merely as a unit in charge of bookkeeping, but rather as an analytical unit (because upper management requires financial advice several times over the course of a year) and as a legal unit (there must be an in-house legislator capable of determining the permissibility of expenditures).<sup>86</sup>

24. The administrative unit in charge of finance has as its natural functions the keeping of a logbook into which it enters cash and credit receipts and expenses. Registration and annotation of

---

<sup>84</sup> P. 67

<sup>85</sup> Pp. 67 and 68

<sup>86</sup> In a number of countries there is no choice in this matter. The respective Public Service legislation demands that such a unit exist and assigns it specific financial and legal duties.

transactions will be conducted in compliance with local legislation, and in a method such that the results can satisfactorily pass inspection by the government auditing services.

25. One obvious function of the head of financial services is that of making recommendations as to what are legally mandated expenses. In addition, the director of finance should be the most significant source of advice with respect to proposed expenses that, while they appear to be reasonable, may not meet all legal restrictions.

26. Statistical agencies commonly run into situations where, through lack of financial foresight, expenses must be prematurely curtailed, without regard for the effects of such abrupt reductions. This is generally the case when, just prior to the end of a fiscal review, the head of financial administration realizes that certain obligations will not be met unless some sacrifice is made at once.

27. Sometimes, it also happens that financial administrators find that at the end of a fiscal review, the agency possesses a considerable portion of its resources. In such a case, one might impulsively look for a way to spend them, so as not to arouse suspicion. However, arbitrary spending can be more pernicious than hurried measures to curtail expenditure, lead to poor managerial decisions and to waste of the public treasury.

28. It follows that the chief statistician will require advance warning of expected gaps between expenditures and resources unless measures are taken well in advance and on the basis of solid preparation. To fulfil this requirement, the financial administration unit must have the information base and the analytical capacity to provide such advance warning.

29. No matter how small the agency, it is seldom the case that the information base required to provide reliable estimates can be organized without help from all those with managerial responsibilities. Accordingly, the custom of taking part in financial forecasting and calculating rough but serviceable ideas on expenditures is one that should permeate the agency. In a number of offices it has been observed that the quality of financial management goes up substantially if responsibilities and accountability are devolved.

### Conclusions

A statistical agency depends on a number of capital assets, some of which are intangible: classifications, lists of names and addresses, methodologies, policies determining proper procedure. Some assets are designed to achieve efficiency of the agency's operations, such as computers, others are created to promote the integration of the agency's products, such as the national accounts and other databases. However, the most important assets of a statistical agency are its people and the knowledge base that they represent.

It is important that all the agency's assets are kept in the best possible condition. Therefore, successful human resource management is probably the key factor for any statistical agency's performance. However, other tangible and intangible assets also need continuous conceptual, technical and operational maintenance and when the time comes, replacement. To achieve this, good management and effective organization are needed to take the necessary precautions, financial and intellectual, in order to renew assets when their condition demands it.

## Chapter 9 MANAGING THE CORE FUNCTIONS

### 9.1. Essential Functions

1. An important question to ask is whether it is possible to define the essence of a national statistical office. Is there an irreducible set of functions that -- if not performed by a statistical office -- would invalidate its claim to the title of a national statistical office? Which, if any, of the functions of a national statistical office can be performed by the private sector without compromising the credibility and integrity of government statistic? With little fear of overstatement it can be said that these questions are fundamental to any considerations of organization and management. For these reasons we shall, in this section, consider these questions and provide some possible answers.

2. We begin by listing those functions that are commonly attributed to a statistical office. These include:

- ❖ Planning
- ❖ Executing and Processing
- ❖ Analysis
- ❖ Dissemination
- ❖ Coordination and Standardization

Let us consider for each of these functions the extent, if any, to which they can be outsourced.

#### 9.1.1. Planning

3. Planning is the transformation of a policy question or other type of request for information into a series of steps that will result in the desired information being made available within the specified parameters of time, quality and budget. It may be that the actual plan itself is developed outside the government. This would include decisions on models to be employed, use of over sampling, stratification and coverage. However, there is an inherent role of the statistics agency here. It is the national statistics agency, which must have credibility and an unbiased professional reputation so that they can ensure that the plan is developed without favour to any politician party or special interest group, and is only subject to choices based on the highest professional standards. In fact, in many countries the details of, for example, a survey plan is carried out by the private sector. The expertise and standing of a national statistical agency is necessary to provide public confidence in the data collection.

#### 9.1.2. Executing and Processing

4. The execution of data collection projects is increasingly being carried out by the private sector in developed and developing countries. Of course, in many developing countries the execution and processing of data collection activities – census, survey and/or administrative records – was and is often carried out by international agencies. As with the planning function

there is nothing inherent in the execution function that would require that it be carried out by the national statistical agency. As with planning, however, there is a key role of the statistical office, which cannot be given to those outside the government. The national statistical office must ensure that the data collection is carried out in an unbiased way, that confidentiality is assured and that decisions are made only on professional grounds. This is not to denigrate those outside government but rather to reinforce that a specific role of those within the government is to uphold public trust.

5. At this point it is important to consider for a moment the question of confidentiality and how this can be maintained if the government statistics office is not carrying out the execution and processing of the data collection. One of the most important principles of official statistics is that the privacy must be respected and confidentiality of identifiable data maintained. It is the function of the statistical office to ensure this. However, this can be accomplished even if the statistical office does not control the data. For example, when a contract is written for an organization in the private sector to collect and process data it can be made part of the contract that the confidentiality of the data must be protected. These provisions may be very explicit and can incur severe penalties if they are violated. There are cases, in the United States for example, where the legal provisions protecting the confidentiality of data are stronger than some of those for government statistical offices.

### **9.1.3. Analysis**

6. Analysis is one of those functions that should be carried out by the national statistical office and by those outside the government. It is important to the intellectual vitality of a statistical office that members of its staff critique the process and models used to produce the data as well as discuss the strengths and weaknesses of the data. This is important for the growth of individual staff members and to the office in its quest to improve the quality of its data. However, it is also important that those outside the government do their own analysis. This is vital to informed public policy debates and to provide critiques that the statistical office can use to make improvements.

### **9.1.4. Dissemination**

7. As with the other items discussed above this is an area where, in many countries, the private sector is already engaged in the dissemination of statistical data and information. In some cases the products that are disseminated are basic statistical information and in others the vendor provides a value added service. This may be in further analysis of the data or in integrating the data with other information. What then is the role of the statistical office? While a statistical office may not disseminate all statistical information (it may not even be the primary source) it does have an obligation to ensure that fundamental statistical information is provided to all segments of the society on an equal basis. Depending on national practices this may result in the statistical office providing the information itself and in other cases assisting the private sector to provide the information. This principle holds despite differences of opinion (discussed in section 11.3) on whether statistical information is to be provided at the marginal cost of dissemination or whether it is permissible to provide some statistical products at market rates. While the private sector may be used as a vehicle for the dissemination of statistical information the national statistical office has an obligation to ensure – either directly or through others – that statistical information is disseminated.

### 9.1.5. Coordination and Standardization

8. This last area is one in which there is general agreement that this is uniquely a government function. This is true regardless of whether coordination is among other functional ministries or decentralized statistical agencies. It would simply not be possible for a non-governmental agency or the private sector to accomplish this kind of coordination. To do so would unalterably blur the lines between governmental and non-governmental activity and change the very definition of government. For similar reasons it would not be possible for anyone but the national statistical office to be able to participate with others in the international statistical system in the development of global standards. No one outside the statistical agency could lay claim to an unbiased position or would have its credibility.

## 9.2. Survey and census

### 9.2.1. Introduction

9. Even when a statistical system is substantially decentralized and a powerful public sector body – for example, the economic policy division of the Ministry of Finance – is in charge of the compilation of key economic statistics, the expected pattern is for the statistical agency to be in charge of most or all survey taking. The reason for this practice is partly historical. An office in charge of the census of population that continues to operate after the census activities are complete, has the capability to undertake surveys. In most countries, survey-taking is regarded as a fairly technical and specialized activity, but it lacks the prestige that might make other agencies want to incorporate it into their own programs. Moreover, other agencies would not have the appropriate infrastructure to take it over.

10. While statistically not a ‘survey’, the Census is obviously the flagship product of statistical offices when it comes to their capabilities in ‘survey taking’: a Census is complex, costly, visible, politically significant and/or sensitive and has to be completed within strict time-frames. Therefore, good management of the Census is critically important.

11. Many documents deal with the management of a census of population, including detailed reports on actual experiences of census-taking<sup>87</sup>.

12. Census and survey data are complementary in a statistical system. Data from surveys are usually more complex than the basic data collected through a census. They are often used to expand on the characteristics of census topics (plus additional topics) and to measure change between censuses. Census information on small area populations is used to design sample frames and selections for the survey units. While survey programmes may collect different information than the census, there are usually several topics that are common to both. Therefore, to maximize the use of the data from both sources, it is important that there is standardization of concepts and definitions for these common topics.

---

<sup>87</sup> The United Nations Statistics Division has developed a series of handbooks and guidelines to assist countries in their preparation for the 2000 and future rounds of censuses. This includes the *Principles and Recommendations for Population and Housing Censuses*, United Nations publication, Sales No. E.98.XVII.8, the *Handbook on census management for population and housing censuses*, United Nations publication Sales No. E.00.XVII.15, the *Handbook on a Geographic Information System and Digital Mapping for Population and Housing Censuses*, United Nations publication, Sales No. E.00.XVII.13, the *Handbook on Population and Housing Census Editing*, United Nations publication, forthcoming, and the *Guide for the Collection of Economic Characteristics in Population Censuses*, United Nations publication, forthcoming.

13. Of the three kinds of data collection: ongoing recurrent routine surveys (e.g. the monthly CPI and the monthly/quarterly Labor Force Survey etc.), ad hoc new surveys of some complexity and last but not least censuses, the latter two kinds demand particularly strong management methods. The modality that is favoured these days is so-called project management.

### 9.2.2. Project management

14. The idea owes much to the construction industry, which adopted it long ago to carry out complex projects. Like a civil engineering or construction project, a statistical survey is carried out over a long period of time, and it requires, throughout the process, active participation on the part of representatives from a variety of disciplines within an organization.

15. The creation of a project follows a recognizable pattern: the statistical agency recognizes a priority and decides to embark on a survey; the subject matter unit (department, division, branch) best suited to head up the initiative is given the budget and the leadership role (and, one would hope, a schedule and limits on expenditure, content, and maximum inflictible response burden); a project leader is appointed and proceeds to subcontract with internal, and at times external, providers of services required to carry out the survey.

16. The internal providers of surveys are referred to in this chapter as the various “capabilities”, which must be built into a moderately sized statistical agency. For very small offices, one officer would possess several of these capabilities.

17. The survey capabilities include several units—one in charge of respondents relationship, one in charge of survey design, field operations, estimation, evaluation, etc., and one that is ultimately responsible for launching and operating the survey once it is prepared.

18. Apart from common sense, an indispensable element of any form of project management, there are nowadays several widely used techniques available, including supporting software, to help project managers run a project. An example is the Critical Path Method (CPM), a procedure for using network analysis to identify those tasks, which are on the critical path, i.e. where any delay in the completion of these tasks will lengthen the project time-scale, unless action is taken. For all tasks off the critical path, a degree of tolerance is possible (e.g. late start, late completion, early start, etc.). Network charts and CPM analysis used to be carried out by hand. Software is now available which requires the user only to enter the tasks, duration of each task and dependencies upon other tasks; a network chart and CPM is then automatically created. Decision trees are another excellent tool for making financial or number based decisions where a lot of complex information needs to be taken into account. They provide an effective structure in which alternative decisions and the (quality) implications of taking those decisions can be laid down and evaluated. They also help to form an accurate, balanced picture of the risks and rewards that can result from a particular choice.

19. If a statistical agency is big enough – and the project of sufficient duration -- to support a multi-disciplinary project, formally constituted, with a proper mandate and well-defined objectives, the responsibility will probably be delegated to a Steering Committee. Such a committee is expected to include the principals of the various disciplines represented on the project team and anyone else who can assist in formulating policies for the project and assessing whether it requires a change in direction or in terms of reference. The Steering Committee should be able to meet as often as the project manager requires but should not meddle in the day-to-day



operation of the project (quarterly meetings may be an acceptable norm). In the case of very important projects, the chief statistician may choose to sit on the Steering Committee, but not necessarily as its chairperson.

20. There is a discipline involved in the creation and operation of projects, which takes some time to acquire. One must recognize that there is a difference between the routine operation of an organization and developing an organization's functions or activities. Projects are concerned with the latter.

21. Whereas the existing hierarchy—chiefs, directors, etc.—is accountable for the ongoing management of the organization, the project manager's accountability is limited to the duration of the development of the project. Once the stage of development is over, the project manager hands over the project and project team and disappears as an organizational entity.

22. The project manager is appointed for a finite period and receives objectives from the chief statistician (or a delegate), including specification of the characteristics of the measuring instrument, a schedule, and a budget.

23. In theory the project manager could be selected from a hierarchical level inferior to that of other members of the project. In practice, this is not done simply because it creates a gap that might impede the freedom of action that the project manager requires.

24. For their day-to-day activities, the other members of the project will work outside the authority of their usual chain of command, taking instruction and guidance from the project manager. If the project team members' superiors wish to intervene, or even to make inquiries, they should communicate with the project manager.

25. The list of disciplines represented on any project will of course vary with its nature, size, and complexity. The planning list for the census of population can be used as a checklist for what is required in any project. Thus, even a moderately sized project will include supervisors of questionnaire design, content definition, sample design, supporting computer systems, fieldwork, respondent relations, project finances, and internal communications<sup>88</sup>.

26. The specialized knowledge required for development purposes will be supplied by the project team members. Their leader's primary task is to ensure that the plan to meet objectives has integrity; that adjustments to the plan take place whenever circumstances warrant; that there is no over-expenditure of resources; that members of the team keep each other properly informed; that there is no duplication of effort; and that there is working machinery to settle conflicts and differences of opinion. While it may be helpful, it is not necessary for the project team leader to be an expert in the subject of the project. The ideal team leader of an ad hoc project team would be proficient in the subject matter, knowledgeable about management techniques such as budgeting and critical path analysis, an excellent communicator and be able to empower others and generate trust among the team members. Of course, finding anyone with all of these abilities and skills is virtually impossible. Therefore, while realizing that all of these abilities and skills are important the decision in choosing a team leader is which are more important than others. This is

---

<sup>88</sup> Very few projects with the exception of the census have the need, time, or resources to document their own history and negative experiences. However, without a tradition of documenting experiences, a project cannot benefit from previous successes and failures. Oral history, though sometimes helpful, can also be a means of miscommunication through anecdotes and distorted recollections.

often a matter of judgment but it is probably wiser to choose someone strong in management but weaker in substantive skills than the reverse. The team leader should be a first-rate coordinator, manager and diplomat, methodical and well organized, inventive but not excessively prone to risk taking. It is important, however, that the team leader not be devoid of substantive skills lest they become a figure of fun because of excessive ignorance of the subject covered.

27. Discipline must above all be imposed on the organization's established hierarchy. It should not interfere with the project manager either directly, or through attempts to give the project team members guidance in addition to, or in opposition to, that given by the project manager.

### 9.2.3. Working with project staff

28. In any project leading up to the taking of a survey, from design onward, the project manager will be required to deal with staff reflecting at least three very different perspectives. First, there is the subject matter staff, who interact with users; transform user problems into measurement projects; and are mostly in charge of evaluating the survey results and interpreting them on behalf of the user. Their perspective is driven by the notion that surveys should yield statistics that inform the user on particular problems. In fact, for subject matter statisticians, rewards are derived from having successfully met the expectations of users. This is true even if there is no strong dividing line between users and respondents.

29. Secondly, there are the survey statisticians<sup>89</sup> whose function is to ensure that the measurement has the right quality attributes. Their task is to ensure that if there is bias in the measurement it is understood, that the inferences are only those, which are supported by data; that the methods used stand up to scrutiny and are properly documented and accessible. The community that survey statisticians interact with is one that is mostly interested in methods rather than in the result of any particular project. The rewards come from that same community, mostly academic and devoted to theoretical and applied research.

30. Third, there is the field organization, the particular arm of the statistical agency that deals with contacting respondents, and promptly and courteously dealing with any complaint arising from lack of clarity or excess burden.

31. Obviously, these three groups (in simple cases, they could be three people) will embody different points of view and have different priorities. The subject matter experts will be largely concerned with speed (as they are the ones who look after the budget) and with the relevance of results to the issue that provided the impetus for the survey. The survey statisticians, acting as the statistical conscience of the agency, will be most concerned with the integrity of the selected sample and with consistency in the administration of the survey interview. And the field organization will insist that good will must not be abused, regardless of the importance of a particular survey.

32. Usually, these three perspectives yield lively discussion in the course of any project and at times create tensions, which must be alleviated. There are a few "do's" and "don'ts" that should be made clear if the project management process is to go forward productively and efficiently:

---

<sup>89</sup> The term "survey statistician" mentioned here is used as synonym for mathematical statisticians. It comprises those statisticians normally responsible for the design of a sample, the estimation of the results together with the sampling error, etc.

- ❖ The project manager was chosen because he/she had the confidence of the agency's management, and should therefore be neither second-guessed nor overridden. If his/her performance does not inspire confidence, a replacement should be made.
- ❖ Project team members should not lobby their respective organizations to challenge the project manager's decisions. Only one entity can be accountable and granted decision-making authority.
- ❖ Compromise is essential. Most decisions will reflect compromises and will vary according to the relative importance of each of the different perspectives—subject matter, statistical, respondent—at different stages in the history of a project.
- ❖ Vesting the power of taking decisions in the project manager does not imply that he is all knowing and infallible. All members of a project should be encouraged to seek advice, particularly when arguments appear to be finely balanced.

33. In order to make the project manager's job viable there has to be an on-going dialogue among all members of the project. If there is lack of balance between the understanding brought to bear by survey statisticians and the subject matter body with which they interact there may be a serious management problem for the project with, at times, wider and unfortunate repercussions.

#### **Typical problems experienced by Project Teams and created by different perspectives**

**Internal Perspectives:** For the purpose of this example, let us assume that a project manager is in charge of an initiative designed to measure the environmental impact of the packing of consumer goods (whether recyclable materials are used; how packing waste is disposed of; the impact of public sorting devices on the disposal of waste, etc.). The most efficient use of the statistical agency's infrastructure is to have this new survey accompany the existing labor force survey, and begin the interview with survey questions on the environmental impact of packaging of consumer goods. This would be efficient as the environmental survey is shorter than the labor force survey. However, the environmental survey requires the respondent to keep a diary, which may affect the willingness of the respondent to cooperate in the labor force survey. The head of the field organization knows that his performance will be judged most of all by his ability to carry out the labor force survey, and that success with this new survey is secondary. Accordingly, in this hypothetical situation, he argues that the preferred option is to keep the new survey separate, and if there were good reasons not to proceed in this fashion, then the survey would be kept only as an add-on, to be administered after the labor force interview is successfully concluded. Both options, though preferable in the eyes of the field organization, are inefficient from the point of view of the project manager. The first is too costly; the second runs the severe risk of increasing the non-response rate beyond the limits imposed. The project manager is clearly in charge of a limited initiative. But interaction with a service provider that takes a broader perspective is bound to produce conflict and call for a higher level of mediation.

**External perspectives:** In this example, a Ministry of Tourism requests that the statistical office conduct a survey on the number of arrivals and departures and on the related expenses during the tour. The Ministry of Finance, responsible for the balance of payments statistics and conscious of the fragility of the travel account in the balance of payments and of its importance in explaining fluctuations in the current balance, supports the demand and offers to co-finance it. The project manager in this hypothetical situation loses many nights' sleep because the two sponsoring agencies cannot agree on the possible interpretations of the priorities listed as part of their contract with the statistical agency. The statistical agency, anxious not to forego an important opportunity, agreed to formulations that turned out to be too vague and did not specify a protocol for how sponsors should behave during the execution of the project. As a result, and in spite of the fact that the statistics on tourism improved, both the Ministry of Tourism and the Ministry of Finance feel that their goals have not been met; neither has much faith in the technical competence of the statistical agency although both agree that it treated the results with moral integrity; and no party has the energy or the resources to make another attempt, even though the survey sample was limited in size and scope. To avoid a conflict such as this one, the statistical agency should (a) attempt to lay out all the "don'ts" it should have learned from the first exercise (b) it should demand an agreed-upon list of objectives in line with the budget; and (c) above all, it should insist that there is a commonly agreed-

upon definition of the goals of the project.

#### **9.2.4. Working with respondents**

34. Part of a survey capability is an established relationship with respondents which comprises a way of: (i) finding them; (ii) explaining to them why they should be willing and truthful respondents; (iii) persuading them to comply – without necessarily threatening them with legal actions; (iv) dealing with complaints in cases where surveys are too lengthy, unclear and continuous. Naturally, none of this is attainable without a survey organization that includes a respondent relations department, entrusted with the following duties:

- ❖ to handle the public relations required for potential respondents to understand why they have been selected, what is asked of them, and what is the public good that is served as a result of their co-operation
- ❖ to exercise special care and take all the required precautions in cases where the announced survey is either unusually long (for example, surveys of family expenditure) or unusually intrusive (for example surveys of harmful drug consumption and surveys of fertility)
- ❖ to keep a register of respondents contacted and survey interviews completed so that recalcitrant respondents can be identified and persuaded to participate
- ❖ to share information with respondents, so that they feel not only that they have made a contribution to the public good but that there is some personal benefit as well
- ❖ to have the resourcefulness, presence of mind, and necessary information to find alternative respondents in cases where there is strong resistance to the survey or where the original respondent can no longer be located<sup>90</sup>

35. Accomplishing these tasks requires tact and diplomacy, together with firmness and determination. There will always be people in either the household or the business sector who will refuse to comply, no matter how good a case for co-operation has been put forward. This situation cannot be avoided and the officer in charge should not assume personal responsibility for a small percentage of such cases. However, if the rate of refusal appears to be increasing, procedures and methods should be examined, for this may reveal a serious inadequacy in the methods adopted<sup>91</sup>.

#### **9.2.5. Repository of statistical expertise**

36. The capabilities that a statistical agency must have if it wishes to be recognized as the repository of statistical expertise and the rightful custodian of the official national statistical infrastructure include:

---

<sup>90</sup> Strict methodological guidelines should be in place to ensure that such replacements do not compromise the propriety of the original choice.

<sup>91</sup> Failure to address the respondent in his/her language, or with the accent or intonation prevalent in the region or province, could ruin the chances of success for even the most unobtrusive of surveys. Excessive zeal in pursuing recalcitrant respondents in a small community can just as easily ruin a survey conducted in the area.

- ❖ the capability to design a comprehensive survey that takes into account sample selection; survey design; estimator choice; estimation method; and calculation of variances and sampling errors
- ❖ the capability to design a questionnaire with properties that minimize the respondent burden while recognizing the importance of minimizing cognitive errors that could arise from lack of clarity in the questions
- ❖ the capability to relate collected information to concerns that drive users to solicit information from the statistical agency
- ❖ the capability to analyse information that has been collected (and is about to be disseminated) so as to maximize its informative role

37. These capabilities must be held by some part or parts of the organization. Logically, the more technical capabilities—sample survey design, estimation techniques, and advice on drafting and questionnaire layout—should be the responsibility of one organizational unit, in order to promote coherence in the agency’s survey activities. Questionnaire content and substantive processing of the information collected should be the responsibility of another part of the organization. Designating responsibility for analysis of survey results is largely dependent upon the availability of analysts and on the way in which the statistical agency cooperates with outside specialists (if at all). Conventionally, all issues relating to content—interaction with users, determination of the schedule for data collection, financial arrangements to support the initiative (particularly if sponsors are involved), and tabulation and accompanying analysis—have been the domain of the subject matter staff. Finally, the field organization is charged with the responsibilities of establishing contacts with respondents and ensuring that they react favourably to the initiative and provide the right kind of information.

#### **9.2.6. Flexible survey taking capability**

38. It is commonly alleged (and there is truth behind the allegation) that statistical agencies are slow in reacting to requests for vitally important information. In fact, the lags involved in responding with hard information, particularly information that includes a measure of the rate of change, are aggravated by the typically vague formulation of the requests. Such undertakings do take considerable time, but while the lags can be accounted for and seem natural to fellow statistical practitioners, it can be difficult to get users to understand why it takes so long to conduct a survey and disseminate the results. To respond to such ad hoc challenges, a valuable survey taking capability of statistical offices is a unit that is able to mount a quick survey, either as a first instalment on a more permanent effort, or as a one-off exercise.

39. One way of deploying such a unit is to assign to it the responsibility of all feasibility tests in a statistical agency, so that its staff becomes accustomed to launching quick efforts designed to settle basic questions, preceding what might be a more substantial survey. The mission of this unit might be to survey a given number of respondents (households, businesses, or people in government or in public institutions) in a set amount of time (e.g., a maximum of sixty or ninety days). By developing such a capability and periodically demonstrating its power and scope, an office could greatly increase its credibility and gradually establish pre-eminence in the field of statistics

### 9.2.7. Administrative records

40. A statistical agency should not automatically initiate a new survey in response to every demand for information. Rather, it should systematically attempt to react to new demands by exploring how they might be satisfied using regularly collected data or, failing that, by examining whether the administrative records already in the hands of government can address the new request, at least to some degree. Whether or not, or rather to what extent administrative records can be used to replace or to supplement statistical survey information, is a very complex issue and the answer also depends very much on specific national situations. Statisticians tend to be wary of the quality of administrative information, in terms of concepts and coverage.

41. Nevertheless, the attractive features of administrative records are that they are to be collected or have been collected anyway. It is probably true in many countries that some administrative records, e.g. tax records, have a very good coverage of parts of the population, and that the rate of response is substantially better than that achieved by a statistical agency. Moreover, there is always the possibility of improving on the information yielded by those records by supplementing them with data obtained from a much smaller sample of respondents.

42. If these advantages are recognized, it follows that in some part of the statistical agency, preferably one that is set up alongside the field organization, there be staff charged with the following responsibilities:

- ❖ keeping abreast of holdings of administratively collected data by other parts of government
- ❖ evaluating each new request to determine the extent to which it can be met without resorting to a new or expanded survey
- ❖ negotiating with the custodians of the relevant information to determine how it can be shared within the legal framework imposed on government information activities

#### Conclusions

A statistical system requires the ability to carry out censuses and surveys. This capability is simultaneously based on doing what is necessary to carry out regular surveys as well as having the people, techniques, and organization required to develop a new survey instrument and to deploy it successfully. The chief statistician must also give careful consideration as to which, if any, core functions should be outsourced.

The most effective organization for managing large incidental surveys is that of the inter-disciplinary project, in which, under a specially appointed project manager, the organization's service providers contribute their resources proportionately.

The project manager must interact with the service providers; at times there will be obstacles, partly due to different perceptions of what constitutes success and to various opinions on the best way to solve problems. In designing the organizational framework for development projects, the chief statistician will take those obstacles into consideration and will establish a pre-emptive conflict-solving mechanism.

Usually the project manager will report to a Steering Committee, an *ad hoc* organization called upon to assist in interpreting, and if necessary changing, the project's terms of reference.

In addition to capacity for the execution of a regular survey programme, it is advisable to develop a rapid response capability in order to show sensitivity to emerging ad hoc requirements, while continuing to use discretion before committing to costly and cumbersome surveys. Access to administrative records at all times is

desirable, not only to promote rapid response, but also to preserve the good will of potential respondents.

## Chapter 10 FIELD ORGANIZATION

### 10.1. Interacting with respondents

#### 10.1.1. Introduction

1. In this chapter we consider how an agency should be organized in order to deal efficiently with respondents to statistical inquiries.
2. One method is to invest in the creation and maintenance of a working field organization. By definition, a field organization interacts with respondents to communicate the agency's need for information; elicit relevant information in the correct form and at the appropriate time; maximize respondents' cooperativeness and goodwill; and adequately explain the consequences of refusal.
3. As far back as the 1952 Interregional Seminar<sup>92</sup>, participants representing statistical offices of all sizes in both developed and developing countries reached the conclusion that if anything was worth managing according to function, rather than subject matter, it was the field organization. All participants shared a similar opinion regarding the census of population—the census itself cannot be managed without an effective national field organization, and once created, that organization can be put to use at low marginal cost in undertaking other surveys.
4. Two factors can alter this straightforward conclusion. Some countries have a geographically decentralized statistical system, not out of choice but out of constitutional imperative. If the central statistical office's role is limited to assembling results compiled elsewhere, issuing coordinating guidelines, and perhaps surveying its immediate surroundings, the issue of a national field organization does not apply.<sup>93</sup> On the other hand, if the individual states, provinces, or cantons that make up the decentralized system conduct multiple surveys, some of which are carried out on a continuous basis, they will tend to have a field capability organized by function basis.
5. The reasons are straightforward. Economies of scale exist in recruiting, training interviewers, managing a large workforce, ensuring that embarrassing duplications are avoided, and preventing under-utilization of the workforce by drawing up permanent, long-term, and short-term contracts. These arguments were recognized fifty years ago and continue to hold today.
6. Suppose that the field organization is established on a permanent basis, in charge of the collection operations for all surveys (except those carried out through direct contact between subject experts and respondents). One of its chief assets is its location in different parts of the national territory. In a sense, the field organization acts as the local eyes and ears of the central

---

<sup>92</sup> Interregional Seminar on Statistical Organization 13-31 October 1952 Ottawa and 2-6 November 1952 New York.

<sup>93</sup> In several South American countries, the scope of many statistics based on surveys is limited to the national capital, and so coordination is more or less assured through cooperative initiatives with the other levels of government. The custom in some of these countries is that each survey manager handles the survey's field force.



office.<sup>94</sup> Many field organizations are therefore organized so as to strategically distribute resources throughout a nation, while maintaining a centrally located cell in charge of coordination and liaison. The central cell's responsibilities are critical. It serves as the day-to-day link between the decentralized network and the management of the statistical agency; ensures that the different offices of the field organization work as a system rather than as a loose confederation; and serves as the point of contact for various project managers to convey their wishes, doubts, and complaints to local offices.

7. The field organization should be a key participant in a standing committee that settles differences of opinion on how to approach respondents. If the field organization believes that a recommended approach to a particular survey threatens respondents' goodwill, it should be able to express its concern to the agency's upper management. If the issue is to develop an approach to the census of population or any other major census, the field organization will take part in discussions at the highest level.

8. Of course, the existence of a field organization is predicated on the need to divide the statistical process into discrete segments, and in particular, to separate collecting respondents' information from other stages such as editing, estimating, or tabulating. As the use of the Internet in general and in statistical activities becomes more widespread, the role of a special field organization will likely change in the face of technological progress<sup>95</sup>. However, current circumstances are such that these organizations are bound to continue with their traditional functions, at least over the next decade or two.

9. Large field organizations tend to be divided into two or three groups. One will be in charge of interviewing households, and its talents are best put to use in household surveys conducted on a continuous basis (e.g., the labor force survey). There will also be a group in charge of interviewing businesses, and its membership will range from those with formal or informal bookkeeping or accounting skills to those without a great deal of experience, who will be primarily responsible for the delivery and pickup of paperwork. A third group may be in charge of pricing consumer goods, and their knowledge will encompass a wide variety of products such as foodstuffs, clothing, medicine, entertainment, and so on.

10. The groups themselves may have a two-tiered composition. They may include a small group of permanent employees who provide leadership, organization, and continuity, and a larger group of employees contracted on a renewable, short-term basis. These short-term employees afford the field organization a great deal of flexibility in the face of fluctuations in workflow.

11. A field organization deals with several classes of respondents: households, enterprises, governments, non-commercial institutions, and at times foreign institutions. Each possesses unique attributes and may be sensitive, and even resistant, to different types of requests. In this section, we examine some of these issues and what methods a statistical agency can deploy to maximize respondent participation.

---

<sup>94</sup> Irrespective of how unified the organization, local offices will often perceive their first loyalty to be the local constituents (respondents) and lose sight of the fact that they must also serve the interests of a national agency or system.

<sup>95</sup> Much of this has already occurred with tabulation and at least part of publication. The desktop computer and an array of accessories, along with electronic dissemination have rendered a good deal of traditional printing paraphernalia obsolete, except for basic tasks (collating, binding, sorting, and mailing).

### 10.1.2. Households

12. Above all, interactions between households and the statistical agency concern the census of population; surveys of household incomes and expenses; labor force surveys; and special surveys that supplement the latter two.<sup>96</sup> Successful field organization managers dealing with households should possess:

- ❖ a comprehensive list of the respondents in scope<sup>97</sup>;
- ❖ thorough knowledge of the ethnic and socio-economic characteristics of the population, so as to maximize cooperation and minimize the friction caused by invasions of privacy; and
- ❖ a method of training interviewers that reflects the organization's accumulated knowledge of how to successfully approach the respondent community.

13. Interviewers should not be deployed until they have thoroughly understood the difference between coercion and cooperation. In addition, a few other matters require understanding. For example, households seldom keep usable records. The easiest questions are those based on knowledge of their status (demographic, participation in the workforce, and so on). The most difficult are those that require exact recollection or access to detailed records (e.g., when and at what cost was a particular household item purchased).

14. Households may react poorly to certain questions on the basis of their cultural and demographic characteristics. In some households, respondents may prefer to keep the nature of their expenses hidden, and certain expenses are considered to be morally wrong (alcohol, tobacco, and so on). Controversial topics such as abortion may elicit diverse, possibly even violent, reactions.

#### Two communities

In one country, the population was almost evenly divided between the coast and highlands. While there was no strife between the communities, they were still far from integrated and showed pronounced differences in their attitudes toward finances and family matters. Certain types of statistical inquiry were easiest if the interviewer belonged to the other community, since this was considered less intrusive than sharing answers with peers. For other types of questions, the opposite was true. Successful administration of surveys requires detailed knowledge of such attitudes.

15. The effectiveness of a field organization depends on:

- ❖ the depth of its knowledge of what works and what does not in household interviews;
- ❖ an interviewer training program that foster respondent/interviewer relations; and
- ❖ the capacity to support an interviewer faced with overwhelming resistance to parting with information.

<sup>96</sup> Occasionally there are highly specialized large-scale surveys that require a devoted organization to be handled correctly.

<sup>97</sup> These lists can be derived from the census of population, from other household surveys that are updated on a continuous basis, or from a list enumerated by the field organization itself.

16. These capabilities are more easily found in a functional organization than in an organization fragmented by subject matter.

17. Whatever the legal basis for dealing with households (see chapter 12), the field organization will want to deal with them gently. In some countries, there are legal and political measures in place that protect respondents' privacy. Because statistics are generally not as high a priority for government as more pressing issues, when friction arises from the nature of household surveys the government is more likely to side with the respondents, without taking the time to fully appreciate the loss of information and its consequences. The field organization should consider this possibility when dealing with households and make sure interviewers do not overstep their bounds.

### **10.1.3. Enterprises**

18. Dealing with enterprises is quite different from dealing with households. Enterprises find it much easier to respond to questions on the basis of records than from memory or opinion. One obvious reason is that once the decision to part with information has been made, a junior officer can be authorized to provide record-based data; the same officer would not be authorized to express opinions on behalf of the firm or to provide facts from memory. In short, record-based responses are the most predictable and time-efficient from the point of view of business management. In the case of households, the head of the household normally speaks on behalf of all household members.

19. Note that the distinction made above applies mostly to properly organized and constituted enterprises (generally medium and large-sized enterprises). Smaller and/or informal enterprises are best treated as households, and the emphasis on records is considerably less, since answers may not be based on a proper bookkeeping system. Also note that the latitude given to interviewers in the survey process is quite different in each case. Whereas interviewers can be safely trusted (once they have received proper training) to follow the procedures to replace one household or small firm in the informal sector with another, the same is not true for larger firms. For this reason, one way of deploying the field force is to assign to the more experienced and more tactful interviewers the task of dealing with households, and to deal with situations where tact and persuasion are of paramount importance. Less experienced interviewers could take on regular contacts with properly constituted enterprises. Whereas initial contact with an enterprise should be made at the highest level that the agency can afford, the follow-up should be left to someone whose functions are principally those of a messenger. In situations where the same matter can be handled by mail, telephone, or e-mail, these are preferable, of course. Where e-mail (or fax) is chosen, the field organization should ensure that proper technical support is provided.

### **10.1.4. The consumer price index: a special case**

20. Whether the workforce charged with taking prices every month should be an integral part of the field organization or should be placed directly under the control of the CPI management is a matter of preference, efficiency, and public relations. Clearly, the CPI management will want to be certain that its instructions—particularly on quality and replacement rules—are followed scrupulously, and may fear that the divided attention of the field organization may dilute the seriousness of those instructions. Moreover, it may also fear that the public's confidence in the CPI could be shaken if it were under the impression that insufficiently trained personnel took information on prices. Because the CPI conforms to neither household nor enterprise interviewing

protocol (the bulk of it is carried out by requesting access to public information displayed by retailers, or, in certain cases, in advertisements of catalogues), CPI interviewers require special training. These arguments favour placing the CPI field force directly under the CPI management, rather than within the field organization. On the other hand, in countries where size and geographic layout necessitate local administration, an independent CPI interview force would likely be inefficient. In such cases, it would be preferable to make use of the local field organizations, under the supervision of experienced CPI interviewers.

### 10.1.5. Government

21. Information is collected from government in a form different from that applied to households and enterprises:

- ❖ The government agencies may have field organizations of their own; therefore, a combined effort is required.
- ❖ With respect to disclosing information, the law that rules those agencies may oppose that of the statistical agency, requiring that a legal conflict be resolved.
- ❖ The collection of information may require government agencies to adhere to a coding standard developed by the statistical agency, even though the agency has no jurisdiction to enforce it.

22. The first situation is often the case with Ministries of Agriculture in countries where agriculture is dominant and where there is a tradition of intensive use of quantitative information in the ministry.<sup>98</sup> Rather than debate issues of control, the statistical agency should make use of the existing results and the existing workforce, and engage the ministry in more productive discussions, such as whether or not the collection should be modified (as may be required for an integrating framework such as the National Accounts).

23. The Ministry of Transport is another institution where there is a tradition of using quantitative information and where the work of the ministry generates administrative records that can be used for statistical purposes at a sufficiently low marginal cost. Again, the wisest policy is to reach an agreement with the ministry so as to make the best possible use of the existing information. Sometimes the administrative information does not conform to international standards, but usually it is easier to make the necessary adjustments than to embark on an independent data collection effort.

24. The main barriers in making use of data collected by other ministries (especially the government agencies in charge of tax collection and administration of social security) are legal and regulatory. Tax collectors tend to be as protective of individual records as statisticians. The very notion that sharing occurs could deeply offend taxpayers and tarnish the ministry's reputation, no matter how powerful its detection and collection capacity. Furthermore, if knowledge that the statistical agency receives information from other government agencies creates the perception (no matter how ill-founded) that it provides complementary information, the agency's reputation may be tarnished. In section 12.1.5, there is an attempt to show that in spite of these difficulties, one-way sharing of tax information is the most powerful method of substantially reducing statistical paperwork for enterprises.

---

<sup>98</sup> In a number of countries, agricultural statistics were among the first statistics developed, and prior to the existence of a statistical office, the workforce required to collect them was headed by the Ministry of Agriculture.

25. Generally, it is advisable that the statistical agency hold off on creating permanent arrangements in which other ministries collect the data, and that they use existing resources and political pressure to reach a constructive and collaborative agreement. Perhaps the best way to proceed is to establish a tradition of informal inter-ministerial committees. It is possible that the agency will encounter much frustration along the way, as non-statisticians rarely perceive collaborating in data collection to be an urgent task. On the other hand, non-statisticians may be seduced by the prospect of taking credit for an important service rendered to respondents, especially where the respondent community is broad.

26. Lastly, there is the matter of enforcing a common standard in the collection of statistical data. This often arises in the context of specialized public finance compilations, particularly for the national accounts. Assuring that ministries use the same definition of current and capital expenditure at the micro level is an arduous and at times thankless task, but one that cannot be avoided.

#### **10.1.6. Special case of provincial and local government**

27. In many instances, provincial or state governments have highly developed statistical offices of their own. This is not only the case with federal countries such as Brazil or Germany; even in non-federal countries such as Spain, so-called autonomous communities have offices with the capacity to collect, compile, and disseminate data of special interest to the public.

28. In these situations, it is important to prevent different field organizations from overlapping and exhausting respondents' goodwill. Where there are legal devices in place that allow information to be shared between statistical agencies, and where working arrangements are sufficiently intimate to support such devices, a balance can be achieved.

29. Dealing with other government institutions does not automatically involve the field organization. In principle, these matters are worked out between the heads of statistical agencies and their legal advisors, where possible. If different levels of government are involved, the political heads responsible for inter-governmental affairs on both sides may be brought in. Of course, if the agreement results in a delegation of tasks to field organizations then they will play a role in data collection. In federal countries or in situations where local government is involved, cooperation will tend to be country-wide. In such cases, the field force operates nationally and has an agreement with the statistical agency as a whole, rather than a coordinated set of understandings with each subject matter unit.

#### **10.1.7. Non-profit institutions**

30. These types of institutions are becoming more important in almost all countries of the world. In recognition of this, guidelines have been developed explaining how to account for the economic impact of non-profit institutions.<sup>99</sup> Most non-profit organizations and voluntary bodies that engage in any monetary transaction with the public have some rudimentary bookkeeping system, and the survey demands from them tend to be relatively limited. However, non-profit health and education institutions may require more attention from the field organization.

31. The cases of non-profit health and education constitute a separate issue largely because their relative size measured as a share of GDP and their social importance in the development of a

---

<sup>99</sup> *Handbook on non-profit institutions in the Systems of National Account*, United Nations publication, forthcoming.

country demand special consideration. In many countries, there is a tradition of specialized surveys of health and education. But there is also a trend to break away from the traditional surveys of these two services and in addition to measuring material and human inputs,<sup>100</sup> attempting to measure outcomes. One framework that has gained some acceptance shifts the emphasis on to longitudinal surveys (“films rather than photos...”). However, the statistical complexity of such attempts places them beyond what the administrative staff of non-profit hospitals, clinics, schools and universities can do as a by-product of their regular activities. To the extent a statistical system is still involved with the use of traditional indicators of health and education there has to be an understanding between the providers of the registers and the data collectors.

32. As a final comment on this matter, the specialized nature of these two fields – Health and Education – is such that in the majority of those countries that compile regular statistics on them, the statistical or analytical units in charge of compilation are located in the responsible ministry itself. For small and even medium sized statistical agencies that are still sorting out their mandate it may be prudent to leave matters as they are rather than attempting full centralization with few chances of succeeding.

33. For offices that are better established, they may wish to experiment with the creation of dedicated Institutes or statistical satellites. Since bodies come in a variety of forms. In addition to having their own chief executive officer, they can answer to a board made up of representatives of the education (or health) sector and of the statistical agency.

## **10.2. Interacting with a subject matter organization**

### **10.2.1. Perspectives**

34. Each major organizational unit within a statistical office should possess a perspective broad enough to see how its actions may intersect with the rest of the office or, in a decentralized system, with the rest of the system. Such broad views are mostly required when agencies reach important crossroads, which fortunately does not happen too often. In everyday matters, the scope of interaction is usually limited to those with whom information is exchanged. Thus, the management of a field organization will bear in mind first and foremost its respondent policies (see chapter 12) and communication with that part of the agency in charge of processing currently collected data.

35. Invariably, a narrow perspective will produce tension. For example, when requesting detailed information on consumer expenditure, those responsible for economic statistics may consider minimizing errors in the CPI weights as their overriding objective, because of the harm such errors are bound to cause. They will therefore wish to add all possible precautions to the relevant inquiry. This stance may be countered by those in charge of field operations, whose experience tells them that the shorter the interview, the more attentive the respondent.

36. The tension itself is a healthy manifestation of a commitment to quality motivating both organizations. If neither organization expressed its point of view on how to avoid pitfalls, tensions might escalate even further. But, given the possibility of conflict, there should be an organizational device in place that forces agreement without having to call upon senior officers. In

---

<sup>100</sup> The pattern used to be to measure hospital beds and rates of occupancy as a health indicator and desks and rates of enrolment as an indicator of education. Neither indicator paid much respect to issues of quality and effectiveness.

the case of new initiatives, the mechanism should lie with the project management, and ultimately the authority of the project manager<sup>101</sup>. Where the point of conflict is the result of an ongoing activity, its resolution requires the involvement of a standing committee. The reason for a standing, rather than an ad hoc, arrangement is that problems concerning the interaction between a field organization and subject matter units are bound to arise with considerable frequency. The important thing is that differences of opinion be channelled into cooperative dialogue that yields constructive and binding resolutions for all parties.

### 10.2.2. Censuses and surveys

37. The management of the field organization cannot treat censuses and surveys as if they were interchangeable. Censuses, particularly the censuses of population and housing require a major civilian mobilization and therefore should be considered as a national event, whereas surveys should not, because of their scale, impact, and potential repetition (though such a thing should be avoided).

38. The census of population is vastly important to any field organization for several reasons. In many agencies, field organizations were in fact created in response to the needs of the census, so accordingly, the census is their prime commitment. Second, the most visible part of any census is the collection of data, since it requires a brief period of intense activity on the part of all households.

39. In contributing to the preparation of a census, the field organization will usually call on its detailed knowledge of the country and assist in translating it into a data collection approach. It will also contribute its knowledge of local conditions to identify and mobilize local leaders.

### 10.2.3. Managing interactions

40. Whatever the arrangements, a field organization, like any other function-based organization within a statistical office must look after its connections within the rest of the office with great care. There are several points of tension arising from interfaces that must be watched:

- ❖ the challenge from the pressure of subject matter specialists who are furthest from respondents – analysts, national accountants, specialists in marketing and dissemination providing the outstanding examples;
- ❖ the ambiguities about the quality with which a survey should be conducted. The field organization must be mindful to come to a sensible compromise between its standards of quality and the survey budget; and
- ❖ the proper balance between those survey operations that can be effectively conducted in regional offices (in a decentralized mode) and those that must be conducted in a centralized environment or else the standards of consistency cannot be applied with guarantees of success (surveys involving complicated coding for example).

In addition the field organization should be watchful of technological developments that may short circuit it before its management has had a chance to re-train the staff.

---

<sup>101</sup> This in no way precludes intervention by the management of the statistical agency or the field organization if they feel that the decision of the project manager affects the integrity of the agency's programme.

Contacting enterprises (and in a few years this may extend to households) via the Internet is undoubtedly going to get the subject matter expert in much closer contact to the respondent. Field organizations should find a niche in the new process where they can play a necessary and cost-effective role.

There are a number of infrastructural services that the chief statistician should make sure are available to the staff employed outside the central office. They include:

- ❖ access to statistical frames;
- ❖ access to equal training opportunities; and
- ❖ access to experts in the central office in real time to make rulings on the application of standard concepts.

**Conclusions**

There is general agreement that the field organization is a top candidate for organization by function.

The effectiveness of a field organization depends on:

- ❖ the depth of its knowledge of what works and what does not in household interviews;
- ❖ an interviewer training program that foster respondent/interviewer relations; and
- ❖ the capacity to support an interviewer faced with overwhelming resistance to parting with information.

If the field office is dispersed throughout the country, then it is critical that there be a central function responsible for liaison and coordination.



## Chapter 11 GETTING INFORMATION TO THE USERS

### 11.1. General dissemination issues

#### 11.1.1. Introduction

##### Definitions

The words *dissemination* and *publication* play crucial roles and possess broad definitions in the text that follows. They are taken to mean “making available to the public,” without restrictions and without regard for the way in which the action is carried out. Thus, publication involves the action of making public, in printed form or through the Internet. *Publication* likewise extends beyond the notion of hard-copy publication to include CD-ROM’s, tapes, audiocassettes, radio and TV broadcasts, and any other media that can meet the same objectives. At certain points in the text, *publication* is used in its traditional sense; this will be made clear by the context.

“ It is probably not an exaggeration to say that in most countries the statistics available, in published and other forms, are by no means fully taken advantage of by users, partly because the statistics are not enough known...the fostering of a more extensive exploitation of the statistics by active promotion based on user studies is an integral part of the dissemination effort...”

*Handbook Rev. 1<sup>102</sup>*

1. In part because of the condition identified in this quotation, there is a class of intermediaries in the dissemination process whose task is to seek out the users and tailor the information to suit their needs, while simultaneously providing useful interpretation of the data.

2. The involvement of intermediaries can be helpful in the dissemination of statistical information:

- ❖ their knowledge of the statistical process relieves statisticians of the difficult task of interacting with the ultimate users of information
- ❖ by subjecting the data to thorough analysis, they provide additional constructive criticism of quality and presentation
- ❖ they help statisticians assess demand for various types of data

However, there are also potential problems:

- ❖ at times, they may misinterpret data without giving statisticians a chance to set the record straight

---

<sup>102</sup> P.25.

❖ as a result of their own vested interests, they may unwittingly distort the information passed on to statisticians about user needs for statistical information

### 11.1.2. Providing users information on the properties of statistical data

3. Professional statisticians and reputable statistical institutions are obligated to describe accurately and openly the strengths and weaknesses of the data they publish and to explain how much inference the data can support. There is no international consensus on how this should be accomplished. But the statistical agency must be sure that its audience is properly informed regarding the following:

- ❖ where data are to be located, according to subject and time period
- ❖ how the data were defined and compiled
- ❖ what quality is assigned to the data
- ❖ what related data can be used for comparison or to provide context

4. Very few agencies have invested the necessary resources to be able to provide this kind of information for all of the statistics they produce.<sup>103</sup> If metadata does not accompany the creation of data, creating it after the fact will require considerable investment. Nevertheless, good statistical organization demands that documentation of this type be available for the entire range of series published.<sup>104</sup>

5. The burden associated with metadata projects may be reduced if a specific unit within the statistical agency is made responsible for ensuring that metadata are produced, that they adhere to a standard format, and that they are properly maintained and updated. It is important to bear in mind, however, that even if the responsibility is given to a specialized unit, the knowledge is derived almost exclusively from the substantive part of the statistical agency. It is important to differentiate between the need to produce metadata (irrespective of medium) for the entire range of statistical products and the adoption of a system and protocol for recording the information. The latter is already a subject of lively international discussion but the former has not yet commanded such attention.

6. Advancements in computer technology have fundamentally redefined both the demand and the supply of statistical information. The production and retrieval constraints that affected producers and users of data have diminished considerably. Rather than distributing summaries of available information and allowing users to select the data for which they require supplementary details, the statistical agency can provide the full range of data, to be stored by users, many of whom now possess the software and technological skills necessary to create their own summaries and analytical extracts.

---

<sup>103</sup> One outstanding model of metadata documentation is that of the Australian Bureau of Statistics (ABS). Its official description states: "...the data management component aims to improve client service through better catalogued, more visible and more accessible output data, integrated concepts and procedures...These goals are being approached through the development, loading and use of a corporate information "warehouse"...[the warehouse] has facilities to store, catalogue, and access all the output data produced by the ABS together with the 'metadata' describing the underlying concepts and procedures."

<sup>104</sup> See appropriate references to the principles of good survey taking in Statistics New Zealand's Protocols for Official Statistics (See <http://www.stats.govt.nz>).

7. Technological advancement has also resulted in a profusion of self-service data warehouses that are nearly impossible to navigate without a reliable guide, thus making the provision of high-quality metadata all the more crucial. Therefore, the statistical agency cannot adopt a *laissez faire* attitude, conferring upon the user the responsibilities of searching for, summarizing, and analysing data, but rather must find an acceptable compromise that allows both parties to share in the work of “consuming” the data. There is no general rule for defining this relationship, but it is important to remember that users’ appetite for metadata is limited, even if there is hardware available for storage and processing. Moreover, non-specialists’ capacity to handle large bodies of data is also limited.

8. Nonetheless, steps must be taken to heighten the probability that an increasing number of users, provided with better search tools and more demanding in terms of quality, will find what they are looking for. Even if detailed metadata go unused, the very fact that they are compiled and made available is reassuring for those who wish to see high standards of credibility upheld.

9. The balance between what *can* be physically made available and what is appropriate for users to have access to in view of the likely use is a matter to which the unit in charge of dissemination should pay close attention.

### 11.1.3. Dissemination policy

10. A statistical agency that lacks a well-defined dissemination policy risks losing its credibility as an independent agent. The following elements are essential to an effective dissemination policy:

- ❖ a release schedule that treats all constituencies equally, defined well in advance<sup>105</sup>
- ❖ a clear policy with respect to what information should be made available to the press and what is supporting detail that can be disseminated through statistical bulletins
- ❖ a policy regarding the cost of accessing detailed statistical information<sup>106</sup>

11. Statistical agencies have become increasingly aware of the benefits of a pre-defined schedule of statistical releases. It is better to work according to a timetable with conservative deadlines than to work too fast and be perceived as unpredictable. Or, if news is released later than usual and is more favourable than expected, the statistical agency could be perceived as under political influence.

12. For many users, the one line that encapsulates the entire measurement process (e.g., “last month the CPI continued to increase at the rate of ten per cent per annum”) is more important than the factors that explain the news. Since it is usually the media that provides such summaries, it must be made aware of the significance of the data and of the relevant metadata. From the point of view of others, the statistical intermediaries among them, the explanatory factors and supporting data play an important role in their efforts to explain the underlying forces of change and to foresee future changes. The statistical agency should have a clear policy regarding what data can

---

<sup>105</sup> From the International Monetary Fund’s Standard Data Dissemination System: “The monitorable elements of the SDDS for access, integrity, and quality emphasize transparency in the compilation and dissemination of statistics.” To support ready and equal access, the SDDS prescribes (a) advance dissemination of release calendars and (b) simultaneous release to all interested parties. See website <http://dsbb.imf.org>.

<sup>106</sup> See section 11.3

be distributed to the press for mass consumption and the body of data that, because it is more detailed and results from a finer cross classification, appears some time later in a statistical bulletin (in electronic or conventional form).

13. The growth of the Internet has blurred the edges of what used to be a fairly straightforward policy. In theory, nothing should stop a statistical agency from placing all available information on its Web site and managing access through the Internet rather than in more traditional ways. By “drilling”, users can get to the detail they find appropriate to their concerns, with the added advantage that the technology allows them to leave a trail of what they have accessed.

14. The unit in charge of dissemination in a statistical office should be aware of the fact that technology is rapidly loosening the constraints that used to affect its activities. Tracking technological advances has become almost as important as conducting studies of user needs and satisfaction.

## **11.2. Different forms of dissemination**

### **11.2.1. Traditional means**

15. Information can be disseminated using standard forms—bulletins, digests, abstracts, yearbooks, etc. There is a pattern to which most established statistical offices have adhered throughout most of the last half century. It consisted in producing a yearbook (see Section 5: The Statistical Yearbook), a monthly or quarterly digest, and the occasional specialized publication if its readership could be readily identified. Both the yearbook and the digest covered virtually every activity in which the statistical agency was engaged. Where it was obvious that the demand for detail was far more important than the demand for selected aggregates—typically the case with foreign trade statistics—the latter would be included in a specialized volume.

16. The organization required to support this form of data dissemination was equally straightforward. Each substantive unit looked after the compilation of a special branch of statistics (e.g., price statistics), which would be featured in the “digest” and the “yearbook,” respectively. Each unit was responsible for the accuracy of its data and for the relevance, consistency, and form of the accompanying footnotes. It would also be available to answer specialized queries that could not be handled by the editors of the publication.

17. At the agency level there would be a unit in charge of dissemination (identifying readers, defining the form of the publication, providing timetables to contributors, ensuring that the printing process worked according to schedule, handling distribution and subscriptions, etc.). This unit was also responsible for interacting with the subject-matter organizations to ensure that they complied with the overall schedule of dissemination.

18. A number of large offices had their own printing presses; in several countries, the facilities available to the statistical office were among the largest and most sophisticated in the public sector. This form of organization is still viable, although modern forms of dissemination, and in particular the use of the Internet, have opened up new possibilities.

### **11.2.2. Multimedia**

19. Perhaps the most important change brought about by technological advances is the significantly diminished need to control large printing facilities. Statistical agencies now have the

means to lay out their own publications and, for small printing runs, the tools to print everything in-house. In addition, technology has done away with the need to print large volumes of statistical tables (typically those related to the censuses of population and to foreign trade statistics) by making it possible to provide the information in other ways.

20. Twenty years ago, the alternative to paper publications was to disseminate information using computer tapes but this was only open to the very small set of users who had access to a mainframe computer. Over the last two decades, access became far more widespread with the proliferation of PC's and floppy disks. And in the last five to ten years, the practice of disseminating massive bodies of data via CD-ROM has been almost universally adopted. CD-ROM's allow information to be conveyed in a more imaginative way—mixed with sound, accompanied by processing software, etc.—and actually invite a greater effort to analyse raw data than any means of dissemination previously available.

### 11.2.3. Internet

21. The advent of the Internet has opened up an increasingly large number of possibilities for both the providers and the users of statistics. Its main advantages are that it offers interactivity, versatility, speed and cost efficiencies therefore enabling the statistical agency to greatly enhance the service provided to users.

22. The organizational implications of intensive use of the Internet for dissemination purposes are substantial. For example, the traditional two-tiered approach to publishing referred to above can be modified. Each substantive unit would be equipped to set up its own Web page on the agency's site and handle the interactive aspect of dissemination. A central unit would be in charge of releasing information to the press and also have the power and the expertise to define (subject to higher approval) a "code of good behaviour" with regard to the contents and appearance of material posted on the agency's Web site. The central unit would also be in charge of convening meetings to determine how users as a community were reacting to the range of outputs produced by the agency.

23. Another important organizational consequence is that the electronic file/database used to prepare the print dissemination could be used for the Internet version of the same publication. A close integration of content and presentation between electronic and conventional publications can also bring about substantial economies in the dissemination process. This does not mean that an office is tied to print media, as it may be suitable for an office to only offer electronic versions of its publications whether they are Internet or CD-ROM versions.

24. The delivery of time-sensitive statistics to users has been greatly enhanced by the Internet. The time lag between data collection and data dissemination by traditional print media office is greatly reduced when these data are disseminated via Internet. In practice, Internet dissemination is usually possible around the same time as the print version has been finalised and sent off for reproduction and distribution. This often will led to the user having access to the statistics disseminated via Internet a number weeks before they would normally receive the print version.

25. Many statistics agencies are finding that Internet is ideal for releasing market-sensitive statistics. The Internet allows the agency to release the statistics in an orderly fashion; that is one that allows equal access to the statistics to all users at the same time. In the past, facsimile transmissions have been used for this purpose but users have been critical of this method.

26. The set-up cost of establishing an Internet service in a statistics agency has reduced dramatically in the past few years. This is due to both the reduction in cost of the hardware and software as well as the availability of “off-the-shelf” software that can be used for a basic but very satisfactorily performing Internet site.

27. The cost efficiencies produced by disseminating statistics and statistical metadata via Internet are substantial when the Internet dissemination is replacing established print or other physical products such as tapes or CD-ROMS.

28. The Internet enables statistics agencies to provide greater access to statistics and statistical metadata. In particular, the amount of detail that can be provided is not limited as in print media by the size of the page. Extensive statistical metadata can now also be provided as a matter of course to the user. Statistics and statistical metadata that has been archived by the statistics agency can now be made readily available to users. In addition, out-of-print statistics publications can also be made available to users on Internet by providing scanned or other formats that preserve the document structure and layout.

29. Web browser technology is very sophisticated, which allows agencies to provide users with browser ready access to databases and Internet based statistics dissemination systems. Web browsers now come with the functionality that enables the browser to recognise the file type and allow the user to download statistics in comma separated variable format (CSV), spreadsheet or other common formats directly to their computer.

30. The Internet has provided statistics agencies with a very useful way to test various ways of presenting statistics or tracking the popularity of its releases, to invite comments and to get feedback on the adequacy of its data and metadata. In the development stage of a new database for Internet, users can test the database interface for the statistics agency and provide real-time response to the designers on such items as layout of the interface, functionality, response time of the Internet connections to the database and general usability. This is very valuable to the statistics agency in pre-testing of the “product” before release. Once a service has been released the statistics agency has the opportunity to keep in close contact with the users by providing a “feed-back” email address. By providing this function, the statistics agency can get very useful suggestions on ways to better serve their clients.

31. The agency can also use the Internet to collect statistics and related metadata via hyper text mark-up language (html) forms, direct access to remote databases, file transfer protocol (FTP) to remote servers or email submission. These methods are now commonly used and the choice between these depends on the complexity of the task, the security required, the frequency of submission among other requirements. Most recently, statistics agencies have been investigating the use of the Extensible Mark-up Language (XML) to transfer statistics and metadata between statistics agencies and data suppliers and users. XML potentially offers substantial gains in efficiencies to both the statistics provider and user as it allows standard transfers of structured data and metadata. The important point here is not to promote the use of XML – in fact by the time you read this book XML might have been replaced -- but rather that agencies will have new tools at their disposal to more easily collect and disseminate data and metadata.

### 11.3. Recovering the cost of publication

#### 11.3.1. Introduction

Consistent with their governments' "user pay" policies, some offices charge market rates for at least some of their products and services, whether the users are in government or in the private sector.

"The aims of this policy are to encourage users to identify and address their real needs for statistics, to enable the demand for ABS products to be used as an indicator of how ABS resources should be used, and to offset the cost of production of the statistics. The ABS has 'public interest' obligations to ensure that at least basic statistics are both readily available and affordable [as a result the ABS's Library Extension Program, 529 Libraries across Australia] are provided with free ABS publications...to meet the needs of their communities..."

*Australian Bureau of Statistics*<sup>107</sup>

32. The issue is whether one should treat statistical publications in much the same way as a general government service (e.g., police force and national defence) or as a government service for which users pay upon each utilization (e.g., toll roads, parks, and museums). And, in the case of the latter, what is the appropriate price? The arguments vary according to a government's communications and social policy. The positions in the debate over user pay policies include:

- ❖ If a government needs information to pursue its own ends—make better decisions, show the electorate whether or not it has delivered on its pre-electoral promises—it will request the production of statistical information. The cost will be borne by all taxpayers and is part of the burden of providing good government.

- ❖ The availability of information about the social and economic progress of a society is something to which any citizen in an open society is entitled and a responsibility that good government must honour. Since it is not possible to legislate on how much information should be provided free and how much should be charged for, the only practical policy is not to charge for any.

- ❖ Since information has to be produced anyway to meet government needs, the most that should be charged to the user is the marginal cost of delivering information in a requested form and by a given date.

- ❖ It is manifestly unfair to place the burden of financing the production of highly specialized information, which gratifies the objectives of the few (e.g., researchers, historians, professional statisticians), on the shoulders of the entire community of taxpayers.

- ❖ It would be nearly impossible to base a fee structure on marginal cost. Accordingly, the average costs of delivery should be charged to all users, regardless of what sector they come from. There is no other equitable way to manage a cost recovery policy.

33. These arguments have been bandied for some time, but no international consensus has emerged. Perhaps what can be said at this stage is that for those agencies in developing countries where the major challenge is to get citizens to recognize the existence and usefulness of statistical information, the most pressing issue is not whether and how to obtain maximum revenue from statistical publications. In more advanced statistical agencies, where certain users have unique

---

<sup>107</sup> Annual Report 1996-97, Canberra 1997.

(and costly) specialized requests, there is an increasing trend in favour of charging more than nominal costs. The implementation of a fee policy differs greatly from one agency to another.<sup>108</sup>

### 11.3.2. Commercial policies

34. In agencies that have embarked upon a dissemination programme with commercial overtones — either heavily dominated by the sale of a particular service or relying on the complete set of publications — the creation of a special unit involved with marketing and related activities is warranted. However, in other agencies research has shown that the commercial potential of statistical publications is limited and, therefore, the creation of a special unit is not called for.<sup>109</sup> Of course, even if there is limited or no commercial potential and where there is no special marketing unit, agencies still have the responsibility to investigate how they can increase the audience for their products.

35. A commercial policy requires several elements and, above all, a record of costs that could justify the prices attached to each publication if they were subjected to scrutiny on the presumption of monopolistic unfairness. The elements of such a policy are as follows:

- ❖ an algorithm to price special tabulations and a policy regarding subsequent requests for the same information by another user
- ❖ an algorithm to price custom-designed surveys or additional questionnaires drafted to accompany existing survey questionnaires
- ❖ an explicit and justifiable objective (e.g., recovering all costs associated with the production of camera-ready copy, printing, and distribution, in the case of hard copy products, and a comparable set of costs for distribution via the Internet)
- ❖ a marketing plan including customer identification and needs
- ❖ for larger offices a separate marketing unit may have to be identified
- ❖ a catalogue of all publications with their respective prices.

36. The unit in charge of marketing publications must fully comprehend these elements and objectives and be ready to deal with criticism from the sectors of the community that, though they may be intensive users, are the most affected by any set of commercially calculated prices.

### 11.3.3. Using third parties for dissemination

37. In a number of countries, third parties (in some instances private sector firms) have been contracted to take over the marketing of part or all of the statistical agency's dissemination programme. This measure upholds the objective of gauging signals from the market for the agency's publications, eliminates the need to staff a marketing unit, and releases the statistical

<sup>108</sup> See Proceedings of the Conference of European Statisticians, 45<sup>th</sup> session.

<sup>109</sup> In fairness to those agencies that have embarked on a commercial programme, their aim is not exclusively commercial. For example, charging commercial prices for paper and electronic publications provides valuable market feedback to the statistical agency.



office from the obligation to explain its pricing policies in the context of broad social goals. Naturally, such a program only makes sense in an environment where there is an active market.<sup>110</sup>

38. Before adopting solutions of this kind, though, senior officers in statistical agencies should be mindful that the best of statistical publications do not have mass appeal and that many users will be quite content to share copies or to access them via libraries or other public collections. Experience suggests that among the few publications with less limited appeal are those on foreign trade statistics and those derived from the census of population.

#### **11.3.4. Copyright and royalties**

39. An important objective for an effective statistical agency is to disseminate the information it compiles as widely as possible and to make all possible efforts to get government, business researchers, and the community at large to use that information. It therefore seems irrelevant or even contradictory to raise the matter of copyright and royalties in connection with official statistics. In fact, what is envisaged is to ensure by moral persuasion that intermediary users cite the source of the statistical information and include the caveats to which it is subject. Moreover, for those offices that market their information commercially, copyright is a measure designed to prevent users of statistical information from deriving personal profit from an undertaking that was collectively funded by the taxpayers.

40. A number of statistical agencies make use of the copyright mark and instruct all users to properly attribute statistical information.<sup>111</sup> It is not likely that any agency has taken legal measures to address improper use or attribution. Moral suasion is usually effective enough.

41. In the cases where it is obvious that intermediaries also frequently buy statistical compilations in order to support studies and analytical exercises, attribution may be insufficient and the payment of royalties may be in order.

### **11.4. Supplementing information with analysis**

#### **11.4.1. Should an NSO do analysis?**

42. There is no international consensus on how far a statistical agency should go in commenting on what the current figures mean and even less on how a set of figures recently compiled may relate to another set of figures compiled independently. To a certain extent, there is convergence of opinion in the social and demographic field, and several agencies prepare monographs on demography and various social issues. But there is considerable diffidence toward doing something similar with economic statistics. Arguably, nothing moves very fast demographically and, therefore, the commentators need not worry that what he/she says will change population trends. However, in the case of economic data, some ill-chosen turn of phrase could affect behaviour in the financial markets, raise serious questions about an economic policy adopted by the government, and altogether bring about what a statistical office sets out never to

---

<sup>110</sup> Where alliances with private sector firms are tolerated or even encouraged, there must be a proper procedure to allow book dealers and publishers to take part in the process, and short term contracts should be the norm so that the arrangements do not become obsolete with the passage of time and the availability of new technologies.

<sup>111</sup> A standard note to this effect reads: "...No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form..." (Statistics Canada).

do—to affect the real world with its apparent opinions rather than with objectively estimated figures.

#### 11.4.2. Facts and interpretation

43. There is not much controversy around the fact that, at a minimum, a statistical agency should comment on salient facts and use its inside knowledge to influence the impression created by aggregate figures if that impression is not supported by fact. For example, hours worked in an industry fell precipitously in one of the summer months when it was not habitual for them to fall. It turns out that the dominant firm in the industry decided to close down its plants earlier than usual for some technical reason and to send its workers on paid holiday. In a case like this, it is proper for the statistical agency to remove the alarm from the aggregates by commenting—without divulging who was responsible—on what caused the precipitous fall.

44. It is improper for a statistical agency to make normative judgments. For example, in commenting on recent measures of income distribution, a responsible statistical agency should not attach editorial comments about the latest changes in the tax structure and their regressive effect on the shape of the distribution curve. Nor would it be proper to couch the normative judgments in controversial assumptions and shaky evidence of causality. But readers would probably benefit greatly if the statistical agency, in reviewing the condition of the housing market, for example, were to remind readers that the number of starts had fallen and that this fall coincided with a dramatic rise in interest rates, including mortgage rates. These examples are not prescriptive; rather they illustrate the posture of a statistical agency that is consistent with its vocation of objectivity and neutrality.<sup>112</sup>

#### 11.4.3. Analytical functions and information

45. If the chief statistician decides to routinely add analytical comment to the release of figures—social or economic—some unit within the agency must be put in charge. If the efforts of the agency are at all effective, the media will get into the habit of reproducing the official comments and keep them separate from evaluations of the figures produced by other makers of public opinion. In order to ensure that it is in a position to explain what the agency's comments mean, the media is likely to seek a contact within the agency. If the chief statistician decides not to take on the additional burden of being the media's regular interlocutor (although in smaller offices this might be advisable) he/she should designate very clearly who is the official spokesperson. This will prevent any confusion that might result from different opinions being given by various professionals within the same agency.

46. a survey or related bodies of data—responsibility might be assigned not to one person but to an entire analytical unit.

#### 11.4.4. Review of publications

47. In spite of precautions and training administered to the official spokespersons, errors in judgment may occur. In order to avoid embarrassment, the statistical agency should take additional precautions. For releases that require swift publication to be useful, a process of collective review that engages the more senior officials of the organization and fosters cross-subject review and criticism should be put in place. For example, a release of statistics on

---

<sup>112</sup> See section 9.2 for additional remarks on the nature and functions of “analysis” in a statistical agency.

employment and unemployment can be effectively reviewed by those responsible for industry and trade statistics, the national accountants, and so on. These are the types of reviews that, although performed on a regular basis should not incur excessive amounts of time for any one of the reviews.

48. A second process would be reserved for longer-lived efforts—for example, those connected with the series of analyses generated by a new survey of family incomes and expenditure, a new economic census, or a new census of population. Given the time scales used for such exercises, it is appropriate to institute a formal process of review. Persuading members of the academic profession to take part in the process would be of added benefit. The mission of the review process would be exclusively to judge whether the statements made are fully supported by evidence; whether the most important inferences on the basis of the new data available were taken into account; and whether the methods used stand up to scrutiny in the face of current knowledge. There is, however, a component of this review that should not be overlooked. This consists in making certain that nothing improper is said in the analysis, given the statistical agency's political and legal context. This latter qualification is important. For example, some statistical offices are responsible both for the compilation of statistics and for economic studies (or analytical exercises). Other offices do not have this extended responsibility. It follows that what would constitute administrative “trespassing” of responsibilities in one country would be the expected duty of the organization in another. The judgment of what can be said is one that must rest squarely with the chief statistician or someone directly delegated by him/her.

### 11.5. The Statistical Yearbook

“In view of the approaching [creation of a great many new provinces], and the prospect of their extending their commercial relations with each other and with foreign parts, a hand-book of common information respecting them seems to be required.”

*Year-Book and Almanac of British North America for 1867*<sup>113</sup>

49. The physical entity called a Yearbook may turn out to be a twentieth-century relic, made obsolete by the possibilities opened up by modern computer and telecommunications technology. But the two different approaches conveyed by quotations above are as much of an issue today as when they were first stated a century ago.

50. For many decades, the statistical picture of a single country was available from its Yearbook and the corresponding picture of the concert of nations was available from the set of United Nations Yearbooks.<sup>114</sup> If one wished to learn all that is important about a country in a quantitative sense, one could consult these yearbooks, the value of which lay in the breadth of information and variety of points of view presented.

51. The opposing point of view is that the activity of an office should consist not in speculation but rather in providing relevant answers to pointed questions.

52. Leaving aside the matter of whether the statistical agency publishes a volume of statistics called the “Yearbook” or creates a well-designed Web site in which all relevant information describing the country can be found, the merits of producing a Yearbook include the following:

---

<sup>113</sup> Arthur Harvey ed., Montreal 1867

<sup>114</sup> For example, the Demographic Yearbook, Energy Statistics Yearbook, Industrial Statistics Yearbook, International Trade Statistics Yearbook, and the National Accounts Statistics Yearbook.

- ❖ It provides an occasion for a review of the relevant information that describes a country.
- ❖ It clarifies the need for integration in the statistics that will be selected for the Yearbook.
- ❖ It reveals gaps in the available information, thereby suggesting what new initiatives should be taken to complete the description of the country's social and economic fabric.
- ❖ In the case of decentralized systems, it is yet another means of promoting coordination among statistical units in different government departments.
- ❖ It is an ideal pedagogic device to introduce children to the physical, political, and human geography of their country.

53. Against these considerations, there are the fears that the Yearbook will become an end in itself, of little value to the constituency for whom it is intended, and that its contents are bound to be excessive for those in a hurry and insufficient for those who wish to deepen their knowledge of a particular subject.

54. To a great extent, the development of the Internet has changed the basis for many of these fears. The economics of producing a Yearbook (the daunting aspect of the initiative for many years) have changed radically. The greatest innovation is that in many instances it is no longer necessary to print the Yearbook or it can be printed on demand. Other considerations are almost as important. The pages of the Yearbook can be updated much more quickly. And the Yearbook can easily be produced in a number of modes depending on how much coverage and detail are required, as are some of the better-known dictionaries.<sup>115</sup>

55. Whether the statistical agency opts for a Yearbook or for an abridged volume, made available in all of the country's embassies abroad and designed to inform the potential foreign investor or tourist, or whether the matter is handled through the Internet, the initiative to produce a Yearbook requires an organization. The structure of the organization is not all that different from what was envisaged for the marketing of statistical publications. It consists of a coordinating body entrusted with the responsibility of defining contents, setting deadlines, handling distribution (or delegating that responsibility to a dedicated marketing unit), planning the future evolution of the Yearbook, pointing out contradictions or ambiguities in the data, and, if required, ensuring liaison with other departments of government, where other producers of statistics can be found.

56. Perhaps the most difficult challenge for the coordinating unit is to ensure that the contributing departments do not dismiss the exercise as someone else's responsibility for which they are not accountable. A system of links operated through the Yearbook's Web site might place users in more direct contact with contributors and stimulate their interest.

### Conclusions

A statistical agency must strike a balance on two matters of relevance to its dissemination policy: (a) how much interpretation and analysis should be left to intermediaries and (b) how much metadata is important to publish. However, there should be no compromise with the obligation to treat all users equally by giving them simultaneous access to data. It strengthens greatly the hand of a statistical agency if it issues and adheres to a schedule of

<sup>115</sup> For example, some editions of the Oxford English Dictionary are published in several formats: the Concise (1 vol.), Shorter (2 vols.) and the full book (8 vols.). In fact, some statistical agencies already follow this model and have an abstract, an intermediate publication, and a pocket-size abridgement.

publication release dates. In addition, a dissemination policy should define the cost of accessing detailed statistical information.

A statistical agency must strike a balance between an increasingly general policy on the part of government that calls for users to pay for certain classes of services and its duty to make official statistics as accessible to the community as the budget permits. There is a possibility of sub-contracting some or many of the functions associated with marketing but this still leaves open the matter of sales versus free distribution—there is no international consensus on where the boundary should be drawn.

The dissemination activity is not complete if it is not underpinned by an examination of “what the figures mean.” This examination must be conducted in the most neutral and objective way possible but should not degenerate into a mechanical summary of facts. At a basic level, the statistical agency can bring to bear its knowledge of unique events that affect publishable aggregates. At a higher level, it can use its cross-subject knowledge to show the interdependencies among data and social processes. In doing so, particularly in the economic field, a statistical agency will take some risks. These risks consist in trespassing on the turf of other sectors of government that are better equipped to comment on current developments but at the same time may be somewhat less neutral. To avoid adverse consequences, review processes should be put in place, involving the chief statistician if necessary.

The publication of a Yearbook—in conventional or electronic form—is the best method for selecting the most important statistics required to describe a country and its economy, society, and environment. A Yearbook is also helpful in examining existing gaps in available information.

## Chapter 12 RESPECTING PRIVACY AND PRESERVING CONFIDENTIALITY: HONOURING THE CONTRACT

### 12.1. Respondent policies

#### 12.1.1. Introduction

1. Perhaps the most important issue in developing a respondent policy is that a statistical agency earns the public confidence by treating respondents with respect -- not just as the means to reach its statistical goals. It is important to remember that, even in the presence of laws which make response to one or more data collections mandatory, participation by the public in a statistical agency's surveys is a largely voluntary process. Even when the survey process is not voluntary an agency still has an obligation to treat respondents in an ethical manner – that is, minimizing the burden on their time, respecting their privacy, and maintaining the confidentiality they were promised when they provided the information.

2. Respect for privacy is an acknowledgement that it is the individuals who “own” information about themselves. The concept of privacy is that it is the individual who decides what information is made available, when it is to be released, and to whom it is released. Laws requiring the disclosure of this private information for statistical purposes are enacted only when there is an overriding public need for the information and with provisions to protect from disclosure the identifiability of the data. (This concept also applies to legal entities such as corporations. Public corporations, of course, agree to the regular disclosure of information such as sales, profits, etc. in order to participate in a regulated stock market. Private or closed corporations are required to make far fewer disclosures.)

3. Ensuring confidentiality is the response of the statistical agency when it obtains private data. It is a pledge to honour the contract between the respondent and the agency when the respondent provides private data. In this Chapter we consider the elements of this contract and the means to protect the data when it is obtained from respondents.

4. It is critical to develop policies designed to create a cooperative frame of mind on the part of the would-be respondents. Listed below are elements of such policies, followed by an interpretation of each of these elements

#### 12.1.2. Principles of respondent relations

5. With respect to the two classes of respondents – business and individuals/households – there are some principles, which apply to both and some, which are unique to the business community. We shall first consider those, which are applicable to both cases:

#### **The purpose of the data collection must be clear and meaningful to the respondent**

The application of this element is particularly difficult in the case of small business. The overall

framework within which data is collected prevents the statistical agency from taking frequent censuses. Indeed, in the interest of efficiency, it is best to take samples no greater than what is strictly necessary to yield aggregate totals quickly and accurately. But small business is typically interested in the locale in which it operates and in its narrowly defined type of activity, neither of which can be adequately represented by most statistical undertakings, with the exception of a census or a comprehensive large-scale survey. Even so, any explanation of the purpose should be as clear and convincing as possible.

**The statistical agency must be perceived to hold in the strictest confidence all individual records, protecting them from any other party in or outside government.**

This assurance has to be delivered in a way that makes respondents feel confident<sup>116</sup>. The assurance itself consists of two elements: respondents must be made aware that the information held by the statistical agency cannot be accessed by someone with malicious intent<sup>117</sup>, and that the law recognizes that confidential information held by the statistical agency cannot be shared with the political authorities of the country, with regulatory agencies, or with the civil service engaged in policy development. In a number of countries, specific reference is made to the fact that information submitted to the statistical agency cannot be subpoenaed by the judiciary.

**The statistical agency must be seen as willing to accommodate respondents, either by providing additional explanations or by accepting legitimate substitutes for a traditional questionnaire.**

The statistical agency not only should be aware of how businesses keep records, but it also must be willing to go out of its way to recover the information it needs with minimal effort on the part of the business. For example, a shareholders report that includes all or most of the variables sought by the data collector should be an acceptable substitute for a completed statistical questionnaire.

**The professionalism and objectivity of the statistical agency, as well as its freedom from political interference, must be established, accepted, and continually advertised.**

This is a general recommendation. In approaching respondents, a statistical agency ought to request no more information than is necessary, and only after it has determined the least burdensome way of acquiring the information. The request is backed by the agency's reputation, specifically in the sense that the methods it employs to achieve results protect its autonomy and freedom from political interference.

**The statistical agency should be perceived as thoughtful and concerned in matters relating to response burden; that is to say, it should be committed to finding means that will simplify the paperwork burden.**

Generally, it should be understood that the statistical agency will approach a respondent with a request for data only as a last resort, all alternative avenues having been reviewed and found

---

<sup>116</sup> There are recorded cases in which businesses explicitly stated that they would prefer that even routine information be collected by the national statistical agency, on the grounds that all information provided would be safe from inspection by unauthorized parties.

<sup>117</sup> Of course, this assurance can only be given within limits. But the public must be assured that it would be extraordinarily difficult to penetrate the defenses put up by a statistical agency.

insufficient. An agency that desires to be known for a reasonable policy on matters of response burden will see to it that data collectors have understood thoroughly the meaning of this last element in the policy. In particular, the agency must demonstrate:

- ❖ that at all times the statistical agency closely monitors its information gathering activities;
- ❖ that the statistical agency has taken into account the intrusion and the violation of privacy necessarily implied by its efforts and that the result is a careful balance between respect for privacy and the minimum information required to enlighten public discussion
- ❖ that the information collected will not be misused; and
- ❖ that it can measure the extent of the burden it imposes, and that, through the application of its policies, this burden will be reduced.<sup>118</sup>

6. In addition there are two principles, which apply only to the business community:

**The way in which the information is collected must reflect the ways in which businesses keep records.**

Successful collection involves the capacity to transform the records held by businesses into the standard records required by the data compiler. But it is the statistical agency that must make the effort, not the businesses. The extent to which the information can be transformed without distortion can be gauged if the data collector understands how businesses keep records. In general, it is advisable that a statistical agency have a sufficient number of employees with a thorough understanding of business accounting and bookkeeping. Ultimately, effort should be made to convince businesses that it is safe to share confidential information with the statistical agency, not to dictate how information such as purchases, sales, and profits should be recorded.

**The information collected should employ the same terminology used in daily business operations.**

It is important to distinguish between the language used by statisticians to communicate among themselves and the language required to communicate with would-be respondents. Such expressions as “kind of activity unit” and “net profits” have little meaning outside the context of a statistical agency. The language to be used in order to elicit information must be the language that is familiar to the respondent—household or business.<sup>119</sup>

7. A statistical agency, however, is not the only information-collecting agency. Indeed, government collects detailed information from the public in a variety of ways and for many reasons. For example, detailed balance sheet information is collected in order to levy taxes and administer subsidies; detailed commodity information is collected in order to administer laws and regulations that deal with health and safety; and so on<sup>120</sup>. The statistical agency should be among

<sup>118</sup> In some agencies there is an actual annual calculation of total burden imposed on business. This calculation serves as a basis for an official report to the government on reduction of the total burden over the past year.

<sup>119</sup> The Australian Bureau of Statistics engaged in a comprehensive attempt to rewrite its questionnaires for business surveys in the language “used by the trade”. The investment required to do this is considerable. But even if it does not bring about a perceptible increase in response rates, it is likely to help reduce response error.

<sup>120</sup> Two exercises conducted at different times in two different OECD countries revealed that the amount of paperwork imposed by statistical collection when compared to all paperwork imposed by government did not



the most vigorous pursuers of paperwork reduction, using the information collected by others whenever there is an opportunity created by law and by overlap in content. It should be able to demonstrate to the public that it communicates with other government agencies regarding the means available under the law to prevent duplicate requirements, particularly from those business that are least equipped to fulfil them.

### 12.1.3 Compulsion and voluntary response

8. The nature of the law differs from country to country. In some, compliance with statistical collection is simply obligatory. If respondents— businesses or heads of household— do not provide information in the form in which it is requested and in a timely fashion, they are in violation of the law. In other countries, requests for certain classes of information are supported by legal requirements, whereas others are made on a voluntary basis. And finally, there are cases where the law is ambiguous on the subject. When this is true, the statistical agency may be fearful of demanding too much information, because if it were to be challenged, the law might rule that no information is to be demanded compulsorily (other than that sought by the Census), and the resulting publicity might adversely affect response rates.

9. The situation in most countries is probably representative of the second case, in which the law recognizes a restricted set of compulsory surveys. Whatever the legal basis, all agencies find that the most important objective is to secure a cooperative attitude on the part of the respondents — particularly small business and households<sup>121</sup>.

10. Where there is an option, the statistical agency may adopt a moderate stance, wherein economic inquiries are compulsory and all others are voluntary. Irrespective of the legal posture, it is important to remember that without a cooperative attitude, no amount of compulsion will alleviate the response problem.

### 12.1.4. Incentives and assurances

11. A problem, which has been increasing in many countries, is that of low response rates in data collections. Among the potential solutions that have been tried is that of providing incentives to respondents. However, incentives cannot always solve the problem. In some countries the use of financial incentives is illegal. In other cases, the budgets are too tight to allow for the provision of significant incentives. Moreover, if incentives are offered to householders, for example, there must be some relationship between the time required of them and the nature of the compensation. For some inquiries the matter is trivial. For example, in the case of attitudinal surveys or continuous surveys, the cost to the householder is the periodic intrusion into the household's private affairs. In other cases, particularly surveys of consumer income and expenditure, the effort required from the household is considerable.<sup>122</sup> Finally the payment of incentives may set up expectations on the part of respondents making it difficult to conduct surveys without incentives or to require ever increasing incentives. The following are points to consider:

---

constitute much more than 5 percent of the total.

<sup>121</sup> Generally, big enterprises will comply with government requests and will not request elaborate explanations of why certain classes of financial and economic information are sought. There are, however, examples of transnational enterprises that are uncooperative in providing information outside the country where they are headquartered.

<sup>122</sup> There are many cases in which the survey of income and expenditure is combined with a survey of fixed and financial assets and the details required from the household on its balance sheet and current and past transactions are such that not only must the household keep a detailed diary of its transactions but the interviewer, too, must spend a significant amount of time helping to complete the questionnaires.

❖ The kind of incentive chosen must be significant but not excessive, so that it is neither treated with scorn by respondents nor looked upon as waste by those who determine the statistical agency's budget. The field organization must play an important role in providing advice on this matter.

❖ Whatever option is chosen, it is best to keep the householders who are surveyed informed about the reasons why incentives were or were not provided, about the image of the statistical agency, and of course, about the civic duty involved in the provision of information to aid in the discussion of matters of public concern.<sup>123</sup>

12. While incentives are most commonly offered to householders, they can also be useful in surveys of small agricultural operators and even of small, informal businesses. The same considerations do not necessarily apply to larger businesses, for which the provision of relevant information may be a forceful incentive in itself. For example, if the business information compiled in typical cases is comprehensive enough to be used in a regional breakdown, businesses operating on a regional rather than a local level will be interested in how their regional results compare to those of their competitors working on the same scale. Accordingly, the incentive of being provided with special tables making those comparisons—so long as the data have the right amount of detail and are reasonably current—may be sufficient to elicit constructive cooperation between the business community and the statistical agency.<sup>124</sup>

13. In all cases, however, the statistical agency must give uncompromising and explicit assurances that the information supplied will not disclose the identity of respondents. For businesses of any size, the combination of strong assurances and the recognition that the information solicited is necessary for the country to manage itself in an orderly fashion is sufficient. In other words, providing incentives in the case of business surveys is generally unnecessary (and, for budgetary reasons, is not in the statistical agency's best interest).

#### 12.1.5. Sharing Administrative Information

14. There are many precedents of sharing detailed administrative information with statistical agencies. The most noteworthy is the case of customs administrations. But income tax collectors are also collectors of massive amounts of information and are just as mindful of integrity and confidentiality. If sharing is to take place, tax collectors must be assured that statistical agencies are at least as scrupulous in the treatment of individual information. Sharing information, particularly with tax collectors, is a delicate matter. The following are some of the factors that the statistical agency ought to bear in mind:

❖ whatever information is shared between statisticians and tax collectors must move in only one direction—from the tax authorities to the statisticians

❖ in order to get the tax collectors to share information willingly and cooperatively, the statisticians should render some service to the tax authorities, one that does not sacrifice any of the vital safeguards on confidentiality

<sup>123</sup> In invoking civic duty, the provision of private information is treated in the same manner as serving jury duty.

<sup>124</sup> INSEE, the French statistical agency, has successfully pursued a policy of motivating business by the provision of custom-made tabulations, including specific comparisons between the business and its peers.

- ❖ information collected by the tax authorities is the single most powerful resource for reducing response burden for small businesses<sup>125</sup>
- ❖ tax authorities are interested in classifying the forms submitted by tax filers according to their branch of economic activity but not necessarily in the same way as statistical agencies
- ❖ there is a substantial strategic gain if the industry classification of tax records is aligned with that used for statistical purposes
- ❖ the public perception of statisticians classifying tax records might offset any assurances given by statisticians about the confidentiality of the information submitted to them

15. The challenge for the statistical agency is to find the best possible compromise among these factors without jeopardizing in any way statistical confidentiality. Whatever is found to work vis-à-vis the tax authorities is bound to work, with the occasional variant, for the other suppliers of administratively generated information.

16. In addition to the various guarantees that suppliers of administrative information require and that can be agreed upon by protocol and by verbal assurances, the statistical agency should give signs that the physical holdings of sensitive information are especially well guarded. In many statistical agencies, where access to the premises is controlled, the floors on which tax documents are held require special authorization for outsiders to gain access.

## 12.2. Data protection

### 12.2.1 Physical and Electronic Security

17. These days statistical agencies have two perimeters that must be protected. The first is physical—the actual location of the documents, computer records, microfiches, photographs, and so on. In this respect, those offices whose records are housed in more than one building not only face a higher cost in protecting the records but also in persuading the public that what they do is consistent with the security of individual records. The second perimeter is virtual—the electronic perimeter traced by the agency's internal communications system, which we must presume is connected to its stores of individual data.

18. Both perimeters need to be protected from malicious or unauthorized intrusion. As we have already mentioned, in many offices, access is strictly controlled (e.g., employees have to wear ID tags), and additional security measures are taken where the most sensitive records are housed.

19. The electronic perimeter must be equally defended with password clearances and other types of security, but this is more difficult to accomplish, particularly as technology continues to demand upgraded defences. The popular media has given great publicity to successful attempts by hackers to penetrate the most secure communications systems and gain access to the most sensitive information, in some cases involving national security files. Since the public is more apprehensive about computer security than that of conventional documents, and this trend is likely

---

<sup>125</sup> Except of course in countries where only a minority of the population pays taxes on income, so that it is not worth considering for statistical purposes.

to increase, a few statistical agencies have chosen to completely insulate the internal system of communications from the outside world, including from its own local offices.

20. There is no direct link between the stores of data and communications to the outside world. Furthermore, whatever confidential data are transmitted from local offices to the central office are protected by the best encryption system available. Whether or not this solution will provide sufficient protection in the face of rapidly evolving technologies cannot be foretold. One of the agency's systems analysts should be placed permanently in charge of data security, with responsibility for such matters as encryption; removal of identifying attributes; and protection against malicious tampering with data files. In addition, someone should be assigned responsibility for the physical security of the premises and data holdings.

### 12.2.2. Sanctions

21. Some official regulation must outline the sanctions imposed for security breaches—as a deterrent and for demonstration to the public that the matters of confidentiality and integrity of data holdings are taken seriously. The most natural way of dealing with this is through the law itself. An ideal situation is one in which legislation clearly lays out the various types of infraction. These, in increasing order of severity, include:

❖ **carelessness:** for example, an interviewer leaves an envelope containing identifiable completed questionnaires on the bus, where it could be discovered by a third party and picked up by the press as an example of public sector laxity

❖ **improper behaviour:** for example, a subject matter expert brags in public about the income declared by a particular family when interviewed in the course of a household income and expenditure survey (the possible consequences are the same as above)

❖ **behaviour with malicious intent:** for example, an employee wishing to embarrass the management of the statistical agency sends the Prime Minister's census form to the press

❖ **use of confidential information for personal profit:** for example, an employee offers to provide confidential information of one company to a competitor.

22. These, of course, are merely examples; the law can be more comprehensive about what constitutes a security crime. But such examples illustrate the kinds of infractions that should be listed and against which there ought to be credible penalties.

## 12.3. Confidentiality and disclosure

### 12.3.1. Principles

23. So far we have examined the precautions that are to be taken with incoming information, how to prevent it from falling into the wrong hands, and what disciplinary measures should be taken when there is a breach of security. In this section, we look at how the contract established with respondents must be honoured. In other words, how are we to prevent publications of aggregate data from disclosing information that reveals the identity of an individual, business, or institution?<sup>126</sup> The risk of doing so increases with the publication's degree of detail. For example,

---

<sup>126</sup> There is an interesting question as to whether these are the only categories which must be protected. If we

it is customary to publish the results of a family expenditure survey by region, demographic characteristics of the respondents, and income. Even in a survey incorporating tens of thousands of responses, the identities of those respondents whose statistical data fall into extreme ranges (e.g., persons of affluence and notoriety) may be easily identifiable.

24. The standard solution is to conduct initial research determining those cells in which it will be possible to identify respondents. In subsequent research, the minimum degree of aggregation required to suppress<sup>127</sup> respondents' identity is decided. Usually, this kind of research takes place at two levels. First, there is a purely practical, rudimentary attempt to eliminate the offending cases at minimum cost, carried out by trial and error. For those agencies that can afford it, there is also a more theoretical approach to identifying the offending cells and showing that the solution proposed is the least costly in terms of information suppressed. Since few statistical agencies are equipped to conduct such research, an alternative solution is to commission interested academics to devise minimum data suppression models. Of course, research results can be applied elsewhere, and smaller agencies are encouraged to maintain communication with large statistical centres, particularly on this subject.

### 12.3.2 Dominance and residual disclosure

25. Several issues relating to confidentiality have been the objects of scrutiny over the past fifty years, and have become more prevalent with the diffusion of computer technology and the resultant expansion of the community of users. The increased capacity to store, cross-tabulate, and publish statistical data has inadvertently created more opportunities for accidental disclosure. Moreover, users' ability to manipulate data has also increased, and with it their ability to uncover more information than is meant for them.<sup>128</sup>

26. For each of its tabulations, the statistical agency must track how many respondents are included in each cell and how many there are in each of the cells that can be calculated as a residual. Measures must be taken to disguise all those that have less than the threshold (three is generally the cut-off point). In those cells with a number of respondents equal or greater than the threshold, but with one or two respondents accounting for more than ninety percent of the value of the displayed variable, measures should be taken to disguise their activity as well.

27. For those offices with a significant publishing programme, the work involved in tracking dominance and residual cases<sup>129</sup> justifies the creation of a special unit in charge of confidentiality research. Such a unit is usually a branch of (or at least closely tied to) the department in charge of

---

disclosed the average income of cardiologists, for instance, or the crime rate by ethnicity of the perpetrator, would that be a breach of contract? The matter of exactly what information ought to be protected has not yet been the object of careful examination.

<sup>127</sup> The term "suppress" is used to suggest not that the basic information should be excluded but rather that it should be kept anonymous. The solution is to combine cells.

<sup>128</sup> Suppose a statistical agency runs a tabulation service on demand, the object of which is to provide in machine-readable format tables derived from a complex survey. The general principle is that whatever is requested by one user is available to all. Let us also suppose that there are  $n$  users, and that each wants different cross-tabulations. It follows that a statistical agency would have to track the impact of the  $n$ th demand on the number of possible residual disclosures, assuming the  $n$ th user had access to the previous  $n-1$  requests.

<sup>129</sup> For a tracking and suppression system see Gordon Sande: Automated Cell Suppression to Preserve Confidentiality of Business Statistics, in Proceedings of the Second International Workshop on Statistical Database Management, Los Altos Ca., 1983.

applications of mathematical statistics.<sup>130</sup>

### 12.3.3 Confidentiality and household statistics

28. While one person or household may be much like another, large corporations like Sony, Royal Dutch Shell, IBM, De Beers, Gasprom, or General Motors are quite unlike small businesses. For this reason, a number of differences between social and economic statistics factor into this discussion. In social statistics, the notion of dominance is relevant only in some surveys of household assets, income, and expenditure. Also, while in the domain of economic statistics, any survey sample will typically include a certain class of units because they make up a large proportion of the variable, families and individuals need only selection with non-zero probability. Lastly, with the exception of special surveys (e.g., the financial balance sheet of households), random perturbations can be introduced in the results of household surveys to mask individual cases without affecting the estimates of any of the moments of distribution. However, this is rarely the case with business surveys.

29. Recently, longitudinal surveys have raised a number of interesting issues connected with confidentiality research. These surveys, in which a selected unit (generally an individual or family) is tracked over time so that changes in its attributes can be observed, are becoming popular among some of the more advanced statistical agencies. The temporal aspect of this type of survey greatly increases the likelihood that the sample will be identifiable. However, minimum necessary suppression may render useless the delicate data analysis and presentation that such surveys demand. Clearly, research into confidentiality of household statistics is vastly different from research on the business side, and should be treated as a separate item on the research agenda.

### 12.3.4 Disclosure with consent

30. In terms of public image, it is in the best interest of the statistical agency to position itself as the guardian of response burden, continually demonstrating its desire to minimize paperwork where possible. Accordingly, the statistical agency should aggressively pursue opportunities to use the regulatory powers of other parties to gather information, rather than duplicate queries administered by government. However, eliminating duplication may imply the sharing of information, which can work in two ways; either the statistical agency obtains its information from what is collected by the government body, or vice-versa. When given a choice, respondents usually prefer to report to the statistical agency for a variety of reasons, the most important being its reputation for discretion and attention to detail. If it is possible that information will be shared, respondents must give consent (preferably in writing) to have their forms reviewed by a third party, and be made to understand why such sharing might occur. Respondents should also be made aware that while their refusal is absolute, the result might be that they have to provide the same information twice.

31. There are other circumstances in which written consent for disclosure may be sought. In highly industrialized countries, industry analytical tables (the Input- Output tables for example) can lose their value if disclosure rules are interpreted to the letter. Before accepting the sacrifice in analytical value of its compilations, the statistical agency may wish to seek consent from the businesses that run the risk of having their operations disclosed. These businesses would be asked

---

<sup>130</sup> Such a department will normally be responsible for encryption research, among other tasks.

to agree to a form of publication that affords imperfect disclosure protection. Of course, taking this step on any significant scale may risk the agency's reputation.

### 12.3.5 Forced disclosure

32. In certain instances, there is no feasible choice but to disclose the activities of a particular business enterprise. Mostly, this occurs with public utilities, state monopolies, and industries that are dominated by a single firm, as is often the situation in smaller countries. Where the situation is well-known and in fact precedes the creation of the statistical agency, a special clause dealing with it is written into the law. In annual statistics this is less of an issue, because state enterprises and large public monopolies are usually requested to report their activities and financial circumstances in great detail, and these reports are made public.

### 12.3.6 Passive confidentiality

33. It is not always possible to prevent all breaches of confidentiality. The most obvious case is international trade statistics. In this case, the data collected is pertinent to recorded transactions rather than the individuals or businesses responsible for them. Because these statistics constitute a census of transactions over the period of reference, are published in extremely fine detail, and include several attributes (what is exchanged, its destination, means of transport, points of entry and departure, and so on) it is not realistic to assume that total confidentiality can be maintained without having serious effects on the timeliness and utility of the information provided. The customary approach is to opt for a mixture of active and passive disclosure protection. For all cases where it is known that there is only one importer or exporter,<sup>131</sup> or a case of dominance, suppression measures are devised and implemented in advance. For all other cases, suppression measures are only taken if a business or individual takes the initiative and complains to the statistical agency. If the agency is accused of failing to act on the matter in a timely fashion, the respondent should be made aware that, unlike situations in which the statistical agency designs and administers its own surveys with the means to detect disclosure *a priori*, international trade statistics employ records compiled through an external administrative process, and are not the direct responsibility of the agency. Therefore, it can only act when notified.

### 12.3.7 Arrangements for Research

34. Under certain conditions, and by their own decree, statistical agencies may order the publication of the names, addresses, industrial activity (expressed in the form of an industrial code), and size (expressed by a code denoting an employment size class or some other agreed variable also by size class) of selected business respondents. Generally, such an exception is made for research purposes.

Increasingly, there are perfectly legitimate applications that not only employ statistical aggregates, but also depend on individual data for their success. For example, the study of complicated interactions between consumer income, expenditure, household savings, and taxation through the examination of published statistics tends to suffer greatly from aggregation bias. The testing of formal hypotheses can be more readily conducted on the basis of individual longitudinal records.

---

<sup>131</sup> This approach works asymmetrically. In most countries there are many more importers than exporters. The latter can be more easily identified ahead of time, and preemptive measures can be taken to suppress identifiable information. But any business can be deemed an importer, and, therefore, *a priori* decisions are more difficult to make.

Few offices are equipped to conduct this kind of research themselves. It follows that in this situation, the common interest is best served if the statistical agency provides researchers with the information they need and allows them to formulate hypotheses and to conduct the necessary research effort.

35. Nowadays, circumstances exist in which a statistical agency cannot avoid providing microdata. But an accessible database with individual information should be constructed in such a way that the probabilities of identification with certainty are extremely low or non-existent. Of course, all records must be made anonymous, and in addition, there may be grounds for introducing random perturbations so long as the moments of the original distribution are preserved.<sup>132</sup> Even after all these precautions, it is required that an officer oversee access to the database and work derived from it. This means that at all times an agency official knows who is using the database and why, what they are looking for, and what results, if any, have been achieved so far. The agency must coordinate with users whose work is dependent upon particularly detailed sets of data, so that the general public is ensured that such detail is provided only in support of meaningful advances in the social sciences.

36. It is difficult to envisage a publicly accessible database for business information, because in each industry there is generally an establishment or company big enough to dominate results and be recognized by the extent to which it affects the data. However, with small businesses the situation may be different and there are questions relating exclusively to small business, the assembly of a publicly accessible database is justified. Note that while numerous examples of successful public-use databases exist on the household side, few have been constructed for business.

37. The research community places special demands on data, which cannot be ignored, particularly where those demands are deemed to serve the public interest. Many of these legitimately require access to individual records or to cells in tabulations where the number of respondents is less than the threshold. Since such research is not carried out for personal gain or with the intent to secure commercial intelligence that might hurt established interests, it is difficult for the statistical agency to disallow it. Conversely, it is just as difficult for the agency to make exceptions for certain classes of users despite all the assurances given to respondents. Rarely does a statistical agency achieve an effective balance between the two pressures. The following section describes a solution that has worked in the context of a few agencies.

38. One method that has met with limited success in several countries is the formal recruitment of academic researchers who require access to microdata, even though their remuneration is merely symbolic. This procedure ensures that the researcher agrees to abide by the rules of the statistical agency, and understands that failure to do so will result in official sanction. The following conditions would warrant this type of formal offer:

- ❖ The researcher has proper credentials.
- ❖ The research plan concerns matters that the statistical agency considers to be in the public interest or for the advancement of social science, and there is no alternative source of data.

---

<sup>132</sup> The subject of how to provide data that is non-identifiable but contains the same information as the original set, is under active research. See for example Rubin, D.B. (1996): "Multiple Imputation After 18+ Years" *Journal of the American Statistical Association*, 91, 473-489.



❖ The researcher agrees to uphold the protocol and posture of the statistical agency for the duration of his/her employment.

39. Prior to making an offer of employment the statistical agency should ensure that the three conditions stipulated above are met, and may wish to consult its legal adviser. It is also important not to use this practice to circumvent the rules of confidentiality. Clearly, overuse, or use for projects that would appear trivial could compromise the agency's credibility. The issue of who controls the intellectual property resulting from the researcher's work is beyond the scope of this Handbook.

40. Another method, tested at the US Bureau of the Census, consists in creating a "sterile chamber" where researchers can work. While they do not acquire the status of employees, researchers act in full knowledge of the statistical agency's confidentiality policies and accept the statutory sanctions should these be broken.

#### **Conclusions**

Statistical agencies are committed to guard information that obviously reveals the operations, belongings, attitudes, or any other characteristics of individual respondents. The principles for so doing are fairly clear, but specific applications require ongoing research in order to certify that there is no breach of confidentiality. Theoretical research, while invaluable in that it can be shared and used repeatedly, is costly and is conducted in only a few agencies, but even where it is not possible, the more practical work of suppressing revealing information without compromising the integrity of statistical aggregates should go on at all times. These activities should be carried out openly as a means of reassuring the public.

There do exist exceptions to the rule of absolute confidentiality; where these occur, the statistical agency should be candid with the public and explicit about the conditions that warrant exceptional treatment. Household and business records are not treated in the same way, since the former are easier to disguise, whereas circumstances often arise in which the latter cannot be disguised without deleterious effects on the quality of published data. In such cases (e.g., in the case of natural monopolies or dominant enterprises), either a specific provision for disclosure is included in the statistical legislation, or else the statistical agency should not act without the explicit consent of the potentially identifiable party.

## **Chapter 13 PUTTING IT ALL TOGETHER**

### **13.1 Introduction**

1. All functions required for a statistical agency to perform effectively have been examined in the preceding chapters. Clearly, one of the most important points is that the activity of a statistical agency is constantly under conflicting pressures. Prudence and experience suggest that there is no ideal solution, but an effective model is one that seeks to minimize the impact of negative elements rather than one that assumes they can be eliminated. Another major point is that most of the features discussed so far apply to all statistical agencies, be they centralized, in research departments of Central Banks, or embedded in Ministries that rely heavily on quantitative evidence. This concluding chapter brings all elements together into a schematic framework, further illuminating some of the arguments reviewed earlier on. It is also intended to strengthen the understanding that all parts of a statistical agency are interrelated, and that the agency cannot work effectively without a sense of interdependence among all members of its staff.

2. The notion of organization conjures up ideas of hierarchy. In order to be effective over time, organizations must clearly and unambiguously assign responsibilities. Indeed, the very creation of an organization chart—with the limits that it imposes on each set of functions and responsibilities—suggests both interdependence and exclusivity. These interplay of these two principles favours a certain amount of stability and guards against excessive autonomy. And yet in the preceding chapters there has been a great deal of discussion of why a simple hierarchy is insufficient, why it must be complemented by a non-hierarchical organization (for example an internal committee), and why the statistical agency must be willing to sacrifice strict adherence to the hierarchical structure to adapt to external changes.

3. The fact of the matter is that statistical agencies must adjust to a changing environment and must do so in a timely fashion. To accomplish this, agencies must closely monitor technical, environmental, and legal changes and should engage in an ongoing discussion about how their structure should adapt to those changes over which they have no control. Just as change is constant, so should be the adaptation of priorities.

4. Descriptions of organization necessarily look at each component individually and examine its attributes and functions, as well as the factors that suggest that it be organized in one way or another. However, the more detailed those descriptions, the less one understands their part in an interrelated system.

### **13.2. Principles of organization**

5. In an effective statistical system, where all activities are successfully integrated, there are bound to be groups championing different sets of priorities. For example, one group may uphold the view that the key activity is to ensure that users' needs are correctly interpreted and provided for. Another group may insist that no effective performance is possible unless the appropriate

respondents are identified and sufficient care is taken to make sure they understand the questions and give the best possible replies. And a third group may argue that however successful the activities championed by the others, they are futile unless estimates are accurate and correct rules of aggregation are observed. In a truly successful agency the tension generated by these three conflicting views gives rise to a system of checks and balances that ensures the production of the best possible data.

6. This is a static view of an effective organization. In practice, a statistical agency should be simultaneously adaptable and stable. Technical change seldom proceeds in a continuous and predictable fashion. For this reason, effective statistical organizations must scan the technical horizon and keep abreast of technological advances. For, if forthcoming technical changes are likely to affect the way statistics are collected, compiled, and used, there will barely be time to overhaul the system before it is overtaken by those changes.

7. The functions of a statistical agency can be described under four comprehensive headings:

- ❖ those functions required to ascertain user requirements and ensure that they are met (this implies sustained communication with those who are, or who could be, interested in statistical information)

- ❖ those required to ensure that statistical information meets quality standards (this implies the ability to gauge the minimum standard of reliability necessary to guarantee both the usefulness and credibility of statistical data)

- ❖ those required to determine, in conjunction with respondents, the least intrusive and most convenient ways of gathering basic information (directly, as well as from other agencies when possible)

- ❖ those that allow the statistical organization to review and learn from its own practices

8. These should be supplemented with functions that ensure adaptability and uniformity of the products of the statistical process. Statisticians can use these criteria in evaluating the soundness of their organizations.

9. The most efficient internal organization is not one that strictly categorizes its staff by their various backgrounds and approaches to statistical activities. While some grouping of staff by function and professional background is necessary, total separation is inappropriate. When certain activities are not respected or careers get blocked on the basis of previous experience, the tensions that arise can severely hinder a statistical agency's performance.

10. Review and evaluation are crucial activities that should be undertaken by a dedicated part of the organization. The purpose of these two activities is to learn from past mistakes; to help purge the organization of attributes that have become obsolete or undesirable; and to impress upon users that the agency has not succumbed to inertia.

11. In order to increase the credibility of a systematic evaluation of a statistical agency's activities while introducing new perspectives, it is best if outside resources are co-opted for both reviewing and evaluating. This can be done through consulting contracts or, where applicable, as part of the regular activities of the network of advisory committees.

12. There is no prescription for how many hierarchical levels there should be in any one organization. This is determined by those who design the organization and depends on the scale of operations, what is considered manageable, the specialization of the staff, and so on.

13. There is no suggestion of a hierarchical set-up in the diagrams at the end of this chapter. Unless otherwise indicated, arrows represent the flow of information, not levels of authority. (For an examination of how internal committees fit into this hierarchy, see chapter 5)

14. There is no suggestion that all the facilities (substantive and service departments) mentioned must fall within a single agency. This is preferable from a number of points of view, but in many situations, the cost of bringing it about is not commensurate with the resulting benefits to the user community.

15. There is no mention of initiatives that mobilize resources for a relatively short period of time and are dissolved once their objectives are attained. It follows that there is no mention of how one should organize the census of population beyond what is discussed in chapter 9.

### **13.3. Internal Functions**

#### **13.3.1. Office of the chief statistician**

16. The office of the chief statistician should carry out two kinds of activity:

- ❖ leadership and management of the statistical agency by giving direction to its financial administrator, director of personnel, and those responsible for its substantive programmes
- ❖ management of external relations, the most important of which are those concerning the ministry responsible for the agency, the key government counterparts, the country's legislative authorities, the media, and the chief statistician's peers abroad

17. Whether the chief statistician conducts these activities directly or through advisers is dependent upon personal preference and scale of operations. There are large offices where a number of authorities are delegated to the chief statistician's principal advisers, and he/she is only called on when the matter at hand concerns the integrity of the office or of its database, related policy issues, or the ministry in charge of the office.

18. Sometimes functions normally associated with the head of a statistical agency are put in the hands of a principal adviser. The adviser then takes on all matters related to personnel management (other than appointments at the highest levels) and matters associated with the day-to-day financial management of the agency, thereby allowing the chief statistician to tend to other concerns, such as the office's external relations. The chief statistician, however, remains responsible.

19. The function of a legal adviser tends to be linked to the chief statistician, irrespective of how the office is organized. Of course, whether the legal adviser is on staff or is consulted on a regular basis depends on preference and availability. All cases involving matters of integrity (e.g., exceptions to confidentiality provisions, or granting access to data before they are published in exceptional circumstances) where the law is ambiguous require the judgment of the chief statistician, supported by the most reliable legal advice. Figure 3 in Appendix 3 represents a possible structure for the chief statistician's office.

### 13.3.2. Dissemination

20. Advances in computer technology and communications have affected the way statistical agencies disseminate data. The statistical agency should constantly gauge market preferences regarding content, the medium chosen for delivery, and what explanatory detail should be included with the data. To do so, it must maintain relations with principal user constituencies. The needs of users must then be communicated to the producer departments so that they may assemble data in the form best suited to user needs. Marketing concerns must also be taken into account, including determining the price of publications, maximizing their usefulness, and ensuring the widest possible dissemination. In addition, there is the function of maintaining special relations with the media, which is the principal instrument for disseminating statistical information to the general public.

21. There are many possible ways to divide the tasks of the department in charge of dissemination. Figure 4 in Appendix 3 suggests one possible model.

### 13.3.3. The field organization

22. The field organization is best organized on a functional basis, and should serve all the subject matter departments in the statistical agency. A sensible alternative to this form of organization is difficult to imagine. It is possible, and in some instances natural, for the field organization to have an internal structure that manages household and business inquiries separately.

23. In cases where the statistical agency relies heavily on administrative data, the field organization may look after those records as well, in the interest of efficiency. Obviously, in this case the principles behind functional organization and subject matter organization come into partial conflict. Figure 5 in Appendix 3 includes collection activities based on administrative records, but shows them as a separate department within the area of field organization.

24. The field organization performs the following functions:

- ❖ maintaining contact with respondents
- ❖ explaining credibly to respondents the purpose of a statistical inquiry, securing cooperation, and retaining respondents' goodwill throughout
- ❖ providing feedback to the rest of the statistical organization regarding the quality of the frame after it has been tested in the field and the receptivity of respondents to a particular statistical inquiry and the instruments used to conduct it
- ❖ taking charge of the initial editing of the information collected. There is no set boundary between the responsibility of the field organization and that of the subject matter departments. Efficiency, training, individual perceptions of the subject matter departments, and so on, all play into how work is delegated. But it should be kept in mind that the closer one is to the respondent, the easier it is to correct errors.
- ❖ researching effective methods of data collection, including necessary adaptations of questionnaire and classification standards, techniques of persuasion, incentives and deterrents, etc.

25. A possible structure is shown in Figure 5 in Appendix 3.

#### 13.3.4. Subject matter departments

26. Subject matter departments perform a number of unique functions that are difficult to delegate precisely because they are specialized, concern a well-defined set of users, and often an equally well-defined set of respondents. In broad terms, the functions of subject matter departments are as follows:

- ❖ to assess user needs and the most cost-effective way to meet them, as well as to forecast the direction in which those needs are evolving
- ❖ to have an action plan on the best method for collecting relevant information given the additional constraints imposed by limits on paperwork generated by government agencies
- ❖ to balance the special requirements of users with the constraints imposed by the use of standard definitions, international norms of classifying and accounting, and the specific needs expressed by those who compile the macroeconomic accounts
- ❖ to document the quality attributes of the data produced and make the results accessible to both researchers and the general public

27. In practice, relations with key users in government should be considered a distinct function simply because of the disproportionate amount of contact they require. What follows is a discussion of the structures necessary for the subject matter department to carry out its functions in a number of different statistical domains (see Figure 6 in Appendix 3).

28. Basic statistics constitutes the raw material a statistical agency works with. The subject matter unit can be organized in a variety of ways. One is by source (business, household, institutions, and public sector); this method of organization has the merit of coinciding with the structure suggested for the field organization. Another alternative is to organize the subject matter area by user constituency. This possibility has the merit of coinciding with the structure of that part of the agency responsible for marketing, anticipating users' needs, etc. Or, the subject matter unit can be structured by process. For example, it can be made up of a department that specializes in surveys of business accounting records, another that deals with brief monthly surveys administered to businesses and households alike, and so on.

29. The most stable and robust structure embodies all these considerations. Accordingly, it is typical to find structures in which a distinction is made between household and business statistics (source of information) as well as between microeconomic and macroeconomic statistics (user constituency). The proportions of the mixtures vary but it is unlikely that any structure can be based on a single criterion.

30. There are additional alternatives on how to divide each of the major substructures. For instance, one way of dividing basic economic statistics is by industry (with departments in charge of forestry, agriculture, mining, manufacturing, construction, transportation, distribution, communications, etc.). While such a division is appealing, it leaves some major issues unresolved. For instance, consumer prices; exports of goods and services; investment in machinery and equipment; industrial and commercial employment; and expenditure on research and development are all important to the explanation of changes in GDP; but they cut across all industries.

31. The difficulty in using a single criterion to create substructures exists for social statistics as well. For example, one might conceive of a division based on the source of information (institutions concerned with education, health, welfare). However, such a distinction would not work well by itself. Within the category of health there is interest simultaneously in the activity and effectiveness of the health provider (hospitals, clinics, etc.); in the outcomes of health activities (patients as part of households); and in the technologies used (results of research and development expenditures). Clearly, the most effective way of dividing labor in the area of social statistics is to take into consideration several criteria.

32. If the major effort, when organizing an office, is to emphasize relevance, adaptability, and demonstrable understanding of user needs, the most effective division of labor is one in which the departments are defined by user constituency (in this case the division can mirror the way the government is structured). Such a classification is particularly important for industries such as those involved with the production and distribution of energy, transportation, or agriculture. But in some cases there is hardly any room for choice. Where the information source is unique and dominates all other activities relative to the subject (e.g., international trade in goods, where the national Customs administration is the source of the vast majority of documentation), there is little opportunity for combining it with other matters. In other cases the possibility does exist; for example, price indexes in general, and the CPI in particular, are based on a combination of method of compilation and source of information.

33. For certain statistics that cut across all sectors and all industries there is some choice in how to best organize them. One example is statistical information on the demand for labor and fixed equipment. The statistic on the demand for labor comes from business and public sector surveys, but its supply is estimated through household inquiries. If the two are split according to the source of information, much of the significance of the broad division of statistics into social and economic would depend on where the household surveys of the labor force were placed.

34. It is difficult to take sides on this matter since the arguments are so complex; in the end, personalities and a sense of internal balance play deciding roles. It is possible to imagine an organization in which the heads of each department depicted in Figures 5, 6, and 7 in Appendix 3 are at the same hierarchical level and are all under the supervision of the chief statistician, or one in which the departments belong to different groups, and only the head of each group reports to upper management.

35. Figure 7 in Appendix 3 gives a more detailed view of what the department of basic economic statistics might look like. The distinctions drawn are merely put forward as an example. The following considerations underlie the suggestions:

- ❖ With respect to activities represented under industry statistics, what is sought is that their cost structure, account for their gross value of production and for the elements that make up value added. The adjusted sum of the values added should be a subtotal (after a few conceptual adjustments) in the national accounts.
- ❖ Some industries are direct counterparts of a ministry, which may have its own statistical branch and/or generate information for statistical purposes as a by-product of its administrative or regulatory activities. Those industries are grouped as a suggestion under the heading Industry Statistics Group 1. The others are part of Group 2.

❖ The three activities grouped under the heading Economy-Wide Basic Economic Statistics are *sui generis*. They rely on a unique source of information (e.g., international trade) or a unique technique (e.g., price indexes), or on a wide variety of sources and special circumstances (e.g., installation of capital equipment).

36. Figures 8 and 9 in Appendix 3 indicate possible structures for social and household statistics and for the department dedicated to labor. The considerations that underlie the models are similar to those stated above. In other words, there may be strategic reasons to consolidate all labor statistics into one organizational unit, not because of homogeneity of methods or sources but rather to interact more effectively with the Ministry of Labor. Similar thoughts may dominate the decision to consolidate the production of all statistics related to health and education so as to simplify contacts with powerful Ministries that may have their own statistical branches.

37. There is no standard way to organize macroeconomic statistics. In many cases, they are estimated by the research departments of central banks or by specialized departments in national Ministries of Finance. But they possess certain unique attributes that should influence how they are organized:

❖ Macroeconomic statistics are not the results of direct measurement. Rather, they are jointly derived from basic economic statistics, public accounts, and accounting identities.

❖ The chief concerns of the national accountant and of the balance of payments compiler include the balancing properties of the system, differences between the various accounts, estimation procedures for incomplete elements, and so on.

❖ Balancing supply and demand for each industry, required for the estimation of total supply (GDP), will necessarily result in unexplainable differences and gaps. Review of these differences constitutes essential feedback for the managers of basic economic statistics.

❖ The relative strengths and weaknesses of the basic data as revealed through the balancing exercise are critical elements in the formulation of any development programme for basic economic statistics.

38. Given the above characteristics, two propositions follow:

❖ Compiling the macroeconomic accounts is effectively a full-scale analysis of the quality of the basic economic statistics that comprise them. Accordingly, it is best managed by an independent department.

❖ The concerns of those compiling the national and international accounts are so analytical in nature that it may not be the best of use of their talents if they take part in conducting statistical surveys or negotiating with other government departments over the provision of administrative records.

39. The department in charge of macroeconomic statistics does have a number of straightforward duties. It is the architect of the national economic accounts in the broad sense of the term (with the scope defined in the United Nations “System of National Accounts 1993”). It should be equally responsible for certain derived estimates, such as the index of industrial production (usually the estimate of the value added at constant prices of the sectors responsible for



mining, manufacturing, and part of public utilities) and the level and rate of change in productivity, where such calculations exist.

40. Since there are many instances in which the statistical agency is not responsible for the compilation of the national accounts, the consequences of dividing the responsibility for macroeconomic statistics should be mentioned. The producer of basic statistics is often less concerned with estimates of GDP than with loss of quality in economic statistics. Accordingly, coordinators in systems where responsibilities are split should be especially mindful of the importance of ongoing critical evaluation from the perspective of those who compile the national accounts.

41. Whether or not the macroeconomic accounts department should also be responsible for such statistics as the flow of funds table or the national balance of payments depends on the capacity of the central statistical agency to access and interpret financial transactions. Because this capacity varies so much, in many cases the responsibility for the balance of payments or at least for the capital account of the balance remains with the Central Bank.

42. In general, a statistical system has much to gain from close contact between producers of basic statistics and compilers of the macroeconomic accounts. Such contact should move in both directions. The system benefits if there is prompt submission of basic results and a critical review and assessment of the quality of those results once they have been incorporated into the national accounting tables.

43. Figure 6 in Appendix 3 assumes that the responsibility for *all* the macroeconomic accounts lies in one department.

44. The last two decades have witnessed increased interest in a number of non-traditional statistics, the most significant of which are those related to the environment and natural resources, the diffusion of scientific knowledge, and the acquisition and use of new technologies. In addition, the dependence of many offices on tax and pension-related administrative records has increased substantially. Tax and social security-related statistics developed as a by-product of new statistics on consumer behaviour, which resulted from linked survey and administrative records. In the near future, as the use of the Internet for business and consumer related-matters and for research, education, etc. becomes universal, it is likely that the realm of statistics will expand even further.

45. None of these statistics fits perfectly with the traditional split between economic and social subjects. Some fall into both categories. Others—particularly those related to science and to the natural environment—represent a new field of inquiry. Whether or not they require their own departments (particularly in smaller offices) cannot yet be determined. These statistics are still in a phase of development; there are few internationally agreed-upon standards for collection and compilation, and in many instances the chief responsibility is still in the hands of other ministries, and not necessarily in the statistical branches within those ministries.

46. One possible solution is to house new statistical developments in the research department of the statistical agency, where such a department exists. Another is to create a research facility within the national accounting department. Clearly the proper solution will vary from country to country.

### 13.3.5. Statistical infrastructure

47. The departments responsible for the statistical infrastructure have three main functions, which are reflected in the statistical agency's organization:

- ❖ development of scientific methods and their application in the measurement of variables characteristic of social and economic processes
- ❖ drafting of codes that ensure both internal consistency in the way variables are defined and classified and a certain amount of inter-country comparability (compliance throughout the national statistical system is assumed)
- ❖ creation and upkeep of databases required to sample businesses, households, and physical facilities

48. In more ways than one, the department in charge of the development and application of scientific methods also acts as the professional conscience of the statistical system. As such, it should adhere to the strictest quality standards.

49. The department in charge of standards and classifications should possess sufficient authority to set legal standards against which there is limited appeal. In general, review of the correctness and soundness of a particular standard or method should take place prior to its implementation.

50. The department in charge of the statistical agency's sampling frames should maintain the records' physical and functional integrity and keep them up-to-date; provide frame extracts to those conducting sample surveys or censuses; and make sure all parts of the statistical agency use official sampling frames rather than unauthorized surrogates.

51. These responsibilities presuppose an agency-wide conviction that it is best to have a single comprehensive sampling frame for each major application (e.g., all business surveys) rather than separate frames for each survey, and that survey taking departments should pool their knowledge, updating a collective frame rather than maintaining individual frames.

52. Commonly, mathematical statisticians are concentrated in the department in charge of sampling and sample survey design. In addition to its other responsibilities, the department should be able to substantiate the following principles:

- ❖ all surveys conducted by the statistical agency should be based on sound designs
- ❖ the information necessary to gauge the reliability of the statistics produced by the agency must be intelligible and accessible to all users
- ❖ all members of the statistical agency should be thoroughly convinced of the need to base their measurement activities on sound scientific principles as the only means to establish the quality of the statistics produced

53. So long as these three principles are at the forefront of the statistical agency's agenda, less importance is placed on whether the department in charge of statistical methods should be physically distinct from all others, whether its staff should be dispersed among the user

departments within the agency, or whether to adopt alternative solutions. The design of the infrastructure will depend largely on country-specific circumstances.

54. In practice, two pressures should be balanced. On the one hand, mathematical statisticians can contribute most to a healthy statistical agency as part of multidisciplinary project teams, in which they defend quality; advise on scientific methods; and work toward increased efficiency in the realization of projects. On the other hand, they must be part of an organization that supports the development of their technical skills and provides avenues for their career advancement. Achieving a balance can be challenging. Figure 11 in Appendix 3 shows a possible organization for this area.

### 13.3.6. Technical infrastructure

55. Four advances, familiar to all, have greatly expanded the capabilities of a statistical agency:

- i. Powerful, relatively inexpensive computer equipment has been made available to all staff members in many statistical offices.
- ii. User-friendly applications software have given staff members control over a number of key statistical functions ranging from questionnaire design to collection, editing, tabulating, mapping and publishing. Readily available off-the-shelf components have made in-house application programming easier and component reuse within the organization has become more common.
- iii. Computer networking has facilitated internal access to data and metadata through established tiered client/server environments.
- iv. Internet technology has made timely access to the outside world feasible for staff members, thereby making it possible to conduct research, gather general information, etc., at all levels of an organization, rather than solely through top management.

These and related changes have given rise to new concerns regarding how to manage the information technology (IT) environment.

56. In light of these changes, the department in charge of the technical infrastructure should perform the following functions:

- ❖ managing the information technology model of the organization as described in 7.2.
- ❖ administering the technical infrastructure of the agency
- ❖ determining the extent to which outsourcing is to be used and managing the relationship with vendors
- ❖ planning the replacement of capital equipment
- ❖ advising on how IT can be used to advance the mission of the statistical agency.

### 13.3.7. The analytical function

57. The analytical function must be truly pervasive, occurring in all areas of a statistical agency. However, an agency bears a heavy operational burden, and so its staff cannot engage in pure analysis all the time. An analytical approach to problems is a necessity, and should be omnipresent. However, analysis here has a different connotation.

58. There are two major analytical activities to be considered. One, which can be categorized as research, seeks to improve the efficiency of operations; to refine the concepts underlying measurement activities; and to innovate with methods that minimize error. The other analytical activity seeks to make sense of the results obtained; to place them in meaningful social or economic contexts; to relate them to other events and processes; and generally to make them more valuable to users. Naturally, feedback on any inadequacy or ambiguity of numerical results is a by-product of this analytical activity.

59. This section primarily pertains to the second set of analytical activities. In terms of organization, the agency should decide whether this activity takes place in all subject matter departments or whether it should be concentrated in one department or area that will serve the entire agency. An effective agency generally incorporates elements of both approaches.

60. A possible boundary could be conceived along the following lines. Explanatory material accompanying the release of new results (particularly those of ongoing surveys or more complex statistical activities) should be handled by the subject matter department. However, analytical material designed to stand on its own (e.g., a study of demand for health facilities in light of the latest demographic projections, or the relation between survival rates of small firms and their propensity to innovate through new production processes) should be handled by a dedicated department capable of economic, sociological, and demographic analysis.

61. One possible location for the unit in charge of analysis is in a subject area such as macro-economic statistics or social statistics depending upon the analytical emphasis in the agency. Another alternative is to place this function in the office of the chief statistician.

### 13.3.8. Planning

62. Planning is essential to a successful statistical agency. A sound plan proposes a series objectives and offers reasonable arguments on how they are to be met and why the resources allocated are indeed adequate.

63. The planning function deals with establishing a process that produces a plan, defines the conditions of its implementation, monitors its execution, and advises on fallbacks and alternatives when necessary.

64. There are two ways to organize the planning function. One technique is to appoint a planning officer or dedicate a planning office to conduct this exercise annually and to be responsible for maintaining the plan. The other is to engage the management of the statistical agency to cooperate in a collective effort and produce a balanced plan. Clearly, an effort involving all parts of an agency will receive more acceptance, support, and commitment than a specialized effort.

65. The time frame is an especially important element in planning. Developmental statistical activities should not be limited to a single-year plan; yet, planning should be realistic and not look too far into the future. The longer the time frame, the shakier are the planning assumptions necessary to ensure a proper allocation of resources. A possible balance between the two considerations is planning according to a three-year time frame.

### 13.3.9. Horizontal and vertical mechanisms

66. A detailed description of horizontal mechanisms is included in chapter 5. There are a few differences between vertical hierarchies and committee structures. The vertical (or line) structure of a statistical agency broadly follows the hierarchy of public administration; is in many instances ordained in the agency's legislation; and often corresponds to the financial allocations made by the government to the statistical agency. As such it cannot be easily altered, though total inflexibility should be avoided.

67. The horizontal structure of a statistical agency (i.e., its *ad hoc* committee structure) exists to solve management, subject matter, and procedural problems inherent to the official structure of the agency. Because of the nature of the problems, the effectiveness with which these committees resolve conflicts, and the respect they gain as a source of dispassionate advice, they provide a sense of cohesion, which the vertical structure at times unwittingly undermines. Playing these two roles requires that the committee structure of a statistical agency be highly flexible so that it can take full advantage of the personal attributes of its staff in responding quickly to problems as they arise.

### 13.4. Building external support

68. No statistical agency can function effectively without the systematic help of outside contacts. The more prestigious they are, the more they will bolster the office's credibility.

69. A statistical agency can be challenged by members of its various constituencies on several fronts. Users may demand explanations of how priorities are determined; assurances regarding the quality of results (i.e., use of objective methods and the absence of political tampering); and the confidentiality of individual records.

70. These questions can be difficult to answer, particularly those regarding quality and priority ranking. The agency's position is immensely strengthened if it can demonstrate that a well-chosen, knowledgeable group of outsiders reviewed the decisions and agreed, or suggested modifications, which were taken into account in the final determination. Likewise, the agency's position on the objectivity and the timeliness of chosen methods can be strengthened if it can point to the review and approval of the best technical experts available.

71. For these reasons, while a senior council or commission is typically charged with a periodic review of statistical policies and priorities, a number of agencies have built a network of supplementary advisory bodies. Their reports are made available to the public and the government authorities responsible for the agency.

72. Supportive measures will allow the agency to face all the challenges that arise out of the exercise of its mandate. Whatever mechanisms are put in place, the following are crucial:

- ❖ proper legal basis

- ❖ distinguished and interested outsiders (national and international) who serve as members of a network of commissions and committees, both formally and informally
- ❖ public status commensurate with the responsibilities of being chief fact finder for the government and for the nation

73. In the end, the agency should demonstrate that it has managed its resources wisely, kept the government and the public informed, served the international statistical community, and communicated important information impartially and effectively.

## APPENDIX

### Appendix 1: Annotated model of a National Statistics Act

#### *Introduction*

Section 2.6 of the Handbook discusses some general principles of statistical legislation, but contains few specifics. This annex presents specific texts that might be useful for countries that want to introduce a general statistics law, or modify an existing one. It should be stressed that this 'model of a statistics act' is not in any way meant to be prescriptive or normative. It is just an illustration of the issues that are dealt with in actual statistical legislation in various countries; several of the texts were indeed derived from actual statistical laws.

The 'model' contains two types of elements:

- Issues that should be dealt with in all statistics acts (printed in **bold** typeface), because they are about matters of principle. In this regard, reference may also be made to the Fundamental Principles for Official Statistics, adopted by the Statistical Commission of the United Nations in 1994. These issues often directly relate to what is said in the Principles, as will be explained in annotations to the text.
- Alternative or optional elements. 'Alternatives' relates to solutions that are different, but not necessarily inferior to the ones described in the issues mentioned before. 'Optional' elements are more country specific; they may work for some countries, but may be unacceptable for others.

### Statistics Act of Numberland

Note: the Act consists of three main sections: General (Handbook section 2.6.2, about the main actors of the statistical system, their roles, responsibilities and interactions), Statistical Operations and Data Collection, including some provisions for regionally decentralized systems; see Handbook section 2.6.7) and Data Confidentiality (including access to information protected by other laws, see Handbook section 2.6.5).

#### GENERAL

##### 1. Definitions (see also section 2.6.2 of the Handbook)

In this Act,

- "Chief Statistician" means the Chief Statistician of Numberland;
- "department" means any department, board, bureau, agency or other division of the government of Numberland or of the government of a region or any agency of either;

- **"Minister" means a member of the Cabinet of Ministers of Numberland,**
- **"respondent" means a natural or legal person in respect of whom or in respect of whose activities any report or information is sought or provided pursuant to this Act;"**
- **"Council" means National Statistical Council of Numberland.**

## **2. Chief Statistician**

**The President of Numberland, at the recommendation of the Council of Ministers, shall appoint an officer called the Chief Statistician of Numberland to hold office for a renewable, fixed term of five years.**

Note: Appointment of the Chief Statistician for a fixed term helps to guarantee his professional independence and to prevent political interference with official statistics (see also Handbook section 2.4.5).

### Alternative 1

The Prime Minister of Numberland shall appoint an officer called the Chief Statistician.

### Alternative 2

The Parliament of Numberland shall appoint an officer called the Chief Statistician.

### Alternative 3

At the recommendation of the National Statistics Council, the President of Numberland shall appoint an officer called the Chief Statistician.

### Option

The President of Numberland shall appoint a Minister for Statistics, who shall act as the Chief Statistician.

## **2. The Chief Statistician shall,**

- (a) advise on matters pertaining to statistical programs of the departments of the Government of Numberland, and confer with those departments to that end.**
- (b) decide on the manner in which data for statistical purposes are collected, how they are compiled and when and how statistics are published.**
- (c) supervise generally the administration of this Act and control the operations and staff of Statistics Numberland.**
- (d) represent Numberland in international statistical meetings or designate one or more staff members of Statistics Numberland to do so.**

Note: the provisions in this article support the coordinating role of the Chief Statistician (a), his professional autonomy (b, see also the Fundamental Principles of Official Statistics - appendix 2), as well as his international role (articles 9 and 10 of the Fundamental Principles of Official Statistics – appendix 2).

## **4. Statistics Numberland**



There shall be a statistics bureau, to be known as Statistics Numberland, the duties of which are

- (a) to collect, compile, analyze and publish statistical information relating to the commercial, industrial, financial, social, economic, environmental and general activities and condition of the people;
- (b) to collaborate with departments of government in the collection, compilation and publication of statistical information, including statistics derived from the activities of those departments;
- (c) to promote the avoidance of duplication in the information collected by departments of government; and
- (d) generally, to promote and develop integrated social and economic statistics pertaining to the whole of Numberland and to each of the regions thereof and to coordinate plans for the integration of those statistics.

#### 5. Work plan, release calendar and annual report

- (a) Three months before the beginning of each new fiscal year, the Chief Statistician shall submit to the Council of Ministers<sup>133</sup> a work plan for the next fiscal year, setting out all major statistical collections and planned publications, as well as estimates of expenditure and revenues related to this.
- (b) At the beginning of each new fiscal year, the Chief Statistician shall publish a calendar of the most important releases of new statistics in that fiscal year.
- (c) Within three months after each fiscal year the Chief Statistician shall present a report to the Council of Ministers<sup>134</sup> with regard to the activities of Statistics Numberland in the preceding fiscal year.

Note: this article is mainly about transparency and accountability, two important aspects of the Fundamental Principles. The publication of an advance release calendar (b) prevents political interference with statistical outcomes.

#### 6. National Statistical Council

- (a) There shall be a National Statistical Council whose role is to:
  - Advise the Chief Statistician on statistical work plans; its advice shall be added when the work plan is submitted to the Council of Ministers.
  - Comment on the annual report that the Chief Statistician submits to the Council of Ministers; its comments shall be added to this report.
  - Advise the Chief Statistician on any other statistical issues.
- (b) The Council shall be chaired by the Chief Statistician.
- (c) The Council shall meet at least four times a year.
- (d) The Council may set up subcommittees and ad hoc advisory groups.
- (e) The Council shall have at least 15 members, representing the most important user groups of official statistics, in particular government departments, the business community and academia.

---

<sup>133</sup> Or, as the case may be, the President, the Parliament or a Minister designated to be politically responsible for statistics.

<sup>134</sup> See footnote 133.

**(f) Members of the Council shall be appointed by the Minister, at the recommendation of the Chief Statistician. They will serve for renewable terms of four years.**

**(g) The Council's Rules of Procedure shall be approved by the Minister.**

Note: the principal role of a National Statistical Council is to be an interface with the users of statistics, and thereby enhance the relevance of official statistics (see the Fundamental Principles of Official Statistics – appendix 2, article 1). Of course there are many different ways to set up such a council. Therefore, some alternatives to the above are listed below.

Alternatives:

- Minister chairs the Council, Chief Statistician is vice-chair.
- Independent chairman, Chief Statistician ex officio member.
- Council has fewer or more members.
- Council approves statistical work plan (as opposed to just advise on it).
- Recommendation for membership through co-optation (Council itself proposes candidates).
- Membership is specified by law (e.g. 'a representative of the Ministry of Finance, a representative of the Central bank, a representative of the Council of Economic Advisers', etc.).
- Longer or shorter terms of service.

## **STATISTICAL OPERATIONS AND DATA COLLECTION**

Note: this part of the law is mainly about practical arrangements for data collection, including access to government data sources that may be relevant for statistical purposes. It is important that statistics are collected in the most efficient way and that respondents are not unduly burdened (see also article 5 of the Fundamental Principles of Official Statistics – appendix 2).

### **7. Statistical personnel**

**The Chief Statistician may employ such commissioners, enumerators, agents or other persons as are necessary to collect for Statistics Numberland such statistics and information as the Chief Statistician deems useful and in the public interest relating to such commercial, industrial, financial, social, economic and other activities as the Chief Statistician may determine, and the duties of the commissioners, enumerators, agents or other persons shall be those duties prescribed by the Chief Statistician.**

Options

Public servants

The Minister may, for such periods as it may determine, use the services of any employee of the public service of Numberland in the exercise or performance of any duty, power or function of Statistics Numberland under this Act or any other Act, and any person whose services are so used shall, for the purposes of this Act, be deemed to be a person employed under this Act.

Note: this implies that the Minister who is politically responsible for official statistics has the power to recruit civil servants outside Statistics Numberland to perform statistical duties; among

other things this may be important for censuses.

#### Contracted services

Any persons retained under contract to perform special services for the Chief Statistician pursuant to this Act and the employees and agents of those persons shall, for the purposes of this Act, be deemed to be persons employed under this Act while performing those services.

#### Options

##### Cooperation with regional authorities

The Chief Statistician may enter into arrangements with the government of a region providing for matters necessary or convenient for the purpose of carrying out or giving effect to this Act, and in particular for all or any of the following matters:

- (a) the execution by regional officers of any power or duty conferred or imposed on any officer pursuant to this Act;
- (b) the collection by any regional department or regional officer of statistical or other information required for the purpose of this Act; and
- (c) the supplying of statistical information by any regional department or regional officer to the Chief Statistician.

All regional officers executing any power or duty conferred or imposed on any officer pursuant to this Act, in pursuance of any arrangement entered into under this section, shall, for the purposes of the execution of that power or duty, be deemed to be employed under this Act.

The Chief Statistician may enter into an agreement with the government of a region for the exchange with, or transmission to, a statistical agency of the region of

- (a) replies to any specific statistical inquiries;
- (b) replies to any specific classes of information collected under this Act; and
- (c) any tabulations and analyses based on replies referred to in (a) or (b).

An agreement with a region for the purposes of this section shall apply only in respect of a statistical agency of the region

- (a) that has statutory authority to collect the information that is intended to be exchanged or transmitted pursuant to the agreement from a respondent who is subject to statutory penalties for refusing or neglecting to furnish information to the agency or for falsifying information furnished by him to the agency;
- (b) that is prohibited by law from disclosing any information of a kind that Statistics Numberland, its officers and employees would be prohibited from disclosing, if the information were furnished to Statistics Numberland; and
- (c) whose officer's and employees are subject to statutory penalties for the disclosing of any information of the kind described in paragraph (b).

Where any such information is collected by Statistics Numberland from a respondent, Statistics Numberland shall, when collecting information, advise the respondent of the names of any statistical agencies in respect of which the Chief Statistician has such an agreement.

Note: there are many different ways of interaction and cooperation between the national statistical agency and regional bodies. In some countries the national statistical agency has regional offices that are fully under its control (often called the ‘vertical system’), while in others the regional statistical offices are part of regional government (the ‘horizontal system’). Mixtures of these two systems also exist. In federally structured countries, the relationships between the regional and central governments are different yet.

## **8. Sharing of information**

**The Chief Statistician may enter into an agreement with any department or municipal or other corporation for the sharing of information collected from a respondent.**

**Such an agreement shall provide that**

- (a) the respondent be informed by notice that the information is being collected on behalf of Statistics Numberland and the department or corporation, as the case may be; and**
- (b) where the respondent gives notice in writing to the Chief Statistician that the respondent objects to the sharing of the information by Statistics Numberland, the information not be shared with the department or corporation unless the department or corporation is authorized by law to require the respondent to provide that information.**

Note: see also article 5 of the Fundamental Principles of Official Statistics – appendix 2.

Option:

Access to records

A person having the custody or charge of any documents or records that are maintained in any department or in any municipal office, corporation, business or organization, from which information sought in respect of the objects of this Act can be obtained or that would aid in the completion or correction of that information, shall grant access thereto for those purposes to a person authorized by the Chief Statistician to obtain that information or aid in the completion or correction of that information.

## **9. False or unlawful information**

**Every person who, without lawful excuse,**

- (a) refuses or neglects to answer, or willfully answers falsely, any question requisite for obtaining any information sought in respect of the objects of this Act or pertinent thereto that has been asked of him by any person employed or deemed to be employed under this Act, or**
- (b) refuses or neglects to furnish any information or to fill in to the best of his knowledge and belief any schedule or form that the person has been required to fill in, and to return the same when and as required of him pursuant to this Act, or knowingly gives false or misleading information or practices any other deception thereunder is, for every refusal or neglect, or false answer or deception, guilty of an offence and liable on summary conviction to a fine not exceeding .....or to imprisonment for a term not exceeding .....or to both.**

## **10. Refusal to grant access to records**

**Every person**

**(a) who, having the custody or charge of any documents or records that are maintained in any department or in any municipal office, corporation, business or organization, from which information sought in respect of the objects of this Act can be obtained or that would aid in the completion or correction of the information, refuses or neglects to grant access to the information to any person authorized for the purpose by the Chief Statistician, or**  
**(b) who otherwise in any way willfully obstructs or seeks to obstruct any person employed in the execution of any duty under this Act**  
**is guilty of an offence and liable on summary conviction to a fine not exceeding .....or to imprisonment for a term not exceeding .....or to both.**

Note: although enforcement by law may not be the ideal way to obtain basic data for statistics (see Handbook section 2.6.4), most statistics acts contain some provisions to make data collection for statistics statutory.

## Options

*Coding system for goods*

The Chief Statistician shall establish a coding system for goods imported into and exported from Numberland to enable the collection, compilation, analysis and publication statistics in relation to those goods.

*Forms for statistical data*

Instead of or in addition to using agents or employees for the collection of statistics under this Act, the Chief Statistician may prescribe that a form be sent to a person from whom information authorized to be obtained under this Act is sought. A person to whom such a form is sent shall answer the inquiries thereon and return the form and answers to Statistics Numberland properly certified as accurate, not later than the time prescribed therefore and indicated on the form or not later than such extended time as may be allowed in the discretion of the Chief Statistician.

*Returns under Income Tax Act*

For the purposes of this Act

- (a) the Chief Statistician or any person authorized by the Chief Statistician to do so may inspect and have access to any returns, certificates, statements, documents or other records obtained on behalf of the Minister of National Revenue for the purposes of the Income Tax Act , and
- (b) the Minister of National Revenue shall cause the returns, certificates, statements, documents, or other records to be made available to the Chief Statistician or person authorized by the Chief Statistician to inspect the records.

*Return of exports and imports from Customs*

For the purposes of this Act, the Minister of National Revenue shall cause to be sent to the Chief Statistician returns of imports and exports into and from Numberland and details of the means of transportation used therefore.

Additional options:

*POPULATION CENSUS*

A census of population of Numberland shall be taken by Statistics Numberland in the month of .... in the year ....., and every tenth year thereafter.

The census of population shall be taken in such a manner as to ensure that counts of the population are provided for each district of Numberland, as constituted at the time of each census of population.

*AGRICULTURE CENSUS*

A census of agriculture of Numberland shall be taken by Statistics Numberland in the year ..... and in every tenth year thereafter.

*Census questions*

The President of Numberland shall, by order, prescribe the questions to be asked in any census taken by Statistics Numberland.

Note: in some countries regulations for censuses are part of the general statistics law, in others censuses are ruled by separate legislation.

**DATA CONFIDENTIALITY**

Note: Clearly, confidentiality of individual data is one of the main concerns of the Fundamental Principles. In addition to a general provision in the Statistics Act (article 11 below), an oath of office for statistical personnel (article 12 below) is often part of statistical legislation as well.

**11. Prohibition against divulging information**

**Except for the purpose of communicating information in accordance with any conditions of an agreement made under this Act and except for the purposes of a prosecution under this Act but subject to this section,**

- (a) no person, other than a person employed or deemed to be employed and sworn in under this Act, shall be permitted to examine any identifiable individual return made for the purposes of this Act; and**
- (b) no person who has been sworn in under this Act shall disclose or knowingly cause to be disclosed, by any means, any information obtained under this Act in such a manner that it is possible from the disclosure to relate the particulars obtained from any individual return to any identifiable individual person, business or organization.**

**12. Oath of office**

**The Chief Statistician and every person employed or deemed to be employed pursuant to this Act shall, before entering on his duties, take and subscribe the following oath or solemn affirmation:**

**I, ....., do solemnly swear (or affirm) that I will faithfully and honestly fulfill my duties as an employee of Statistics Numberland in conformity with the requirements of the Statistics Act, and of all rules and instructions thereunder and that I will not without due authority in that behalf disclose or make known any matter or thing that comes to my knowledge by reason of my employment.**

**Where a person retained under contract to perform special services for the Chief Statistician pursuant to this Act is a legal person, the chief executive officer thereof and such other officers, employees and agents thereof as are used to perform the special services shall, before entering on any of the duties required under the contract, take and subscribe the following oath or solemn affirmation:**

**I, ....., do solemnly swear (or affirm) that I will faithfully and honestly fulfill my duties as an employee of (name legal person) in respect of my employment in carrying out .....<sup>135</sup> in conformity with the requirements of the Statistics Act, and of all rules and instructions thereunder and that I will not without due authority in that behalf disclose or make known any matter or thing that comes to my knowledge by reason of my employment as described herein.**

#### Options

The Chief Statistician may, by order, authorize the following information to be disclosed:

- (a) information relating to a person or organization in respect of which disclosure is consented to in writing by the person or organization concerned;
- (b) information relating to a business in respect of which disclosure is consented to in writing by the owner for the time being of the business;
- (c) information available to the public under any statutory or other law;
- (d) information relating to any hospital, mental institution, library, educational institution, welfare institution, public utility<sup>136</sup> or other similar non-commercial institution except particulars arranged in such a manner that it is possible to relate the particulars to any individual patient, inmate or other person in the care of any such institution;
- (f) information in the form of an index or list of individual establishments, firms or businesses, showing any, some or all of the following in relation to them:

- I. their names and addresses,
- II. the telephone numbers at which they may be reached in relation to statistical matters,
- III. the products they produce, manufacture, process, transport, store, purchase or sell, or the services they provide, in the course of their business, or
- IV. whether they are within specific ranges of numbers of employees or persons engaged by them or constituting their work force.

---

<sup>135</sup> Reference to the contract that rules the tasks to be executed.

<sup>136</sup> Public utility means any natural or legal person that owns, operates or manages an undertaking for the supply of petroleum products by pipeline, transmission or distribution of gas, electricity, steel or water, the collection and disposal of garbage or sewage, the transmission, emission, reception or conveyance of information by any telecommunication system, or the profession of postal services.

**13. Information is privileged**

**Except for the purposes of a prosecution under this Act, any return made to Statistics Numberland pursuant to this Act and any copy of the return in the possession of the respondent is privileged and shall not be used as evidence in any proceedings whatever.**

**No person sworn under this Act shall by an order of any court, tribunal or other body be required in any proceedings whatever to give oral testimony or to produce any return, document or record with respect to any information obtained in the course of administering this Act.**

**14. Disclosing secret information**

**Every person who, after taking the oath under this Act:**

**(a) willfully discloses or divulges directly or indirectly to any person not entitled under this Act to receive the same any information obtained by him in the course of his employment that might exert an influence on or affect the market value of any stocks, bonds or other security or any product or article, or**

**(b) uses any information described in paragraph (a) for the purpose of speculating in any stocks, bonds or other security or any product or article**

**is guilty of an offence and liable on summary conviction to a fine not exceeding ..... or to imprisonment for a term not exceeding .....or to both.**

Options

*Personation of Statistics Numberland employee*

Every person who

(a) personates an employee of Statistics Numberland for the purpose of obtaining information from any person, or

(b) represents himself to be making an inquiry under the authority of this Act when the person is not an officer, employee or agent of Statistics Numberland,

is guilty of an offence and liable on summary conviction to a fine not exceeding .....or to imprisonment for a term not exceeding six months or to both.

*Application of fines*

All fines imposed pursuant to this Act belong to the Government of Numberland and shall be paid to the Receiver General.



## Appendix 2: The fundamental principles of official statistics

Extract from the report of the Statistical Commission on its Special Session, held in New York 11-14 April 1994. Official Records of the Economic and Social Council, 1994, Supplement No. 9 (E/1994/29, E/CN.3/1994/18).

### Action taken by the Commission

59. The Commission adopted the fundamental principles of official statistics as set out in ECE decision C (47), but incorporating a revised preamble. The preamble and principles, as adopted, are set out below:

### FUNDAMENTAL PRINCIPLES OF OFFICIAL STATISTICS

#### The Statistical Commission,

Bearing in mind that official statistical information is an essential basis for development in the economic, demographic, social and environmental fields and for mutual knowledge and trade among the States and peoples of the world,

Bearing in mind that the essential trust of the public in official statistical information depends to a large extent on respect for the fundamental values and principles which are the basis of any society which seeks to understand itself and to respect the rights of its members,

Bearing in mind that the quality of official statistics, and thus the quality of the information available to the Government, the economy and the public depends largely on the cooperation of citizens, enterprises, and other respondents in providing appropriate and reliable data needed for necessary statistical compilations and on the cooperation between users and producers of statistics in order to meet users' needs,

Recalling the efforts of governmental and non-governmental organizations active in statistics to establish standards and concepts to allow comparisons among countries,

Recalling also the International Statistical Institute Declaration of Professional Ethics,

Having expressed the opinion that resolution C (47), adopted by the Economic Commission for Europe on 15 April 1992, is of universal significance,

Noting that, at its eighth session, held at Bangkok in November 1993, the Working Group of Statistical Experts, assigned by the Committee on Statistics of the Economic and Social Commission for Asia and the Pacific to examine the Fundamental Principles, had agreed in principle to the ECE version and had emphasized that those principles were applicable to all nations,

Noting also that, at its eighth session, held at Addis Ababa in March 1994, the Joint Conference of African Planners, Statisticians and Demographers, considered that the Fundamental Principles of Official Statistics are of universal significance,

Adopts the present principles of official statistics:

1. 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 honor citizens' entitlement to public information.
2. To retain trust in official statistics, the statistical agencies need to decide according to strictly professional considerations, including scientific principles and professional ethics, on the methods and procedures for the collection, processing, storage and presentation of statistical data.
3. To facilitate a correct interpretation of the data, the statistical agencies are to present information according to scientific standards on the sources, methods and procedures of the statistics.
4. The statistical agencies are entitled to comment on erroneous interpretation and misuse of statistics.
5. Data for statistical purposes may be drawn from all types of sources, be they statistical surveys or administrative records. Statistical agencies are to choose the source with regard to quality, timeliness, costs and the burden on respondents.
6. Individual data collected by statistical agencies for statistical compilation, whether they refer to natural or legal persons, are to be strictly confidential and used exclusively for statistical purposes.
7. The laws, regulations and measures under which the statistical systems operate are to be made public.
8. Coordination among statistical agencies within countries is essential to achieve consistency and efficiency in the statistical system.
9. The use by statistical agencies in each country of international concepts, classifications and methods promotes the consistency and efficiency of statistical systems at all official levels.
10. Bilateral and multilateral cooperation in statistics contributes to the improvement of systems of official statistics in all countries.

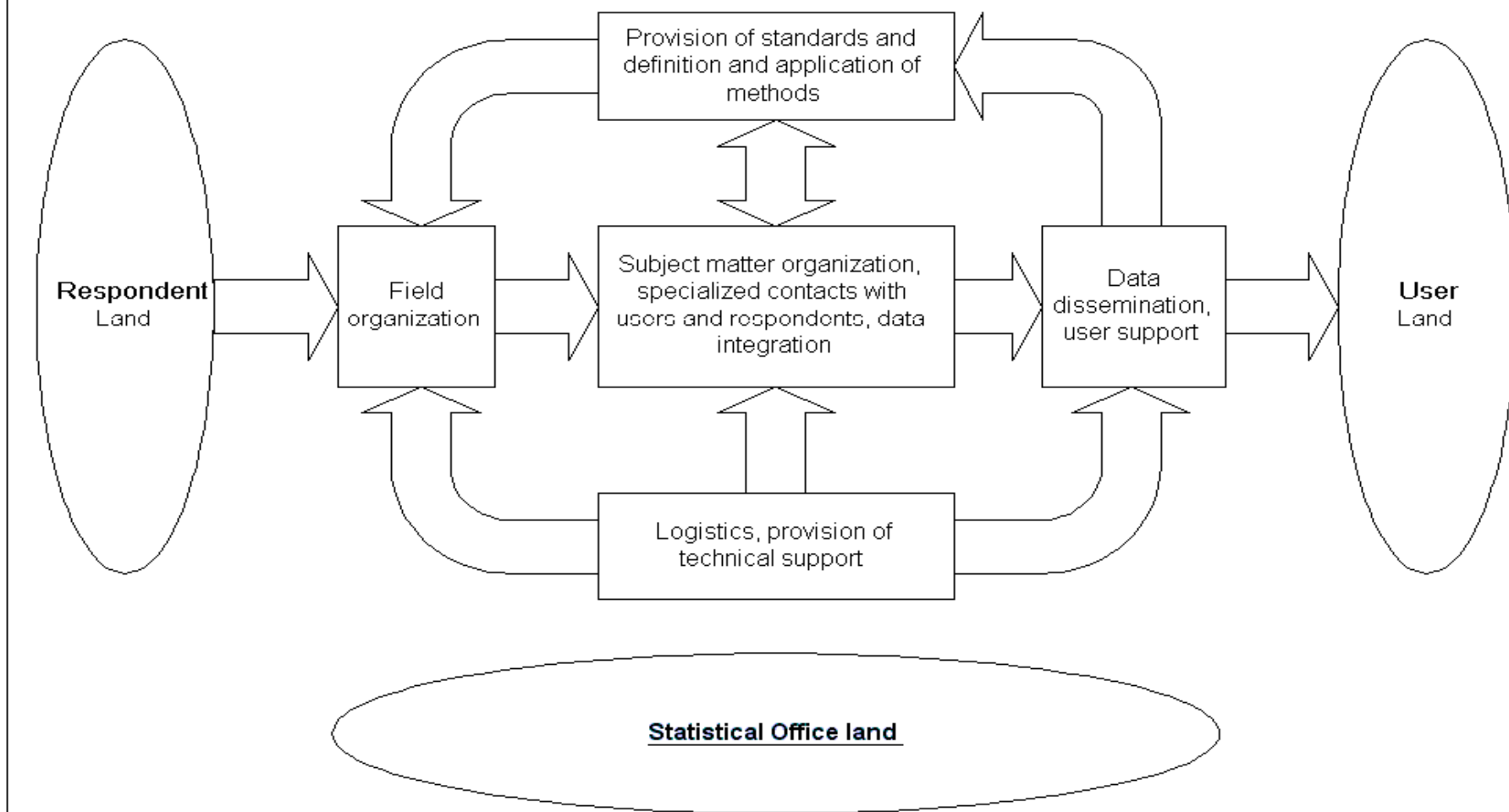
### **Appendix 3: Figures representing possible organizations of the functions of a statistical office**

This appendix shows a selection of twelve diagrams that purport to illustrate the most important functions carried out by the average centralized statistical office. The diagrams do not illustrate organizational charts. The arrows shown represent flows of information rather than hierarchical relations. The latter are thought to be too dependent on the circumstances of individual offices to be shown in a Handbook such as this one.

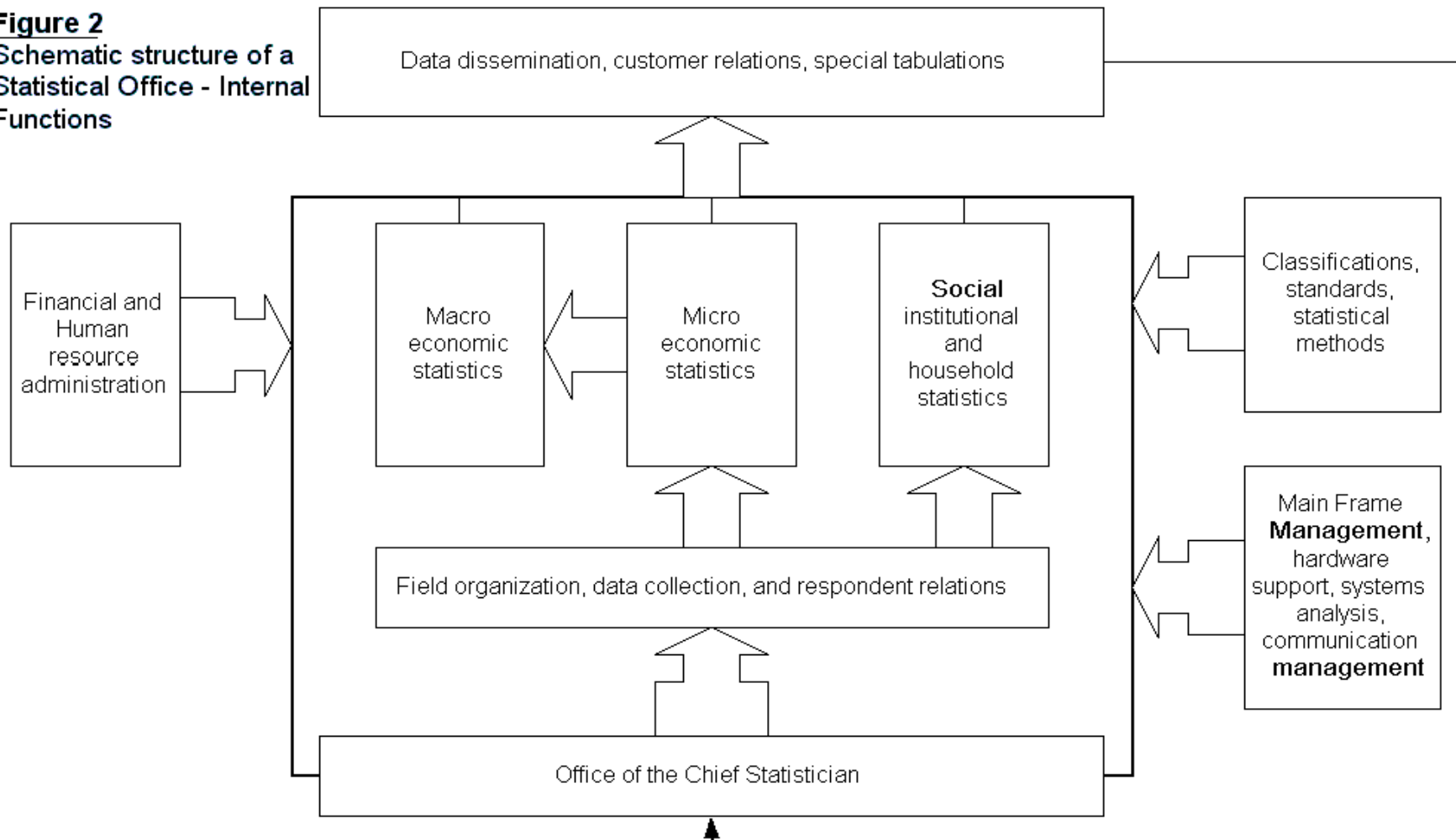
There is a distinction made among the various flows of information that connect one group of activities to another. In some cases the flow is of directives, policies, metadata, and advice but not of data, raw or processed. Such flows are generally shown using narrow tipped arrows on broad shafts. Broad tipped arrows normally illustrate flows of data. And there are feedback flows shown by very narrow black arrows. The text appended to the bottom of each diagram should make clear what flows and from whom to whom. There are other flows, which are not represented in the diagrams in order not to complicate them unduly.

The diagrams bring out three key themes of the Handbook. Firstly, all viable organizations are articulated information processing systems. Secondly, there is no viable organization that has no feedback loops. And thirdly there is no organization that should be constituted without an analytical and research function. Naturally, nothing is said about relative sizes or who is in control of what. Individual managers will determine how to implement the spirit of the diagrams so as to fit their circumstances

**Figure 1**  
Outline of the functions of a statistical agency

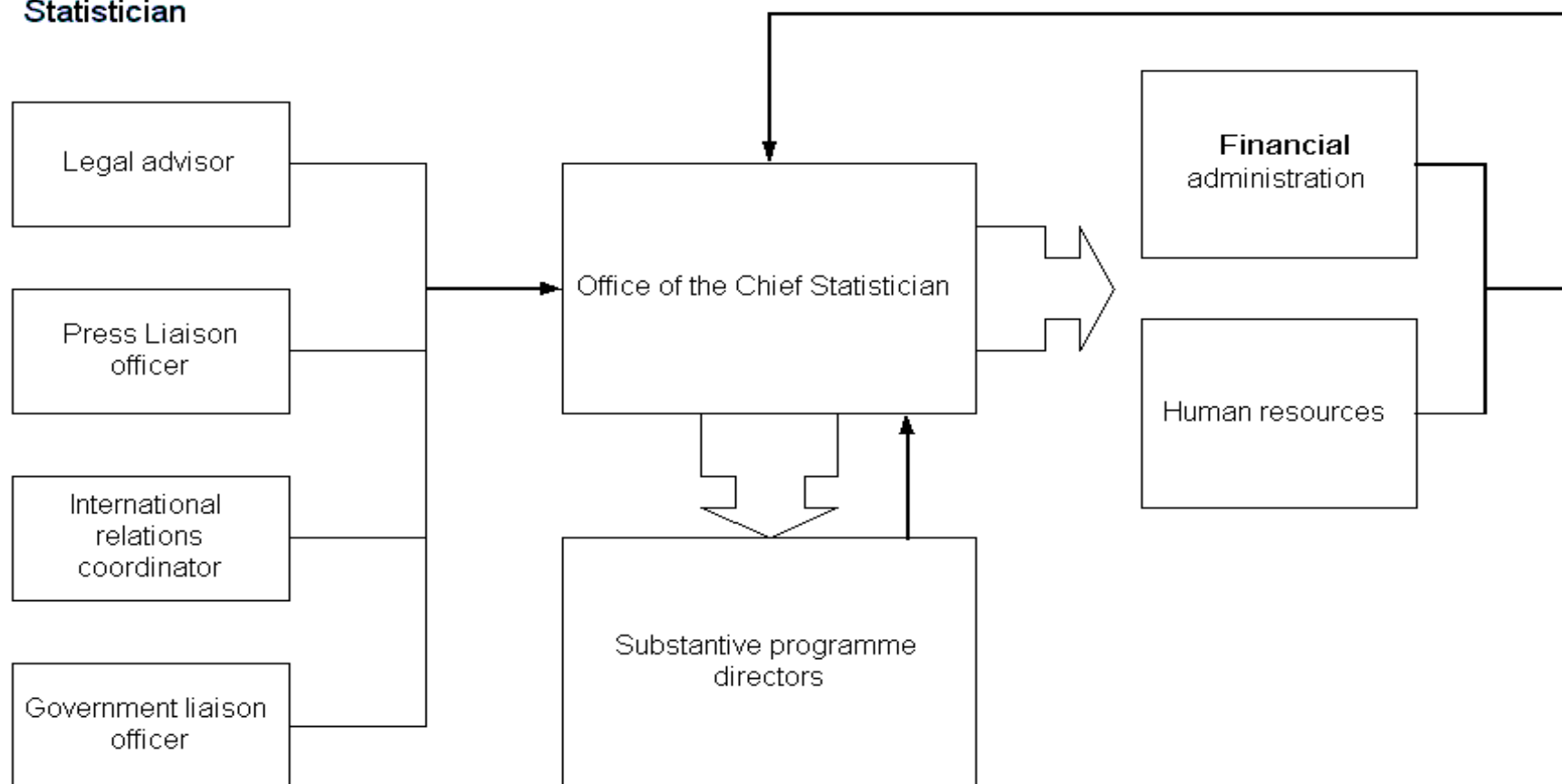


**Figure 2**  
**Schematic structure of a**  
**Statistical Office - Internal**  
**Functions**



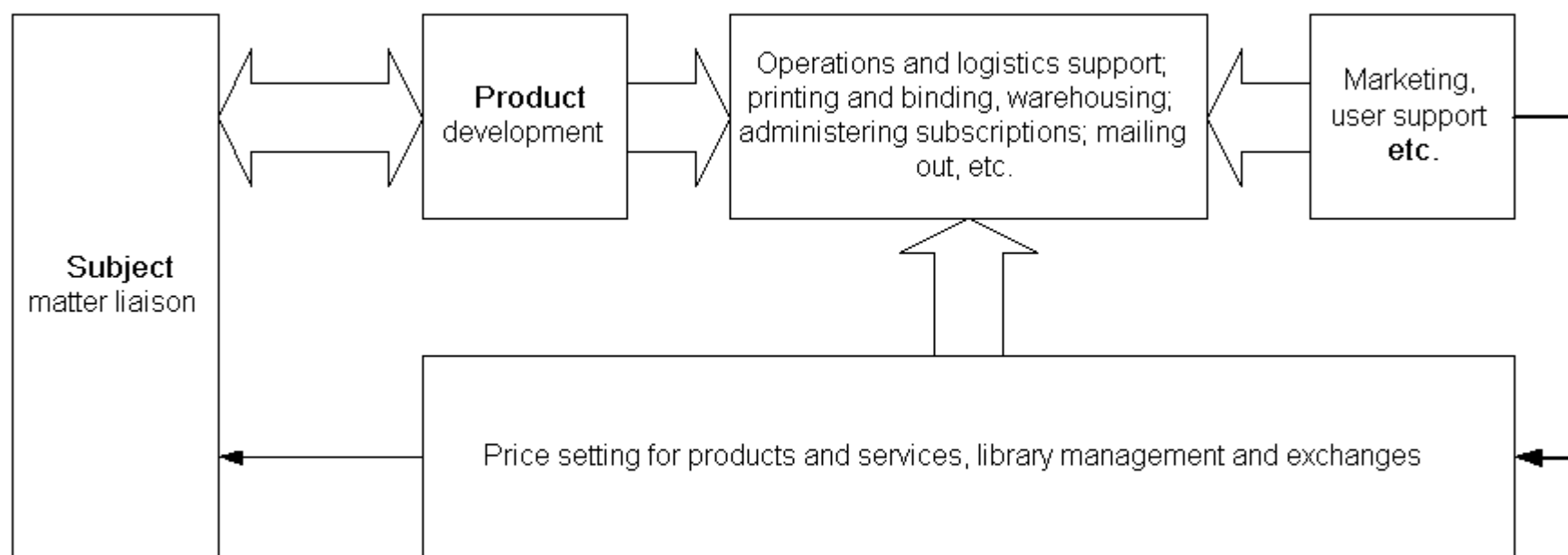
In this stylised diagram, the office of the chief statistician and the offices concerned with financial and human resource administration provide policy directives and legal frameworks to the subject matter areas. This is denoted by the arrows with a broad base. Within the subject matter areas, the field organization provides raw data to the major subject departments who in turn pass aggregated information to the area concerned with macro economic estimates. All areas provide aggregated information to dissemination - represented by wide arrows. Dissemination together with the subject areas are the main suppliers of feedback to the office of the Chief Statistician.

**Figure 3**  
**Functions of the office of the Chief Statistician**



The Office of the Chief Statistician receives advice and feedback (thin arrow) from all organizations in the office and is in close and direct contact with the legal advisor, the press liaison officer, the international relations coordinator and the Govt. liaison officer. The office issues policies and directives to all parties and administers the office through his advisors on financial and human resource management.

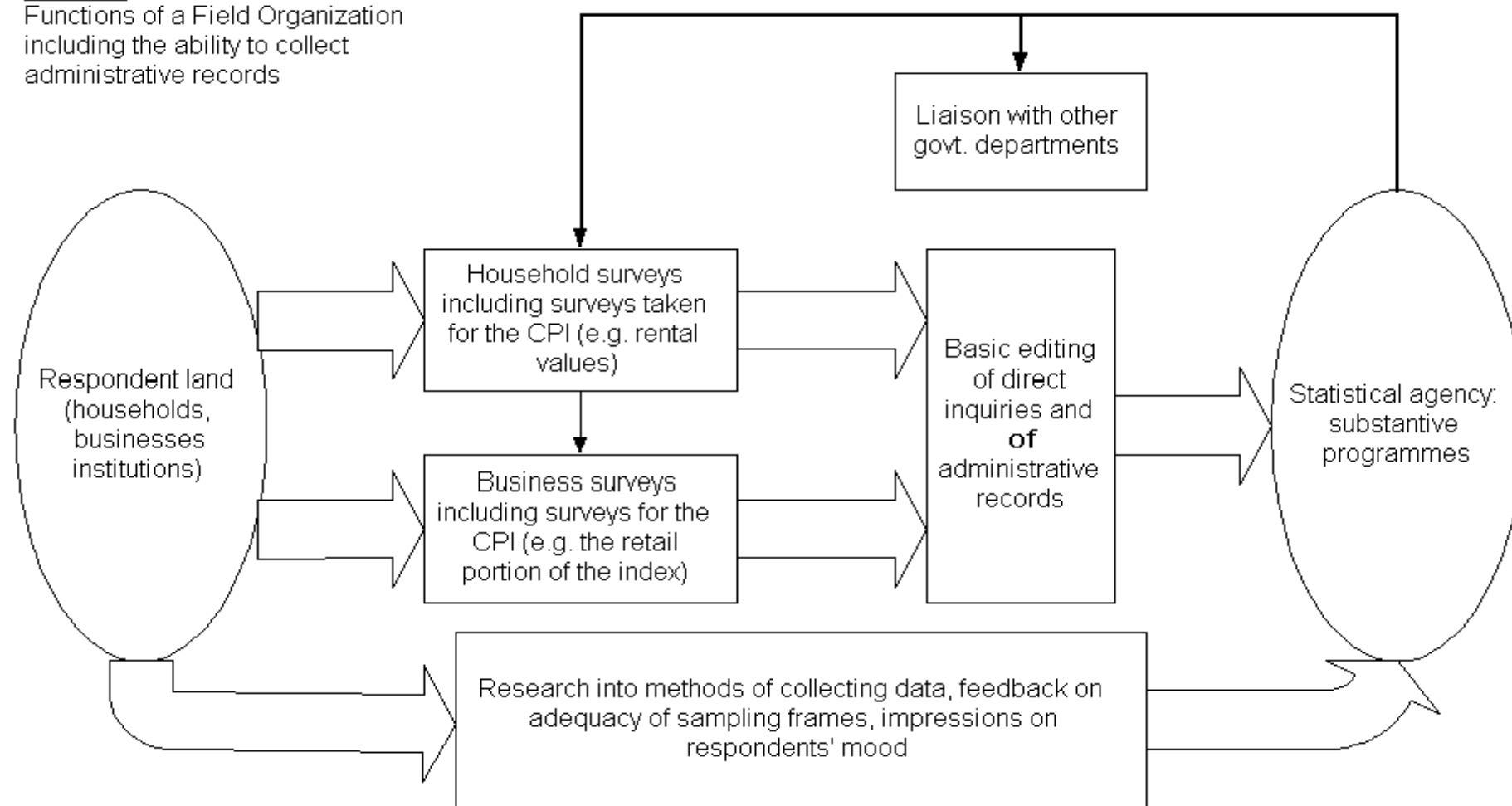
**Figure 4**  
**Functions of a department**  
**charged with dissemination and**  
**user contacts**



There is an iterative relationship between product development and subject matter partly described by a double headed arrow. Price setting gets feedback (thin black arrow) from distribution of publications. For the rest it is a matter of directives: operations and logistics get told by their clients what and how they should do it.

**Figure 5**

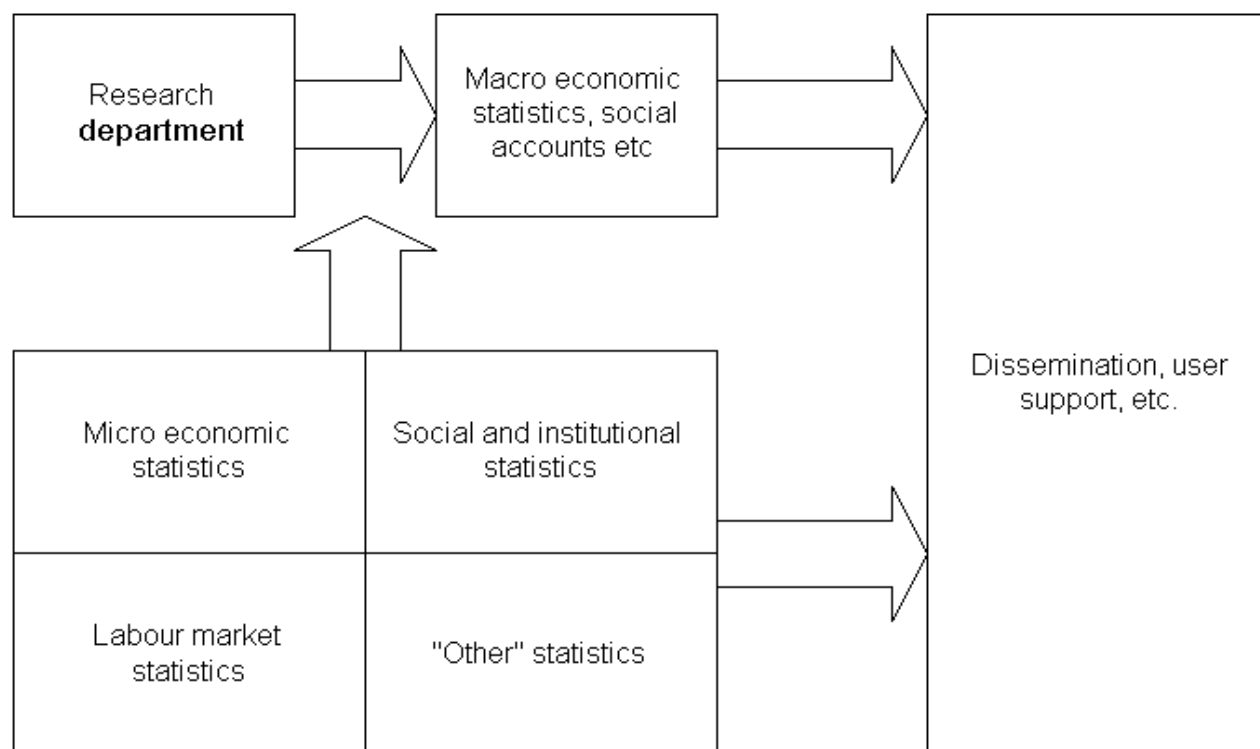
Functions of a Field Organization including the ability to collect administrative records



Respondents provide the field organization with raw data, which are subsequently subject to editing before being handed over to programme areas. Research is conducted into methods and the prevailing mood of respondents and communicated to programme areas for changes in survey frameworks and details.



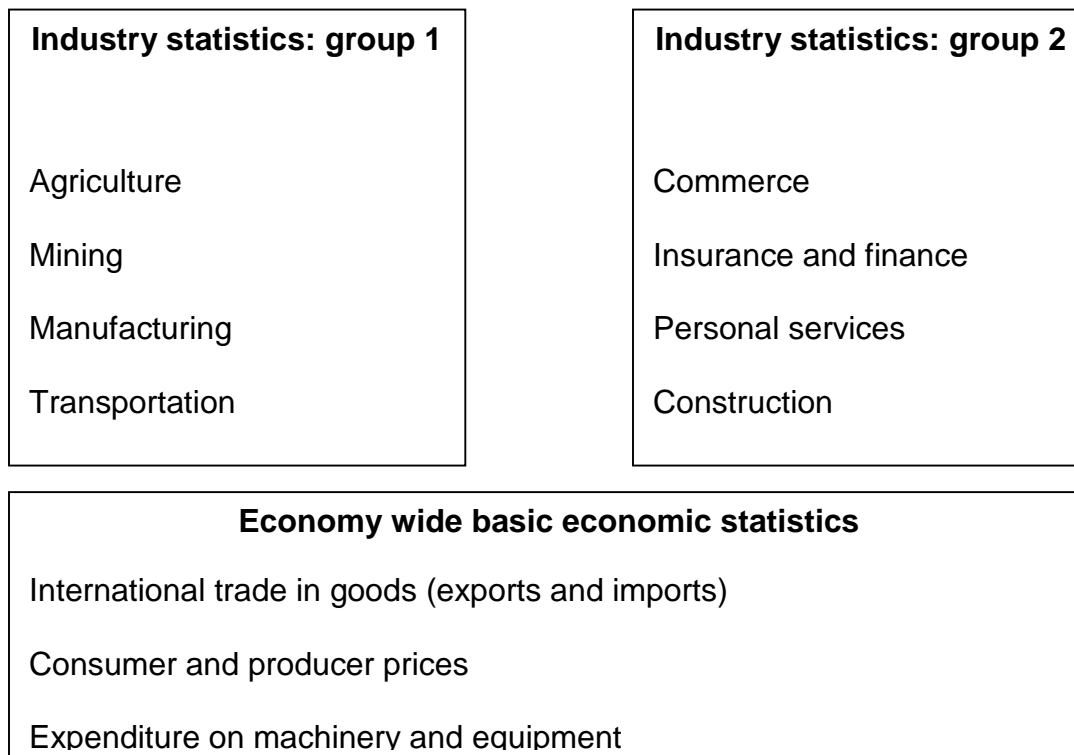
**Figure 6**  
**Functions and subjects in the**  
**programme area of a statistical office**



Side by side with the department in charge of macroeconomic (and social) accounts there is a research arm that helps in assessing basic statistics. The latter are divided into four major groups largely as a function of the source of the raw data. Feedback is derived from contacts with users and as far as the departments in charge of basic statistics are concerned, from the macro economic accounts.

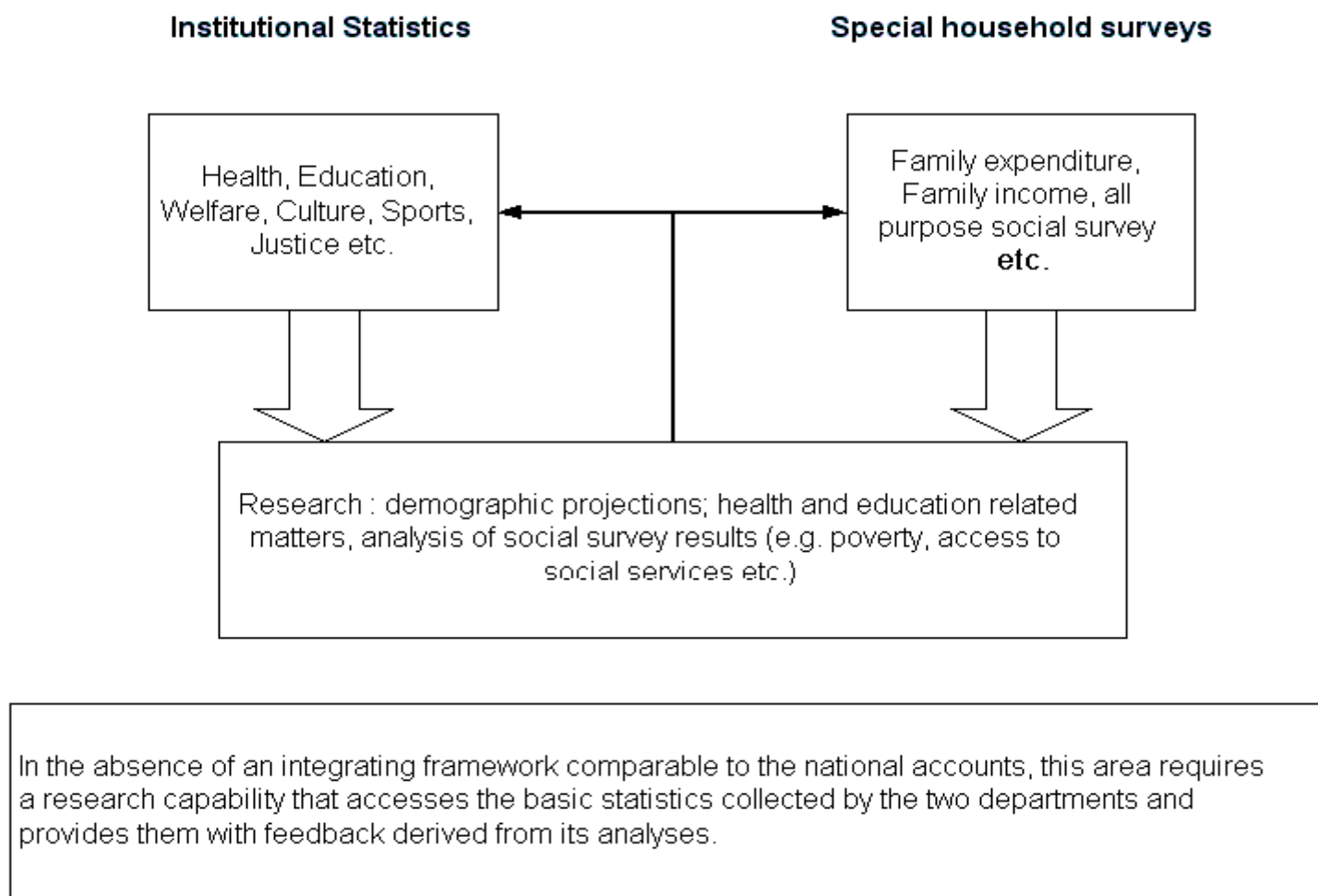
**Figure 7**

Possible breakdown by subject of programme area concerned with economic statistics



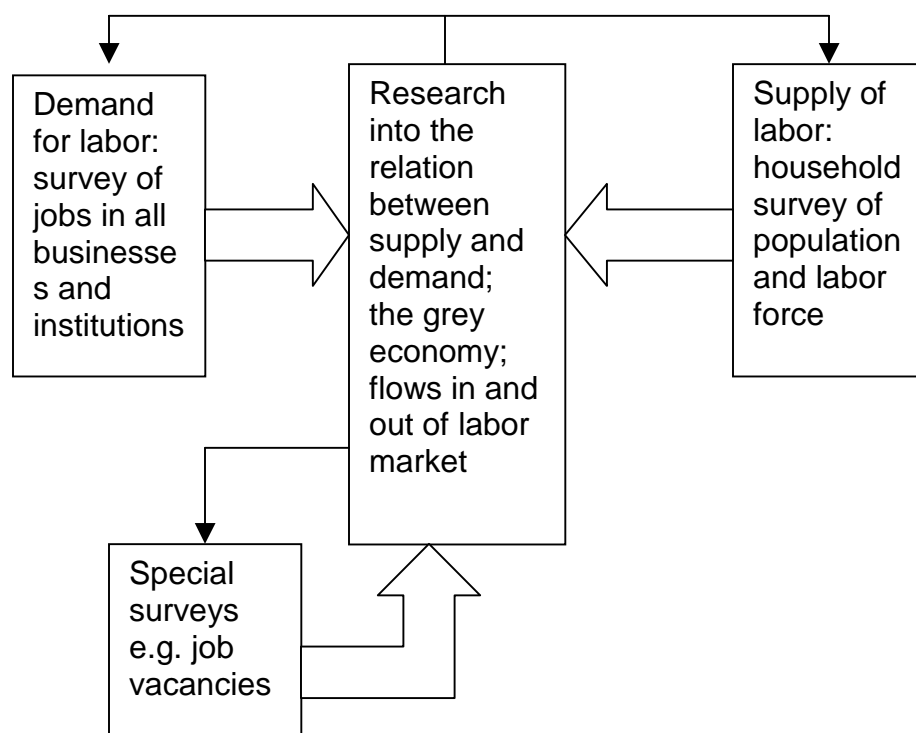
**Figure 8**

List of subjects in a department concerned with household and institutional statistics



**Figure 9**

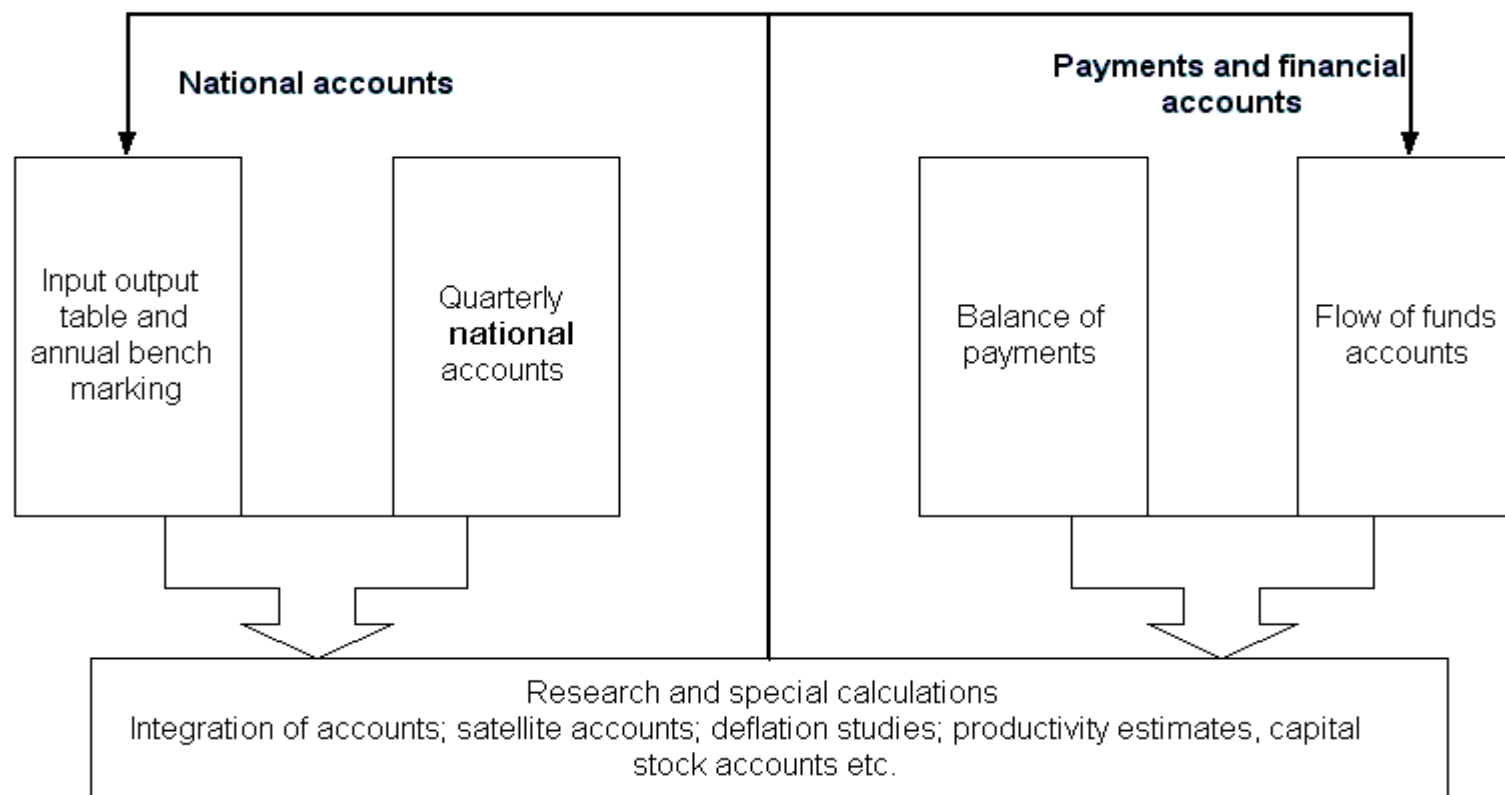
Possible analytical structure for the department concerned with the labor market



Independent measurements of supply and demand as well as of job vacancies lend themselves to research into the condition of the labor market. The conventions regarding arrows are the same as in previous diagrams

**Figure 10**

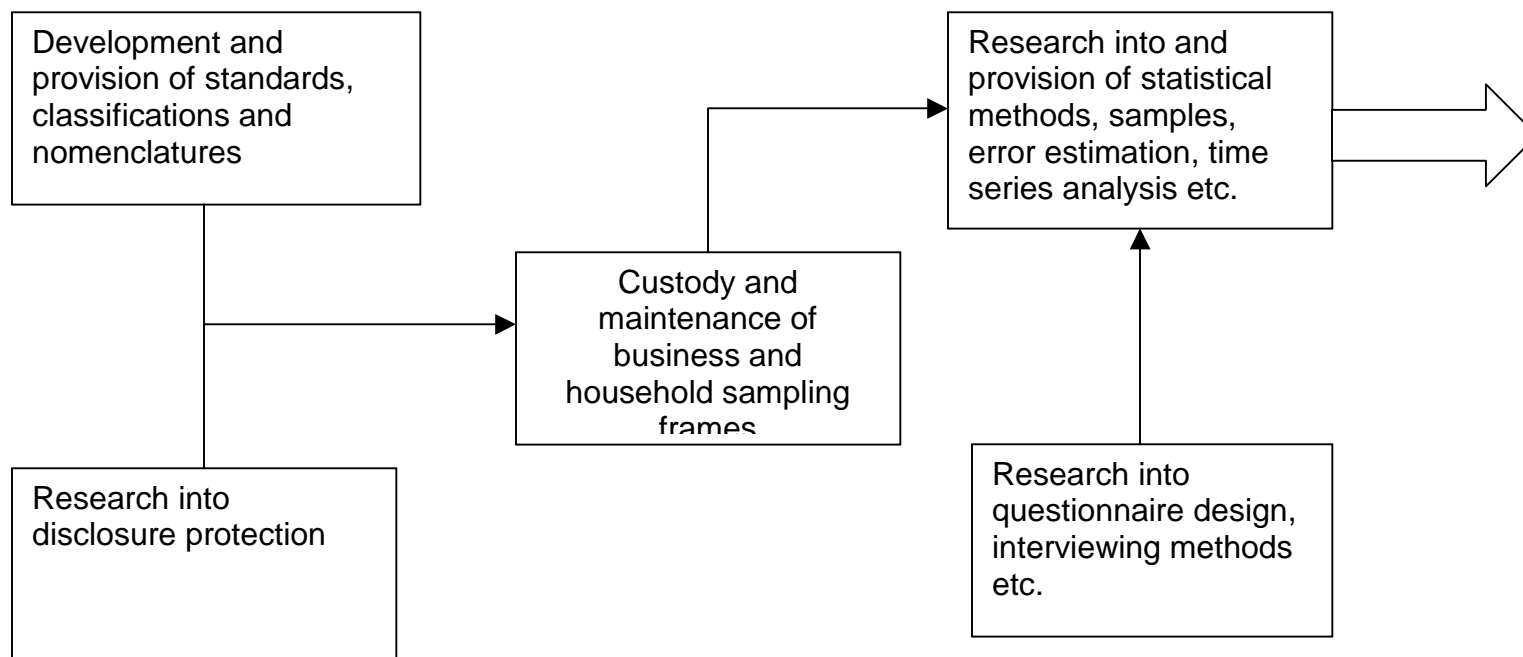
Possible structure for a department in charge of macroeconomics statistics



The same conventions as in previous diagrams hold. The research department is mostly in charge of integration and is ideally placed to provide the four participating areas with the results of its efforts to integrate financial and "real" data.

**Figure 11**

Possible structure of the department responsible for the statistical infra structure



The provision of information required to conduct a successful sample survey is derived from all the activities listed in this diagram.

**Figure 12**

Possible functions for a department concerned with the technical infrastructure of a statistical agency

