Functional analysis (management audits) of the organization of ministries of education

Richard Sack and Mahieddine Saïdi

UNESCO: International Institute
for Educational Planning

Included in the series:*

* Also published in French. Other titles to appear.

Functional analysis (management audits) of the organization of ministries of education

Richard Sack and Mahieddine Saïdi

Fundamentals of educational planning

The booklets in this series are written primarily for two types of clientele: those engaged in educational planning and administration, in developing as well as developed countries; and others, less specialized, such as senior government officials and policy-makers who seek a more general understanding of educational planning and of how it is related to overall national development. They are intended to be of use either for private study or in formal training programmes.

Since this series was launched in 1967 practices and concepts of educational planning have undergone substantial change. Many of the assumptions which underlay earlier attempts to rationalise the process of educational development have been criticised or abandoned. Even if rigid mandatory centralized planning has now clearly proven to be inappropriate, this does not mean that all forms of planning have been dispensed with. On the contrary, the need for collecting data, evaluating the efficiency of existing programmes, undertaking a wide range of studies, exploring the future and fostering broad debate on these bases to guide educational policy and decision-making has become even more acute than before.

The scope of educational planning has been broadened. In addition to the formal system of education, it is now applied to all other important educational efforts in non-formal settings. Attention to the growth and expansion of educational systems is being complemented and sometimes even replaced by a growing concern for the quality of the entire educational process and for the control of its results. Finally, planners and administrators have become more and more aware of the importance of implementation strategies and of the role of different regulatory mechanisms in this respect: the choice of financing methods, the examination and certification procedures or various other regulation and incentive structures. The concern of

5

planners is twofold: to reach a better understanding of the validity of education in its own empirically observed specific dimensions and to help in defining appropriate strategies for change.

The purpose of these booklets includes monitoring the evolution and change in educational policies and their effect upon educational planning requirements; highlighting current issues of educational planning and analysing them in the context of their historical and societal setting; and disseminating methodologies of planning which can be applied in the context of both the developed and the developing countries.

In order to help the Institute identify the real up-to-date issues in educational planning and policy-making in different parts of the world, an Editorial Board has been appointed, composed of two general editors and associate editors from different regions, all professionals of high repute in their own field. At the first meeting of this new Editorial Board in January 1990, its members identified key topics to be covered in the coming issues under the following headings:

1. Education and development.
2. Equity considerations.
3. Quality of education.
4. Structure, administration and management of education.
5. Curriculum.
6. Cost and financing of education.
7. Planning techniques and approaches.
8. Information systems, monitoring and evaluation.

Each heading is covered by one or two associate editors.

The series has been carefully planned but no attempt has been made to avoid differences or even contradictions in the views expressed by the authors. The Institute itself does not wish to impose any official doctrine. Thus, while the views are the responsibility of the authors and may not always be shared by UNESCO or the IIEP, they warrant attention in the international forum of ideas. Indeed, one of the purposes of this series is to reflect a diversity of experience and opinions by giving different authors from a wide range of backgrounds

6

and disciplines the opportunity of expressing their views on changing theories and practices in educational planning.

For plans and programmes to be successfully implemented, many administrative decisions have to be taken on time: teachers have to be appointed and posted in regions and localities where they are most needed, replacement teachers have to be made available when needed, salaries have to be paid on time, textbooks and other didactic materials or equipment have to be delivered to schools and put at the disposal of pupils, in-service training of teachers and systems' support have to be organized and provided in time for curriculum reform, buildings have to be ready on time and properly maintained, etc. The quality of the educational process largely depends on the way these functions are performed – unfortunately, in an inadequate manner in many countries. More attention needs to be paid to these issues. The capacity of the administrative system to mobilize itself and to respond effectively to various requests is also too frequently overlooked when planners and decision-makers, as well as aid agencies, analyze the feasibility of introducing a programme or an educational reform.

This booklet, which aims at identifying what works and what does not, and why, with key functions of the Ministry of Education, fills a very important gap. It is written by Richard Sack and Mahieddine Saïdi, who have both worked on audits of ministries of education in Africa and Asia for UNESCO. They explain very clearly how to analyze the way a ministry operates and the available tools and methods for improving management structures and administrative processes. Thanks to their extensive experience, they are also able to illustrate their text with concrete examples.

The booklet should interest decision-makers and senior managers in ministries of education all over the world. It should be of interest as well to aid agencies, who are concerned with the successful implementation of their programmes.

Jacques Hallak
Assistant Director-General, UNESCO
Director, IIEP

7

Preface

Many educational programmes, policies and reforms are failing because ministries' administrations are unable to implement them. They are often unable to manage efficiently the existing or additional resources that these programmes entail. This booklet is about what it takes to make the business of education run with effectiveness, efficiency and responsiveness to its multiple environments.

Where education systems are nationally managed by one ministry, that ministry has many of the attributes of a firm responsible for outputs whose production processes require effective management of, *inter alia*:

- a payroll (perhaps the largest in the country) and all the concomitant problems and issues of personnel management;
- a budget (perhaps the biggest in the country) that requires: (i) careful preparation that reflects policy priorities, and (ii) rigorous execution with all the usual guarantees for fiscal responsibility;
- extensive real estate holdings that require maintenance;
- large amounts of disparate information needed for all aspects of the business and that must be digested;
- a body of procedures, rules and regulations intended to provide all concerned in the educational production processes (teachers, administrators, pupils, parents, etc.) with a clear understanding of their respective roles and duties; and
- decision making of a strategic and tactical nature that will have important consequences over the long, medium and short runs.

What is unique about the education 'business', of course, is the nature of its outputs – children and young adults with increased levels

9

of learning – and the work (production processes) involved in developing these outputs. However, the business of education proceeds without either a well-defined technology or mechanical guarantees of results. There is no universally accepted theory of learning, no 'one way' of ensuring quality of results: high learning achievement. Furthermore, children and young adults who are the 'objects' of the learning process come from a variety of backgrounds and have varying capacities to learn what the system teaches.

Nonetheless, the success of the educational endeavour is absolutely crucial to the future of individuals and countries. If the job is poorly done scarce resources are wasted and, worse still, the cost in terms of wasted lives and generations is huge and irreparable. Effectiveness and success in education systems is an imperative. Yet, in spite of this, one often has the impression that effective management is rarely a top priority for policy-makers.

In order to meet the challenges involved in such a complex undertaking, national education ministries need highly developed institutional capacities for management and administration that maximize their abilities to be responsive, effective and efficient. This means a capacity and will for understanding and diagnosing current effectiveness, and then making recommendations for actions that are within the spirit and capabilities of the ministry. This is what the *management audit* is about.

This short booklet introduces the reader to the tools of functional analysis – management audit – applicable to the organizational specificities of national education ministries. The audit is a critical analysis, aimed at identifying what works and what does not, and why, on the basis of a thorough and systematic examination of:

- the mandates and attributions of the education ministry and its component parts;
- the relationships between the ministry's structures, functions and tasks;
- the organization and use of information in the ministry;
- the ministry's reward structures in relation to its staffing patterns; and
- the role of procedures, rules and regulations in guiding an individual's behaviour within the organization.

10

This booklet is a primer in organizational analysis – a well-developed sub-field of modern sociology – applied to education systems. Beyond that, it aims at promoting a better understanding of the stakes involved and the tools and methods available for improving the management structures and processes of national education ministries. After all, the best-laid plans from the best of minds will come to naught if the managerial capacities for sustainable implementation are insufficient.

Françoise Caillods
Co-general Editor

Contents

Tables

15

List of abbreviations

IIEP   International Institute for Educational Planning (Paris)

MoE   Ministry of Education

NGOs   Non-Governmental Organizations

PRR   Procedures, Rules and Regulations

PS   Principal Secretary

UNESCO United Nations Educational, Scientific and Cultural Organization

16

Introduction

National ministries of education (MoE) possess all the characteristics of large-scale, complex organizations:

- *Large-scale* because they *manage*, to varying degrees depending on the country, the largest single share of the government's budget, the country's largest single (civilian) workforce and, often, its greatest real estate holdings.
- *Complex* because of their *organization*, which is functionally differentiated, can: (i) include a variety of lines of communication and authority, (ii) have functions that are centralized (budget, personnel management, curriculum development) and others that are decentralized (teaching), and (iii) have rules and regulations that often entail lengthy and complex procedures and processes. Even though the MoE may be hierarchically structured, teachers, who represent the overwhelming majority of MoE staff, have extensive autonomy in their classrooms, where the real work of education takes place.

From this point of view, the characteristics, operations, structure and functions of MoEs have much in common with large firms.

Most important, however, are the special aspects of the educational process and the particular responsibilities shouldered by ministries of education. They have major responsibilities to individuals and to society.

- *Children*, the future of any society, depend on the work of MoEs for the effective organization of the activities and processes (cognitive learning and socialization) that will occupy much of their lives through childhood and into

early adulthood and play a large role in determining their individual futures.

- *Parents* not only want the 'best' for their children, but also are concerned with the efficient use of their taxes. Furthermore, many parents are convinced that they know what is best for their children's education and are willing to express their opinions.

- *Society,* which includes political, cultural and economic actors and activities, requires an effective system of education in order to ensure its cultural continuity, its economic growth and competitiveness, and its adaptability to a changing world.

In addition to these factors, norms of accountability for MoEs are generally not well defined – there is no agreed 'bottom line' such as profit, rates of return or levels of production/productivity. Although learning results can be measured, one reason for this situation is the lack of a general theory of learning that tells us how much input it takes to 'produce' an acceptable level of learning outcomes in any given individual and/or student population.

With the ever-present constraints of dwindling resources, cost-effectiveness and adjustment, MoEs are facing strong pressures from their finance ministries and from external financing agencies to eliminate unproductive costs and demonstrate operational efficiency (obtaining maximum results from minimum resources). Raw demand for education has become less of a basis for justifying provision of financial resources to education ministries.

Because of their size, MoEs have become obvious and attractive targets for the cost-cutters. The temptation is all the greater when MoEs are characterized by: (i) outmoded managerial methods performed by a staff recruited largely from the ranks of teachers who are unprepared and poorly trained for managerial tasks; and (ii) insufficient flows of the information needed for efficient and modern managerial practices. In other words, MoEs are increasingly held accountable for both the effectiveness and the efficiency of their operations – the general public, parents, employers and politicians

18

demand the former; financial purveyors and overseers (finance ministry, external agencies, taxpayers, parents and communities) require both.

In this context, MoEs find themselves increasingly held accountable for the effectiveness (the ability to produce results) of their organizational and managerial arrangements – it is here that they find themselves in a delicate balancing act. On the one hand, they need to continue, and even improve, the provision of quality educational services; on the other hand they are under pressures to rationalize, downsize, economize or, simply, demonstrate efficient operations. This is not an easy act. Keeping the 'education enterprise' operating in an increasingly effective and efficient manner requires a 'capital of confidence' from a diversity of actors – parents, teachers, students, taxpayers, political actors, financiers, employers, etc. In order to succeed, MoEs need organizational and managerial mechanisms that capture confidence through demonstrated capacities for effectiveness and efficiency.

Organizations are like fine furniture – easy to take to pieces but difficult to put back in order. Modifying them for greater effectiveness and efficiency requires building from strength and acquired experience. This means a careful, critical and analytical examination of existing organizational arrangements that can take the form of a functional analysis (often called an *organizational audit*) of the education ministry viewed as a firm with a unique mandate and very special characteristics. The objective of such an *audit* is to provide detailed information and extensive support for changes that could include structural reorganization, rationalization, consolidation, staff redeployments, managerial modernization, new budgetary procedures, and budget reallocation. First of all, this means identifying structural and organizational dysfunctionalities and their causes. Then organizational measures should be recommended together with procedures, work methods and tools required for more efficient and effective operations, along with an efficient fit between staff, their training and tasks. Finally, options should be proposed for a feasible implementation plan and the accompanying decisions and capacity building required. Methodologically, this implies an approach that is participative, articulated with other concerned ministries, and that yields consensus (on diagnosis and recommendations) within

government and with its national (parents, staff unions, etc.) and, where applicable, international (financing agencies) partners.

Organizational audits of MoEs are rarely performed and little-to-nothing is written on the topic. This contrasts with the relatively copious literature on the organizational analysis of schools where there are two contrasting analytical perspectives: the rational-bureaucratic and personal- communal models that were first articulated by Charles Bidwell (1965). The former is based on the sociology of Max Weber and sees schools as 'formal organizations' where there is a functional division of specialized tasks. The personal-communal model sees schools as 'small societies' characterized by informal, often affective relationships and a common sense of purpose.

The analytical approach used here is, basically, that of the rational-bureaucratic model. This is based on recognition that there is a substantial analytical distance between a school and an MoE (indeed, the distinction between the two analytical perspectives was developed by sociologists in North America where there is no MoE). This approach, however, does not exclude recognition of the informal aspects of organizational behaviour which usually take on significant proportions in many an organization and provide the lubrication necessary to grease the rusty wheels of bureaucracies.

This booklet presents a methodology for auditing MoEs, based on experience acquired in several countries. In addition to issues related to the methodology and the mechanics of doing such an audit, attention is focused on the political-social aspects of the endeavour. Emphasis will be placed on the issue of national appropriation of the audit results and recommendations, both of which could be perceived as being inimical to the interests of many a concerned actor (administrator, manager, etc.) or, at least, to established work habits and the 'usual ways of doing business'.

Table 1 presents a synopsis of the approach and work of the audit of an MoE.

The first step in the management/organization audit is knowing how and what to observe in an MoE in order to characterize its operations for diagnosis.

20

Table 1.   Synopsis of an audit

Objectives	Expected results	Activities
1. Diagnose the implementation of: (a) the strategic functions of the ministry; and (b) the major managerial and administrative functions. 2. Identify dysfunctionalities and their causes. 3. Enable the ministry: (a) to have the capacities needed for effective and efficient realization of Government's objectives; (b) to propose an action plan for the implementation of appropriate reform measures, methods, and tools; (c) to provide information on the conditions needed to improve the effectiveness of the ministry.	Development of an overall organizational plan for the 'educational firm' that includes: (a) updated definitions of the strategic and operational functions; (b) translation of these functions into substance: tasks; job slots and their corresponding individual profiles; information flow; and articulations within and beyond the ministry; (c) an implementation scheme for these functions, with details on attributions, responsibilities, required resources and outputs; and (d) a definition of the organizational structures responsible for co-ordination, arbitration and accountability.	Methodologically, the audit is broken down into three sub-audits (SA 1-3) consisting of six operations: *SA1* = Sub-system of strategic management, including: (1) strategic functions (leading to policy decisions); and (2) budgetary processes (budget = the translation of education policies into financial resources quantified by functions and/or structures). *SA2* = Sub-system of pedagogical management, including: (3) all pedagogical functions and structures. *SA3* = Sub-system for administration and operations, including: (4) personnel management; (5) administration and logistics related to ministerial operations; (6) administration and logistics related to the operations of schools.

This is the purpose of the next chapter which sets the scene by presenting together: (i) a set of conceptual categories needed to guide observations of an MoE; and (ii) an overview of the characteristics of an MoE viewed as a complex organization. Subsequent chapters deal with the mechanics and activities of an organizational audit of an MoE.

It is important, however, to issue a caveat: there is no one 'true way' (Rondinelli, Middleton and Verspoor, 1990); what counts is what works and what works depends on a number of factors including: (i) the quality and persuasiveness of the analysis, diagnosis and ensuing recommendations and action plans; and (ii) the readiness and willingness of concerned actors to be convinced by the audit and implement its recommendations. This means that such audits need to recognize that what makes MoEs run are individuals who tend to be rational in the pursuit of their interests and who are subjected to personnel and material constraints as well as to the forces of the national and institutional cultures in which they live and work.

A second caveat – one that might surprise many – is that the immediate objectives of a management audit are not directly related to the processes of teaching and learning. Direct improvements in quality of learning (which takes place in the classroom) cannot be expected from such an audit. Rather, an audit is aimed at improving the quality, effectiveness and efficiency of the institutional environment in which teachers and schools operate. This approach recognizes that teachers are largely autonomous in their classrooms. At issue here is the enabling environment, or the upstream support system, whose function is to transfer, through the system and down to the teachers, the knowledge, services and resources they require for effective teaching. This includes all sorts of actions, from the regular payment of salaries, to the facilitation of administrative details, to the timely provision of textbooks, in-service training, inspection services and pedagogical advice, to career promotions, etc., etc. Without all of this, and much more, teachers in their classrooms would feel lost, become demotivated and lose confidence in the system's ability to support and guide them as they fulfil the heavy expectations held of them by the entire society.

22

I. Organizing the Audit

A thorough management audit of a national MoE is likely to be a delicate, complex and extensive undertaking. In particular, one must take into account the probability that many MoE staff will feel threatened by an activity aimed at promoting improved efficiency and rationality in the workplace, where many have developed their 'ways of doing things' and associated comforts, networks, routines and expectations. Such fears may be acute in a context of adjustment or austerity. If not provided due consideration, such fears could motivate MoE staff to think of an audit as inimical to their interests and, therefore, co-operate reluctantly, at best. Success depends on a number of factors:

- Objectives need to be clearly formulated, communicated and well understood by all concerned.
- The methodology needs to be limpid; the work needs to be characterized by transparency.
- The data/information gathering and analytical work need to be of high technical quality.
- The roles of the different actors and participants need to be clearly defined, understood and accepted by all concerned. This takes on special importance when the audit work involves a team of external consultants (i.e. external to MoE and who may or may not be foreign to the country) and government participants (from MoE and other concerned ministries such as finance, planning, and civil service).
- A clear understanding of what and whose *interests* are at stake and how they are likely to be affected by the audit.
- Information flow and feedback mechanisms need to be established between the audit team and MoE.
- Mechanisms designed for appropriation of the audit results by policy-makers, staff and other concerned actors need to be incorporated into the audit design. This could entail various

forms of participation by MoE (the client) staff in the audit work including: membership in, or representatives to, the technical audit teams; consultative mechanisms; validation seminars, etc.

• Although the work needs to be organized in discrete stages that correspond to the logic of the exercise, each stage should be characterized by clarity, transparency, and mechanisms (such as MoE participation) designed to promote information flows and feedback between MoE and the audit team.

In other words, the same professional, analytical and critical qualities that characterize the auditing of an MoE need, also, to be applied to the process of the audit itself. Organization of the audit requires a critical and continual self-assessment of the audit-as-process – something akin to an on-going audit of the audit.

Stages: From conceptualization to appropriation and implementation

The audit can be divided into three stages, each one composed of several steps. The first stage, composed of two steps, is upstream to the actual work of the audit; it establishes the framework of the work to be done – what will be covered and what is to be expected. This stage is the subject of the next section of this chapter. The second stage is composed of three steps: an analytical diagnosis of the MoE that identifies dysfunctionalities; formulation of recommendations; and formal validation of the diagnosis and recommendations by the client (MoE). The third stage involves translation of the recommendations into action plans: (i) for implementation and, if necessary, (ii) to guide needed investments. An overview of the stages/ steps is given below, with details provided in following sections and chapters.

• *Stage 1, step 1*: conceptualization. This means deciding on what parts of the ministry will be examined (e.g. the whole organization or parts of it such as personnel management, budgeting, planning, etc). *Table 2* presents an overview of the activities, functions and structures an audit can cover. Generally, this step takes the form of terms of reference that are sufficiently detailed so as to provide useful guidelines for the selection of an audit team and expectations as to

24

outcomes. However, the terms of reference should not be so detailed that they impair the professional judgements of the audit team or impose undue constraints on it (see sample term of reference in *Appendix I*).

• *Stage 1, step 2*: selection of the audit team. This is a crucial part of the process given that the acceptability of the results and recommendations will depend on the quality of the work. This is treated in the following section of this chapter.

• *Stage 2, step 1*: diagnosis. This is the subject of *Chapter III* and will be particularly demanding in terms of expertise and time needed to complete the work.

• *Stage 2, step 2*: report writing and recommendations.

• *Stage 2, step 3*: validation. Since appropriation of the results and recommendations is essential, they need to be submitted to MoE hierarchy and a broad assembly of staff from MoE and other concerned ministries. The desired output of this step is approval of the audit's analysis and recommendations that has both official status and broad acceptance by MoE staff.

• *Stage 3*: action plans for implementation.

The Audit Team: process, roles and functions

A management audit of an MoE should be seen as an 'action-activity' that involves learning-by-doing and is designed with dynamic links to the future when implementation of the recommendations will take place that will determine how MoE staff work. This requires both analytical rigour and imagination. It means that organization of the audit must pay attention to, and aim at achieving harmony between, the demands of two poles: 'i) the conceptual and methodological aspects (= the technical pole); and (ii) the need to ensure appropriation, or ownership, of the results by those – the stakeholders – expected to put them into practice (= the political pole). An effective way of achieving a synthesis of these two poles is through the organization of the work itself and, in part, through the composition of the audit team.

25

Technical Aspects

At first, it is necessary to agree on a conceptual framework that delineates the scope of the work. It must be clear what the audit will/ can do, and what it will not/cannot. *Table 2* provides a typology of what an audit can cover. Three major 'families' of MoE activities are broken down by their associated functions and frequently found organizational structures. Such a typology can be useful to organize the information collection and analytical aspect of an audit. This is an important first step since the scope of work will: (i) determine the nature of the team and its professional composition, and (ii) assist in determining the organization of activities composing the audit. For example, *Table 1* suggests three sub-audits, each one corresponding to a family of activities found in a typical MoE, and six discrete operations. At this step, it is necessary to maintain a balance between: (i) the need for a comprehensive, coherent view of the MoE, and (ii) a detailed analysis of the MoE's component parts (structures and functions). In other words, one must not lose sight of the forest through detailed work on its trees.

Three pointers in constituting an audit team should be kept in mind:

- It is necessary to ensure technical excellence, sensitivity to the specifics on MoEs and a sense of MoE ownership or stakeholdership in the work of the audit. If practice points to contradictions between these requirements, it would be advisable to invent a compromise mechanism that could involve varying forms of collaboration between the audit's professional experts and MoE staff. Careful thought must be given to the relative technical and political advantages and contributions of external experts (e.g. from a consulting firm that specializes in management audits) and internal actors who are MoE staff.
- Given the need to ensure an objective, technical analysis of MoE organization and management, as well as the desirability of linking audit work with training for MoE staff, it is advisable to involve professional expertise that is external to the ministry. This can be achieved through contracting with (national and/or foreign) consulting firms or qualified individuals.

26

- To ensure technical validity, the audit should be performed by a team composed of expertise that includes: educational planning and statistics; budget analysis and preparation combined with financial management; curriculum development, textbook publishing and teacher training; personnel management; and organizational analysis and administration. Although it is not necessary for all experts to have education-specific backgrounds, co-ordination is required that will unite the threads and ensure their applicability to the specificities of the MoE.

Table 2.   Typology of an audit's domain

	Activity f a m i l y		
	Strategic management	Pedagogy	Administration
F U N C T I O N S	• Monitoring • Statistics • Research • Evaluation • Assessment • Planning • Information processing • Budget processes	• Textbook'publishing chain' (from curriculum development to writing to printing to distribution) • Curricula • Assessment and evaluation • Teacher training • Documentation • Support services • Inspection	• Financial and budgetary administration • Personnel management • Procurement • Maintenance of buildings and equipment • Analysis of procedures • Distribution of mail, directives, guidelines
S T R U C T U R E S	• Planning department • Budget department • • • • Other ministries (e.g., Finance, Planning, Labour, Civil Service)	• Teacher training colleges • Departments of primary, secondary, higher education • Pedagogical Institute • Curriculum development department • Examinations department	• Central administration • Regional administrations • Schools • Personnel management department • Financial and administrative affairs department • • • • Other ministries

Political Aspects

Organization of the audit requires measures designed to maximize the probability of national acceptance and ownership of the audit's results and recommendations. In the first place, this means giving systematic thought to the non-technical aspects of the audit team.

Audits of many a large-scale organization (private or governmental) are often performed by external consulting firms whose experts descend upon the firm, interview staff from top to bottom, collect data, digest the procedures, rules and regulations, go through all sorts of written records, and then present their reports and recommendations to management (who are accountable to the firm's owners/shareholders). This approach is appropriate, at best, for tightly structured, hierarchical firms where most of the professionalism and expertise are at the higher layers of management, where little-to-no autonomy is exercised elsewhere, and which have clear accountability norms (such as the 'bottom lines' in their profit and loss statements). Also, this approach is often used to promote and provide ammunition for the pre-ordained interests of management (Benveniste, 1972).

Public education systems, however, are different in that they are 'owned' by the public they serve, to whom management is, presumably, accountable. Furthermore, teachers and school directors, who do not inhabit the spheres of higher management: (i) exercise considerable autonomy in their work, (ii) are often considered as professionals, and (iii) are often well organized and quick to mobilize in defense of their (professional and material) interests. Therefore, given the peculiarities and specific nature of MoEs compared to other organizations, special care must be taken in choosing the audit team in order to maximize the probability that the audit process and results will be accepted by MoE staff, as well as by that of other concerned ministries.

In practical terms, this means developing a clear understanding of the roles of team members, making a clear distinction between those who are external to the ministry and those who are from within. The distinction becomes even more acute when the external professionals are also foreign to the country. By and large, a team could be composed of varying combinations of: national and/or foreign

28

professional consultants; staff from MoE and other ministries chosen for their technical competence (e.g. planners, personnel management specialists, organization and management specialists, budget specialists, curriculum developers, textbook publishing specialists, procurement specialists); and MoE staff chosen by reason of their position and their capacity to maintain communications between the audit team and the ministry. In this context, the following points should be considered:

- Will the external consultants (national or foreign) perform the various tasks (data collection, interviews, analysis, and recommendations) independently, or will they perform their work in close association with qualified staff from MoE and, possibly, other ministries? The advantage of associating (more or less) qualified staff from Government is twofold: they would receive valuable training and they would acquire an intimate, technical knowledge of the audit process that could be valuable in explaining results and, later, implementing recommendations and programmes. A disadvantage could be their lack of objectivity.
- If the external consultants are foreign, will their presence be continuous or intermittent? The advantage of the former is the probability that work would proceed intensively. The disadvantage is that there could be a tendency for them to do most or all of the work, relegating national colleagues to a secondary role. If foreign consultants are present intermittently, they would have to assume the role of 'animators' and depend on national colleagues for much of the work, thereby enhancing training through learning-by-doing.
- The process by which professional external consultants are selected could depend on a number of factors, including the procedures used by the financing source (national or external). Selection could be by competitive bidding, or by informed selection based on knowledge of the work of relevant consulting groups. In any case, management/organization audits of MoEs are so rare that there would be very few bidders with specific experience. No matter what the selection process, detailed terms of reference should be prepared that indicate the domains to be covered, the timeframe of the audit, the extent of participation and on-the-job training of MoE (and other ministerial) personnel, whether or not education-specific experience is desired, and the

29

areas to be covered (see *Table 2*). The advantages of competitive bidding are the transparency of the selection process and the probability of lower costs. The disadvantages are related to the narrowness of the market for this type of work, which could lead to bids from firms or individuals without much experience in the managerial aspects of MoEs. If competitive bidding procedures are used, therefore, it is advisable that the terms of reference be as thorough as possible (without imposing undue constraints on the work).

• A particularly effective way of bestowing legitimacy upon the audit's results is through client (i.e. the ministry) participation throughout the process. Two (complementary) possibilities are: (i) participation of qualified personnel from MoE and other ministries in the technical aspects of the audit; and (ii) MoE 'representatives' to the audit team whose roles are to represent the ministry to the audit team and represent the audit team to the ministry – i.e. ensure a continual flow of critical communications between those doing the audit and those responsible for implementing (or, at least, living with) its recommendations. The only possible disadvantage to some form of client participation in the audit work would be loss of critical objectivity.

• Selection of client participants (from MoE and other ministries) in the audit poses the question of how they are selected, and by whom. When the participation is of a technical nature it would be advisable to use selection procedures that ensure transparency and fairness such as open advertising and clear selection criteria. When the client participants are 'representatives' (i.e. from the audit team to MoE and from MoE to the audit team) selection criteria and procedures are more political than technical. As with all else in this sort of endeavour, it is important to be pragmatic; whatever the procedures, it is important that these 'representatives': (i) have the time to follow the audit work and report on it to the MoE, (ii) can fully comprehend the scope and implications of the work, and (iii) have full access to MoE senior management and policy-makers (e.g. the minister, directors).

In brief, organizing a management/organization audit of an MoE requires clarity as to the roles and functions of those doing the audit. Three major categories of actors have been identified: external consultants (national or foreign), Government staff playing technical

roles, and MoE (the client) staff playing the 'political' role of two-way representatives between the audit and the client. *Table 3* summarizes the roles and functions of actors directly involved in the work of the audit team.

Table 3.   Audit team – its actors, their roles and functions

Actors	Roles	Functions
External consultants	Technical and pedagogical	Provide methodological foundations and tools; ensure objectivity; provide on-the-job training to government participants; report writing; dissemination
Government technical staff	Mainly technical, but with secondary objectives related to dissemination, appropriation and training	Data collection; interviewing; learning-by-doing; report writing; organization and animation of seminars; dissemination of results
MoE representatives	Representing the audit team to MoE and MoE to the audit team	Ensure communication flows and feedback between audit team and MoE management

Summary

The golden rule to apply to the design and organization of the audit should be: without sacrificing the validity of the audit's results, work for appropriation, ownership and effective implementation of the recommendations. It may be necessary, however, to strike a balance between a number of factors that, at times, can appear as opposites. Examples are: the specific requirements of technical quality versus the more diffuse needs for ownership; the need for expertise in the audit team capable of having an external, objective view of the ministry, along with possessing the techniques of management audit versus the knowledge that can come only from inside knowledge of the workings of the ministry; and treating MoE as a large-scale, complex organization, as many another, versus taking into account the specificities of an MoE and education systems where the notion of 'production' is quite different than that found, for example, in industry.

II. Characterizing a national Ministry of Education (MoE): towards diagnosis

In order to analyze critically (i.e. *audit*) the organization and management of a national Ministry of Education (MoE), it is first necessary to come to an understanding of what the creature looks like and, therefore, what needs to be observed. This means identifying the dimensions of MoEs that are of analytical value to us. Using analytical concepts developed for the sociology of organizations, management, as well as from educational administration and planning (March and Simon, 1958), this chapter will present an elementary overview of how to 'look at' and characterize an MoE. This means 'dissecting' MoEs in order to take a close look at their component parts and how they operate together in one organism. However, these parts take different, more or less tangible, forms such as structures, functions, tasks, roles, decision-making practices, procedures, articulations, information flows, lines of authority and, most importantly, staff with their individual and collective interests and their levels of training, experience and job-specific expertise.

Large-scale, complex organization can be viewed from a number of theoretical perspectives. Analogies from biology abound: the structural-functionalists see the organization as composed of organs that perform well-defined functions; cyberneticians see organizations as circulatory or respiratory systems where information, feedbacks, and resources flow to irrigate the processes of decision-making and the rational allocation of resources required to transform raw materials into finished products; communications specialists see an organization as a nervous system of stimuli and responses between parts of the organism; legalists will see procedures, rules and regulations as providing the skeleton on which the sinews of the real work is based. Practicality, however, dictates the work of educationists. At times, therefore, it can be wiser to leave theoretical elegance aside and concentrate on that which provides the greatest wealth of analytical information.

32

Identifying and understanding the nature of an MoE's component parts is an essential first step for an audit and it is part-and-parcel of any diagnosis of an MoE's managerial capacities. This is where any biological analogy breaks down since, unlike a physical organism, the 'organs and sub-systems' of a formal organization are largely intangible. The categories and concepts presented below are commonly used intellectual constructs that are not airtight. Indeed, there can be a fair amount of overlap between them. For example, 'decision-making', 'strategic management' and 'information flows' are identified as separate concepts. However, they are linked as it is expected that decision-making is based on how the other two are organized. Likewise, business processes are to be found in all aspects of the MoE's work (e.g. the operationalization of: procedures, rules and regulations; strategic management; information flows; and personnel management). Nonetheless, if only for didactic purposes, it is useful to introduce *business processes* as one approach to characterizing an MoE.

Each of the sections of this chapter has two parts: what to look at and for; and the implications for diagnosis. The analytical categories presented are based on both their theoretical and practical significance. The presentation in the same chapter of relevant analytical categories and their implications for diagnosis imposes a special responsibility on the reader that will also apply to any work done in the area of organizational/management analysis.

On the one hand, an *objective assessment* of the situation is required. The categories presented below can provide the backbone of that assessment. On the other hand, diagnosis means a *critical assessment* of the situation, which implies criteria or norms against which to make critical judgements. By and large, the diagnosis is looking to identify an MoE's *strengths* and *dysfunctionalities* (or the factors that contribute to them), the latter contributing to ineffectiveness and inefficiencies. Since we often lack hard and clear norms for effectiveness and efficiency (i.e. it is rare that an organizational arrangement is totally effective or ineffective; generally it is somewhere in-between), pragmatism and careful judgement are required. Also, it is essential that there be an acceptable level of consensus around the diagnosis.

33

Environmental factors

Education ministries operate in a wide-ranging environment that includes: (i) individual actors (MoE administrative staff, teachers, students, parents, employers, politicians – all searching to promote their interests), (ii) institutions (the State, ministries, legislatures, the media and other public opinion-makers, funding agencies), and (iii) organizations (parents' associations, teacher unions, NGOs) operating in the political, cultural, social, financial, economic and, even, psychological spheres of society. Furthermore, the size of the 'universe' to be managed is pertinent since the 'way of doing business' in small States, where just about everybody knows everybody else, is different than in big countries (Bray, 1991a and b). The complex and often contradictory nature of environmental factors weighs heavily on the operations of MoEs.

The vastness of this subject, however, combined with the limits of a short booklet, means that it is judicious only to signal its importance and highlight selected aspects. It is not essential to possess all the tools of political science, economics, sociology, and social-psychology. Common sense, general awareness and professionalism should keep education planners sensitive to these factors. One fact, nonetheless, needs to be retained: education concerns almost everybody in society and almost everyone has their opinion on the matter and many claim expertise (i.e. many are convinced that their own schooling have made them experts). This explains the sensitivity and resistance of education systems to fundamental changes, as witnessed by the troubled history of educational reforms that flourish more on paper than in schools (Sack, 1981).

Implications for diagnosis

Even though the vastness and complexity of the environmental factors inspire modesty, several aspects need to be mentioned. A diagnosis should be on the lookout for the following factors which may strongly impinge on the effectiveness of the ministry.

• The existence of adjustment (macroeconomic, sectoral) programmes can have a large impact on the operations of the MoE. Such programmes are supposed to promote greater efficiencies. They

34

may, however, take on very different operational meanings such as: budget and/or unit cost increases or decreases; decreases and/or redeployment of staff; greater overall flexibilities in managing the mix between personnel and non-personnel budgetary allocations; reallocation of resources between levels (often to favour basic education). In any case, macroeconomic adjustment programmes will create pressures on the MoE to find efficiency and/or, at least, to provide solid justifications for existing arrangements and expenditure (i.e. staffing) patterns.

• The relative stability of MoE staff and the extent to which they are isolated from political changes. This factor refers to the reigning political-institutional culture and is ever-present in the lives (and, therefore, actions) of ministry staff. An example would be MoEs that experience frequent ministerial changes and, with them, changes in senior management (such as directors).

• The strength of unions and professional organizations among teachers and other staff and the extent to which they play a role in MoE operations.

Potential dysfunctionalities may reside in an MoE's lack of responsiveness to changes in the environment. Indeed, in today's rapidly changing world, any organization's inability to respond and adapt to changing conditions (e.g. in technology, in work habits, in the expectations of staff, in competition from previously unsuspected sources, in the prevailing theories of production and the organization of work, in the financing, etc.) will rapidly reveal a myriad of dysfunctionalities. Structural and procedural rigidities and staff ill-trained for challenges not imagined in the past are examples of such factors.

Mandate and attributions

Based on an existing policy framework, the mandate of MoEs is to organize the delivery of educational services. This can include all educational levels or focus on selected levels (such as ministries of basic education, higher education or of vocational education). In order to accomplish this mandate, MoEs can have varying attributions and they can have attributions that are executed at different levels within

the ministry and/or in conjunction with other ministries. This will be discussed in greater detail below when looking at MoE functions. Several examples illustrate this point.

• *Financing.* In many countries the MoE has little control over the financing of education, which is the purview of a finance ministry which predominates in all matters of fiscality, budgets and expenditures. MoE attributions can be limited to proposing a budget that is negotiated with the Finance ministry (and, perhaps, the legislature), which also maintains tight controls over expenditures. Non-fiscalized financing at the local level (student fees, community contributions) may be controlled by local bodies such as parents' associations.

• *Personnel management.* Policies, decisions and actions that determine the reward and incentive structures for teachers and other MoE staff – which, in turn, are related to performance levels – may not be fully controlled by MoE. Policies and criteria for hiring, promotion and salary levels of staff (including teachers) may be shared with, or even controlled by, a civil service ministry or commission (such as the *Ministère de la Fonction Publique* in Francophone countries) that applies the same rules for all areas of government service. If teachers and other MoE staff are subjected to the same criteria that apply to all civil servants (for example, where promotion and salaries are mechanically linked to diploma level and seniority), how much influence can the Education ministry have on factors related to recruitment policies, performance and, therefore, effectiveness and efficiency?

• *Examinations* can perform several (overlapping) functions in education systems: diagnostic testing for individual learning results; regulating promotions into higher levels; and providing indicators for overall system performance. The crucial, delicate and confidential nature of examinations has prompted some countries to sub-contract them to independent examination boards. An example is the West African Examination Council that develops and administers examinations for West African Anglophone countries.

Implications for diagnosis

It is important to identify: (i) how much policy and operational control the MoE has over important functions and activities, and (ii) the extent to which an MoE's mandate and attributions are sufficient to implement the country's educational policies. When other ministries/organizations are involved, the nature of the policy and operational articulations between them and MoE should be made clear. Functions and activities where operational responsibilities may be shared with other ministries include budget preparation and expenditure authorizations (finance ministry), investment planning (planning ministry), personnel management (civil service ministry); examinations (examinations council); and teacher training (university or higher education ministry). When primary and secondary education are under different ministries, special attention must be paid to articulations between the two in areas related to planning, teacher training and personnel management.

Potential dysfunctionalities may reside: (i) in conflicting attributions between MoE and other ministries, or (ii) in situations where MoE has little to no control over major aspects of its work (such as expenditure control, design and management of reward structures and personnel management), thereby making it difficult to implement effectively agreed policy orientations and targets.

Structures, functions and tasks

Structures are the units and sub-units of an organization that take the form of little boxes on an organizational chart. Functions are a coherent set of activities or tasks organized to satisfy an identified 'need' that the organization must perform in order to accomplish its mandate. Together, they constitute a major aspect of any large-scale, complex organization. *Table 4* provides examples that may or may not apply for any given MoE.

37

Table 4. Examples of structures, functions and tasks in an MoE

Structure	Functions	Tasks
Department of Primary Education	Organizing the school year; staffing the schools; getting textbooks to the schools and evaluating their effectiveness.	Decisions concerning calendar and logistics; informing teachers of their assignments.
Budget Department	Preparation of annual budget; financial management.	Collection of information on budget needs for all other departments; organiz-ation of meetings; appraisal of costs.
Personnel Management Department	Administrative management of staff careers; personnel evaluation.	Maintaining personnel records and files; receiving information from offices and field and placing it in files.
Teacher Training Department	Provision of trained teachers to the Primary Education Department for assignment to schools.	A myriad of tasks involved in running teacher-training schools

The classical question here is: What comes first, the function or the structure – do the functions determine structure or does structure organize the functions and tasks? Organizational theory generally gives priority to functions as the driving force (Weber, 1947), meaning that each structural unit is created and defined on the basis of required functions. However, in its greater wisdom, many an administration will define itself, first, in terms of its units and sub-units (and corresponding directors and chiefs) and, then, in terms of functions and tasks. For example, some governments impose inter-ministerial consistency, requiring all ministries to have similar structures regardless of their specificities. Furthermore, staff at all levels tend to view the organization in structural rather than in functional terms, since the structure is more easily 'visible' (in terms of the organizational chart, the people in charge, and hierarchical posts) than the functions.

38

From the perspective of organization theory, it is perfectly reasonable for there to be functions without structures but not the converse. Two such examples (treated below) are the flow of information and communications between staff and structures. Although important functions, they are not necessarily the exclusive purview of any given structure. Rather, effective communications and information flows would be regulated by existing procedures, rules and regulations.

Implications for diagnosis

Coherence, or lack of it, between structure, functions and tasks requires very close attention. This means examining an MoE with two sets of questions in mind: (i) Are there *hollow* structures without clearly defined functions or with functions whose utility is poorly understood? (ii) Are there functions that are poorly *housed* (spread over several structures) or *orphaned* (without a structure to call home)? In addition, there may be *dangling* tasks that are poorly integrated with other similar tasks. In any case, it is important to note that there is no one 'correct way'. What counts is what works and what works depends on factors such as institutional culture and established routines and work habits. People make organizations work, not theoretically correct arrangements between abstract concepts.

Effective and efficient management generally requires a critical mass of skills and related activities in a given organizational space (structure). Orphaned functions, dangling tasks, hollow structures and significant incongruence between structure, functions and tasks can be sources of dysfunctionalities.

Procedures, rules and regulations

Every organization possesses them and many an individual will swear by them as being the overriding point of reference for his/her work. Understanding the operations of an MoE requires a clear delineation of the network of procedures, rules and regulations (PRR) currently on the books. Typically, PRR apply to the more administrative aspects of behaviour in an MoE, such as: *who* (minister, director, inspector, school director, etc.) has *formal power* (i.e. signature) to *authorize, approve or recommend* expenditures,

disbursements, staff travel, staff leave, staff transfers, promotion,
delivery of textbooks and other material, recruitment and salary
measures, school admissions, etc. – in other words, all the small and
not-so-small activities that make the ministry run from day to day. In
addition to this, PRR may require chains of partial approval whereby
a number of actors (e.g., from school director to regional director to
national director) provide 'visas' or 'clearances' prior to formal
approval by the highest authority (e.g. minister).

In order to find the complete set of PRR one might have to look
into a combination of sources such as administrative or operational
manuals, administrative directives, decisions and circulars, ministerial
decrees, and laws. Ideally, there would be up-to-date *Manuals of
operations* that provide clear and unambiguous guidance to all
concerned on how, for example, to procure textbooks, authorize leaves
of absence, transfer resources, prepare school and district budgets, etc.
However, a major question is not just identification of PRR but
ascertaining the extent to which they are known by staff who are
supposed to apply them.

Implications for diagnosis

Analysis of this aspect of an MoE means focusing on several
factors:

- The coherence and internal consistency of the procedures, rules
and regulations (PRR) that are on the books and, therefore,
supposed to be followed. Examining PRR for coherence and
consistency means looking for contradictions in matters related
to the required approvals and, where chains of partial approval
are required, the time it is likely to take for final approval.
- Staff awareness and knowledge of, and adherence to, the PRR
they are supposed to apply. Although many a reasonable staff
member will invoke the old adage that 'rules and regulations
are made to be broken', wholesale violation of existing PRR
opens the door to a host of perverse effects ranging from
arbitrary application of PRR, to arbitrary sanctioning for non-
application and enforcement, to administrative anarchy and
chaos.

40

- Existence of *Manuals of operations* can be an excellent indicator of the extent to which staff know the PRR. Manuals can exist in, basically, two forms: manuals for positions (principals, inspectors, directors, etc.) or manuals for functions and/or *business processes* (such as for: textbook procurement and distribution; personnel management, including recruitment, promotions, sanctions, etc.; examinations; statistical reporting; budget preparation; financial reporting). Indeed, if there are no such manuals, one is entitled to wonder just how concerned staff know what do to and how to do it while remaining within the prescribed PRR.

- The practical applicability and realism of existing PRR to current situations. Two examples illustrate this: (i) where final approval of every decision is centralized it is probable that large piles of paper will accumulate on one desk and will either cause inordinate delays or mean that the authorizing person will devote insufficient attention to the matter and barely know what he/she is signing; (ii) long approval chains in countries with poor communications infrastructures (ineffective post office, bad roads, no fax machines, etc.) can also cause delays or mean that final approval comes well after the action. Indeed, where long approval chains are the rule, it is useful to draw a *process map* of them to illustrate the number of approvals and articulations needed before action can (according to PRR) be taken and the time it typically takes for each approval (see *Appendices II and III* for examples of process maps).

Dysfunctionalities in the operations of a Ministry can result from both respect and non-respect of PRR. Indeed, assuming that MoE staff at all levels want to make things work in a context of long approval/ decision chains and a poor communications infrastructure, it would not be unreasonable to observe a vast discrepancy between the *de jure* and *de facto* operations of the Ministry and that, in order to get results, officials cut corners.

Such a situation can be perfectly functional as long as nobody attempts to correct it (in order to assert his/her authority), at which point effective operations would begin to sour.

41

Planning and evaluation

There are a number of domains where the actions of educational decision-makers will have long-range, strategic consequences on the education system itself, and on society as a whole. Today's decisions regarding curriculum development, teacher recruitment, resource allocation, and school construction will have a durable impact on the school system and society for years to come. For example:

- Rapid expansion at the expense of quality (using relatively underqualified teachers, such as primary school teachers with a ninth grade education, combined with a lack of textbooks and other materials) implies: (i) that the newly recruited teachers are likely to be in the system for the rest of their working lives and may require considerable supervision and/or on-the-job training, (ii) that there is a risk that instructional quality will suffer, thereby having lasting effects on the students, and (iii) that the increased numbers of (poorly educated?) students will create pressures for increased capacities in higher levels of education and on the labour market.
- Curricular reforms in areas such as language of instruction, modified course offerings, new syllabi and teaching methods will be effectively implemented only when teacher training and textbook development are sufficiently responsive so as to be able to provide the necessary inputs in a timely manner. Such reforms will also have a lasting impact on the labour market and on political/social/cultural dimensions of society.
- Quantitative planning for teacher needs (pre-service training and initial salary levels), textbook production, and school construction requires reliable knowledge about probable future enrolments and budgetary resources. Decisions made today in these areas will have a durable impact on enrolment capacities and recurrent costs for years to come.
- Recurrent and investment budgets are central to the future operations of any organization and need to be prepared with extreme care and rigour. Today's errors and oversights will become tomorrow's gaps and insufficiencies. Indeed, the most eloquent statement of policy is to be found in the budget.

This means that the 'education machinery' (Lourié, 1989) needs to function in an integrated manner with adequate information that makes it possible to understand the linkages between decisions and their operational consequences for both the education system and the society's economic, political and social spheres. This requires a capacity for strategic management that, generally, takes the form of planning, budgeting, evaluation and applied research.

In addition to planning, systematic monitoring and evaluation can be an essential part of strategic and day-to-day management of an MoE. There is much to evaluate, many reasons for doing so, and various ways of doing it:

- The monitoring and evaluation of learning outcomes are needed for quality control at the student and system levels. Evaluation of learning results – a common aspect of all education systems – is important for decisions concerning student promotion and selection, as well as to develop long-term strategies for system adjustments and improvements in areas as diverse as financing, curriculum development, and teacher training. In this respect, a distinction needs to be made between testing (where all students are administered comparable tests that provide a basis for promotion and selection decisions), and assessment (where tests of learning outcomes are administered to a representative sample of students in order to evaluate what and how much is actually learned at selected grade levels). Tests are needed for student evaluation whereas assessment (monitoring) is useful in order to improve the effectiveness and efficiency of the system.
- Evaluation of staff performance (teachers included) can be an essential aspect of an incentive-based, performance-linked reward system. Inspectorate services are the most common form of teacher evaluation.
- Evaluation of financial management is often the purview of audit services within the MoE or from the Finance ministry.
- Evaluation of the pedagogical effectiveness of financial inputs can be a basic tool of policies aimed at improving the cost-effectiveness of the inputs used in the educational processes.

Implications for diagnosis

Activities related to planning and evaluation can be performed throughout a ministry (for example, in departments of personnel management, planning, budget control, financial management, and testing), or they can all be under one department. What counts is that these activities occur and are used in annual planning and longer-term policy-making activities. Dysfunctionalities appear either when there are no such activities or when the results of planning, evaluation and applied research are not available to the right people (e.g. school directors, planners, policy-makers) at the right time.

Information flows

Information is often thought of as the life-blood of large-scale, complex organizations, especially those operating in environments characterized by change of all sorts. An organization's capacity to understand, respond and adapt to its changing environment is based on both the available information and the organization's capacity to process that information into viable actions, decisions, policies and plans. Simply put, information is a necessary (but not sufficient) condition for 'intelligent' and responsive organizations capable of adapting to a changing environment.

An MoE can be characterized by: the *quantity* of information it produces; the *quality* of that information; the *availability* of the information to concerned people inside and outside of the Ministry; and the *time* it takes for the information to become available and used. A related factor is the ability of concerned staff to use effectively available information for their work which, in turn, is related to the level of staff training. Statistical information, in particular, can require degrees of sophistication comprehensible only to the well-trained.

In order for information to be applicable to the managerial needs of the MoE, it must be of sufficient quality and timely. Three time horizons characterize the work of MoEs:

- Day-to-day, or continuous, administration of matters related to the administration of personnel, equipment, infrastructure, etc., is of concern to many in the lower echelons of the MoE. Since

44

these activities generally are related to the application of existing procedures, rules and regulations, the effectiveness of concerned administrative staff is largely a function of the extent to which PRR are readily available and easy to understand.

- Much of the work of an MoE is regimented by annual events – occurring at the same time every year – such as: at the beginning of the school year, when it is necessary to have appropriate physical facilities for the expected number of students, along with an adequate number of teachers and the requisite books, other materials and supplies; at the end of the school year, when examinations must be ready to be administered to large numbers of students under satisfactory conditions; throughout the year, in order to adequately implement on-going programmes and projects, monitoring information is needed; and, at a time generally designated by the Ministry of Finance, the annual budget, which reflects the Ministry's priorities and is the culmination of a long preparatory process. All of these activities, and many others, require information that is annually renewed and updated, and that must be available in usable form to the necessary people.

- Strategic decisions in education (such as investment choices, resource allocation, and course programmes at the higher levels) are characterized by relatively long lag times and long-term consequences with economic, political and sociological implications. Planning for school construction requires school mapping information that includes long-term student and population projections; investments and policies regarding teacher training are made several years before newly trained teachers will graduate from teacher-training schools and require information for planning the number of teachers to be trained, along with the subjects in which this will happen; labour market information is necessary for the success of investments in second-cycle secondary and post-secondary institutions; student assessment information is useful for long-term curriculum planning and decisions concerning a cost-effective mix of inputs (i.e. the relative importance given to pre-service and in-service teacher training, inspection, books, etc.); cost-effectiveness and other system performance information is also essential.

Table 5 illustrates the question by providing some examples of different types of information that are needed and used by different parts of an MoE. It is important to determine both the existence of such information and the extent to which it is available to, and used by, MoE staff in and outside of the information-producing parts of the Ministry. One should also look at the extent information is available to, and used by, concerned parties outside of the education ministry. This takes on particular importance in relatively open societies, where government operations are accountable and open to scrutiny by the 'outside world' that can include voters, parents, legislators and the media.

Addressing the topic of the quality of information is more difficult and, often, involves lengthy and complex methodological debates. However, it can be crucial to all aspects of planning and policy analysis. An often encountered example is that of the number of teachers, which often varies according to the Ministerial source. This point is further elaborated in *Chapter III*.

Another issue arises when information is collected that is never used. Concerned parts of the Ministry may not even be aware of its existence. Attendance records would be one example; another could be school accounts of parent and community contributions (in cash and kind).

Implications for diagnosis

Paradoxically, it is possible to ascertain that an MoE suffers from information starvation (not enough) or information indigestion (when there is more than the Ministry can effectively use).

Table 5.   Information – examples of its uses and users in an MoE

Nature of the information	Uses	Users	Timing
Statistics: numbers of students, teachers, schools, classrooms, textbooks, blackboards, school-feeding programmes; costs related to salary and non-salary expenditures.	Policy-making, planning and evaluation.	Police-makers and planners at national and sub-national levels; parents; legislators; researches.	Annual.
Learning results data.	Evaluative and diagnostic assessment of the effectiveness of schools and the education system; system, school and teacher evaluation.	Policy-makers, planners, curriculum developers, parents, legislators; researchers.	Annual, bi-annual or more.
Procedures, rules and regulations.	Assuring that staff at all levels know the basic operational ground rules.	Staff throughout the Ministry and in schools.	Continuous.
Resource availability: financial resources from budgetary and non-budgetary sources; human resources; resources-in-kind, etc.	Planning, policy-making, budget preparation, and school operations.	Staff at all levels, including in the schools.	Annual.
Decisions and performance expectations.	Establishing work programmes and criteria for reward structures.	All staff.	Continuous, annual or more.

The increasing availability of computers, powerful software, networks, education management information systems and the like, contributes to the temptation of installing advanced information systems. Unfortunately, if they are not defined in terms of MoE's needs and capabilities, such systems can exceed the absorptive capacity of an MoE which is mainly a function of several factors: the quality of available information; the availability of trained staff to create, treat and use the information at all levels of the Ministry; the capacity and willingness to make information available; and the willingness of decision-makers to use the information. If information is power, it becomes necessary to look at its availability, how and to whom it flows, its quality, and how it is used.

Communications and articulations

Clearly related to the flow of information, and presumably codified in the PRR, the nature of communications and articulations both within the Ministry, and between the MoE and other ministries (finance, planning, civil service, labour) and concerned organizations (such as teacher unions, employers, research institutes, etc.) is central to policy-making, planning and effective operations. The information that is communicated takes a variety of forms as indicated in *Table 5*. How and what information is communicated is central to the lives, work and activities of all staff who, often, will base their individual career strategies on the information they receive and control.

Communications can occur by *formal* and by *informal* means.

- *Formal communications* and articulations are based on the PRR, as well as on regular publications, newsletters, meetings, seminars, etc. Typically, PRR would stipulate that reports, memos and other documents be sent automatically to specified authorities and structures. Whether this is done or not may depend on the quality of the communications infrastructures as well as on how well the PRR are known and applied.
- *Informal communications* are present in any organization and are often essential to smooth out rigidities and gaps. They can take several forms: rumour mills exist in all organizations and their importance is, generally, inversely proportional to the extent to which information is freely available and formally circulated;

48

networks of people linked by friendship, common professional interests or old school ties are also vehicles of informal communication. Places and forums to promote informal communications can be created. Examples are: the proverbial water fountain or coffee/tea break where staff gather and, inevitably, exchange experiences and knowledge; irregularly organized meetings (that include representatives from other ministries and organizations) around topics of professional interest.

A variant on this classical view is found in professionalized, large-scale organizations where direct orders are rare. The organization is viewed as a market with information as its currency which is communicated via 'signals' on which professional staff base their actions and decisions.

Implications for diagnosis

The nature of formal and informal communications, and the relative importance of the two, are crucial to a diagnosis of the managerial effectiveness of an MoE. The issue is: What actors at what levels of the Ministry receive: (i) how much of the information that is available within a reasonable timeframe, and (ii) the information they need for effective operations. Important sources of dysfunctionalities can be found in: the lack of information; communication bottlenecks that prevent information from arriving at the intended places in a timely manner; and in situations where the informal modes have so vastly replaced the formal modes of communication that there is little control over the quality of information transmitted.

As with the diagnosis of PRR, it is useful to draw a roadmap of the formal communication of a given set of information required (e.g. statistics, ministerial decisions) by staff at different levels (school directors, regional and national planners). Such a map should include the 'place-to-place' flow of communications along with the average flow-time between each place.

Staffing: numbers, recruitment, qualifications and training

Staff are the most precious resource of an MoE; it is they who, in the last analysis, determine the organization's effectiveness and efficiency. Recognizing this implies taking a close look at how they are recruited and the adequacy of their qualifications for the tasks required of them. MoEs have, basically, two types of staff: teachers (i.e. teachers actively teaching, not teachers who have been reassigned to office work) and non-teaching staff. The latter can cover a large gamut of pedagogical and administrative positions: school directors, inspectors, office staff, MoE directors, policy-makers, planners, statisticians, etc. It is common in many MoEs that the non-pedagogical positions are staffed with former teachers with no specific training for the job. Teachers, of course, have the major, front-line responsibility for the end-product (student learning) of the Ministry and they far outnumber non-teaching staff.

Policies and practices that govern staff recruitment, the task/position/qualification matrix, and training are a basic element of an MoE's capacities for adapting to changing demands and situations. Adaptive capacity, in turn, is necessary if new managerial and teaching methods are to be applied.

Implications for diagnosis

Underqualification of staff, or incongruence between skills and staff functions, can be a major dysfunctionality. There can be several reasons for such a situation:

- staff (teachers included) are recruited with less training than needed for the challenges and demands of the work;
- staff are transferred into posts for which they have little to no training or experience (such as administrative positions);
- technologies and methodologies change without concomitant staff training or modifications in recruitment norms;
- recruitment and promotions are characterized by rigidities that give priority to considerations not directly related to the skill requirements of the job (where, for example, prestige derived from a diploma or from a previous position takes precedence over demonstrated skills).

50

In order to ascertain the adequacy of staff qualifications it is necessary to compare the technical qualifications of key staff with the skill requirements of their jobs. This could mean doing a qualifications profile of staff by level of responsibility. For teachers, it is a straightforward exercise for which data generally exist. For non-teaching staff, however, it is more difficult because of the variety of tasks and associated qualifications.

Reward structures

Large-scale, complex organizations are composed of individuals with their own interests that are generally linked to some form of material gain. This can include some combination of monetary gains, advancement on a career ladder, attaining positions of authority, prestige and/or influence, etc. It is reasonable to assume that staff performance is determined by individuals' motivations which are (at least partially) linked to the reward structure.

Reward structures can be characterized as performance-based or rules-based. Both may coexist to varying degrees within a given organization.

• Performance-based reward structures create organic linkages between criteria for performance, salary, and career advancement. The criteria should be sufficiently transparent and objective to ensure that all staff can operate by the same rules. Examples of performance criteria are where: evaluation of teacher performance is linked to that of student learning results; evaluation of school directors is linked to overall school performances (drop-out and repetition rates, examination results); the performance of non-teaching staff is linked to completion of tasks within a specified time and budget; evaluation of university staff and researchers is based on their publications. Criteria can be imposed by fiat or negotiated with concerned staff. However, many organizations use some form of supervisory judgement where the degree of openness and fairness is an issue. In any case, implementation of performance-based systems is a major educational policy issue and implies transparency and an effective flow of information.

- Rules-based reward structures stipulate mechanical linkages between factors such as age, seniority and diploma with salary and career advancement. Many civil services have a scale on which staff 'ratchet-up' with little to no reference to their productivity or performance.

Implications for diagnosis

Organizational effectiveness and efficiency are clearly linked to the motivation which individuals apply to their work. At issue, therefore, is the existence of a reward structure that provides incentives and sanctions linked to job performance. Characterization of an MoE's reward structure, and how it distributes incentives and sanctions, is an essential part of an audit. Dysfunctionalities generally occur when the reward structure is such that there are no incentives for a job-well-done and/or where the reward structure in place cannot function properly for lack of transparency and adequate flows of information and communications.

Decision-making and responsibility: autonomy and accountability; centralization and decentralization

Decision-making is the essence of any organization (those who prefer the paradigms of conflict analysis would replace 'decision-making' with 'power'). Decisions can occur at various levels, they can concern a variety of activities and actions, and they can be taken for varying timeframes (e.g. immediate, one year, long-term). In an ideal, rational world, decisions are made by well-trained people on the basis of a reliable and adequate amount of information that is communicated in a timely manner. In the real world, many an organizational actor will tend to concentrate decision-making, and the accompanying information, in his/her own hands and be reluctant to decentralize it to actors closer to the scene of action.

Of concern to organization analysts is the *legitimacy* and the *effectiveness* of decisions, i.e. the extent to which decisions are recognized as being reasonable, are accepted and internalized by all concerned and, therefore, have a strong probability of being operationally effective. In the ideal, rational world, decisions and related actions are linked to accountability, and people are held

52

responsible for their decisions and actions. In the real world, there is a tendency to avoid accountability and, therefore, to so dilute responsibility that it is difficult to assign it to any one individual. Furthermore, in some national and institutional cultures, norms of individual accountability are neither commonly practised nor easily accepted.

An analysis of the decision-making processes begs reference to the much-used concepts of autonomy, accountability, and centralization/decentralization. Autonomy and decentralization are similar in that they both refer the devolution of authority and responsibility to entities closer to the operational levels than the central ministry itself. This can include authority to: approve administrative actions; raise finances and approve expenditures; make personnel decisions; build, open and close schools; etc. However, authority is accompanied with responsibility, usually operationalized in terms of accountability.

National ministries of education are generally at the apex of relatively centralized education systems. By centralized, one means where decisions concerning a large number of important functions are taken in one organizational place, such as in the MoE and/or associated ministries (The FORUM, 1993; Prawda, 1993). Typically, such functions include (to varying degrees): budget preparation and resource allocation; personnel and payroll management; curriculum development; examinations; planning and statistics; and teacher training. Although sub-national units (provinces, districts) and schools may play a role in activities related to these functions, final decisions in the centralized systems are the responsibility of the MoE.

Teaching presents a special paradox: it is the most important work of an education system; it is practised in a relatively autonomous manner in classrooms by teachers who may – for reasons of poor communications and/or ineffective MoE organization – have little direct contact with authorities outside of their school and where ministry officials rarely tread; and teachers are, by far, the largest category of MoE personnel. In countries where ministry officials (such as inspectors) do not have the means to travel to schools and where textbooks and other materials are lacking, teachers operate at even greater levels of autonomy. From this perspective, many an education

53

system contains the paradoxical situation whereby there is a high degree of local autonomy over the 'real work' coexisting along with a high degree of (formal) centralization. The major lesson drawn from this paradox is that it is important to make the distinction between what is official and what is operative (i.e. real).

Implications for diagnosis

Diagnosing decision-making can be a complex and delicate matter since it requires examination of: (i) the nature (and very existence) of accountability linked to the reward structure; (ii) the existence and use of information; (iii) the processing chain that can include partial approvals (clearances); and (iv) the relation between the timeframe of the decision, the time it takes to make the decision, and the level at which it is taken. These factors can be sources of dysfunctionalities.

In order to understand where decisions are made concerning functions, activities and administrative acts (e.g. authorizations, visas, clearances), it is necessary to examine both the official rules and regulations and actual practice. PRR will tell the official story on decision-making and centralization/decentralization, whereas only direct observation of practice-in-the-field will indicate who is really doing what and to what extent. Discrepancies between the two may be explained by: (i) factors related to means of communication outside the control of MoE (e.g. roads, telecommunications, post office); (ii) the effectiveness of office staff; or (iii) knowledge and acceptance of the rules and regulations.

Table 6 provides examples of what a diagnosis should look for in terms of the information required for typical MoE decisions, broken down by relevant timeframes. Dysfunctionalities could occur when decisions are made in the absence of required information.

The processing chain can be a source of dysfunctionalities when it is so long that decisions are taken too late for them to be effectively implemented or respected. In addition, inordinate delays can have a negative effect on staff morale. This means that a diagnosis of decision-making should take a close look at the relationship between: (i) decision time (i.e. the actual time it takes for a decision to be made

and communicated to the concerned parties), and (ii) the official timeframe of the decision.

From this perspective, three types of decisions can be identified:

(a) Decisions related to daily operations of schools, regional offices or the central ministry. This generally includes decisions related to current expenditures (e.g. purchase of supplies and materials, temporary staff, etc.); or personnel matters (e.g. staff leave; selection for in-service training, staff assignments, etc.). Since long decision chains tend to be dysfunctional for such decisions, they are generally most effectively made at a decentralized level.

(b) Annual decisions such as those related to preparation of the recurrent budget, organization of the new school year and annual examinations, post creations and allocations, and curricula changes. These decisions need to be made in a timely manner (e.g. made sufficiently in advance of the beginning of the school year) and require both technical and administrative inputs. The effectiveness of the budget preparation process, and curricular changes in particular, tend to benefit from extensive implication by actors at all levels of the system. For example, one frequently encountered problem is related to the fact that fiscal years and school years differ. Whether such decisions are made centrally or locally, or a bit of both, needs to be carefully examined in the diagnostic process.

(c) Strategic and policy decisions concern the long-term, such as major investment choices related to quality and equity improvements and expansion (construction of schools, teacher-training colleges, etc; curricula reforms), levels of staff recruitment, reward structures (salary levels, promotion criteria), and norms and criteria for student selection into secondary and post-secondary levels. Such decisions are typically systemic in nature but require legitimacy in order to be effectively and sustainably implemented. For this reason, dysfunctionalities can occur when there are no mechanisms for consultation and/or participation with concerned parties such as legislators, parents, employers, teachers, etc.

Table 6.   Decisions and information

| Decision area | Information requirements by timeframes for decision-making | | |
	Day-to-day	Annual	Longer-term
Human resource/ personnel management			
• Recruitment	Procedures, rules and regulations (PRR).	• Budget allocations. • Number of positions to be filled (based on long-term projections).	• Student and financial projections. • School map.
• Post assignments and transfers.	PRR	• School needs based on, e.g. annual reports by school/district heads and/or the number of newly constructed schools. • Individual preferences.	• Students projections. • School map. • Student/teacher ratios by region. • Data on regional disparities. • Extent of administrative and decision-making decentralization. • Policy on decentralization. • Staffing norms.
• Promotions.	PRR	Staff performance information.	• Financial capacities. • Financial simulations. • Student learning and teacher/school performance evaluations.
• Salaries.	PRR	Approved budget allocations.	
Budget		• Annual programmes/activities for each department or other structural unit. • Staff requirements. • Salary scales. • Non-salary expenditures.	• Financial needs projections (e.g. from a financial simulation model). • Assessments and evaluations of system performance. • Norms.

Table 6. (Continued)

Decision area	Information requirements by timeframes for decision-making		
	Day-to-day	Annual	Longer-term
Access (admissions, transition rates).	PRR (for school directors).	• Regional demand for schooling. • Demographic data. • Capacity in terms of teachers, infrastructures, financing.	Student and financial projections (provided by financial simulation model).
Use of multi-shift and multi-grade classes.		• School map. • Budget constraints. • Teacher qualifications.	• Demographic trends. • Regionally disaggregated projections.
Curriculum, length of school year, textbook contents.		• Evaluation and monitoring information on textbook effectiveness. • Extent of curriculum coverage over the year.	Assessment of learning results.
Student evaluation, certification and diplomas.	In-class learning results for teacher evaluations.	Achievement norms by level	• Evaluations/research on the predictive validity of examinations (for higher levels of education and for performance in the labour market). • Learning norm.
Teacher training.	PRR for management of teacher-training institutes.	Projections that include: desired future student/teacher ratios; teacher stock by age and subject; annual needs by subject.	
Textbook procurement and distribution.		• Projections that include: the number of books per student; number of subjects; costs. • Budget availability. • PRR for procurement.	

These three types of decisions generally correspond to a
hierarchy: (i) in the nature and level of sophistication of information
needed and used, and (ii) in both the analytical capacities and
decision-making authority of those involved. Day-to-day decision-
making is generally based on PRR within the framework of an agreed
budget and performed by staff in the lower echelons of the MoE's
hierarchy whose job is to apply well-defined procedural and budgetary
restrictions. Annual decisions are, typically, those that will set the
budgetary framework which, itself, is a product of the annually
defined needs of the sector. Such decisions will have consequences for
the entire school year, require more detailed planning information, are
made at the highest levels and, often, will be the major focus of staff
in the planning and decision-making instances of the MoE. Longer-
term, strategic, decisions require a higher order of analytical
information such as statistically sophisticated projections, learning
assessments and cost-effectiveness analyses of the MoE's activities –
such decisions can be of a societal nature. A management audit would
fit into this category. Such information concerns all involved in long-
range policy-making (e.g. the minister, the legislature, public opinion).

Summary

Table 7 presents a summary overview of the diagnostic phase of
an audit.

Table 7.   Characterizing an MoE and identifying dysfunctionalities

Domain or analytical category	Characterizing traits: what to look for?	Potential sources of dysfunctionalities
Environmental factors.	• Cultural factors, both national and institutional. • Macro-economic and sector adjustment programmes. • Degree of MoE professionnal independence from political influences. • Relative importance of unions and other organizations.	• Procedural staffing and structural rigidities that inhibit adaptive capacities. • MoE that is unresponsive to its social and economic environments. • Unawareness in MoE of concerns for efficiency and costs.
Mandate and attributions.	Extent to which MoE has direct control over crucial functions such as financing, personnel management, teacher training, examinations, investment planning.	• Conflicting attributes between MoE and other ministries. • Little-to-no MoE control over important functions such as financing and personnel management.
Structures, functions and tasks.	Clear definitions of structures and functions and congruence between.	• Hollow structures. • Functions that are poorly housed or disorganized. • Dangling functions. • Insufficient staff skills for existing functions.
Procedures, rules and regulations (PRR).	• Internal consistency. • Staff awareness and adherence to them. • Practical applicability and realism in terms of feasibility and likelihood of being followed by staff concerned with practical results.	• Internal inconsistences. • Widespread unawareness. • Disregard of PRR in order to accomplish required tasks on time. • Wide gaps between *de jure* and *de facto* operations. • Long approval chains.
Staff recruitment and training level.	Qualification profiles for key staff and staffing groups.	Underqualification and poor linkages between training and job placement.

Table 7.   (Continued)

Domain or analytical category	Characterizing traits: what to look for?	Potential sources of dysfunctionalities
Strategie management.	• The existence and reliability of capacities for planning, statistics, evaluation and research. • Adequate and timely flow of information. • Feedback mechanisms between planning, statistics, evaluation and research, and policy-maker.	Poor planning/statistics/evaluation/research capacities and/or lack of feedback and co-ordination between policy making.
Information flows.	Assessment of the quantity, quality and availability of existing information and the extent to which it is used by concerned staff for planning, policy making and decision making at all levels.	Information that is: insufficient; of poor quality; poorly disseminated; not used; overly sophisticated for existing levels of staff qualification.
Reward structures.	Extent to which reward structure is performance-based and/or rules-based.	• Few incentives for job performance. • Arbitrariness and lack of transparency in promotion and salary increases.
Communications and articulations.	Relative importance of formal and informal communications.	• Bottlenecks. • Long chains of communication resulting in important information arriving too late at destination.
Decision making.	• Levels of centralization/decentralization. • Is there accountability? • Information available and used. • The processing chain. • Discrepancies between theory (PRR) and practice. • Timeframe and decision time. • Mechanisms for legitimazion (participation, consultation). • How extensive are *ad hoc* commissions, committees?	• Bottlenecks, inordinate delays and overconcentration associated with long processing chains. • Formal decisions occurring after the fact. • Massive discrepancies between official PRR and practice in-the-field. • Long decision times for decision whose timeframes are short. • Strategic decisions made centrally and hierarchically, without adequate consultation, where successful application requires the work (and enthusiasm) of many.

III.   Scope of the audit and information requirements

Defining the scope of the audit

Before embarking on information collection it is necessary to define the scope of the audit to be undertaken. This means taking a very careful look at both: (i) needs and expectations of those calling for the audit (such as the Minister of Education or of Finance), and (ii) the resources (financial, human and time) available for the audit work. In cases where the audit will be performed by experts from outside of the MoE, it will be necessary to have terms of reference that clearly state the mandate, timing, approach, and costs of the work to be done. *Appendix 1* contains a sample outline of terms of reference for an extensive MoE audit.

The needs and expectations of those requesting the audit work can be varied and go from the highly specific to the diffuse. Several issues can drive an audit, and each one can become an objective for undertaking it. Typical examples are:

- The MoE is characterized by inefficiencies that need to be corrected. This assertion may remain vague or can include specifics, such as long delays in salary payments, textbooks not arriving in schools on time, poor learning results despite a large amount of resources going to the sector, etc. In any case, it would not be unusual for the stated objectives to be limited to general perceptions of inefficiencies with few specific examples. Furthermore, efficiency improvements (real or imagined) may be needed in order to gain the confidence of financing sources (legislature, Finance ministry, external financing agencies) and public opinion which, otherwise, may be reluctant to allocate, or vote for, additional or, even, adequate resources to the sector. Indeed, one of the major objectives in the hidden agenda of those

commissioning an audit may well be to instil confidence in their management of the sector.

- The need for redeployment of resources in order to correct an imbalance in resource allocations, as manifested by overly large proportions of the budget spent on salaries (e.g. over 90 per cent) with little remaining for materials. This type of situation often leads to perceptions of over-staffing which may put the MoE under pressure for staff reductions, staff redeployment and/or a more efficient functional allocation of staff.
- Inordinate delays in budget preparation and/or inadequacies of budget proposals to meet demands.
- Financial irregularities that need to be corrected through improved financial management.
- Delays and other problems in project/programme implementation.
- Inefficient planning as manifested by inadequate statistics, no strategic management capabilities and, therefore, poorly informed decision-makers.
- Government-wide management reforms have been mandated which involve the identification of inefficiencies and elaboration of policies and/or a programme for a streamlined and more efficient bureaucracy.

In cases where the audit is expected to cover all aspects of the sector, where resource availability may be problematic and, therefore, where it will be necessary to draw up detailed terms of reference in order to 'sell' the audit to all concerned parties, a prediagnostic exercise would be useful. In order to better define the terms of reference, a prediagnosis (which, typically, could be done in several weeks) would: identify the major issues; identify the information available for the audit work and, therefore, that which would have to be collected through interviews, surveys and from other sources; and estimate the costs and timeframe of the audit.

Organizing frameworks

Once the objectives have been identified it will be necessary to develop an organizing framework designed to determine the information that will be collected. Depending on the objectives of the

62

audit, a number of possibilities are available. At this point it is important to remember a basic postulate underpinning an audit: *Management is largely about the organization of work, which boils down to individuals doing tasks that, together, are expected to lead to results. This means that an audit needs to look at who does what and the resources (in time, information, skills, techniques, procedures, communications and energy) required to accomplish the tasks.* By and large, regardless of the audit's breadth of scope, it can be organized around three exercises, or activity sets: (i) process mapping; (ii) an analysis of the quality, availability and effective use of information (such as statistics, projections and learning assessment data); and (iii) an analysis of staffing patterns. All three exercises will be needed: (i) for revealing dysfunctionalities in the three activity families (see *Table 2, page 27*); (ii) as a guide for collecting the relevant information; and (iii) for developing proposed solutions to the problems identified.

Process mapping and organizational structure

Process mapping is a methodology that comes from industrial engineering (Center for Corporate Citizenship and SGV, 1994). First of all, it is necessary to identify pertinent 'business processes', or procedures, to be examined by the audit. Examples are: the creation of new staff positions and recruitment; promotion, reclassification and transfer of personnel; creation and construction of new schools; budget preparation, submission and implementation; disbursements and financial management; procurement of textbooks, furniture, and equipment, and subsequent delivery to schools and offices; approval of requests from schools (for resources, staff leave, positions, etc.)

Typically, there are a number of processes that are notorious for the time and energies they consume before they have yielded the expected result which, very often, is nothing more than an authorization or an approval. The only way of shortening long decision or approval chains, and reducing them to their basic essence, is to dissect them and examine their component parts and linkages. This way, it will become possible to sort out the essential from the rest and, thereby, develop proposals for shorter chains that should contribute to quicker and better procedures and service delivery by the administration.

63

An essential part of process mapping is to identify the component steps of each process. Basically, there are five groups of steps, with each one consisting of a number of actions. The basic steps are: (i) the identification of needs (e.g. a request by schools); (ii) validation (by higher authorities); (iii) budgeting of resources; (iv) implementation of decisions; and (v) assessment of the results. For each step, it will be necessary to determine *who* (person in what position, fulfilling what function) does *what* (signature, action, reporting, authorization, delivery of service), *how* (with what resources, skills, tools/techniques and authority) and *when* (how long after approval, over how much time). It will also be necessary to examine the nature and timing of communications between each action and step. Examples of process mapping and its step-by-step, action-by-action approach are provided in *Appendix II*.

Process mapping will be particularly useful in revealing dysfunctionalities in the organizational structure of the Ministry and the advantages and/or problems related to relative degrees of centralization/decentralization of decision-making and resource allocation. Although there is no particular 'truth' when it comes to organizational structures, experience suggests that complex structures, with a multiplicity of hierarchical levels, tend to be associated with long decision chains. The major issues of concern here are the levels of decentralization and the number of levels of hierarchy.

Functions performed outside of the MoE constitute an issue that lies in a space between organizational structure and staffing. Some MoEs, for example, have relatively autonomous institutes with specific mandates (such as pedagogical institutes and research centres). Other MoEs will contract out selected activities, such as those that require a high level of technical competency (e.g. testing, data analysis, assessment). This can be necessary for procurement of specialized services that civil service salary levels cannot pay. At issue here is the cost-effectiveness of such arrangements and the desirability of developing them.

Analyzing information availability, quality and use

So essential is the role of information (see *Chapter II, page 44*, Information flows,) – in the form of data, statistics, projection models, or research results – that a central part of any audit will be a critical examination of the availability, quality and use of information. Whereas assessing availability and use may be fairly straightforward, assessing the quality of information is much more difficult and bound to be subject to some debate. The quality of statistics, for example, is related to their reliability and validity – both of which take on fairly technical meanings. Research results, however, are generally subjected to critical assessments from methodological and epistemological viewpoints (Samoff, 1993; Wolf, 1993). Klees (1986, p. 601) has even pointed out that, in contrast to research in developed countries where there are many studies (with results that do not necessarily converge) on a given topic, "the reason that research on Third World countries is seen to offer clear-cut policy implications is that, in any country, only one or two studies on the topic have been carried out".

In concrete terms, assessing:
- *Availability* means examination of the institutional capacity for the sustainable production of information. Such capacity, generally, would take the form of some combination of: (i) an office for planning, statistics and/or policy analysis, (ii) a research bureau or centre, and (iii) a learning assessment centre. Whether within or outside of the MoE, what counts is the sustained production and availability of quality data, statistics and research.
- *Quality* means assessing the validity and reliability of statistics and indicators/measures of educational outcomes, as well as the value of research results. Validity refers to whether statistics/indicators measure what they purport to measure. Reliability means that statistics/indicators for any given time and place are comparable to those for another. Assessing the quality of research results means taking a close and critical look at the study's methodological underpinnings, such as the instrumentation used, the sampling methods, the observational techniques, the analysis and the interpretation of the results. All of this will require technical skills in statistics and research methodology.

65

• *Use* means taking a close look at the basis on which policy decisions are made and ascertaining the extent to which statistics, enrolment/financial projection models, learning assessment data, research and other sources of systematically generated information are used in the policy-making processes.

Somewhat apart, is concern for the availability, quality and effective use of information on procedures, rules and regulations, as well as policy and administrative decisions. At issue here is how much is known by implementors-in-the-field (e.g. school principals, district directors, inspectors) of the decisions made at the central levels.

Analyzing staffing patterns

Matters of staffing have particular importance given: (i) that it is people, in the form of staff, that make any organization work, and (ii) that staff costs account for a huge proportion of most organizations' overall cost structures. Since MoEs generally consume governments' largest budget shares and are countries' largest employers, they are particularly vulnerable to criticisms of overstaffing and inefficiencies. Moreover, many an MoE finds itself in the situation where salaries make up over 90 per cent of the overall budget, leaving little for the non-salary inputs that staff need to do their work correctly and efficiently. For these reasons, any investigation into the organization's effectiveness, its efficiencies or lack thereof, must pay particular attention to how staffing is organized, the efficiency of staffing patterns, norms and incentives for staff effectiveness, and the non-salary inputs needed by different staff categories for them to work effectively and efficiently.

Examples of typical staffing issues/questions that an audit would have to tackle are:

• How effective is the fit between functions (i.e. the actual workload and task requirements, plus the level of responsibility and decision-making authority) and the staff in them? At issue here is the extent to which the skills of staff in a given position are adequate for the work at hand. For example, many an MoE will have teachers performing all

sorts of non-teaching jobs that may be administrative or technical but, in any case, involve work for which they have no specific training or are under- or over-qualified. One outcome of audit work should be norms for the skills and qualifications of staff with respect to the posts they are expected to fill.

- The number of staff required for given functions and tasks. A typical question that emerges is whether there are non-essential, unproductive staff and, if so, how can they be identified and redeployed, and on the basis of what norms and criteria. This may be an issue when: (i) staff costs need to be lowered in order to devote more resources to non-salary inputs, and/or (ii) there is a government-wide reduction of civil service employees.

- Just how many staff are working for the MoE? Statistics on MoE personnel can vary, depending on the source. A frequently found situation is when there is considerable variance between figures provided by the Ministry of Finance (which establishes the payroll), the Civil Service Commission (which keeps records on all civil servants classified according to government job classifications), the Planning Ministry (where job positions and budget lines may be established), and the MoE, which maintains its own statistics, based on the annual school surveys. Such discrepancies can have a combination of explanations, such as: data are not reliable; civil servants classified as teachers are working in other ministries; there are irregularities in payments; there are 'ghost' teachers on the payroll; and changes (due to recruitment, transfers, deaths and retirements) are recorded with significant delays.

- Development of recruitment and staff development policies for non-teaching staff in order to improve their effectiveness.

- The contractual nature of staffing and the reward structure. Staff may be permanent civil servants or they may be on limited-term contracts. Promotion and/or retention may be based on individual performance or on rules. Rules generally provide clear-cut guidelines. Performance criteria, however, require relatively objective and transparent norms based on accepted performance criteria.

67

Anything dealing with staff, of course, is very sensitive and can quickly become politicized, especially where there are unions. This implies the need for an approach that will not destabilize staff and, thereby, disrupt the day-to-day work of the Ministry. This means that any work done in this area must be clearly supported by reliable data and hard facts and, when the time comes, be carefully explained to all interested parties. Before that time, however, two strategies are possible: discretion about on-going work concerning staffing matters; or openness, transparency and consultation with all staff on the on-going audit work.

Appendix III provides an example of one approach an audit may take in its analysis of staffing patterns (UNESCO, 1991 and 1992). In this example, the mandate of the audit was to develop staffing propositions consistent with a government-wide adjustment effort aimed at improving the efficiency of government services and, for the MoE, to increase the non-salary proportion of the budget.

Collecting the information

Collecting information requires a conceptual effort enriched by an organizational one. In other words, it has to be done systematically. Knowing what information is required means: (i) knowing the topics on which information is to be collected (the objects of the information); (ii) where to find the information; and (iii) what constitutes valid and reliable information. The information itself can take quantitative (generally data) or qualitative (generally words) forms.

The topics on which information needs to be collected are defined by the organizational functions of the MoE that will be examined by the audit. This means identifying the relevant functions and sub-functions that will provide the basis for the information-gathering effort.

A fairly exhaustive example of this is provided in *Table 8*, which is, itself, derived from *Tables 1, page 21, Introduction*; and *Table 2, page 27, Chapter II.*

68

Table 8. Defining functions and sub-functions for information collection

Function family	Sub-functions
Strategic management	Budgeting Planning finance Planning supervision and inspection Annual plan of operation Enrolment planning (short-term) Enrolment projections (medium- and long-term) Staffing Educational materials, furniture, equipment New school construction School mapping and micro-planning Defining statistical information needs Monitoring Instrument development Execution of regular data collection Execution of irregular data collection Processing of regular data Processing of irregular data Preparation of reports Distribution of reports
Pedagogy	Supervision and instruction Curriculum development Textbook publishing and distribution Teacher training Examinations and student evaluation Educational mass media
Administration	Personnel (teachers and others) administration Human resources development Personnel reporting Financial management Procurement School upgrading and expansion School repair and maintenance Distribution of mail, directives, guidelines Analysis of procedures

69

Table 9. Organizing information collection – an operational framework

(1) Key tasks / Activities / Objectives	(2) Structure, outcomes and relations				(3) Rules and procedures			(4) Information base: content and flow	(5) Staff implications			(6) Facilities and equipment		
	Office/ unit	Outcomes: Expected	Real	Relations	Do they exist?	Staff know them?	Are they followed		Training and skills	Time required	Number involved	Type and amount	Mainten- ance	Usage

Once the sub-functions are identified, it will be necessary to identify what information is needed in order to perform the audit for those sub-functions. *Table 9* provides an operational framework for guiding the collection of relevant information. First, it is necessary to identify the sub-function for which information is to be gathered. Each column in *Table 9* is numbered and represents a different sort of information. By and large, the information collected will be factual in nature.

• For each sub-function it is necessary to *identify the tasks, objectives and/or the activities* that comprise that sub-function. This is what column 1 calls for. For example, if you are concerned with the sub-function called 'Execution of regular data collection' in *Table 8*, column 1 of *Table 9* could include tasks/activities – just one per line – such as: drafting and finalizing the school questionnaire; distribution of the questionnaires to schools at a given time; training of school directors to fill them out; collecting the questionnaires within a given timeframe; compilation of the questionnaires along with procedures for verification of data; and publication of the annual statistical yearbook.

• For each task/activity, column 2 requests information on *the organizational structures* concerned. First of all, it is necessary to specify the office (or unit or division or department) responsible for the given task/activity. Following the example used above, some of the activities would be done in a centralized statistical office, others would be done in regionalized offices and other activities would be done in the schools. Second, it is useful to identify the expected and real outcomes for each activity undertaken in each organizational unit. For example, an expected outcome could be that the questionnaires are in the schools and ready to be filled-in by the end of the second month of the school year and that the schools have completed their task of filling them in by the end of the third month. Having information on real outcomes is essential to identify bottlenecks and dysfunctionalities in the expected work. Finally, it is useful to have information on the relations between each office. For example, if the school is the place where the questionnaires are filled in, it is necessary to know how, and by what means, they receive and return the questionnaires (e.g. by mail, by fax, by physical visits of inspectors to the schools or school directors to regional offices). It is also useful to know what, if any,

71

hierarchical relations exist between offices involved in a chain of events in order to determine what sanctions exist and how they can be distributed.

• Column 3 looks into *the rules and procedures* that, presumably, regulate each task/activity. Of concern here is not whether they are 'adequate' – which is a matter of interpretation – but whether they exist, how well they are known by those responsible for executing each task, and whether or not they are followed in the realization of the tasks/activities.

• Column 4 refers to *the information on which a task/activity is based*. What is required here is whether or not the information exists, an assessment of its validity and reliability, and its timeliness. For example, those responsible for the printing and distribution of school statistics questionnaires should, logically, know how many schools will need the questionnaire and how much time it might take for the questionnaire to reach the schools; this information should be as up-to-date as possible. Also, those responsible for school location planning and teacher assignments need to have the product of the work of those producing the school statistics, and they need to have the statistics on time and with sufficient detail.

• Column 5 concerns the actual *staffing* for the organizational unit charged with carrying out the task/activity in question. This is an essential part of the audit, especially if one of its objectives is to either modify the staffing patterns (e.g. redeployment of staff, including cuts, to improve the fit between staffing and work), and/or develop a rational basis for capacity building through training. For this, it will be necessary to know the number of staff involved in each task/activity, their level of training and skills, and the time they take to accomplish the task.

• Finally (column 6), it will be necessary to undertake an inventory of the *facilities and equipment* used in order to accomplish the task/ activity in question. In addition to the amount of whatever equipment there is (e.g. vehicles, computers, typewriters, fax machines, etc.), information on the extent of effective maintenance, whether the equipment is in decent operating condition and whether it is being

72

effectively used (by trained personnel) will be useful. This, of course, will provide a basis for determining future needs.

Given the overriding importance of the amount and quality of information for an audit exercise whose conclusions should convince its intended audience (minister, MoE staff, legislators, press, taxpayers, etc.), it is useful to take a somewhat different look at what information to collect. The point cannot be stressed enough: the quality of the audit, its recommendations and ensuing implementation, will largely repose on the quality of the information on which it is based. Furthermore, once the information needs are defined, as per *Table 9*, it will be necessary to decide what the information will look like: will it be quantitative or qualitative? Will it be based on objective, verifiable facts or on reported perceptions and opinions? How 'rigorous' will it be?

Table 10 provides a typology of the information that could be collected for each of the methodological activity-sets composing an organizational audit of an MoE: (i) process mapping; (ii) an analysis of information availability and use; and (iii) an analysis of staffing patterns. Information is divided into two categories: (i) so-called 'hard', 'objective' information that generally takes the form of statistics, and verifiable facts; and (ii) so-called 'soft', 'subjective' information that is based on perceptions and unverified observations. Clearly, this is something of an oversimplification and would encounter protests from some epistemological purists. Recognizing, however, the real-life tendency to go for the 'quick and dirty' in situations where resources are limited and time pressures are being applied, some simplification is necessary.

73

Table 10.   Typology and overview of audit's information requirements

Activity set	'Hard' (±objective)	Sources	'Soft' (±subjective)	Sources
Process mapping and organizational structure.	• Established PRR • Systematic research. • Formal structures.	• Procedural manuals; decrees; laws; ordinances; administrative circulars; published organigram. • Structured observations of process chains. • Structured interviews with a representative sample of actors involved in an agree sample of processes.	• Perceptions and stated attitudes of concerned staff. • Informal structures and circuits.	• Discussions, occasional observations. • Small number of interviews and observations by audit team.
Information availability, quality and use.	• Published statistics, learning assessments and research. • Existence and implementation of procedures for data verification at-the-source. • Calculations of reliability coefficients. • Reference to statistics and research in policy statements and debates. • Content analyses of policy statements.	• Statistical yearbooks. • Research journals and reports. • Policy statements; speeches; published debates on education policy. • Sub-national (regional, district) offices.	• Perceptions and, stated attitudes of policy-makers.	• Discussions, occasional observations. • Small number of interviews and observation by audit team.

Table 10.   (Continued)

Activity set	'Hard' (±objective)	Sources	'Soft' (±subjective)	Sources
Staffing patterns.	• Staff statistics: numbers by function, seniority, salary and grade levels, education and training, performance, etc. • Imposed constraints (by government regulations) related to recruitment, and reward/incentive structures.	• Sample or population surveys of staff. • Personnel census. • Existing data from MoE and other ministries or agencies (e.g. finance, civil service, planning). • Procedural manuals; decrees; laws; ordinances; administrative circulars (from MoE. Civil Service Commission, Finance Ministry, etc).	• Perceptions and attitudes of staff, policy-makers and other observers. • Identification of key positions and associated skills and training levels.	• Discussions, occasional observations. • Small numbers of interviews and obser-vations by audit team.

Cost of an audit

An audit's cost will be a function of the scope of the audit and the information requirements. Interviewing can be costly, with costs varying according to the number of people to be interviewed in a variety of offices and localities, the amount of information to be analyzed and interpreted (which takes time), the extent of verification of existing information. Another factor is the availability of national capabilities, be they individual experts or management consulting firms, to conduct all or part of the audit instead of relying on more costly international experts or firms.

One very tangible benefit of an audit exercise that should be factored into the cost calculations is the training of national staff through a process of learning-by-doing. In other words, involvement of national MoE staff in the audit could be considered as training costs that would become a real benefit when the time comes for implementation of the audit's recommendations.

For these reasons, design of an audit will have to keep in mind the nature and extent of trade-offs likely to yield a product that represents a reasonable compromise of breadth and depth in both coverage and quality.

IV.   Diagnosis, analysis and recommendations

Perhaps the best way to illustrate the logical progression from information collection to diagnosis, analysis and recommendations is to extend *Table 9*, page 70, by two more columns. *Table 11* does this by adding on columns for each task/activity and associated office/unit – a column for diagnosis and analysis and another for recommendations. Here lies the 'moment of truth' in the audit exercise since this is where statements will be made that will have implications for change that will affect the way people do their work and lead their professional lives within the MoE. This, therefore, is the stage of maximum potential for controversy, conflict and, of course, change. At this stage of the audit great care must be taken to assure: (i) that diagnostic and analytical statements and recommendations are well founded, (ii) that they are well understood and accepted by all concerned, direct stakeholders in particular and, therefore, (iii) that every effort is made for consultation, explication and participation by all concerned parties. It is also at this stage of the audit where creativity, and intellectual rigour and courage are needed.

The categories and domains presented in *Chapter III* of this booklet (and summarized in *Table 7, pages 59-60, Chapter II*) provide a guide to diagnosis and analysis. All of these categories should be brought to bear on the diagnosis and analysis. At the most complex and complicated level, it is fair to consider that all the categories treated in *Table 7* are linked together. Realistically, it may be necessary to simplify things in order to come up with comprehensible conclusions and, therefore, treat some of the analytical categories separately without bringing into the analysis the full weight of, for example, the environmental factors and the reward structure.

Table 11.   Going from information to interpretation and recommendations

(1) Tasks/Activities objectives (reminder)	(2) Office/Unit	(7) Diagnosis and analysis: Identification of problems, dysfunctionalities and discrepancies between expected and real outcomes, and the reasons for them	(8) Recommendations: (1) Proposed modifications in terms of: (i) tasks and realistic outcomes per structure, (ii) relations between structures, (iii) appropriate rules, procedures and information flows and content, (iv) staffing patterns. (2) Proposed investments in terms of: (i) staff training, (ii) facilities and equipment.

First of all, however, it is worth repeating that there is no 'truth' or 'one best way' in organizing the work of an MoE. Cultural and environmental factors tend to 'relativize' things and play important roles in understanding what makes things work effectively in an organization. Indeed, factors that contribute to dysfunctionalities in one MoE may contribute to effectiveness in another. The issue of centralization/decentralization is a case in point: centralization in a large country with poor internal communications (roads, post office, and telecommunications) may be dysfunctional, whereas the opposite could be the case in a small country with a good communications infrastructure.

Analysis and diagnosis are based on: (i) ascertaining facts, and (ii) establishing relationships and approximate (if not deep-rooted) causes. Facts come straight from the data, whereas statements about relationships and causes are based on one's ability to bring together a variety of information sources that may depend on a deeper and broader knowledge of the situation and, therefore, go beyond the data collected. Pertinent *facts* that an audit might highlight could include, for example: discrepancies between expected and real outcomes; the status of rules and procedures; the time it takes for a decision to be made and communicated; the length of a decision chain, or process map; the number of staff assigned to a given task and/or office, along with their level of training; the availability of adequate equipment and facilities, the extent of their effective use and maintenance and whether personnel are adequately trained for operating the equipment,

Establishing causes and relationships between facts, observations and broader knowledge of the situation is an exercise that can provide a richer understanding of the situation. It is also a perilous exercise if it is not based on reliable information and a thorough, and verifiable, knowledge of the situation in the broadest sense. Nonetheless, such an exercise can so vastly enrich the power and scope of an audit that it is well worth the effort. For example, it may be useful to ascertain that the decision-making chain or process map is inordinately long and, thereby, dysfunctional, or that there is a discrepancy between *de facto* practices and *de jure* rules and regulations – such a discovery can lead to important organizational reforms. It may be possible to attribute long decision-making chains to too much centralization – thereby suggesting that some form of decentralization may be in order.

79

However, there may be powerful reasons for centralization that go beyond considerations of organizational effectiveness – such as political and patronage structures and practices, government-wide rules and practices, and deeper cultural norms concerning authority and willingness to take individual initiative. But, if in practice decisions are being made locally without legal or procedural underpinnings, it may be reasonable to recommend making official what local authorities have found necessary to do in order to get the job done. This assumes, of course, that in practice the jobs are getting done, even though outside of the established PRR. Taking informal practice as a clue to effective organizational arrangements may, in some cases, have the virtue of taking the field practitioner seriously and, thereby, narrow the gap between theory and practice. This is just one example of how information plus creativity are necessary for an audit exercise.

Validation

Most important at this stage of the audit exercise is the need to *validate the audit's findings, diagnoses, analyses and re-commendations.* In order to maximize the implementability of the audit's recommendations, it will be necessary to ensure the broadest possible understanding and acceptance of the diagnosis, analyses and recommendations. In practice, this means working towards consensus on the validity of the information gathered, the diagnoses and analyses derived from this information and the ensuing recommendations. Although some progress may have been made by involving MoE and other concerned personnel in the audit work itself, effective consensus will have to include those whose active and/or passive co-operation will be needed for implementation of the recommendations.

V. Concluding the exercise: action plans for implementation

The first act of implementation of the recommendations that emerges from the diagnosis and analysis will be to establish action plans that provide a detailed charting of the implementation process, from goals and objectives, to resources, timing and expected outcomes. *Appendix IV* provides an example of an action plan for human resource development within an MoE as per recommendations of an audit.

Developing action plans can be thought of as the practical outcome of the audit – the place where the audit's recommendations are planned for implementation. Although not part of the audit exercise *per se*, elaboration of action plans is an essential follow-up to the diagnosis, analysis and recommendations.

Two elements of the action plans are of particular importance: (i) the timing of proposed actions and activities to be implemented, and (ii) the cost and other financial implications involved. In other words, action plans serve the purpose of announcing to all concerned parties what, how, and when actions will be undertaken, and they provide the basis for finding the financing needed for these actions.

Continuity of audit activities

Although an audit can be seen as a discrete activity, begun one day and finished another, such an approach would be unfortunate in that much of the richness of the exercise would be lost. Organizations are like complex, living beings. Their long-term health benefits from periodic check-ups. From this perspective, it would be useful to devise a means for some form of continuing audit capacities within the Ministry.

81

This would be made all the more feasible if MoE officials participated in the audit exercise and, thereby, learned audit work by doing it. This, of course, is another argument for having in-house participants on the audit team. One suggestion would be for the audit to recommend creation of a section for organization and management within the Ministry's planning or strategic management structures.

82

Appendices

Appendix I. Sample outline of audit terms of reference

Introduction

The terms of reference must be established in the light of the audit objectives set by the government, and of the results of a preliminary diagnosis. Other factors may advantageously be taken into account, such as:

(i) Documents relating to the reform of the public administration, in so far as the Ministry of Education is generally the major employer in the public sector and accounts for the largest share of national budget expenditure.

(ii) The results of previous studies of the education sector and the resulting proposals concerning in particular the quality and effectiveness of education, its costs and financing, and the management of educational personnel.

(iii) Operations relating to other sectors, notably Finance and the Civil Service, and the Ministry of Planning and Statistics.

(iv) The need for the participation of education sector authorities and personnel, and the involvement of other protagonists concerned. A seminar at the launching stage and seminars at subsequent stages of the operation will be useful for discussing and making known the results.

Objectives and content of the audit

The objectives and goals of the audit

It is necessary to diagnose the principal functions of the strategic conduct and management of the education sector, identify functional defects and their causes, and propose organizational measures, methods and instruments to be set up in order to: (i) enable the Ministry of Education to attain the government's objectives effectively

85

and efficiently; (ii) submit a plan for the application of the measures and instruments proposed; and (iii) clarify the requisite concomitant conditions.

The scope of the audit

The audit may cover all or some of the functions involved in the 'education business', in particular: (a) strategic management functions, i.e. the definition, preparation and conduct of strategic decision-making processes, including the assessment of educational inputs and the evolution of educational input factors in liaison with real available budgetary and financial resources and constraints; and (b) the functions of operational management, implementation, follow-up and control of the measures contained in the action plans adopted. These management functions cover the management of teaching and administrative personnel and the administrative, financial and logistic management of schools, central and decentralized structures, and autonomous institutes.

These functions must be examined at the different levels at which they are operative, from the basic unit of management (the individual school) through intermediate levels (local and regional education authorities) to the Ministry itself. The audit evaluates the distributions of roles, responsibilities and resources among the structures to which these functions appertain; it establishes their interfaces and interrelationships and proposes necessary adjustments to these various aspects, including structural readjustments; it scrutinizes existing information systems and flows, their maintenance and strengthening, together with methods of processing information required for day-to-day management, the preparation of strategic decision-making, and the monitoring and evaluation of measures and policies.

The audit produces an organizational master plan of the MoE featuring: (a) an updated definition of its strategic and operational functions; (b) the content of essential functions in terms of tasks, positions and corresponding profiles, information flow, and internal and external relations; (c) the structural pattern of these functions specifying the attributions, responsibilities, and human, metho-dological and material resources required, along with outputs; and (d) a definition of the organizational location for concertation, co-

86

ordination, arbitration and control. Each of these four items must figure in the results of each of the three categories of audit outlined below. The whole will be contained in an organizational framework accompanied by a proposed plan of implementation.

The content of the audit

(a) Sub-audit of strategic management and budgetary functions

These are key functions of educational development. They cover: (a) the formulation and planning of medium and long-term strategies; and (b) their expression in terms of annual programmes and their recurrent and investment budgeting, including budget procedure, budget schedule, and budgetary discussion and arbitration.

(b) Sub-audit of educational functions

This covers: (a) the preparation, trialing and approval of curricula; (b) the design, production and distribution of textbooks, making clear the respective rights and responsibilities of those concerned; (c) the selection of teaching materials and their supply and availability at different types and levels of education; (d) the initial and on-going training of teachers; (e) primary and secondary school inspection, including an analysis of its objectives and how it is performed; and (f) examinations.

(c) Sub-audit of administration and operation

Three fields are covered here: (a) human resource management; (b) the administrative and logistic management of the structures of the Ministry; and (c) the administration and logistics related to the operation of schools.

Audit teams, audit planning, and the audit budget

Conduct and co-ordination of the audit. Each sub-audit is conducted by specialized teams which can act in parallel. *Mixed teams* comprising national consultants, a Ministry correspondent, and international specialists, are formed. A *co-ordinating team* may be formed.

87

Timing and planning. Operations must be timed in the light of the co-ordination requirements referred to above, and also in the light of the respective schedules of the school year, the budget, Parliament, and those taking part in the discussion of the results.

Budget estimates. The audit budget comprises: (a) a person-month figure representing the services of international specialists (where appropriate) and consultants; a person-month figure representing the services of national specialists and consultants; resident specialized resources provided by technical co-operation, but affecting the budget only in respect of travel and subsistence expenses within the country; (b) the cost of sub-contracting surveys; (c) the cost of training seminars, dissemination and study tours; (d) administrative support for the work of specialists and consultants; premises containing office furniture and a photocopier; running costs, equipment maintenance costs, and miscellaneous costs.

Appendix II.   Examples of process mapping

Two examples of process maps are provided here:

(a) *Process Map 1* comes from an audit performed in Benin (UNESCO/Project BEN/89/001, 1991) and presents the procedural steps required in order to transfer personnel within the Ministry.

(b) *Process Map 2* is drawn from an audit performed in the Philippines (Centre for Corporate Citizenship and SGV and Co., 1994) and describes the process of budget planning, preparation and submission from schools to regional offices.

It should be noted that neither of these process maps includes timeframes. One reason for this is that there are two timeframes: the official one as per the procedural manuals (which, in reality, may not exist or be widely known and circulated); and the real one (i.e. the time it takes in reality for the process to be completed). However, the analytical audit reports that contain these process maps do include information on the average time it takes for the process to be completed.

Process Map 1: Procedures for transfer of personnel

Education Minister's PS*	Director of Personnel	Career Records Department	Minister's Office	National Personnel Transfer Commission
D				
1)				
	2)			
		3)		
		T		
	T			
	4)			
5)				
T				
	6)			
7)				
T PC				
			8)	
			LC	
				9)
				L
10)				
LD				
			11)	
			LP	
12)				

The post is declared vacant by its occupant when he wishes to leave it.
Some applicants for transfers may specify in advance the posts they wish to occupy.
Deployment to certain posts is at the discretion of the Minister's department staff.
Several transfers are effected in the course of each year without recourse to this procedure,
but in some cases they may be necessary (due to death, illness, etc.).
The procedure is laborious, yet it does not prevent the persistence of a considerable number of abuses.
Conclusion: it should be revised.
* PS = Principal Secretary.

Source: UNESCO, Projet BEN/89/001 - Bénin. 1991. L'analyse fonctionnelle (Audit) de l'organisation et du management du Ministère de l'Education Nationale du Bénin - Rapport de synthèse de la phase de diagnostic : Constats et Recommandations principales.

Observations

D   Applications from personnel forwarded to the Education Minister's Principal Secretary by local education authorities.

1) Application filed by the secretariat and processed by the PS.

2) Endorsement, annotation and post assignment.

3) Inventory and classification of applications by nature of request and by the area; constitution of recapitulative tables. (T)

T   Table of acceptable applications meeting criteria of length of service, post occupied, and social circumstances.

4) Verification and return to secretariat for typing and duplicating.

5) Convening of the Preparatory National Commission composed of central and local education directors.

6) Constitution of secretariat for the National Personnel Transfer Commission.

7) Signature of the letter convening the National Commission.

PC Draft letter convening the Commission.

8) Signature of the letter.

LC Letter convening the Commission.

9) Meeting of the Commission, chaired by the Minister of Education's PS and including the representative of the Ministry of Labour, and the Technical Adviser on Education to the President of the Republic.

L   List of transfers.

10) Finalization.

LD Typed and initialled list.

11) Minister's signature.

LP National list of definitive transfers.

12) Publication of national list of transfers and post adjustment classifications.

————————————▶ Publication and circulation

Projet BEN/89/001 : Assistance à la Formation d'une Politique et d'un Programme d'Investissements pour le Secteur de l'Education.

Process Map 2: Budget planning, preparation and submission (from schools to Regional Offices)

Elementary school	Receives notices re: budget preparation → Prepares required reports for budget proposal → Submits required reports for budget proposal
High school Tech. voc. school	Receives notices re: budget preparation → Prepares required reports for budget proposal → Submits required reports for budget proposal →
District office	Receives notices re: budget preparation → Receives required reports from schools; Sends out notices re: budget preparation; Reviews and consolidates budgetary data
Division office	Sends out notices re: budget preparation; Reads reports for budget preparation; Receives data for budget preparation → Receives and consolidates budgetary data →
Regional office	Reads reports for budget preparation → Attends planning and budgeting seminar → Receives budget call from budget ministry →

Source: Center for Corporate Citizenship and SGV & Co. 1994. Diagnostic review and systems audit of the Department of Education, Culture and Sports. Manila: Philippine Business for Social Progress and the Department of Education, Culture and Sports. (mimeo).

92

```
┌─────────────────────────────────────────────────────────────────────────────┐
│                                                                               │
│                                                                               │
│                                                                               │
│   ·····················································································│
│      ┌──────────────┐   ┌──────────────┐   ┌──────────────┐   ┌──────────────┐│
│   ──▶│Receives memo re│─▶│ Attends the  │─▶│Prepares/finalizes│─▶│Submits budget││
│      │workshop-budget │  │budget workshop│  │budget proposal │  │ proposal for ││─▶
│      │ preparation    │  │              │  │                │  │consolidation ││
│      └──────────────┘   └──────────────┘   └──────────────┘   └──────────────┘│
│   ·····················································································│
│                                                                               │
│                                                                               │
│                                                                               │
│   ·····················································································│
│      ┌──────────────┐   ┌──────────────┐   ┌──────────────┐   ┌──────────────┐│
│   ──▶│Receives memo re│─▶│ Attends the  │─▶│Prepares/finalizes│─▶│Submits budget││
│      │workshop-budget │  │budget workshop│  │budget proposal │  │ proposal for ││─▶
│      │ preparation    │  │              │  │                │  │consolidation ││
│      └──────────────┘   └──────────────┘   └──────────────┘   └──────────────┘│
│   ·····················································································│
│                                                       ┌──────────────┐        │
│                                                       │ Reviews and  │        │
│                                                       │ consolidates │◀──     │
│                                                       │budget proposals│      │
│      ┌──────────────┐   ┌──────────────┐   ┌──────────────┐└──────────────┘    │
│   ──▶│Schedules budget│─▶│  Sends out   │─▶│ Attends the  │┌──────────────┐    │
│      │   workshop     │  │  memo on     │  │budget workshop││Finalizes/submits│ │
│      │                │  │budget workshop│  │              ││budget proposal│  │
│      └──────────────┘   └──────────────┘   └──────────────┘│  from MoE    │   │
│                                                            └──────────────┘    │
└─────────────────────────────────────────────────────────────────────────────┘
```

93
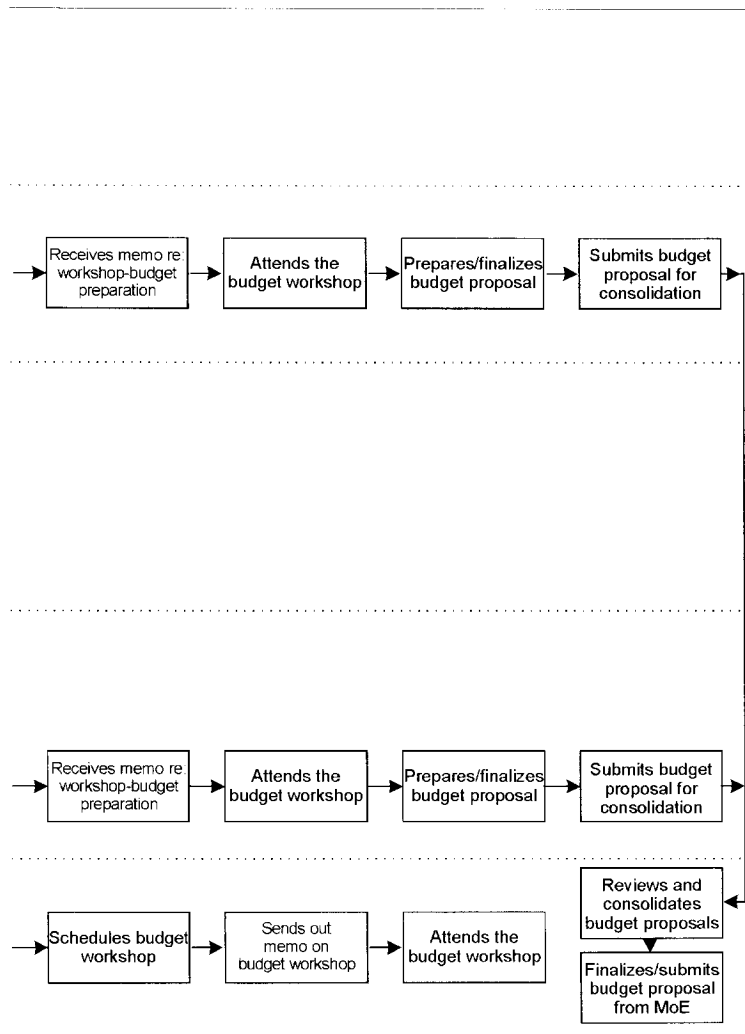
Appendix III. Example of an approach designed to fit staffing to work needs

Starting point: Two references, assumed to have been already established, are taken as the starting point of the process: (i) the existing staff figures (at all levels, or at the levels covered by the audit) in respect of each department of the Ministry, in terms of the number of individuals, their deployment, and their qualifications; and (ii) the normative numbers required to perform the functions and tasks defined by the new organization recommended by the audit (at the levels and for the structures covered by the audit), in particular for central and regional key posts. (See *Process Map 3*).

Stage One: Evaluation of the congruence, in qualitative terms, of existing resources to the requirements of the new organization. This is done for each level (central/regional) and each structure (Directorate/Service). It is called the posts/profiles matching evaluation. Given the large number of people involved in Education Ministries, special attention should be paid to medically unfit personnel and those eligible for, or approaching, retirement (especially among teaching staff), who should be discounted as available resources.
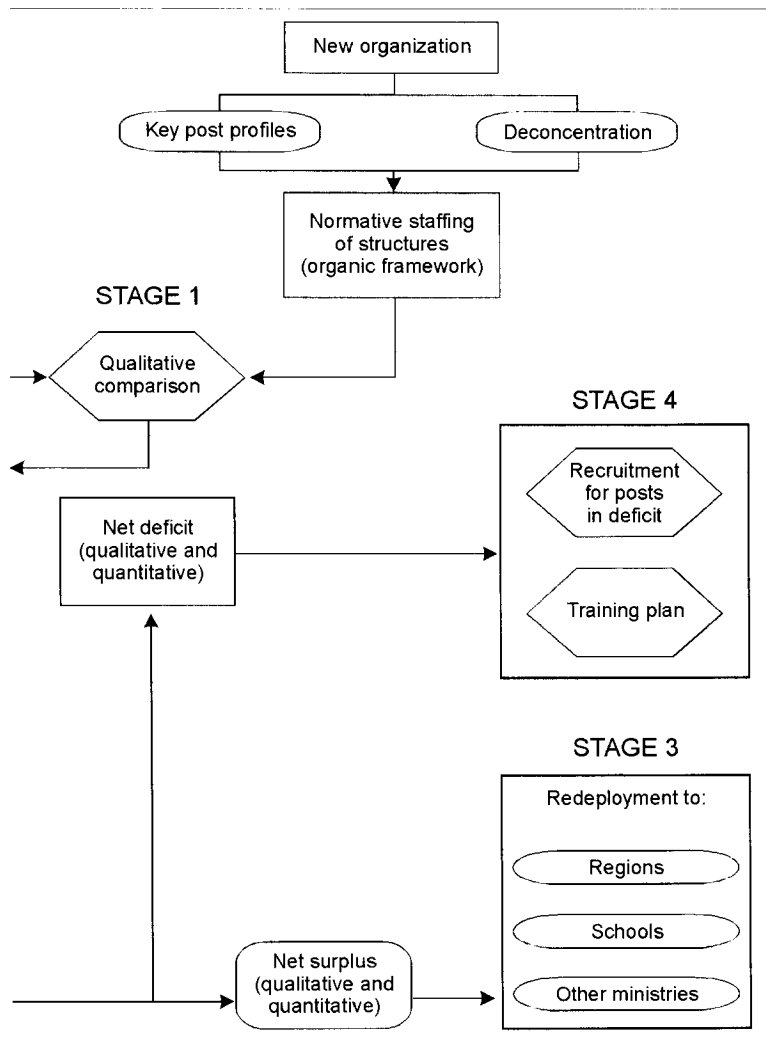
Stage Two: Evaluation of the surplus or deficit of available resources in relation to requirements by structure and in terms of qualifications. At this stage, special attention should be paid to the number of teachers assigned to administrative posts in the Ministry of Education, or other ministries or government departments, and who are paid out of the Ministry of Education budget, so as to assess the expediency and effectiveness of certain redeployments of resources.

Stage Three: This concerns the net surpluses determined in the preceding stages, and consists of examining possible redeployments of personnel from the central structures of the Ministry to regional structures (which are generally understaffed where senior posts are concerned), and from central and regional levels to schools. At this stage, if personnel assigned to other ministries wish to remain in their posts, or if they do not meet the requisite conditions for teaching posts, the amounts corresponding to their salaries should revert to the Ministry of Education.

Stage Four: This deals with the net deficit (in both qualitative and quantitative terms) determined in the previous stages. There can be two kinds of plan to cope with this: (i) an ad hoc training plan designed to correct the qualification shortfalls at different levels; and (ii) a recruitment plan to make up the deficit in terms of numbers.

Process Map 3: Fitting staffing to work needs

New organization

Key post profiles

Deconcentration

Normative staffing
of structures
(organic framework)

STAGE 1

Qualitative
comparison

STAGE 4

Net deficit
(qualitative and
quantitative)

Recruitment
for posts
in deficit

Training plan

STAGE 3

Redeployment to:

Regions

Schools

Net surplus
(qualitative and
quantitative)

Other ministries

97
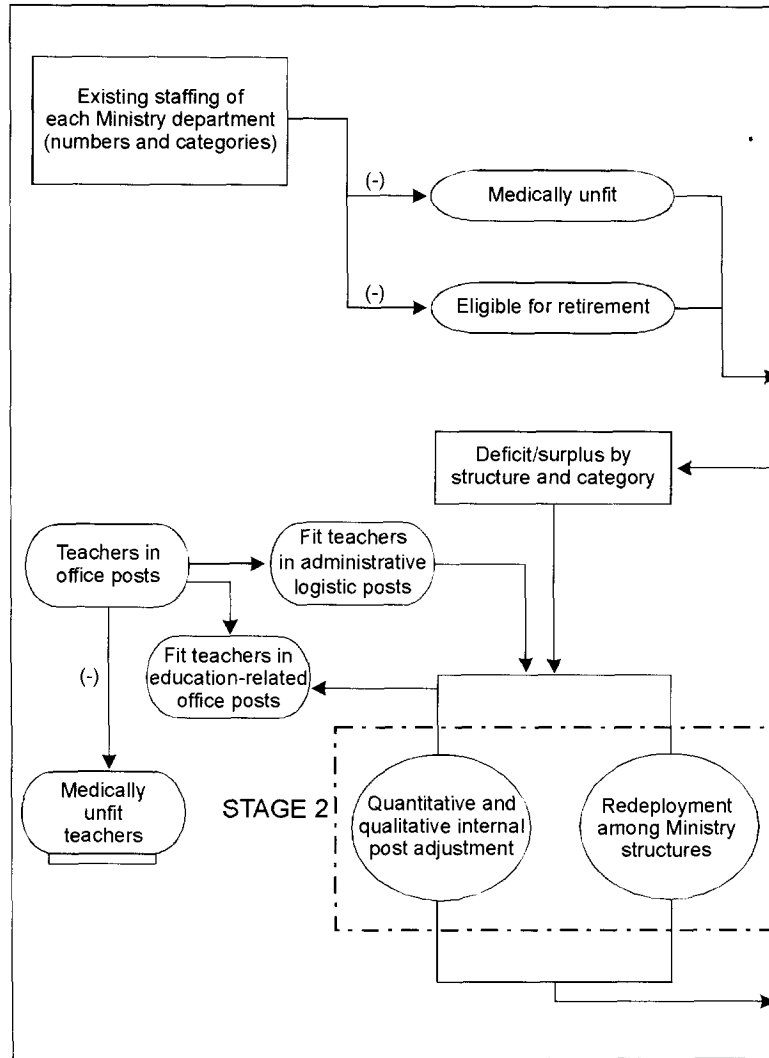
Appendix IV. Example of an Action Plan for implementation of audit recommendations concerning human resource development

Introduction

The recommendations resulting from the audit are implemented by the adoption of measures in the field of human resources. These measures fall into four categories:

(a) Measures designed to *remedy situations* that reflect serious defects in the management of personnel movements, as in the case of medically unfit persons, teachers assigned to office jobs, primary school teachers sharing the same class, and mismatching of human and material resources.

(b) Measures connected with the *reorganization of the administration* of the Ministry of Education and involving a new definition and distribution of tasks with a target organic framework comprising normative staffing targets with corresponding qualifications. This constitutes a frame of reference for the profiling of administrative posts in the Ministry and the reallocation, redeployment and training of administrative human resources.

(c) Measures directly relating to *improving systems of administrative management of individuals*, through (i) the deconcentration of the administrative career planning of Ministry personnel; and (ii) the renovation and computerization of management information (individual records, archives, files, etc.); the *improvement of operational circuits and the speeding up of the processing, control, approval and dissemination of the decisions* of the Ministry of Education and other Ministries (Civil Service and Finance).

(d) Measures relating to the *development of human resource management systems*, through:

- *The development of forecasting* of teaching staff requirements (in terms of numbers, and in accordance with the long-term educational policy adopted), and the planning of needs for persons with higher education degrees.
- *The overhaul of procedures* through the revision of the criteria, rules and mechanisms of bodies determining staff movements (recruitment, postings, transfers, and the selection and appointment of senior personnel), personnel training, budgeted posts, and individual evaluation, taking account of the *implementation of the budgetary management of posts*, which is dealt with in connection with budgetary procedures.
- *The establishment of a management information system* for the preparation and follow-up of regular statements of the staffing situation for payroll purposes, also useful for the Ministry of Education's optimization of its available staff.

The Action Plan identifies: (i) the categories of measures (see above) to be adopted to implement the recommendations of the audit; (ii) their appropriate timing; (iii) any technical assistance that may be required for their implementation; and (iv) their costs.

Content of the human resources action plan

There are four components:

(1) *A short-term overhaul*, comprising:

(a) Top priority settlement of identified cases of medically unfit personnel, by reviving the National Health Board.
(b) Priority redeployment of fit teachers assigned to clerical and logistic posts (secretarial work, typing, telephone switchboard operating, handling World Food Programme supplies, etc.). Preparation and progressive implementation

of a redeployment plan (including individual redeployment proposals).

(c) Examination of cases of fit teachers assigned to non-teaching functions (personnel, administrative and financial management) so as to determine suitable transfers of these resources to actual teaching or educational administration posts.

(d) Assessment and rectification of cases where more than one teacher is assigned to the same class in primary schools. This would enable teachers to be better distributed between urban and rural areas (where there is a teacher shortage) in conjunction with school mapping and the beginnings of a budgetary management of posts.

(e) Improvement of the matching of human resources to material resources. Many cases have been revealed of typists without typewriters, drivers without vehicles, and so on. In conjunction with proposals for the deconcentration and simplification of procedures, the definition of new structures can give rise to the adoption of standards relating to administrative support (secretarial, typing and switchboard jobs) and logistic support (maintenance, driving, message deliveries, photocopying, printing, caretaking, etc.). This will make it possible to propose a plan for the reallocation/redeployment of these human resources as well as a plan for the reallocation of existing material resources, and if necessary an office equipment acquisition programme.

(2) *Job profiling and the matching of posts to the persons occupying them*, based on the new organizational structure and leading to: (i) target objec-tives of human resource redeployment and reallocation, and (ii) evaluation of training requirements for attaining the expected qualifications structure. The principal steps to be taken are:

(a) Definition and stabilization of objectives in respect of expected staffing norms (in terms of numbers) for the new structuring of the Ministry of Education administration.

(b) Definition of the profiles required.

(c) Qualitative evaluation of existing profiles for key posts.

(d) Evaluation of staffing/posts for other posts, on the basis of individual evaluations.

100

(e) Identification of the requisite reallocations and/or redeployments.

(f) Identification of the categories requiring training (at management level, in key posts and other posts, and in school management). A training plan defines the three types of training (their objectives, the forms they take, how and in what timeframes they are implemented).

(3) *Deconcentration*, within the Ministry of Education, of career management, including taking responsibility for interface with national structures involved in this management, and linkages with certain operations of national scope (such as compatibility with national files, control of qualifications, administrative reform). Measures to this end involve:

(a) Timeframes and conditions of the deconcentration of human resource management operations.

(b) Consequent reorganization of the central personnel department of the Ministry of Education in the light of its new attributions, the redeployment of its existing staff to regional posts, and the provision of the requisite instruments and methods for the accomplishment of their tasks (reconstitution of individual records of staff, distribution of records, etc.).

(c) Use by the Ministry structures of a computerized data bank of personnel and their regional deconcentration, which means equipping these structures with micro-computers and establishing a system of updating.

(d) Redefinition of the relations between the Ministry of Education and the Civil Service Ministry with regard to the emission, processing, approval and control of career management decisions and the consequent adjustment of procedures and circuits.

(e) The Ministry of Education/Ministry of Finance and Ministry of Education/Ministry of the Civil Service take responsibility for interface committees of the interfaces with reform measures of national scope, so as to bring the time-schedules of the respective reforms into line.

(4) *The development of the Ministry of Education's human resource management system.* This is the most complex component, and the measures to be taken lie in a broader timeframe. They involve the adoption of new management and planning systems and instruments. The timing and sequence of the action plans must be co-ordinated with the measures contained in other plans, notably: (i) the regional deconcentration of budgetary procedures; (ii) the overhaul of procedures, management instruments and, in some cases, decision-making rules and criteria; and (iii) the design, introduction and computerization of management reports and human resource monitoring systems at different levels.

102

Bibliography and references

Benveniste, G. 1972. *The politics of expertise.* Berkeley (a): Glendessary Press; London: Croon Helm.

Bidwell, C.E. 1965. The school as a formal organization. In J. G. March (ed.), *Handbook of organizations* (pp. 972-1019). Chicago: Rand McNally.

Bray, M. 1991a. *Making small practical: the organization and management of Ministries of Education in small States.* London: Commonwealth Secretariat.

Bray, M. (ed.) 1991b. *Ministries of Education in small States: case studies of organization and management.* London: Commonwealth Secretariat.

Bryson, J. M. 1988. *Strategic planning for public and nonprofit organizations.* A guide to strengthening and sustaining organizational achievement. San Francisco, Calif.: Jossey-Bass.

Centre for Corporate Citizenship and SGV and Co. 1994. *Diagnostic review and systems audit of the Department of Education, Culture and Sports.* Manila: Philippine Business for Social Progress and the Department of Education, Culture and Sports, (mimeo).

Condé, Alamah. 1995. *The Redeployment of Teachers in Guinea.* Association for the Development of African Education (IIEP, Paris) in conjunction with the Guinean Ministry of Pre-University Education and Vocational Training (Conakry, Guinée).

The FORUM for Advancing Basic Education and Literacy. 1993. *Education, (de)centralization and the democratic wish.* Harvard Institute for International Development: Advancing basic education and literacy Project. Vol. 2, Issue 3, May 1993.

Klees, S. 1986. Planning and policy analysis in Education: what can economics tell us? *Comparative Education Review.* Vol. 30, No. 4, pp. 574-607.

Lourié, S. 1989. *Education and development: strategies and decisions in Central America.* Paris: IIEP/UNESCO; Stoke-on-Trent (U.K.): Trentham Books.

March, J. G. and Simon, H. A. 1958. *Organizations.* New York: Wiley.

Prawda, J. 1993. Educational decentralization in Latin America: lessons learned. *International Journal of Educational Development.* Vol. 13, No. 3, pp. 253-264.

Rondinelli, D.A., Middleton, J. and Verspoor, A.M. 1990. *Planning education reform in developing countries: the contingency approach.* Durham (N.C.) and London: Duke University Press.

Sack, R. 1981. A typology of educational reforms. *Prospects,* Vol. XI, No. 1, pp. 39-53.

Samoff, J. 1993. The reconstruction of schooling in Africa. *Comparative Education Review.* Vol. 37, No. 2, pp. 181-222.

UNESCO, Projet BEN/89/001– Bénin. 1991. *L'analyse fonctionnelle (Audit) de l'organisation et du management du Ministère de l'Education Nationale du Bénin – Rapport de synthèse de la phase de diagnostic: constats et recommandations principales.* Projet BEN/89/001: Assistance à la formulation d'une politique et d'un programme d'investissements pour le Secteur de l'Education au Bénin. Paris: UNESCO (PSA). (mimeo)

104

UNESCO, Projet BEN/89/001 – Bénin. 1992. *Plans d'actions pour la mise en oeuvre de l'audit du Ministère de l'Education Nationale: Rapport Final (Documents I-V)*. Projet BEN/89/001: Assistance à la formulation d'une politique et d'un programme d'investissements pour le Secteur de l'Education au Bénin. Paris: UNESCO (PSA), (mimeo).

Weber, M. 1947. *The theory of social and economic organization*. Translated by A. M. Henderson and Talcott Parsons. New York: Free Press.

Wolf, R. M. 1993. *Judging educational research based on experiments and surveys*. Fundamentals of Educational Planning series No. 45. Paris: IIEP/UNESCO.

105

IIEP publications and documents

More than 1,120 titles on all aspects of educational planning have been published by the International Institute for Educational Planning. A comprehensive catalogue, giving details of their availability, includes research reports, case studies, seminar documents, training materials, occasional papers and reference books in the following subject categories:

Economics of education, costs and financing.

Manpower and employment.

Demographic studies.

The location of schools (school map) and sub-national planning.

Administration and management.

Curriculum development and evaluation.

Educational technology.

Primary, secondary and higher education.

Vocational and technical education.

Non-formal, out-of-school, adult and rural education.

Disadvantaged groups.

Copies of the catalogue may be obtained from the IIEP Publications Unit on request.

The International Institute for Educational Planning

The International Institute for Educational Planning (IIEP) is an international centre for advanced training and research in the field of educational planning. It was established by UNESCO in 1963 and is financed by UNESCO and by voluntary contributions from Member States. In recent years the following Member States have provided voluntary contributions to the Institute: Denmark, Finland, Germany, Iceland, India, Ireland, Norway, Sweden, Switzerland and Venezuela.

The Institute's aim is to contribute to the development of education throughout the world, by expanding both knowledge and the supply of competent professionals in the field of educational planning. In this endeavour the Institute co-operates with interested training and research organizations in Member States. The Governing Board of the IIEP, which approves the Institute's programme and budget, consists of a maximum of eight elected members and four members designated by the United Nations Organization and certain of its specialized agencies and institutes.

Inquiries about the Institute should be addressed to:
The Office of the Director, International Institute for Educational Planning,
7-9 rue Eugène-Delacroix, 75116 Paris, France.

The booklet

This booklet introduces the reader to the tools of functional analysis – management audit – applicable to the organizational specificities of national education ministries. The audit is a critical analysis, aimed at identifying what works, and what does not, and why, on the basis of a thorough and systematic examination of the mandates and attributions of the education ministry and its component parts. The booklet analyzes the relationships between the ministry's structures, functions and tasks; the organization and use of information in the ministry; the ministry's reward structures in relation to its staffing patterns; and the role of procedures, rules and regulations in guiding an individual's behaviour within the organization. Its intention is to promote a better understanding of the stakes involved and the tools and methods available for improving the management structures and processes of national education ministries.

The authors

Richard Sack, a sociologist of education by training, has been involved for a number of years in research and development consultancies in the area of educational development. He is presently Executive Secretary of the *Association for the Development of Education in Africa* (ADEA).

Mahieddine Saïdi is an economist and statistician who has worked in senior management in industry and, more recently, has been involved in management analyses of education systems.